GRACE COLLEGE OF ENGINEERING
Thoothukudi-05

INTERNATIONAL CONFERENCE ON RECENT INNOVATION IN TECHNOLOGIES (ICRIT'25)

14 & 15 May 2025

PROCEEDINGS



www.grace.edu.in

Dr.BGR Publications

International Conference on Recent Innovation in Technologies (ICRIT'25)
14th and 15th May 2025

Proceedings

ISBN: 978-81-989720-1-9 | Dr. BGR Publications



GRACE COLLEGE OF ENGINEERING

THOOTHUKUDI - 628 005

ICTACADEMY

International Conference on Recent Innovation in Technologies (ICRIT '25)

Organized by Department of AI, CSE, ECE, EEE, MECH, CIVIL, MBA, and H&S

Hybrid Mode

14 & 15 MAY 2025



About the College ★★★★★

Grace College of Engineering was established with an imperial vision ito raise professionals and leaders of high academic caliber and unblemished character, nurtured with a strong zeal and dedication to serve humanity. The institution is the accomplishment of the vision of its Chairman, Mr C.M. Joshua and Vice-Chairman, Mr.S. Stephen to cater free professional education to the young rural society. The motive of the institution is to enable students to experience world class learning facilities and equip them with the state-of-the art technology to mould them into skilled professionals.



About the Conference ★★★★★

The International Conference on "Recent Innovation in Technologies" is the premier platform to provide an opportunity for students and faculty to interact with leading researchers in recent technologies. The conference includes invited talks from experts in related areas from reputed institutions and industries from various countries.

PATRONS

Mr. C. M. Joshua M.Sc.
Chairman, GRACE Group of Institutions, Thoothukudi

Mr. S. Stephen M.Sc., M.B.A.
Vice Chairman, GRACE Group of Institutions, Thoothukudi

Mrs. J. Rajkamal Petro B.Sc.,B.Ed.,M.A.
Secretary, GRACE Group of Institutions, Thoothukudi

ORGANIZING COMMITTEE

CONVENOR

Dr.S.Richard M.Tech., Ph.D.
Principal, GRACE College of Engineering

COORDINATOR

Dr. S.Ganesh, ASP / EEE

CO-COORDINATORS

Dr.J.Antony Rex Rodrigo, HoD/H&S
Dr. M.D.Mohan Gift, HoD/MECH
Dr. Nalini Jebastina, HoD/CIVIL
Dr. K.M. Alaaudeen, HoD/CSE
Mr. M. Krishna Kumar, HoD/ECE
Dr. S. Sivakumar, HoD/MBA
Mrs. P. Gayathri, HoD/EEE
Mrs. N. Nancy Chitra, HoD/AI&DS

Committee Members

Dr.I.Felcia Jerlin, AP/CSE
Dr.L.Daniel Devaraj, AP/MECH
Ms.S.Abarna, AP/CSE
Mrs.P.Joy Suganthy Bai, AP/CSE
Mrs.J.Thilagavathy, AP/EEE
Mr.P.Thanga Kumar, AP/MECH
Mrs.S.Dhanalakshmi, AP/CIVIL
Mrs.S.Porkodi, AP/AI&DS
Mrs.J.Jinikamal Eastro, AP/PHY
Dr.G.Victor Emmanuel, ASP/MATHS
Mrs.E.M.Uma Selvi, AP/ECE
Mrs.A.Samsu Nighar, AP/ECE
Dr. R. Jaqulin Isabella, Asst. Prof
Mrs.C.Anitta , AP/MBA
Mr.M.Sivakumar, AP/CHEM
Mrs.R.Saranya, AP/English

ADVISORY COMMITTEE

Dr Rajkumar Singh Rathore
Cluster Head of Cyber Security of Autonomous Systems, Cardiff School of Technologies, Cardiff, United Kingdom

Dr. Arvind R. Singh
Associate Professor, School of Physics and Electronic Engineering, Department of Electrical Engineering, Hanjiang Normal University, China

Dr. R. Gunabalan
Professor, School of Electrical Engineering, VIT, Chennai Campus, India

Dr. K. Navin Sam
Assistant Professor, EEE, NIT, Puducherry, India.

Call for Papers (Not limited to)

- Industry 5.0
- Artificial Intelligence
- Robotics and Automation
- Signal Processing
- Future Internet and 5G Networks
- Power Systems, Power Electronics
- Renewable Energy
- Structural Engineering
- Materials Science and Engineering
- Cyber Security
- Biomedical and Environment
- Agriculture

Registration FEE For The Participants

UG - PG Students	:	₹ 300
Academician/ Research Scholar	:	₹ 500
Foreign delegates	:	$10

*(Maximum 5 authors only)
All the presented papers will be published in the Conference Proceeding with ISBN

Important Dates

Abstract Submission : 08.05.2025
Full Paper Submission : 10.05.2025
Date of Acceptance : 12.05.2025

Template for Abstract/Paper: Let's Start!

QR Code for Paper Submission : Let's Start!

Publication :

ICTACADEMY

Best papers selected by ICT Academy will be published in the following journals listed in UGC-CARE- A FREE of cost:

- ICTACT Journals on Communication Technology
- ICTACT Journals on Image and video processing
- ICTACT Journals on Soft Computing
- ICTACT Journals on Microelectronic

www.grace.edu.in

For Further Details Please Contact : Email : icrit@grace.edu.in / 9976696890

ISBN: 978-81-989720-1-9 | Dr. BGR Publications

Message from the Chairman



It gives me immense pleasure to extend my heartfelt greetings on the occasion of the *International Conference on Recent Innovation in Technologies (ICRIT'25)*, hosted by our institue. In the contemporary era, where technology dictates the pace of societal progress, it is imperative that educational institutions foster a culture of research, innovation, and knowledge dissemination.

This international conference serves as a valuable platform for academicians, researchers, industrialists, and students to come together, share their ideas, and explore emerging trends in various domains of engineering and technology. Events of this nature not only facilitate intellectual exchange but also bridge the gap between academia and industry, opening new avenues for collaborative research and innovation.

I appreciate the efforts of the organizing committee, the faculty members, and the students for their dedication and commitment in organizing this conference. I am confident that *ICRIT'25* will inspire vibrant discussions, generate transformative ideas, and contribute meaningfully to the advancement of technological frontiers.

I wish the conference resounding success and extend my best wishes to all the delegates and participants.

Mr. C. M. Joshua, M.Sc.
Chairman, GRACE Group of Institutions, Thoothukudi

ISBN: 978-81-989720-1-9 | Dr. BGR Publications

Message from the Vice-Chairman



It is a matter of great pride and satisfaction for Grace College of Engineering to host the *International Conference on Recent Innovation in Technologies (ICRIT'25)*. In an era characterized by rapid technological evolution, the need for collaborative research and scholarly exchange has become more critical than ever.

This conference provides an excellent opportunity for academicians, young researchers, and industry professionals to engage in meaningful discussions, deliberate on contemporary challenges, and showcase their research contributions. I am particularly delighted to note the participation of scholars from diverse disciplines, which will undoubtedly enrich the knowledge pool and broaden the perspectives of all attendees.

I commend the organizing team for their tireless efforts in conceptualizing and executing this event, and I hope that the deliberations held during this conference will spark new ideas, foster academic partnerships, and contribute to the development of innovative technologies for the betterment of society. Wishing *ICRIT'25* great success.

Mr. S. Stephen, M.Sc., M.B.A.

Vice-Chairman, GRACE Group of Institutions, Thoothukudi

ISBN: 978-81-989720-1-9 | Dr. BGR Publications

Message from the Secretary



It gives me immense joy to convey my warm greetings to all the dignitaries, delegates, researchers, and participants of *ICRIT'25*. Conferences of this magnitude play a pivotal role in nurturing a research-oriented environment in academic institutions and providing a forum for the dissemination of knowledge, technological advancements, and innovative solutions.

At Grace College of Engineering, we have always prioritized research and academic excellence as cornerstones of our institutional mission. The *International Conference on Recent Innovation in Technologies* stands as a testament to this commitment, bringing together brilliant minds from academia, research organizations, and industry to deliberate on futuristic ideas and contemporary technological challenges. I extend my heartfelt appreciation to the coordinator, co-cordinator & committee members for their meticulous planning and dedication in organizing this event. I am certain that the knowledge-sharing sessions and discussions at *ICRIT'25* will benefit all stakeholders and serve as a catalyst for further research endeavors. Best wishes for the grand success of the conference.

Mrs. J. Rajkamal Petro, B.Sc., B.Ed., M.A.

Secretary, GRACE Group of Institutions, Thoothukudi

ISBN: 978-81-989720-1-9 | Dr. BGR Publications

Message from the Principal



It is with immense pride and satisfaction that I welcome you all to the *International Conference on Recent Innovation in Technologies (ICRIT'25)* organized by our institution. In the contemporary landscape of engineering education, promoting research aptitude and fostering innovation has become an integral responsibility of academic institutions.

This conference provides a distinguished platform for researchers, academicians, industry experts, and students to present their findings, discuss ideas, and explore collaborative opportunities across emerging fields of technology. The diverse themes addressed in this conference aptly reflect the interdisciplinary nature of modern engineering challenges, and I am pleased to see the enthusiastic participation from various institutions and organizations.

I take this opportunity to thank our respected management for their constant encouragement and support, and I sincerely appreciate the organizing committee for their meticulous efforts in making this event a reality. I am confident that *ICRIT'25* will serve as an intellectual feast for all its participants and foster productive academic interactions. Wishing the conference a highly productive and enriching experience for all participants, and may its proceedings contribute significantly to the advancement of knowledge and technology.

Dr. S. Richard, M.Tech., Ph.D.

Principal, Grace College of Engineering

ISBN: 978-81-989720-1-9 | Dr. BGR Publications

Coordinator:

Dr. S.Ganesh, ASP / EEE

Co-Coordinators:

Dr.J.Antony Rex Rodrigo, HoD/H&S

Dr. M.D.Mohan Gift, HoD/MECH

Dr. Nalini Jebastina, HoD/CIVIL

Dr. K.M. Alaaudeen, HoD/CSE

Mr. M. Krishna Kumar, HoD/ECE

Dr. S. Sivakumar, HoD/MBA

Mrs. P. Gayathri, HoD/EEE

Mrs. N. Nancy Chitra, HoD/AI&DS

ISBN: 978-81-989720-1-9 | Dr. BGR Publications

Index

S. No	Title of the Paper	Paper ID	Page No
1.	Herbaider:Ai Driven Herbal Health Assistant:A Comparitive Assessment	ICRIT101	1
2.	Preventive Healthcare Through Iot And Edge Ai: A Study On Early Detection And Management Of Chronic And Acute Diseases	ICRIT102	1
3.	Predicting Air Quality In Metropolitan Area Using Machine Learning	ICRIT103	2
4.	A Cloud Computing Of Security Domain Hosting Protocol File Analysis And Collaborative Filtering	ICRIT104	2
5.	Online Addmission Management System	ICRIT105	3
6.	AI-Enabled Medication and Health Monitoring System with Virtual Nursing Assistant	ICRIT106	3
7.	A Compact Triple Band Cpw Fed Antenna Laminated On Fr -4 Dielectric Substrate Material For Diverse Wireless Application	ICRIT107	4
8.	A High-Performance Face Anti-Spoofing Detection Method Using Capsule Siamese Network	ICRIT108	4
9.	Scam Guard : Harnessing Machine Learning To Detect And Combat Scan On Telegram	ICRIT109	5
10.	Visitrack: A Smart And Seamless Face Recognition Attendance Monitoring System	ICRIT110	5
11.	Smart Classroom Attendance System Using Face Detection And Ai	ICRIT111	6
12.	Automatic Flood Monitoring, Warning, And Control System For Subways And Underpasses	ICRIT112	6
13.	Biometric-Driven Student Management System With Machine Learning For Enhanced Academic Oversight	ICRIT113	7
14.	Bloodstream-Delivered Nanocapsules For Memory Transfer: Revolutionary Advancements And Bio-Nanotechnological Possibilities	ICRIT114	7
15.	Mimic Model:Securing Cloud Data With Homomorphic Encryption And Blockchain For Confidentiality And Integrity	ICRIT115	8
16.	Multimodal Deepfake Detection Using Audio, Visual, And Microexpression Analysis	ICRIT116	8
17.	Engineering Probiotic And Antioxidative Enzymes Synergistically For Complete Alcohol Clearance Under Near-Critical Intoxication	ICRIT117	9
18.	Smart Cane Assistant System	ICRIT118	9
19.	Ai-Powered Touchless Access Control System For Secure Entry Using Face Recognition And Remote Locking	ICRIT119	10

ISBN: 978-81-989720-1-9 | Dr. BGR Publications

S. No	Title of the Paper	Paper ID	Page No
20.	Artificial Intelligent Massive Mimo Systems For Beyond 5G Networks	ICRIT120	10
21.	Wireless Power Transmission Of Electric Vehicle	ICRIT121	11
22.	Design And Development Of Onboard Ev Charger	ICRIT122	11
23.	Tensile And Bond Performance Of Composite Materials For Masonry Wall Retrofitting	ICRIT124	12
24.	Performance Evaluation Of Bone China Ceramic Waste In Geopolymer Concrete Using Response Surface Methodology	ICRIT125	12
25.	Facial Expression-Based Driver Behaviour Monitoring System	ICRIT126	13
26.	Cyber Security- Distributed Line Protection And Control Relay Communication In Substation.	ICRIT127	13
27.	Brake Shoe Heat Indicator	ICRIT128	14
28.	Comparison Of Mechine Language Model For Ground Water Quality Index	ICRIT129	14
29.	A Survey Of Deep Learning Techniques Based Brain Tumor Detection And Segmentation Process Using Mri Images	ICRIT130	15
30.	A Probe Into The Role Of Machine Learning In Facilitating Delamination Characterization In Various Adhesive Joints	ICRIT131	15
31.	Enriched Biodegradable Packaging Material Using Natural Extract	ICRIT132	16
32.	Piezoelectric Suspension For E-Bike	ICRIT133	16
33.	Performance Assessment Of Corn Oil Blended Insulating Liquid With Activated Bentonite And Charcoal Using Grey Relational Analysis Technique	ICRIT134	17
34.	Ai-Driven Approaches To Smart Monitoring And Control In Modern Power Grids	ICRIT135	17
35.	Sustainable Energy Optimization Through Iot-Based Machine Learning Systems	ICRIT136	18
36.	Smart Infrastructure: Self Healing Asphalt Pavements With Recycled Oils	ICRIT137	18
37.	Student Assessment And Selection Portal	ICRIT138	19

ISBN: 978-81-989720-1-9 | Dr. BGR Publications

S. No	Title of the Paper	Paper ID	Page No
38.	A Hybrid Security For Medical Imaging Based On Compressed Watermarking And Blockchain Technology	ICRIT139	19
39.	Gan-Driven Backdoor Attacks On Deep Learning-Based Medical Image Encryption And Decryption	ICRIT140	20
40.	Disabled People Learning Portal	ICRIT141	20
41.	Electricity Production Via Vehicle-Induced Speed Breaker Movement And Smart Brick Batteries	ICRIT142	21
42.	A Study On Risk Perception And Portfolio Management Of Equity Investors	ICRIT143	21
43.	Banking Sector Performance In Nifty Bank	ICRIT144	22
44.	Smart Solar Panel Performance Monitoring With Ai Integration For Enhanced Solar-Powered Aviation	ICRIT145	22
45.	A Study On Workplace Safety Measures And Health Management	ICRIT146	23
46.	Secure Online Seller Registration	ICRIT147	23
47.	Matlab Implementation Of Power Quality Improvement Of Electric Vehicle Charging Using Grid And Pv System	ICRIT148	24
48.	A Study On Risk-Return And Performance Of Mutual Funds	ICRIT149	24
49.	A Study On Price Movements Of Selected Stocks Using Technical Analysis	ICRIT150	25
50.	Deepguard: A Deep Learning-Based Autonomous Intrusion Detection System	ICRIT151	25
51.	A Study On Employee Welfare And Satisfaction	ICRIT152	26
52.	A Study On Labor Welfare Measure	ICRIT153	26
53.	Investigation And Analysis Of Enhanced Electrical And Dielectric Properties Of Insulating Liquids For Highvoltage Equipment	ICRIT154	27
54.	Performance Appraisal	ICRIT155	27
55.	Advanced Environmental Surveillance Via Wireless Sensor Network Enabled Sewage Monitoring System.	ICRIT156	28
56.	Semi - Supervised Machine Learning Approach For Ddos Detection	ICRIT157	28

ISBN: 978-81-989720-1-9 | Dr. BGR Publications

S. No	Title of the Paper	Paper ID	Page No
57.	Ai Powered Ocr System	ICRIT158	29
58.	Agriculture/Food Tech: Reducing Pesticide And Fertilizer Usage Through Data-Driven Solutions	ICRIT159	29
59.	Neurovision: Ai-Powered Brain Tumor Detection From Mri Scans	ICRIT160	30
60.	Enhanced Privacy With Fine-Grained Access Control In Searchable Encryption	ICRIT161	30
61.	Smart Human Monitoring System Using Ai And Iot	ICRIT162	31
62.	Birds Species Identification Using Machine Learning	ICRIT163	31
63.	Robotic Navigation And Localization For Greenhouse Environment Monitoring System Based On Iot	ICRIT164	32
64.	Boost Integrated Three Level T-Type Inverter Based Wireless Power Transfer	ICRIT165	32
65.	A Three - Phase Soft - Switched High Power Density Dc/Dc Converter For High Power Appliances	ICRIT166	33
66.	A Study On Employee Engagement	ICRIT167	33
67.	The Necessity Of Reducing Cement In Concrete Structures: An Environmental Perspective	ICRIT168	34
68.	Wireless Power Transfer Roadway For In-Motion Electric Vehicle Charging.	ICRIT169	34
69.	Ai Based Bitcoin Prediction Using Deep Learning Techniques	ICRIT170	35
70.	Student Bonafide Retrieval System	ICRIT171	35
71.	Iwt Based Renette Classifier For Lung Cancer Detection	ICRIT172	36
72.	Next-Gen Human-Computer Interaction: Virtual Mouse And Keyboard System	ICRIT173	36
73.	Smart Lift Access : Enhancing Security With Face Recognition	ICRIT174	37
74.	Proactive Risk Assessment In Cctv Using Hand Gesture Recognition And Geo Location-Based Alerts	ICRIT175	37
75.	Comparative Study On Concrete By Using Destructive And Non-Destructive Methods	ICRIT176	38

ISBN: 978-81-989720-1-9 | Dr. BGR Publications

S. No	Title of the Paper	Paper ID	Page No
76.	Design And Performance Evaluation Of A High-Gain Uwb Slot Antenna On Jeans Fabric For Wearable Health Monitoring With Phantom Validation	ICRIT177	38
77.	Quantum Encoding For Enhanced Image Processing: A Paradigm Shift In Visual Data Representation	ICRIT178	39
78.	Smart Notice Board With Sms Notification	ICRIT179	39
79.	Iot Based Compact Cost Effective System For Efficient Clearing And Maintenance o	ICRIT180	40
80.	Smart App For Gate Pass Management And Attendance Monitoring	ICRIT181	40
81.	Ifluence Of Electrical And Flow Properties Of Palm Oil With Inclusion Of At Different Natural And Synthetic Antioxidants Using Moora Ranking Method	ICRIT182	41
82.	Access Your Mobile From Anywhere Withour Internet	ICRIT183	41
83.	Iout Based Underwater Communication For Flood Managemant And Rescue Operations	ICRIT184	42
84.	Early Detection Of Pneumonia And Covid-19 In Chest X-Ray Images Using Vit	ICRIT185	42
85.	Pwm Based Sliding Mode Controller For Super-Lift Luo Converter	ICRIT186	43
86.	Early Detection And Stage Prediction Of Diabetic Retinopathy Using Hybrid Deep Learning Models	ICRIT187	43
87.	Precision Farming System For Effective Fertilizer And Pesticide Management	ICRIT188	44
88.	Real-Time Video Summarization Using Whisper Transcription And Bert Nlp Models	ICRIT189	44
89.	4-Port Octagonal Shaped Mimo Antenna With Low Mutual Coupling For Uwb Applications	ICRIT190	45
90.	Solar Powered Electric Scooter	ICRIT191	45
91.	Study On Ai - Based Business Intelligence	ICRIT192	46
92.	Face And Fingerprint-Based Atm Transaction Using Deep Convolutional Neural Networks(Dcnn)	ICRIT193	46
93.	Data Driven Decision Making: Breakthroughs In Modern Business Intelligence	ICRIT194	47

ISBN: 978-81-989720-1-9 | Dr. BGR Publications

S. No	Title of the Paper	Paper ID	Page No
94.	Ai Powered Chatbots For E-Commerce Platforms	ICRIT195	47
95.	Human Relationships And The Power Of Compassion In Amita Trasi's The Color Of Our Sky	ICRIT196	48
96.	AgriCureX: Smart Diagnosis for Plant Life	ICRIT197	48
97.	The Future Of Adaptive Lighting Through Intelligent Illumination Technologies	ICRIT198	49
98.	Experimental Implementation Of A Automated Animal Health Identification With Tracking Using Cnn And Esp8266	ICRIT199	49
99.	Development Of Multiplex Pcr Assays For The Detection Of Canine Viral Pathogens	ICRIT200	50
100.	Characterization And Quality Assessment Of Chitosan Extracted From Leaves For Natural Food	ICRIT201	50
101.	Rice Leaf Diseases Classification Using Cnn With Transfer Learning	ICRIT202	51
102.	Design Of 8x3 Encoder Using Reversible Logic Gates For Biomedical Image Computing Applications	ICRIT203	51
103.	Iot Based Avoid Fire Accident In Ev Vehicle With Multiple Fault Detection And Li-On Battery Management	ICRIT204	52
104.	Characterization And Quality Assessment Of Chitosan Extracted From Leaves For Natural Food	ICRIT205	52
105.	Implementation Of Capacitor Banks To Improve Reactive Power	ICRIT206	53
106.	An Effective System For Segregation Of Wastes Into Biodegradable And Non-Biodegradable Fraction Using Iot Mechanism	ICRIT207	53
107.	Ai Detection For Autism Spectrum Disorder	ICRIT208	54
108.	A Survey Of Deep Learning Techiniques Based Brain Tumor Detection And Segmentation Process Using Mri Images	ICRIT209	54
109.	Optimizing Energy Use In Smart Agriculture Through Wsn-Based Deec Clustering	ICRIT210	55
110.	Livedocs: A Peer-To-Peer Real-Time Collaborative Document Editor Using Webrtc And Crdts	ICRIT211	55
111.	Smart Overvoltage And Under Voltage Protection System With Iot Monitoring And Gsm Alerts	ICRIT212	56
112.	Quantum and Quantum Inspired Approaches for Engineering and Scientific Applications	ICRIT213	56

ISBN: 978-81-989720-1-9 | Dr. BGR Publications

S. No	Title of the Paper	Paper ID	Page No
113.	Flashover Performance Of An Ac Insulator In Uniform And Fan Shaped Non Uniform Contamination Conditions	ICRIT214	57
114.	Building a Machine Learning-Powered Diagnostic System For Predicting Alzheimer's Disease Using Mobilenet Algorithm	ICRIT215	57
115.	Comparison Of Thickness Of Diffraction Using Air Wedge And Laser Diffraction Method	ICRIT216	58
116.	Challenges And Scope Of Co-Cr Alloy In Dental Crowns Through Additive Manufacturing- The Current State Of Knowledge	ICRIT217	58
117.	Li Fi Based Vehicle To Vehicle Communication	ICRIT218	59
118.	Anganwadi Digital Service Enhancement System	ICRIT219	59
119.	Rice Leaf Disease Classification Using Cnn With Transfer Learning	ICRIT220	60
120.	Hospital Management System	ICRIT221	60
121.	Speech Emotion Recognition	ICRIT222	61
122.	Smart Surveillance System Using Yolo-v8 And Computer Version For Crime Detection	ICRIT223	61
123.	Expectease: Calender & Nutrition Support For Moms-To-Be	ICRIT224	62
124.	Crypto-Id Verification	ICRIT225	62
125.	Deepfake Audio Detection	ICRIT227	63
126.	Fake/Real New Headlines Identification Using Real-Time Api Fetching System	ICRIT228	63
127.	Corneal Feature Extraction For The Detection Of Eye Cataract	ICRIT230	64
128.	Decentralized Ai Driven Threat Detection And Response System For Iot Security Using Blockchain	ICRIT231	64
129.	Improved Black-Start And Hot-Swap Capabilities In Grid-Forming Vsc-Based Pv-Battery Systems Via Advanced Control Strategies	ICRIT232	65
130.	Construction Of Recycle Waste Material Road Using Geo Textiles	ICRIT233	65
131.	Real-Time Intelligent Face Recognition Using Siamese Neural Networks And Custom Dataset Integration	ICRIT234	66

ISBN: 978-81-989720-1-9 | Dr. BGR Publications

S. No	Title of the Paper	Paper ID	Page No
132.	Human-Centric Explainable Ai For Ethical And Fair Decision-Making	ICRIT235	66
133.	Battery Protective Electric Vehicle Charging Using Intelligent Charging Algorithms	ICRIT236	67
134.	Deception Decoded: Catching Deepfakes With Classic Ml	ICRIT237	67
135.	A Study On Employee Satisfaction Of Buzzworks Business Services Private Limited	ICRIT240	68
136.	Optimized Artificial Intelligence Model For Ddos Detection In Sdn Environment	ICRIT241	68
137.	Ai Powered Integrated Gym Fitness Application	ICRIT242	69
138.	Gps-Enabled Smart Assistive Technology For The Visually Impaired	ICRIT243	69
139.	Crop precisionguard App:Innovative Sustainability Through Precision Agriculture	ICRIT244	70
140.	A Predictive Placement System With Dynamic Skill Enhancement	ICRIT245	70
141.	Lora Based Smart Black Box For Aircraft Safety	ICRIT246	71
142.	Analysis Of Electric Vehicles Connector Topology	ICRIT248	71
143.	Predictive Model to Optimize Inventory And Logistics For Supply Chain Optimization	ICRIT249	72
144.	High-Efficiency Fixed-Frequency Lcc Resonant Battery Charger For Evs	ICRIT250	72
145.	Herbal Learning Using Mobile Application	ICRIT252	73
146.	Hybrid Based Skin Disease Classification Using Vgg19 And Resnet50	ICRIT253	73
147.	From Seed To Splendor: A Scalable Manual Scheduling System Using Cnn And Random Forests	ICRIT254	74
148.	Real-Time Smart Attendence System Using Opencv Based On Facial Detection And Recognition	ICRIT255	74
149.	Revolutionizing Phishing Detection Evaluation Machine Learning Algorithms	ICRIT256	75
150.	Iot - Based Autonomous Mine Detection And Defusal System	ICRIT257	75

ISBN: 978-81-989720-1-9 | Dr. BGR Publications

S. No	Title of the Paper	Paper ID	Page No
151.	Smart Energy Meter: Intelligent Monitoring & Protection System	ICRIT258	76
152.	Agricultural Advisory Application: Enhancing Farm Productivity Through Expert Consultation	ICRIT260	76
153.	Environmental Monitoring System Using Edge Techonology	ICRIT261	77
154.	A Decentralized Financial Transactions Using Blockchain Technology	ICRIT262	77
155.	Voice Controlled Mobility Aid For Physically Challenged Individuals	ICRIT263	78
156.	Vehicle To Vehicle Wireless Power Transmission	ICRIT264	78
157.	Online Blood Donation Management System	ICRIT265	79
158.	Autonomus Fire Navigition System Using Light Of 170Nm Wavelength	ICRIT266	79
159.	Pneumonia Detection : A Cnn Based Feature Extraction Approach	ICRIT267	80
160.	IoT Based smart dustbin for real-time waste level monitoring System	ICRIT269	80
161.	A Deep Learning-Based Groundnut Leaf Disease Detection System	ICRIT270	81
162.	Neoautomation Iot Based Smart Control	ICRIT271	81
163.	Blockchain Based An Efficient And Secure Privacy Preserved Framework For Smart Cities	ICRIT272	82
164.	Brain Tumor Detection And Tumor Similarity Prediction	ICRIT273	82
165.	Dynamic Ai Powered Conversational Pdf Summarizer	ICRIT274	83
166.	Loan Sheild Ai	ICRIT275	83
167.	Pv-Integrated Hybrid Compensation Wireless Charging System For Efficient And Sustainable Ev Charging	ICRIT276	84
168.	Automated Detection Of Myocardial Infarction And Heart Failure From Ecg Images Using Deep Learning Framework	ICRIT277	84
169.	Crop Yield Prediction And Recommendation Using Machine Learning	ICRIT278	85

ISBN: 978-81-989720-1-9 | Dr. BGR Publications

S. No	Title of the Paper	Paper ID	Page No
170.	Breathalyzer With Engine Lock	ICRIT279	85
171.	Deep Learning-Based Nail Disease Classification Using Mobilenetv3 - Capsule Architecture	ICRIT280	86
172.	Dynamic Self-Reconfiguration Of A Buck-Boost Pv Inverter For Maximum Energy Harvesting	ICRIT281	86
173.	Accessing Visual Information For The Person With Visual Disability	ICRIT282	87
174.	Integration Of Pos Machine With Weighing Scale	ICRIT283	87
175.	Play Safe: Age Verification System For Games	ICRIT284	88
176.	Wearable Sensor For Health Monitering Of Elderly People	ICRIT285	88
177.	Transforming Text Into Visual Engagement	ICRIT286	89
178.	Smart Transportation System	ICRIT287	89
179.	Smart Irrigation System Through Iot And Ai Operation	ICRIT288	90
180.	Real-Time Dam Monitoring And Alert System Using Iot And Cloud Integration	ICRIT289	90
181.	Design And Implementation Of An Iot-Enabled, Multi-Layer Secure Atm System Using Rfid, Biometrics, And Otp	ICRIT290	91
182.	Advanced Wireless Charging Based On Dual Coupled Antipar-Allel Coils And Antioffset Mechanism	ICRIT291	91
183.	Towards Smarter Crowd Counting: A Review Of Semantic Segmentation-Based Models	ICRIT292	92
184.	Acoustic Wave Fire Fighting Robot	ICRIT293	92
185.	Collaborative Platform For University And College Students Project	ICRIT294	93
186.	Plant Diseases Detection Using Image Processing	ICRIT295	93
187.	Trash To Treasure	ICRIT296	94
188.	Fabrication And Analysis Of Hybrid Composite Materials For Car Bonnet	ICRIT297	94

ISBN: 978-81-989720-1-9 | Dr. BGR Publications

S. No	Title of the Paper	Paper ID	Page No
189.	Predictive Modeling And Optimization Of Composite Behavior Using Machine Learning Techniques	ICRIT298	95
190.	Deep Learning Models For Predicting Material Properties In Composite Materials: A Data-Driven Approach	ICRIT299	95
191.	Iot-Based Water Quality Monitoring For Sustainable Rural Water Supply	ICRIT300	96
192.	Hygienet- a Small Self Cleaning Toilet Solution	ICRIT301	96
193.	Fabrication And Performance Analysis Of Hybrid Composite Materials Based Industrial Safety Helmet	ICRIT302	97
194.	All-In-One Modular Milk Quality Analyzer	ICRIT304	97
195.	Llama Fine-Tuning Vs. Prompt Engineering: Optimizing Llama Models For Resume Classification	ICRIT305	98
196.	Fabrication And Comparative Analysis Of Different Composite Materials For Personal Body Armor	ICRIT306	98
197.	Hybrid Deep Learning Approaches For Social Media-Based Mental Health Detection	ICRIT307	99
198.	A Fuzzy-Based Approach For Monitoring Pollution Severity On Composite Polymer Insulator Using Harmonic Levels	ICRIT308	99
199.	Computational Model For Transformer Bushing Using Finite Element Method	ICRIT309	100
200.	Enhancing Agricultural Productivity: Predicting Crop Yields From Soil Properties With Machine Learning	ICRIT310	100
201.	Local Skill Hub: A Mern Stack-Based Job Portal With Enhanced Skill Matching	ICRIT311	101
202.	Harnessing Mobile Camera Technology For Advanced Photoplethysmography (Ppg): A Novel Approach To Non-Invasive Vital Sign Monitoring And Health Analysis	ICRIT312	101
203.	Delineating The Groundwater Potential Zone In Thoothukudi District, Using Gis, Remote Sensing And Analytical Hierarchy Process(Ahp)	ICRIT313	102
204.	Ai Powerd Smart Glucose Monitoring Insulin Management System	ICRIT314	102
205.	Revolutionizing Education With Ai-Driven Book Summarization	ICRIT315	103
206.	Mentorship And Professional Guidance Enabled Through Cloud Technologies	ICRIT316	103
207.	Data Download Duplication Alert System	ICRIT317	104

ISBN: 978-81-989720-1-9 | Dr. BGR Publications

S. No	Title of the Paper	Paper ID	Page No
208.	Transformation Of Ic Engine Gear Bikes Into An Electrical Vehicle And Wireless Charging	ICRIT318	104
209.	Ai/Ml-Based Gis Application For Enhancing Safety In Deep-Sea Fishing	ICRIT319	105
210.	Freelance Connect	ICRIT320	105
211.	Iot - Water Leakage Management System	ICRIT321	106
212.	Voice Controlled Mobility Aid For Physically Challenged Individuals	ICRIT322	106
213.	Iot Based Smart Robotic Design For Identyfying Human Presence In Disaster Environment Using Intelligent Sensors	ICRIT323	107
214.	Recent Advancements In Mems For Smart Mechanical Systems: A Review On Sensing, Actuation, And Integration	ICRIT324	107
215.	Student Engagement Prediction In Online Classes Using Image Processing	ICRIT325	108
216.	Automated Color-Based Defect Detection Syste	ICRIT326	108
217.	High Gain Single Phase Buck Boost Converter With Improved Power Factor Correction For Ev Application	ICRIT327	109
218.	Automatic Recognition And Text Conversion Of Non Manual Features In Indian Sign Language	ICRIT328	109
219.	Smart Structural Health Monitoring System	ICRIT330	110
220.	Famrp-Ahan: A Hybrid Attention-Based Approach For Uterine Fibroid Detection In Ultrasound Images	ICRIT331	110
221.	Artificial Intelligence And Machine Learning - Powered Recommendation System For Tourism In India	ICRIT332	111
222.	Ev Charging Station Optimization Using Ai & Ml	ICRIT333	111
223.	Farmers Direct Access App	ICRIT334	112
224.	Heritageocr: Preserving History Through Ai Digitization	ICRIT335	112
225.	Farmers Direct Access App	ICRIT336	113
226.	Vehicle Emergency Response Interface (Veri)	ICRIT337	113

ISBN: 978-81-989720-1-9 | Dr. BGR Publications

S. No	Title of the Paper	Paper ID	Page No
227.	Fabrication Of Tilling Machine For Agricultural Application	ICRIT338	114
228.	Ai Spam Call Detection	ICRIT339	114
229.	A Comparative Analysis Of Bert And Lstm For Natural Language Understanding Tasks	ICRIT340	115
230.	Predict User Dropout In Web Applications By Using Behavior Analytics And Support Vector Machines	ICRIT341	115
231.	Ai Career Roadmap System	ICRIT342	116
232.	Implementing And Evaluating Cross-Protocol Communication Between Ipv6 And Ipv4 Using Nat64	ICRIT343	116
233.	Stock Market Price Pridiction	ICRIT344	117
234.	Attendance Monitoring System	ICRIT346	117
235.	Cyber Vigilance: Safeguarding The Digital Age	ICRIT347	118
236.	Emerging Trends In Pharmaceutical Nanotechnology: Hybrid Nanofibers For Multifunctional Drug Delivery"	ICRIT348	118
237.	Automated Image Captioning Using Deep Learning	ICRIT349	119
238.	Analysis Of Fsk Modulation Scheme For Different Data Rates In Free Space Optics Communication Channel	ICRIT350	119
239.	Stock Market Analysis Using Machine Learning	ICRIT353	120
240.	Iwt Based Renette Classifier For Lung Cancer Detection	ICRIT354	120
241.	Real-Time Accident Avoidance System Using Iot Technology	ICRIT355	121
242.	Healthcare Analytics For Predicting Patient Readmission Rates	ICRIT356	121
243.	Real-Time Automated Attendance Monitoring System Using Ai, Rfid, And Cloud-Based Technologies	ICRIT357	122
244.	Students Teacher Performance Using Machine Learning	ICRIT358	122
245.	Agronect	ICRIT359	123

S. No	Title of the Paper	Paper ID	Page No
246.	Detecting Fake News And Misinformation On Social Media.	ICRIT360	123
247.	Real Time Face Recognition Security System	ICRIT361	124
248.	Aether Watch: Self-Navigating Fire Suppression Robot With Lifeline Responder: Autonomous Human Locator And Extrication	ICRIT362	124
249.	Ai-Powered Voice-Controlled Remote Pc Automation System	ICRIT363	125
250.	Neoautomation Iot Based Smart Control	ICRIT364	125
251.	Smart Tender/Contract Management Using Firebase	ICRIT365	126
252.	Early Detection Of Cardic Arrest In Newborn Babies	ICRIT366	126
253.	Portal For Innovation Excellence Indicator	ICRIT367	127
254.	Real Time Website Legitimacy Detection System	ICRIT368	127
255.	Smart Helmet: An Ai-Driven Augmented Reality Solution	ICRIT369	128
256.	Deep Learning Techniques Cnn Architecture For Ingredient Process Recipes In Food Images	ICRIT370	128
257.	Quality Assesment And Price Prediction Of Fruits And Vegetables Usind Deep Learning	ICRIT371	129
258.	Mobile Web Application For College Management	ICRIT372	129
259.	Design And Development Of Autonomous Surveillance Robot	ICRIT373	130
260.	Intelligent Gesture Recognition Framework For Accessible Communication Among The Hearing And Speech Impaired	ICRIT374	130
261.	A Compact Wearable Self Grounding Antenna For 4G/ Bluetooth/Wlan And Wi-Max Applications	ICRIT375	131
262.	Design And Implementation Of Intelligent Autonomous Car	ICRIT376	131
263.	Oil Production Prediction Based On Water Injection Rate	ICRIT377	132
264.	Smart Railway Information System	ICRIT378	132

ISBN: 978-81-989720-1-9 | Dr. BGR Publications

S. No	Title of the Paper	Paper ID	Page No
265.	Ai Assisted Surgery Stimulation	ICRIT379	133
266.	Ml And Nlp Based Hate Speech And Cyberbullying Detection And Classification In Social Media	ICRIT380	133
267.	Face Recognition Based For Attendance Management System	ICRIT381	134
268.	From Bowl To Brain: Ai-Powered Innovations In Pet Feeding Systems	ICRIT382	134
269.	Optimizing Food Waste Management: A Pre-Booking Application For Hostel Food Efficiency	ICRIT383	135
270.	Online Chat Child Grooming And Exploitation Detection Using Machine Learning	ICRIT384	135
271.	Using Machine Learning To Identify Prescription Abuse And Overmedication	ICRIT385	136
272.	Brain Tumour Detection Using Deep Learning	ICRIT386	136
273.	Real-Time Driver Drowsiness Detection Using Deep Learning	ICRIT387	137
274.	Deep Learning For Speech Denoising: A Cnn-Based Method	ICRIT388	137
275.	Pneumonia Detection Using Renet18	ICRIT389	138
276.	Deep Learning-Based Text Recognition From Images Using a Tkinter-Integrated Ocr System	ICRIT390	138
277.	Secure And Smart Crisis Management System	ICRIT391	139
278.	Iot Based Power Sharimg And Overload Indication	ICRIT392	139
279.	Design And Evaluation Of Deep Learning Algorithm For Emotion Recognition	ICRIT393	140
280.	A Study On Job Satisfaction Level Of Employees Of Karaikal Cooperative Milk Producers Union Ltd.	ICRIT394	140
281.	The Mysteries Of Fundamental Particles And Forces In The Universe….	ICRIT395	141
282.	Generalised Girth Domination Number And Its Connectivity Of Connected Graphs	ICRIT397	141
283.	Data Driven Analysis Of Drug Side Effects Using Rnn And Lstm	ICRIT398	142

S. No	Title of the Paper	Paper ID	Page No
284.	Heterogeneous Health Data Multi-Cancer Prediction With Hybrid Machine Learning Models	ICRIT399	142
285.	Automatic Gear Shifiting Syste For Electric Vehicles	ICRIT400	143
286.	A Low Power Schimtt Trigger 10t Sram Cell With Improved Read And Write Stability For High Speed Applications	ICRIT401	143
287.	Study On Cost Analysis At Sr Fire Safety Equipment & Systems, Chennai	ICRIT402	144
288.	Enhancement Techniques Of Electric Vehicle Performance	ICRIT403	144
289.	Automated Driver Drowsiness Detection Using Eye Aspect Ratio (Ear) With Integrated Alert And Penalty Management	ICRIT404	145
290.	Ai - Driven Honeypot System For Proactive Detection And Defense Against Cryptographic Ransomware	ICRIT405	145
291.	Ai Driven Crop Disease Prediction And Management System	ICRIT406	146
292.	A Study On Employee Motivation Karaikal Co-Operative Milk Producers Union Ltd At Karaikal	ICRIT407	146
293.	Book Review And Personalized Recommendation System In Domain Of Web Development	ICRIT408	147
294.	Datamed: Enhancing Post-Surgery Care With Real-Time Monitoring And Intelligent Intervention	ICRIT409	147
295.	Integrity Bot	ICRIT410	148
296.	Investigation Of Strength For The Prototypes Printed By Dlp And Fdm Printers.	ICRIT411	148
297.	Breast Cancer Detection Using Streamlit Framework	ICRIT412	149
298.	Iot-Based Rail Fastener Inspection, Crack Detection And Monitoring Using Embedded Sensors And Image Processing	ICRIT413	149
299.	A Study On Cost Of Capital At Sr Fire Safety Equipment & Systems In Chennai	ICRIT414	150
300.	Shaping The Future With 3D Printing	ICRIT415	150
301.	Design And Implementation Of a Self-Healing Liquid Metal Antenna For Enhanced Reliability In Medical Wearable Devices	ICRIT416	151
302.	A Study On Organizational Development In The Karaikal Co-Operative Milk Producer'S Union Ltd.	ICRIT417	151

ISBN: 978-81-989720-1-9 | Dr. BGR Publications

S. No	Title of the Paper	Paper ID	Page No
303.	Smart Plant Disease Identifcation & Pesticides Suggesting Using Cnn	ICRIT418	152
304.	The Smart Competency Diagnostic And Candidate Profile Score Calculator	ICRIT419	152
305.	Surface Tension Modulation Of L-Glutamic Acid, L-Aspartic Acid And L-Glycine In Mixed Solvent Systems: A Comparitive Study	ICRIT420	153
306.	Convolutional Neural Network (Cnn) With Yolo For Animal Intrusion Detection	ICRIT421	153
307.	Smart Face Recognition Attendance System With Gui	ICRIT422	154
308.	Wireless Electric Vehicle Charging System	ICRIT425	154
309.	Ai Chatbot For Customer Support	ICRIT426	155
310.	Ai Based Career Counselling For Secondary Level Students	ICRIT427	155
311.	Medcard: Enhancing Occupational Health Policies For Marginalized Workers Through Decision Support Systems	ICRIT428	156
312.	Smart Cities And Iot	ICRIT429	156
313.	Diabetic Retinopathy Detection Using Transfer Learning And Deep Learning	ICRIT430	157
314.	Experimental Study On Concrete With Partial Replacement Of Coarse Aggregate By Using Waste Ceramic Tiles With And Without Using Recron Fiber	ICRIT431	157
315.	Adaptive Control Approaches For Enhancing Microgrid Stability Under Renewable Penetration And Load Fluctuations	ICRIT432	158
316.	Sentiment-Based Mental Health Chatbot System Using Rasa Framework	ICRIT433	158
317.	The Emerging Hybrid Drone Technology And The Impact Of Drones On Modern Warfare And Surveillance	ICRIT434	159
318.	Smart Parking Reservation System	ICRIT435	159
319.	Ai-Powered Virtual Mouse With Gesture Recognition	ICRIT436	160
320.	Diet And Workout Recommendation	ICRIT437	160
321.	Printease: An On-Demand Web App For Seamless Printing And Xerox Services.	ICRIT438	161

S. No	Title of the Paper	Paper ID	Page No
322.	Artificial Intelligence: Transforming The Future Of Education	ICRIT439	161
323.	As Animal Detection And Monitoring On Railway Track Using Deep Learning	ICRIT440	162
324.	Ai-Powered Elephant Intrusion Detection System With Real-Time Alerts	ICRIT441	162
325.	The Future Of Smart Home	ICRIT442	163
326.	Overall Financial Performance Analysis Of Rwd Pvt Ltd	ICRIT443	163
327.	Ai Heart Disease Prediction	ICRIT444	164
328.	Smart Otp Based Locker System Using Esp32 And Telegram Bot	ICRIT446	164
329.	Intelligent Age And Gender Recognition System Using Image Processing	ICRIT448	165
330.	Face Recognition Security System	ICRIT449	165
331.	Emotion-Enhanced Audiobook Generation From Pdf Documents Using Diffusion-Based Speech Synthesis	ICRIT450	166
332.	Implementation Of Nutrivora Application	ICRIT451	166
333.	Blockchain Based Multi-Attribute Authorities For Secure Data Sharing	ICRIT452	167
334.	Iot Based Smart Bike System: Enhancing Rider Safety And Security	ICRIT453	167

ISBN: 978-81-989720-1-9 | Dr. BGR Publications

ICRIT101

HERBAIDER : AI DRIVEN HERBAL HEALTH ASSISTANT - A COMPARATIVE ASSESSMENT

Ajantaa Priyaadharsini G.V, Dr. Hemavathi. D
Department of Artificial Intelligenece
SRM University
Kattankulathur, Chennai, India
ajantaavenkatesan@gmail.com, hemavatd@srmist.edu.in

ABSTRACT

The integration of Artificial Intelligence (AI) is significantly enhancing agricultural practices, offering advancements in areas like precision farming, crop monitoring, and automated disease detection, ultimately boosting efficiency and sustainability. A key application within this domain is the automated identification of plant species using computer vision. Accurate recognition of herbal plants, specifically, is crucial for diverse applications including traditional medicine, biodiversity conservation, and specialized agriculture. However, manual identification based on visual traits remains challenging and requires significant expertise. Deep learning, particularly Convolutional Neural Networks (CNNs), provides a powerful approach for automating this image-based recognition task. This research presents HerbAider, a hybrid web-based diagnostic tool designed to identify diseases in herbal plant leaves and recommend appropriate treatments. The system features a VB.NET-based frontend for image upload and user interaction, which communicates with a Django-powered Python backend via RESTful APIs. The backend hosts three deep learning models—AlexNet, LeNet and EfficientNet—for image classification, enabling comparative evaluation of their performance in real-time scenarios. The models were trained on a custom dataset comprising 19 disease and healthy classes from 8 distinct herbal plant species, using standard data augmentation techniques to enhance model generalization. After classification, the system generates targeted pointers like Name of the plant, Scientific name, Health status, Disease name, Symptoms of the disease, Recommended Fertilizer, Recommended Water Level, Fertilizer Frequency, Sunlight Requirement, Soil Type, pH Level, Ideal Temperature, Common Pests, how to get rid of the pests, Harvesting Time, Usage in Medicine and Ideal Methods of storing the Harvested Leaves. The use of Django ensures seamless integration, efficient API handling, and scalable deployment of AI models. We evaluated the efficacy of LeNet, Alexnet and EfficientNet for this specific classification task. Models were trained on our curated dataset, employing standard data augmentation techniques to improve generalization. Performance was rigorously assessed using key metrics including accuracy, precision, recall, F1-score, and confusion matrices, alongside considerations for model efficiency such as inference time and model size. Our experimental results are neatly discussed here demonstrating its suitability for this domain. This comparative study provides valuable insights for selecting appropriate CNN models for automated herbal plant identification systems. This study not only highlights the role of deep learning in herbal plant disease diagnosis but also emphasizes the importance of backend architecture and model selection in developing practical, accessible agricultural solutions

Keywords—CNN, image classification, herbal plants, Deep Learning, Architecture Analysis, Computer vision, Transfer Learning, Agri Tech, Django framework.

ICRIT102

PREVENTIVE HEALTHCARE THROUGH IOT AND EDGE AI: A STUDY ON EARLY DETECTION AND MANAGEMENT OF CHRONIC AND ACUTE DISEASES

Aleena Prakash [1], I Lakshmi [2]
[1,2] Department of Computer Applications,
Hindustan Institute of Technology and Science, Chennai
[1]aleenaprk@gmail.com

Abstract— The rising prevalence of chronic and acute health conditions worldwide underscores the urgent need for innovative and proactive healthcare approaches. Traditional, models are increasingly inadequate for providing continuous care, particularly for patients requiring long-term monitoring. This study investigates a novel framework that combines the Internet of Things (IoT) with Edge Artificial Intelligence (Edge AI) to facilitate early detection, monitoring, and management of various diseases in real time. The proposed system leverages an ecosystem of interconnected wearable sensors, mobile devices, and edge computing nodes to gather and process physiological and environmental data at the point of collection. Unlike cloud-based models that often suffer from latency, bandwidth limitations, and privacy concerns, Edge AI enables local data processing, allowing for faster response times and reduced reliance on centralized infrastructure. By employing lightweight machine learning algorithms, the system can detect anomalies such as irregular heart rhythms, abnormal glucose levels, or respiratory issues with high accuracy A simulated deployment in a smart home environment demonstrates the practical applicability of the model, highlighting its potential to reduce emergency hospital visits and enhance patient autonomy. Ultimately, this study emphasizes the transformative potential of IoT and Edge AI in shifting healthcare from a reactive to a preventive paradigm. The integration of these technologies could significantly reduce healthcare costs, improve quality of life, and pave the way for smarter, more accessible healthcare systems.

Keywords— Internet of Things (IoT), Edge Artificial Intelligence (Edge AI), Wearable Sensors, Edge Computing

ICRIT103

PREDICTING AIR QUALITY IN METROPOLITAN AREA USING MACHINE LEARNING

*V.Priya1, S.Neduncheliyan2**

1Research Scholar, Bharath Institute of Higher Education and Research
2Professor/Dean, Dept of CSE, Bharath Institute of Higher Education and Research
Email: priyaviswanath87@gmail.com, dean.cse@bharathuniv.ac.in*

***ABSTRACT*:** Prediction of air quality is a complex task due to its dynamic nature and it has been gradually becoming an important problem to our human health .There are various air pollutant that concern's people's health when their levels in air are high but we mainly face challenges by PM2.5 (Particulate Molecule), NOx (Nitrogen Oxide) and some chemical exhaust which has to be focused to improve ambience in environment especially in Urban areas. Machine learning provides a new opportunity to predict air quality index. The proposed work concentrates on selecting predicted data sets which is integrated with meteorological data for accurate measure. These datasets are trained to find the patterns and classified using Convolution Neural Network (CNN) with Long Short-Term Memory (LSTM) combined together as ConvLSTM, which promises regular analyses of accurate spatial and temporal data. This work provides best optimal solution for predicting air quality which satisfies BS (Bharath Standards) and Toxic Release inventory (TRI)

Keywords: Air pollution, PM2.5, NOx, Meteorological data, Data Analytic

ICRIT104

A CLOUD COMPUTING OF SECURITY DOMAIN HOSTING PROTOCOL FILE ANALYSIS AND COLLABORATIVE FILTERING

S Varshadevi [1], Mr. A Karthikeyan., M.E.,[2]

[1] PG Student , Department of Computer Science and Engineering, Mahendra Engineering College, Namakkal.
[2] Assistant Professor ,Department of Computer Science and Engineering, Mahendra Engineering College, Namakkal.

Abstract

Cross-domain recommender systems are known to offer solutions to the frosty start and data insufficiency problems in recommender systems This can be achieved by leveraging sufficient ratings and user profiles in one domain to enhance accurate recommendations in a different domain However, domains with enough ratings are not enthusiastic about sharing their users ratings with other recommender systems or domains due to user privacy and legal concerns. Hence, this shows a need for a privacy-preserving mechanism that encourages secure knowledge transport between different domains. A privacy-preserving cross-domain recommender system based on matrix factorization Specifically, the study formally described the privacy requirements of a cross-domain recommender system, which are different from a single domain recommender system. It designs a new framework for a privacy-preserving cross-domain recommender system and then utilizes the somewhat homomorphic encryption scheme to ensure users' privacy The SWHE scheme was used to encrypt users ratings in different domains shared latent factor approach was implemented between the domains and extracted knowledge was securely transferred from the source domain to the target domain We prove that users' privacy is secured throughout the stages involved in the proposed protocol

Key Words: Cloud Computing, Cross-Domain, Privacy Preserving, Homomorphic Encryption, Protocol, SVM Algorithm, Data Security.

ICRIT105

ONLINE ADMISSION MANAGEMENT SYSTEM A COMPREHENSIVE WEB-BASED EDUCATIONAL PLATFORM

R. Thirumalai[1], Mr.N.Aravindhan[2]

[1] Student, Department of Master of Computer Applications,
Er. Perumal Manimekalai College of Engineering, Hosur, Tamil Nadu, India.

[2] Assistant Professor, Department of Master of Computer Applications,
Er. Perumal Manimekalai College of Engineering, Hosur, Tamil Nadu, India.

Abstract

The "Online Admission Management System" (OAMS) is a web-based platform developed to automate and streamline the admission process in educational institutions. It simplifies student registration, application tracking, document verification, and communication between applicants and administration. Built using HTML, CSS, PHP, and MySQL, the system offers a seamless interface for students and efficient backend tools for administrators. The platform ensures transparency, reduces paperwork, and speeds up the admission cycle by automating repetitive tasks and providing real-time updates. Institutions can use analytics tools to monitor application trends, manage quotas, and generate comprehensive reports. OAMS is designed to be user-friendly, secure, and scalable, making it ideal for colleges and universities aiming to digitize and enhance their admission workflows.

ICRIT106

AI-ENABLED MEDICATION AND HEALTH MONITORING SYSTEM WITH VIRTUAL NURSING ASSISTANT

Bharanitharan M, Syed Nazir Ahmed A S, Gokul P, Surya R
Department of CSBS, KGiSL Institute of Technology, Coimbatore, Tamilnadu, India
bharanitharan269@gmail.com, syednazir.a@kgkite.ac.in, gokulpalani810@gmail.com, surarathinasamy25@gmail.com

Abstract

Medication adherence is a critical issue in healthcare, often leading to complications and increased hospitalization rates when neglected. Traditional systems lack real-time monitoring and personalized support, which are essential for effective treatment. This paper introduces a Smart Healthcare Monitoring System integrated with a Virtual Nursing Assistant (VNA), aimed at overcoming these limitations using Artificial Intelligence (AI) and Machine Learning (ML). The proposed system enables continuous tracking of vital signs, automated medication reminders, and intelligent scheduling of appointments, providing dynamic and individualized patient care. Patients can upload prescriptions that are analyzed using Natural Language Processing (NLP) and Optical Character Recognition (OCR), allowing for accurate extraction of medical instructions. This facilitates error reduction and enhances medication safety. The system features a real-time Drug Interaction Checker to prevent adverse effects and supports Medicine Availability tracking in pharmacies and hospitals to ensure timely treatment. Furthermore, an AI-powered Food Recommendation module tailors diet plans based on the patient's health data, supporting holistic treatment approaches. Additionally, the system incorporates a secure online Payment & Billing component, streamlining hospital visits and consultations. Extensive testing reveals that the system significantly improves adherence rates, reduces manual errors, and provides timely medical interventions. Feedback indicates high satisfaction among both healthcare providers and patients. By integrating these smart functionalities, the Virtual Nursing Assistant creates a scalable, efficient, and intelligent healthcare solution, particularly beneficial in remote and resource-limited environments.

Keywords—AI, Smart Healthcare, Virtual Nursing Assistant, Medication Adherence, Machine Learning, Drug Interaction, Prescription Analysis, Appointment Management, Food Recommendation System, Online Billing

ICRIT107

A COMPACT TRIPLE-BAND CPW-FED ANTENNA LAMINATED ON FR-4 DIELECTRIC SUBSTRATE MATERIAL FOR DIVERSE WIRELESS APPLICATIONS

GA.Nivedaa, Nithya Sri B, Praveena C, Sathya P
Electronics amd Communication Engineering
Srm Trp Engineering College, Trichy

Abstract

With the rapid advancement of wireless communication technologies, there is an increasing demand for compact, high-performance antennas capable of operating across multiple frequency bands. This project presents the design and implementation of a compact triple- band coplanar waveguide (CPW)-fed antenna laminated on an FR-4 dielectric substrate for diverse wireless applications. The proposed antenna is optimized to achieve high efficiency, wide impedance bandwidth, and stable radiation patterns while maintaining a compact form factor. Multiband antennas are essential for modern wireless communication systems as they enable seamless operation across different frequency bands without requiring multiple antennas. The use of CPW-fed structures enhances impedance matching, minimizes fabrication complexity, and improves radiation characteristics. FR-4, a cost- effective and widely available dielectric material, is selected due to its mechanical stability and ease of integration with printed circuit boards (PCBs).The triple-band CPW-fed antenna presented in this project demonstrates a cost-effective, compact, and high- performance solution for modern wireless communication systems. Designed to resonate at three distinct frequency bands, making it suitable for multiple wireless applications such as WLAN (2.4 GHz / 5 GHz), WiMAX (3.5 GHz), 5G sub-6 GHz, and IoT networks. The use of FR-4 dielectric substrate ensures easy manufacturability and integration, while the CPW- fed design enhances impedance matching and bandwidth performance. Future work includes further miniaturization, integration with flexible substrates, and enhancement of gain characteristics for extended wireless applications.

ICRIT108

A HIGH-PERFORMANCE FACE ANTI-SPOOFING DETECTION METHOD USING CAPSULE SIAMESE NETWORK

Mrs Angelin Rosy M, Ms Agalya K
Er.Perumal Manimekalai College of Engineering, Hosur
Angelinrosym@gmail.com, agalyamoorthy1234@gmail.com

ABSTRACT: Face spoofing attacks, including printed photographs, replayed videos, and 3D masks, pose a critical threat to biometric authentication systems by enabling unauthorized access and identity fraud. Existing face anti-spoofing techniques, such as handcrafted feature extraction and deep learning-based classifiers, struggle with generalization across different attack scenarios due to variations in pose, lighting conditions, and domain shifts. Convolutional Neural Networks (CNNs), widely used for spoof detection, often fail to retain spatial relationships within facial features, leading to increased false acceptance and rejection rates. To address these limitations, a Capsule Siamese Network (Capsule-SN) is introduced for robust face anti-spoofing detection. The Capsule Network effectively preserves spatial hierarchies within facial structures by utilizing dynamic routing between capsules, ensuring an improved representation of textures, depth, and intrinsic facial patterns. The Siamese Network architecture further enhances the model's ability to differentiate between real and spoofed faces by learning a pairwise similarity function between input images, reducing overfitting to specific attack types.

ICRIT109

SCAM GUARD : HARNESSING MACHINE LEARNING TO DETECT AND COMBAT SCAN ON TELEGRAM

Aravindhan N, Vignesh B
Er.Perumal Manimekalai College of Engineering, Hosur
vickyvickyvignesh13@gmail.com

ABSTRACT:

With the rapid growth of messaging platforms like Telegram, scams have proliferated, posing significant threats to users' security and trust. This project focuses on developing a robust machine learning-based system to identify and mitigate scams within Telegram communities. By analyzing patterns in user behavior, message content, and metadata, we utilize advanced techniques such as natural language processing (NLP), supervised learning, and anomaly detection to accurately classify and flag scam-related activities. Our approach includes building a comprehensive dataset of scam-related and legitimate interactions, which allows the model to learn subtle distinctions in communication styles, intent, and language. The system's ability to adapt to new, evolving scam tactics will be crucial for real-time detection, providing users with enhanced protection against fraud, phishing, and other malicious activities. The proposed solution aims to significantly reduce the risks associated with scams and help foster safer online environments within Telegram communities.

ICRIT110

VISITRACK: A SMART AND SEAMLESS FACE RECOGNITION ATTENDANCE MONITORING SYSTEM

V. Harish kumar, A. Naveen, L. Vedhathiri, K. Karthikeyan, Mr. A.G. Ignatius
Dept of Information Technology, Sri Muthukumaran Institute of Technology, Chennai, India
harishkumar1484@gmail.com, naveenranjith2003@gmail.com, lvedhathirir27@gmail.com, karthiip2003@gmail.com , agignatius@gmail.com.

ABSTRACT:

In the evolving landscape of educational technology, automating attendance tracking has become essential for improving classroom efficiency, reducing manual workload, and enhancing record accuracy. This paper introduces VisiTrack, a smart and modular face recognition-based attendance monitoring system developed using Python, OpenCV, and the face_recognition library. The system is designed to operate in real time, detecting and recognizing multiple student faces simultaneously through a standard webcam, without requiring physical interaction or specialized hardware components. Unlike traditional manual attendance methods that are time-consuming and prone to human error, VisiTrack provides a contactless and fully automated solution with high recognition accuracy. It operates entirely offline, making it particularly suitable for institutions located in areas with limited or no internet connectivity. Recognized student data is securely and automatically recorded into structured CSV files, eliminating the need for external databases while ensuring easy access, portability, and long-term data retention. The system architecture employs facial encoding techniques, distance-based face matching, and session tracking logic to deliver a lightweight yet highly effective attendance solution. Additionally, robust error handling mechanisms are implemented to address issues such as corrupted image files and improper naming formats during the initialization process. A dedicated reporting module generates detailed session-wise attendance summaries, tracks student presence over time, and allows administrators to export records in accessible formats for institutional review or archival purposes. Through the integration of real-time facial recognition, secure local data storage, and automated reporting features, VisiTrack offers a practical, scalable, and privacy-conscious alternative to cloud-based attendance systems. It provides a modernized solution tailored for academic institutions seeking to streamline administrative processes and reduce dependency on manual or paper-based methods, without incurring the complexity or cost associated with online platforms.

Keywords—Face Recognition, Automated Attendance System, Educational Technology, Python and OpenCV, Real-Time Monitoring.

ICRIT111

SMART CLASSROOM ATTENDANCE SYSTEM USING FACE DETECTION AND AI

Aravindhan N, Vinoth Kumar ***S***

Er Perumal Manimekalai College Of Engineering, Hosur

ABSTRACT

In modern educational environments, ensuring accurate and efficient student attendance tracking is crucial for both administrative purposes and enhancing student performance. Traditional attendance methods are time- consuming, prone to human error, and often disrupt classroom activities. This project presents a Smart Classroom Attendance System that leverages face detection and artificial intelligence (AI) to automate and streamline the attendance process. Utilizing computer vision techniques, the system captures real-time images or video streams from classroom cameras, detects student faces using algorithms like Haar Cascades or MTCNN, and identifies individuals through a pre-trained facial recognition model such as FaceNet or OpenCV's LBPH. The system then matches detected faces with a registered student database to mark attendance automatically. To ensure robustness, it handles variations in lighting, angles, and partial occlusions. The implementation of AI enhances accuracy and speed, making it suitable for real-time classroom environments. This solution not only reduces manual effort but also promotes digital transformation in educational institutions, leading to more secure, scalable, and intelligent attendance monitoring.

ICRIT112

AUTOMATIC FLOOD MONITORING, WARNING, AND CONTROL SYSTEM FOR SUBWAYS AND UNDERPASSES

Sathya Moorthy S, Sriram R, Santhosh S, Vallarasan G, Vishnu Prakash P
Department of Electronics and Communication Engineering, MRK Institute of Technology, Cuddalore, India
sakthiasst.prof@gmail.com , au822421106302@gmail.com, au822421106056@gmail.com, au822421106077@gmail.com, au822421106082@gmail.com

ABSTRACT

Flood is one of the natural disasters that cannot be avoided. It happens too fast and affected so many lives and properties. Before this, most of the existing system that has been developed are only focus on certain areas. Other than that, majority of the public cannot monitor and have no idea when the flood going to be happened since they do not have any information and data about the weather condition. By having our proposed system , this will solve all the drawbacks of the existing system. The proposed system is suitable for subways and underpasses. Furthermore , the Government officials can monitor what is happening and predict if there is any upcoming flood at the web server. The proposed system is a low cost in design and easy for maintenance. This project will update the water level at the web server and the system will display the risk level then issue alert signal , finallay control by blocking the roads and disposing the flood water by motors to the citizens for evacuation so that fast necessary actions can be taken.

Keywords: Flood , IoT , Public issue , Sensors , Actuators , Arduino UNO.

ICRIT113

BIOMETRIC-DRIVEN STUDENT MANAGEMENT SYSTEM WITH MACHINE LEARNING FOR ENHANCED ACADEMIC OVERSIGHT

V.Mohana Priya, Dr.D.Rajinigirinath
Dept of CSE, Sri Muthukumaran Institute of Technology, Chennai, India
mohanapriyav1101@gmail.com, dgirinathicici@gmail.com*

ABSTRACT

This paper presents the design and development of a smart, secure, and automated Student Management System that integrates facial recognition and machine learning techniques to optimize academic workflows in educational institutions. The proposed system addresses critical challenges such as manual workload, proxy attendance, and limited accessibility to student data by providing a real-time, cloud-based solution accessible to students, staff, and administrators. The system is developed using a combination of HTML, CSS, JavaScript, and Python, with Firebase serving as the backend for real-time database management, user authentication, and secure cloud storage. A key innovation is the facial recognition attendance module, which employs Convolutional Neural Networks and Histogram of Oriented Gradients for accurate face detection and recognition. The use of deep metric learning ensures the generation of precise facial embeddings, allowing reliable identification of students and effectively eliminating fraudulent attendance practices. In addition to biometric authentication, the system incorporates advanced security measures through machine learning models. Anomaly detection algorithms monitor suspicious login patterns, while Generative Adversarial Networks are utilized to simulate and detect potential intrusions. Real-time threat alerts are issued to administrators, ensuring timely intervention and enhanced system integrity. Role-based dashboards are implemented to cater to different user groups. Students can view attendance, academic scores, and study materials, faculty can manage student records and visualize performance metrics, and administrators maintain comprehensive control over user access, attendance logs, and system monitoring tools. The proposed solution not only promotes academic transparency and operational efficiency but also sets a foundation for future enhancements, including mobile integration, multi-biometric support, and AI-driven academic performance analytics. This work contributes a scalable and secure infrastructure to modernize student information systems through intelligent automation and data-driven decision-making.

Keywords—Student Management System, Facial Recognition, CNN, Anomaly Detection, GAN, Firebase, Educational Technology.

ICRIT114

BLOODSTREAM-DELIVERED NANOCAPSULES FOR MEMORY TRANSFER: REVOLUTIONARY ADVANCEMENTS AND BIO-NANOTECHNOLOGICAL POSSIBILITIES

A.Vergin Blesse
St.Joseph's College of Engineering and Technology

ABSTRACT

Synthetic biology, neuroscience and nanotechnology are generating the boundaries of human cognition and identity. In this paper, a paradigm shifting notion is introduced by suggesting the application of nanocapsules for memory transfer via bloodstream. Instead of the conventional pharmacological or neurostimulation-based techniques, this theoretical model looks beneath the micron size at substructuring those biologically inspired nanoscale computers that can infiltrate to the specific neuronal subset and/or interface into neuronal cells at synapses in order to add/ modify fully stored memory structure. This idea is rooted in the biological mechanism of memory-lost, long-term potentiation, engram theory and synaptic plasticity. With engineered memory-decoding molecules like synthetic mRNA or light-sensitive proteins to be carried by the nanocapsules. Strategies for penetrating the blood-brain barrier (BBB) are ligand-mediated transcytosis, ultrasound modulation and nanoparticle design based on elastic response. After arriving in the brain, the nanocapsules can "listen" not only to bioelectric signals but also to synaptic activity which docks with neighboring neurons mostly in the hippocampus and prefrontal cortex. This is accomplished via programmed neurotransmitter release and autonomous activation of LTP driven by feedback from embedded nanosensors. A simulation of memory encoding into artificial neural networks translatting digital information into biologically read able instructions. This includes cognitive repair and faster learning to lifelike simulations to memory preservation for deep space mission applications. Another key issue the paper raises is identity, consent and neuro-diversity. Speculatively, however this work suggests a potential future in which the computation that is memory will be programmable and transferable into an additional layer of human machine symbiosis.

Keywords : Nanocapsules, memory transferable, neuro – nanotechnology, synaptic plasticity, BMIs, systemic delivery, neuro ethics, nanoscale drug delivery, neural code, artificial synapse, transcranial nanomedicine.

ICRIT115

MIMICMODEL: SECURING CLOUD DATA WITH HOMOMORPHIC ENCRYPTION AND BLOCKCHAIN FOR CONFIDENTIALITY AND INTEGRITY

Mrs.Angelin Rosy M, Ms Kanchana J
Er.Perumal Manimekalai College of Engineering, Hosur
Angelinrosym@gmail.com, kanchanajjack@gmail.com

ABSTRACT

Cloud storage services have gained significant popularity due to their fundamental support for the rapid growth of cloud computing. However, despite their advantages, security risks such as data leakage, mismanagement, and malicious attacks still persist, leaving sensitive information vulnerable at the cloud storage layer. Once data is stored in the cloud, clients lose control over their information, making it susceptible to various security threats. To address these concerns, this project proposes a security model that combines cloud computing with blockchain technology to ensure data integrity while maintaining confidentiality through homomorphic encryption. The proposed model introduces a secure cloud service provider (CSP) platform that integrates encryption with a robust, tamper-proof, and verifiable architecture. Under this framework, the CSP periodically computes a master hash value of its database, which is then stored on a private blockchain. Clients can compare these master hash values to detect any tampering with their data. This distributed verification system ensures both confidentiality, via homomorphic encryption, and integrity, as data modifications by the CSP can be detected by comparing the stored hash values on the blockchain. Furthermore, the data sharing process is carried out through a smart contract, with all involved parties required to escrow their commitments to encourage honesty. The data storage and sharing protocols implemented in this model guarantee essential security properties, including confidentiality, integrity, privacy, non-repudiation, and anonymity, thus creating a secure and reliable environment for cloud data management.

ICRIT116

MULTIMODAL DEEPFAKE DETECTION USING AUDIO, VISUAL, AND MICROEXPRESSION ANALYSIS

Aman Kumar[1] and Krishna Kumar M[2]
[1]UG Scholar, Department of ECE, Grace College of Engineering, Thoothukudi, Tamil Nadu, India
E-mail: amankumarmehta2201@gmail.com
[2]Assistant Professor, Department of ECE, Grace College of Engineering, Thoothukudi, Tamil Nadu, India
E-mail: krishna18innet@gmail.com

Abstract: With the rapid advancement of generative AI and deep learning technologies, DeepFake content has reached levels of realism that pose serious threats to media integrity, public trust, and security systems. Traditional DeepFake detection methods often depend on visual artifacts or inconsistencies; however, these techniques can fall short when forged videos convincingly replicate facial movements and expressions. To address this gap, a robust multimodal DeepFake detection framework has been developed, combining emotion-based analysis with pretrained forensic models. This system integrates audio emotion recognition, visual emotion tracking, microexpression change detection, and deep learning-based facial artifact analysis to deliver more accurate and reliable results. Emotion recognition from speech is performed using Convolutional Neural Networks (CNNs) trained on diverse emotion-rich datasets such as RAVDESS, TESS, and CREMA-D. In parallel, each video frame is analyzed for facial emotions using the DeepFace library, producing a time-series profile of dominant emotions and their proportional trends. Microexpressions—subtle, involuntary facial movements that reflect genuine emotional reactions—are identified by detecting rapid shifts in dominant emotions across successive frames. A rule-based decision engine evaluates discrepancies between the emotional content of the audio and visual streams, alongside tracking microexpression spikes, to flag inconsistencies that may indicate manipulation. To complement this emotion-driven approach, the system also incorporates a pretrained MesoNet convolutional model to analyze fine-grained facial texture artifacts, offering a second, independent assessment of authenticity with confidence metrics. These components are unified within an interactive Gradio interface that accepts audio, video, or combined inputs. Real-time visualizations—including emotion trajectories and model confidence plots—enhance interpretability and user engagement. Evaluation results show that this fusion-based strategy significantly boosts detection performance, especially in complex scenarios where single-modality systems often fail. By combining behavioral cues with deep forensic signals, this approach represents a significant advancement in the field of multimodal media forensics. Its potential applications span news verification, surveillance, and digital content authentication—offering a reliable toolset to counter the growing threat of synthetic media.

Keywords: DeepFake detection, microexpressions, Gradio, emotion trend analysis, fake media forensics

ICRIT117

ENGINEERING PROBIOTIC AND ANTIOXIDATIVE ENZYMES SYNERGISTICALLY FOR COMPLETE ALCOHOL CLEARANCE UNDER NEAR-CRITICAL INTOXICATION

A.Vergin Blesse
St.Jopseph's College of Engineering and Technology

ABSTRACT

Worldwide, alcohol poisoning is one of the leading preventable causes of death continues to be significant and acute intoxication can cause a spectrum of life threatening conditions including respiratory failure, cardiac arrest and multi-organ failure due to acute alcohol ingestion.Currently, the treatment for acute alcohol poisoning consists more or less of simply intravenous fluids, glucose and in some extremis hemodialysis but conventional treatments aim slow and ineffective as ethanol has to be rapidly cleared from the blood. This latency can lead to death of crucial organs. Accordingly, we propose a new approach regarding genetically engineered probiotics plus liver detox enzymes for the rapid elimination of ethanol at the site of action. Within 30-40 minutes, a microbial consortium consisting of an LCG genetically modified Lactobacillus rhamnosus and Bifidobacterium animals subsp. lactis showed detoxifying enzymes such as Catalase, Glutathione Peroxidase, that provide a novel pathway for ethanol degradation. In vivo, all of this is engineered with Mannitol (a diuretic for renal toxins), giving rise to a full-blown solution to address rapidly acute alcohol poisoning The safety and clinical utility of this therapy are explored, while providing a rapid-response alternative for alcohol-related outcomes.

Keywords: Alcohol, ethanol, detoxification; genetic engineered probiotics; liver enzymes Lactobacillus rhamnosus, Bifidobacterium animals; Catalase, Glutathione Peroxidase Mannitol, diuretic- Alcohol: degradation, emergency treatment.

ICRIT118

SMART CANE ASSISTANT SYSTEM

Menakadevi.B, Kirubashini.G, Mohanapriya.S, Ranjith.R, Vignesh.S
Dept of ECE, Pollachi Institute of Engineering and Technology, Coimbatore
menakamails@gmail.com, kirubashiniki@gmail.com, mohanapriya1245@gmail.com,
ranjithmaha4389@gmail.com, vickymani3910@gmail.com

ABSTRACT

Visual impairment can be termed as blindness or vision loss. This impairment causes many difficulties in their day-to-day activities such as in reading, walking, socializing, and driving. The white cane is considered to be the symbol of freedom, independence, and confidence. The proposed smart cane is designed with obstacle detection module, heat detection, water detection,Vehicle detection, human detection, light detection, pit and staircase detection using Passive Infra Red PIR sensor, GPS Global Positioning System, and GSM Global System for Mobile, Bluetooth module, Camera and Emergency alert buzzer. Emergency Signal Trigger It can automatically trigger an SOS feature, alerting pre-set contacts like the guide.The ON/OFF button of a Smart Cane is a crucial feature that controls its power and functionality. The camera continuously records video as the user navigates. Footage can be used later for review, assistance, or security.which helps them to accomplish his/her daily tasks with ease. The obstacle detection module uses ultrasonic range along with camera to detect the obstacles which intimates that the obstacle is detected and also about what the obstacle is? We use Arduino to inform the impaired user about what the object is and it is sent as a voice message through headset. The GPS is used to identify the current location of the person which is sent as a text message and also as a voice message through headset. Traffic signals are identified by using Arduino and intimate the user through headset whether to wait for the signal or move. All these facilities are not at all possible if the visually challenged person has misplaced the cane somewhere else. For this purpose, we have fixed an buzzer in the smart cane which is connected to their mobile phones. This alarm helps them to find their smart cane if they misplaced it.

Keywords: *Blindness, Visually impaired, White cane, Object detection, GPS, Arduino, Camera, Bluetooth, Buzzer, SOS*

ICRIT119

AI-POWERED TOUCHLESS ACCESS CONTROL SYSTEM FOR SECURE ENTRY USING FACE RECOGNITION AND REMOTE LOCKING

Mrs Angelin Rosy M, Ms Kavya N
Er Perumal Manimekalai College of Engineering, Hosur
Angelinrosym@gmail.com, kavyagowda9597@gmail.com

ABSTRACT

Access Control System plays a pivotal role in enhancing security across residential, office, and commercial environments by providing efficient and flexible control over who is permitted to enter a premises. It monitors the entry and exit times of employees and students through a network, offering a reliable and secure method of tracking attendance. Biometric systems, especially those utilizing RFID cards, are increasingly employed in electronic locks for door control. With the rise of IoT and AI technologies, digital door locks have gained significant popularity, providing advanced security features. Face recognition systems have emerged as one of the most effective biometric methods for human identification due to their ability to unobtrusively analyse facial features and verify identity. These systems are widely used in surveillance applications, including home security, workplace monitoring, and campus access control. Despite significant advancements in face recognition technologies, traditional face detection methods typically only localize faces with bounding boxes, without fully segmenting them from the background. To address this limitation, this project introduces an enhanced face detection and recognition system based on the Face Fiducial-Region Convolutional Network (FFRCN), which integrates face detection and recognition into a single, unified framework. The FFRCN model improves the granularity of facial data, offering more accurate recognition. Additionally, this system evaluates its robustness when an unknown person is detected, triggering an SMS notification to the authorized representative of the premises via edge computing. Moreover, the access control system enables remote operation, allowing authorized personnel to control door locks from anywhere in the world via an integrated server account. By incorporating these advanced technologies, this touchless door access control system offers a contactless, secure, and efficient method for granting entry to employees, visitors, and other authorized personnel in commercial and public buildings.

ICRIT120

ARTIFICIAL INTELLIGENT MASSIVE MIMO SYSTEMS FOR BEYOND 5G NETWORKS

Ranjitha P[1], Nithya D [2]
M.E Communication Systems[1], Assistant Professor[2]
Department of Electronics and Communication Engineering
Bharathiyar Institute of Engineering for Women
pranjitha17052000@gmail.com[1], dnithiece@gmail.com[2]

ABSTRACT

Machine learning (ML) which is a subset of artificial intelligence is expected to unlock the potential of challenging large-scale problems in conventional massive multiple-input-multiple- output(CM-MIMO) systems. This introduces the concept of intelligent massive MIMO (I- m MIMO) systems. Due to the surge of application of different ML techniques in the enhancement of MIMO systems for existing and emerging use cases beyond fifth-generation (B5G) networks, this article aims to provide an overview of the different aspects of the I-m MIMO systems. First, the characteristics and challenges of the CM-MIMO have been identified. Secondly, the most recent efforts aimed at applying ML to a different aspect of are discussed. Lastly, the future trends of I- m MIMO-enabled application systems are presented. The aim of this paper is to assist the readers to understand different ML approaches in CM-MIMO systems, explore some of the advantages and disadvantages, identify some of the open issues, and motivate the readers toward future trend

ICRIT121

WIRELESS POWER TRANSMISSION FOR ELECTRIC VEHICLES

V.Ranjith, S.V.Jaswanth Reddy, Y.Muktheswara Reddy, R Sreedhar
[1,2 & 3] UG Scholars, Department of Electrical and Electronics Engineering,
[4] Professor, Department of Electrical and Electronics Engineering
, Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology, Avadi, Chennai, TamilNadu, India
Vtu27028@veltech.edu.in[1], vtu27146@veltech.edu.in[2],vtu27147@veltech.edu.in[3], rsreedhareeeped@gmail.com[4]

ABSTRACT

As the world is shifting towards sustainable transport, electric vehicles (EVs) have become the solution of choice to reduce greenhouse gas emissions and dependence on fossil fuels. However, the limitations of conventional charging processes—prolonged charging time and multiple stoppages—pose a big obstacle to widespread EV adoption, especially for intercity travel. This project resolves these issues by proposing a hybrid solution of Wireless Power Transmission (WPT) to mobile electric vehicles, taking advantage of solar power stations and traditional transmission line supply.The system envisioned is based on Dynamic Wireless Power Transfer (DWPT) technology that allows EVs to be charged in transit when driven over specially fitted roads. Under-road inductance coils buried beneath the surface generate an electromagnetic field that wirelessly transmits power to receiver coils mounted inside the vehicles. This closes the gap for frequent charging stops and minimizes the use of large onboard batteries. Solar charging facilities along the roadways supply the necessary power for transmission mainly through the use of photovoltaic panels for harvesting renewable energy. Solar stations store power in batteries or supply it directly to road coils, hence making the system green and carbon-footprint friendly.To offset the intermittent nature of solar power, the system is supplemented with a conventional power supply through transmission lines. This provides continuous and assured operation irrespective of weather or time. A smart energy management system is proposed to control the power exchange between the solar stations and the grid in an optimal way. It ensures the utilization of solar power first and automatically switches to grid supply in case of inadequate solar power. The hybrid system provides a stable source of power for on-road charging, maximizing the performance and reliability of the wireless transmission network.The project entails designing, simulating, and testing a prototype WPT system. Electromagnetic fields, energy transmission, and system performance are simulated using simulation tools such as MATLAB/Simulink or ANSYS Maxwell under actual operating conditions. A scaled- down section of road with wireless charging and a basic EV model are tested to transfer power from solar and grid inputs. Control systems are designed to regulate the power distribution, monitor energy input, and avoid unsafe operation. The system is also tested under various operating conditions, such as varying vehicle speeds, varying weather conditions, and varying energy demand, to quantify its viability and scalability. By integrating wireless charging technology with renewable solar power and traditional grid supply, the project provides a comprehensive and green solution to future electric mobility. It promotes non-stop car use, extends driving distance, reduces transport's environmental impact, and provides new possibilities for the development of smart infrastructure. Proper implementation of such a system can be a driving force behind the development of green transport networks as well as the unlocking of the next generation of smart roads

ICRIT122

DESIGN & DEVELOPMENT OF ON BOARD EV CHARGER

K. Akhil[1], M. Hareesh[2], M. Venkata Karthikeya[3], S. Sivakumar[4]
[1,2 & 3] UG Scholars, Department of Electrical and Electronics Engineering,.
[4] Professor, Department of Electrical and Electronics Engineering,
Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology, Avadi, Chennai, TamilNadu, India

ABSTARCT

With the growing adoption of electric vehicles (EVs), the demand for compact, efficient, and intelligent onboard charging systems has significantly increased. This paper focuses on the development and implementation of an advanced onboard charger capable of efficient AC-to-DC conversion, essential for fast and reliable battery charging. The proposed system incorporates a Power Factor Correction (PFC) stage to enhance input power quality and ensure compliance with utility standards. A high-frequency isolated DC-DC converter is utilized to deliver stable and regulated output suitable for charging EV batteries.To ensure operational safety and performance, the system integrates embedded sensors that continuously monitor critical parameters such as input/output voltage, charging current, and temperature. These measurements are communicated in real-time to a user interface, allowing for continuous analysis, diagnostics, and user feedback. The design is tailored to meet the charging requirements of standard lithium-ion EV battery packs while including multiple protection mechanisms to prevent conditions such as overvoltage, overcurrent, short circuits, and overheating.Additionally, the system architecture is developed with future scalability and smart grid integration in mind, allowing for potential applications in vehicle-to-grid (V2G) operations. The charger's efficiency, compactness, and reliability aim to contribute to improved battery lifespan, reduced

charging times, and enhanced overall vehicle performance. This work presents a practical and robust onboard charging solution suitable for the evolving needs of modern electric mobility.

ICRIT124

TENSILE AND BOND PERFORMANCE OF COMPOSITE MATERIALS FOR MASONRY WALL RETROFITTING

Akshay Gupta[1], Shantanu N. Pawar[2], Saurabh S. Naik[3] and Chandra Prakash Gour[4]
Civil Engineering Department, GH Raisoni College of Engineering and Management, Jalgaon, India
akshay.gupta@raisoni.net, shantanu.pawar@raisoni.net, saurabh.naik@raisoni.net, chandra.gour@raisoni.net

ABSTRACT

This study investigates the mechanical performance of two cementitious matrix-based composites for masonry strengthening through tensile and bond strength tests. The first system consists of glass fabric embedded in a 1:3 cement mortar matrix (RCM), while the second uses short hybrid fibers dispersed in an engineered cementitious composite matrix (SCC). These systems were selected for their potential to enhance tensile capacity and bonding in masonry structures.Both composites demonstrated good mechanical performance, confirming their suitability for structural strengthening. However, RCM exhibited superior tensile and bond strength compared to SCC. This enhanced performance is attributed to the strong interaction between the glass fabric and cement mortar, promoting effective load transfer and improved crack control. Additionally, the RCM system proved more practical for field applications due to its simpler preparation and easier application process. The study identifies RCM as a more efficient and user-friendly solution for masonry reinforcement, offering a balance of high mechanical strength and ease of use. Nonetheless, both composite systems show potential, and their selection should be based on specific project requirements and application scenarios.

Keywords: Tensile Strength, Bond Strength, Structural Performance, Fiber-Reinforced Composites, Masonry Retrofit

ICRIT125

PERFORMANCE EVALUATION OF BONE CHINA CERAMIC WASTE IN GEOPOLYMER CONCRETE USING RESPONSE SURFACE METHODOLOGY

Chandra Prakash Gour, Aaisha Sayyed, Kalyani Kohle and Akshay Gupta
Civil Engineering Department, GH Raisoni College of Engineering and Management, Jalgaon, India
chandra.gour@raisoni.net, aaisha.sayyed @raisoni.net, E-mail: kalyani kohle @raisoni.net
akshay.gupta@raisoni.net

ABSTRACT

This study explores the effect of Bone China Ceramic Waste (BCCW) as a partial to full replacement for fly ash in geopolymer concrete (GPC), focusing on its fresh and mechanical properties. The objective is to promote sustainable construction by valorizing industrial ceramic waste while reducing dependence on conventional cementitious materials. Geopolymer mixes were developed with varying proportions of BCCW, fly ash, and alkaline activators (sodium hydroxide and sodium silicate). The mix design was optimized using Response Surface Methodology (RSM), employing a central composite design (CCD) to evaluate the influence of BCCW content, NaOH molarity, and alkaline liquid-to-binder (L/B) ratio on slump and compressive strength at 7 and 28 days.The study revealed that increasing BCCW up to 60% resulted in reduced workability, necessitating a higher L/B ratio of 0.65 to achieve desirable slump. Despite reduced workability, the inclusion of BCCW enhanced compressive strength significantly. At 100% BCCW replacement, strength increased by approximately 23% compared to nominal GPC mixes without BCCW, indicating the high pozzolanic reactivity and beneficial particle packing effect of the ceramic waste. RSM efficiently modeled the interaction of variables and helped identify the optimal mix composition. The experimental findings were validated using ANOVA, confirming the statistical significance of the models and the reliability of predictions. The study demonstrates that BCCW is a viable and sustainable alternative material in geopolymer concrete, offering improved strength characteristics and contributing to circular economy goals in the construction industry.

Keywords:

Bone China Ceramic Waste, Geopolymer concrete, ANOVA, Sustainable Construction, and Response Surface Method

ICRIT126

FACIAL EXPRESSION-BASED DRIVER BEHAVIOUR MONITORING SYSTEM

P.Omprakash Naidu, M.Abitha, V.Arumugaprabu
Department of Mechanical Engineering, Kalasalingam Academy of Research and Education, Srivilliputtur, India.
Email address: 9823006019@klu.ac.in

ABSTRACT

The project provides the design of a Facial Expression-Based Driver Behavior Monitoring System capable of enhancing road safety through real-time evaluation of a driver's emotional and cognitive status. The system targets identification of key conditions of drowsiness, distraction, and rage, which are major causatives of road accidents in general but more so in controlled settings like university campuses. Utilizing computer vision and deep learning technologies, the system actively tracks the driver via webcam input, analyzes facial expressions, and provides actionable alerts to avert potential risks.OpenCV is used for real-time face detection and video processing, and Convolutional Neural Networks (CNNs) are utilized to accurately classify facial expressions. Models such as MobileNet, with their efficient and lightweight design, are embedded to ensure that the system keeps pace in real-time even on systems with limited resources. Optimization of training is performed with categorical cross-entropy as the loss function and Adam optimizer to deliver an F1 measure greater than 0.90 for the main emotion classes of sleepy, angry, and distracted. The system is robustly performing at 8–12 frames per second (FPS), finding the balance between speed and accuracy for real-time deployment.Other methods like facial landmark detection further augment the model's capacity to learn meaningful emotion-related features from the driver's face. The system also accommodates future extension into multimodal emotion recognition, where visual information is fused with other inputs such as head pose or eye closure detection. Alerts are provided through visual or audio feedback mechanisms to immediately inform the driver or administrator of unsafe behavior.In spite of software-only implementation in this release, the architecture is modular and can be expanded with hardware integration for embedded applications such as Raspberry Pi. Overall, this system adds to Advanced Driver Assistance Systems (ADAS) by offering proactive monitoring and improving safety through the intelligent detection of driver inattention and emotional fatigue.

Keywords- Driver Monitoring System, Facial Expression Recognition, Convolutional Neural Network (CNN), Drowsiness Detection, Distraction Detection, Computer Vision, Deep Learning, Real-Time Alert System, Driver Behavior Analysis, MobileNet, Emotion Classification, OpenCV, Advanced Driver Assistance Systems (ADAS, Safety Enhancement, Human-Machine Interaction

ICRIT127

CYBER SECURITY- DISTRIBUTED LINE PROTECTION AND CONTROL RELAY COMMUNICATION IN SUBSTATION.

Gomathi A,
Power Systems Engineering
Grace College Of Engineering, Thoothukudi

ABSTRACT

Protection and control relays (also known as IEDs -Intelligent Electronic Devices), play a critical role in substationprotection, control and monitoring functionalities. Smart grid deployments need the seamless flow of data between various devices like protection relays, controllers, gateways, smart meters etc. over private and public communication networks. These kind of deployments lead to inherent requirements for secure communication, strong user authentication and authorization to be considered in the design and development of protection and control relays. Securing relay communication is part of the Defense-In-Depth strategy which is essentially a layered security approach. It uses, multiple layers of network security along with secure architecture which is in-line with current and upcoming cyber security standards to protect the power system/substation automation network against intrusion from physical and cyber-borne attacks while connected to public and private networks. Ensuring confidentiality, integrity and authenticity is an integral part of securing data over the network. This can be achieved with strong authentication and
usage of cryptographic protocols like “TLS”.

ICRIT128

BRAKE SHOE HEAT INDICATOR

Prasanth, Mohameed Dhaneesh M, Pradeep P, Sathish Kumar P, Praveen kumar P
Erode Sengunthar Engineering college, Erode, Tamil Nadu, India
tprasanth3@gmail.com, mohameddhaneesh79@gmail.com, pradeep07322@gmail.com, sathishk82678@gmail.com

ABSTRACT

Overheating of brake shoes in heavy vehicles often leads to brake fading and eventual system failure, posing a significant risk to road safety. This paper presents a low-cost and efficient Brake Shoe Heat Indicator system utilizing the MLX90614 infrared temperature sensor for real-time thermal monitoring. A piezoelectric buzzer provides auditory warnings, while a tri-color LED system (green, yellow, red) visually represents safe, cautionary, and hazardous temperature zones respectively. This integration aims to preempt brake failure and reduce accident rates through timely driver alert.

ICRIT129

COMPARISON OF MECHINE LANGUAGE MODEL FOR GROUND WATER QUALITY INDEX

Thirumanikani K, Nalini Jebastina
Grace College of Engineering, Mullakadu, Thoothukudi, Tamilnadu.
950321103007@gracecoe.org

ABSTRACT:

Groundwater is a vital source of drinking and irrigation water, especially in semi-arid regions like Thoothukudi district, where surface water availability is limited. With increasing industrial activity, agricultural runoff, and population growth, maintaining groundwater quality has become a growing concern. This study aims to predict the Water Quality Index (WQI) of groundwater using machine learning models, providing a data-driven solution for future water quality management. Water samples were drawn from 79 wells in Thoothukudi, and important physico-chemical parameters like pH, Total Dissolved Solids (TDS), Chloride, Fluoride, Nitrate, and Total Hardness were measured. WQI values were then computed by using the Weighted Arithmetic Method in order to determine existing groundwater conditions. For the prediction of WQI for future applications, three supervised machine learning algorithms were utilized: Support Vector Machine (SVM), K-Nearest Neighbors (KNN), and Random Forest (RF). All models were trained on the 2024 dataset and tested for performance based on standard performance metrics like R^2, Mean Squared Error (MSE), and Root Mean Squared Error (RMSE). Of the three models, SVM produced the most stable and accurate results, then Random Forest and finally KNN. The prediction models were created with Python and run on Google Colab. The ultimate output allows one to enter parameter values and estimate WQI in real-time with the possibility of forecasting for upcoming years such as 2026. The research showcases the ability of machine learning to supplement conventional water analysis by providing rapid, accurate predictions to aid in sustainable groundwater planning as well as policy formation.

Keywords: *Groundwater Quality, Water Quality Index (WQI), Machine Learning, Support Vector Machine (SVM), K-Nearest Neighbors (KNN), Random Forest (RF)*

ICRIT130

A SURVEY OF DEEP LEARNING TECHNIQUE BASED BRAIN TUMOR DETECTION AND SEGMENTATION PROCESS USING MRI IMAGES

S.Ramya, and Dr. R.S Rajesh,
Department of Computer Science and Engineering, Manonmaniam Sundaranar University, Tirunelveli, India
sweetramyasaravanan555@gmail.com, rsrajesh@msuniv.ac.in

ABSTRACT

Brain tumors represent a significant threat to human health, making early detection and accurate classification crucial for effective treatment. The identification and classification of brain tumors are key components of clinical practice, as tumors can vary widely in terms of size, texture, and location. Medical imaging plays a vital role in diagnosing brain tumors, offering essential insights for treatment planning, surgical decisions, and educational purposes. Primary brain tumors, including gliomas, meningiomas, and pituitary adenomas, originate within the brain, while secondary (metastatic) tumors occur when cancer from other body parts spreads to the brain. Recent advances in deep learning, particularly Convolutional Neural Networks (CNNs), have proven to be powerful tools in automating the detection and classification of brain tumors from medical imaging data, such as MRI scans. This paper presents a survey of deep learning-based approaches for brain tumor detection and classification, covering various image processing techniques such as filtering, thresholding, geometry models, graph-based methods, and region-based analysis. Unique variants of CNN evolved over time large models which were considered as milestones within the mind tumor detection were CNN, U-Net,ResNet and many others. The pre-processing steps involve normalizing images and correcting bias fields, followed by a feed-forward pass through a CNN to eliminate small false positives near the skull region.

Keywords: Deep learning; Brain Tumor Detection; Classification; Preprocessing; Datasets.

CRIT131

A PROBE INTO THE ROLE OF MACHINE LEARNING IN FACILITATING DELAMINATION CHARACTERIZATION IN VARIOUS ADHESIVE JOINTS

Dr M D Mohan Gift,
Department of Mechanical Engineerinf
Grace College of Engineering, Thoothukudi

ABSTRACT

Adhesive joints are very important in various industries as they have many advantages compared to other joints. The unpredictability involved in delamination greatly hinders their effective performance. Hence, investigators use many tools that can effectively predict the onset of delamination and its nature. One important methodology which helps researchers to fulfill this purpose is machine learning (ML). The review outlined in this manuscript makes a sincere effort to find out the degree of effectiveness of ML when it comes to evaluating delamination. The review further explores the different segments in delamination which includes characteristic analysis, experimental methods, and mechanisms. This is done so that the suitability of ML can be established. On the ML side, different tools prominently seen in the delamination area were reviewed. The review tries to provide some insight into the effectiveness of ML in effectively predicting the delamination characteristics of adhesive joints.

ICRIT132

ENRICHED BIODEGRADABLE PACKAGING MATERIAL USING NATURAL EXTRACT

Hemalatha Venkatesan, Dhivyadharhani .M, Anandhi .A
Department of Biotechnology, St.Peter's College of engineering and Technology Chennai, India
dhivya7553@gmail.com,anandhigl007@gmail.com

ABSTRACT

The accumulation of plastic waste has become a critical global concern due to its environmental persistence and adverse ecological impact. In response, biodegradable packaging materials have emerged as a promising alternative. This study explores the development of an enriched biodegradable packaging film using carboxymethyl cellulose (CMC) integrated with plant-derived natural extracts known for their antimicrobial and antioxidant properties. The goal was to enhance not only the environmental profile of the packaging material but also its functional properties in food preservation. Natural extracts from sources such as neem, green tea, and clove were selected for their well-documented bioactivity. The films were synthesized via the solvent casting method and subjected to a series of physicochemical and -biological evaluations.Mechanical strength, water vapor transmission rate(WVTR), oxygen permeability, antioxidantpotential (DPPH), and antimicrobial effectiveness were analyzed. Results demonstrated significant improvements in the physical strength and preservation efficacy of the enriched films compared to untreated CMC films. The findings underscore the potential of natural bioactive additives in enhancing the performance of biodegradable packaging and support their future application in the food industry.

Keywords--*Biodegradable film, natural extracts,carboxymethyl cellulose,antimicrobial packaging, antioxidant activity, sustainable materials, food preservation.*

ICRIT133

PIEZOELECTRICAL ENERGY FROM COMPRESSION SPRINGS OF THE E-BIKE FOR RECHARGING OF THE BATTERY AND OTHER COMPONENTS OF THE BIKE.

Einstein Jeba Kumar S
Department of Electrical and Electronics Engineering
Grace College Of Engineering, Mulla Kadu, Tuticorin-628005.
einsteinjebakumar16@gmail.com

ABSTRACT

The project uses the rear suspension of the two-wheeler. A piezoelectric pressure sensor is fixed inside the suspension; it converts the mechanical pressure into electrical signals with a coil spring in the end and the output is connected to a stabilizer to produce a constant output voltage to recharge the bike battery. When the bike moves on the road with bumps the rear suspension is made to compress and expand the average impact created is around 100 to 350 psi , the piezoelectric sensor produce a voltage depending on the impact so the voltage produced can change for each impact to avoid irregular supply the connection is given to a stabilizer to produce a constant output this connection is given to the battery management system to recharge the battery or for other electronics in the bike.

Key words*: suspension, piezoelectric pressure sensor, mechanical pressure, electrical signals, stabilizer*

ICRIT134

PERFORMANCE ASSESSMENT OF CORN OIL BLENDED INSULATINGLIQUIDWITHACTIVATEDBENTONITEAND CHARCOAL USING GREY RELATIONAL ANALYSIS TECHNIQUE

Madesh K, Sivanarayanan E, Mrs.Priyanka.D
Electrical and Electronics Engineering
Holycross Engineering College Tuticorin. India
esivanarayanan24@gmail.com, dnpriyanka12@gmail.com

ABSTRACT

The increasing demand for environmentally friendly and sustainable transformer insulating fluids has led to the exploration of natural esters like corn oil as viable alternatives to conventional mineral oil. However, to enhance their insulating and thermal properties, the addition of performance-enhancing materials is essential. This study investigates the impact of activated bentonite and charcoal as additives in corn oil-based insulating liquids. Various blend samples were prepared and evaluated for critical performance parameters such as dielectric strength, moisture content, viscosity, and thermal conductivity. The Grey Relational Analysis (GRA) technique was applied to assess the overall performance of each formulation through multi-criteria decision- making. The results indicate that specific blend ratios significantly improve the insulating characteristics of corn oil, offering a promising solution for eco-friendly transformer applications. The use of GRA provides a structured and effective approach to identify the optimal blend, contributing valuable insights to the development of next-generation biodegradable insulating fluids.

Keywords— Corn oil, Transformer insulating fluid, Activated bentonite, charcoal, Grey Relational Analysis (GRA).

ICRIT135

AI-DRIVEN APPROACHES TO SMART MONITORING AND CONTROL IN MODERN POWER GRIDS

M. Arun Kumar, Ebenezer pal S, S. Ganesh
Grace College of Engineering, Thoothukudi
ganesh@grace.edu.in

ABSTRACT

Preserving the power system's operational efficiency is largely dependent on intelligent monitoring and control.Reducing the power system's operating efficiency is mostly dependent on intelligent monitoring and control. However, low stability, poor safety, and inadequate reliability are issues with the power system's existing intelligent monitoring and control. In order to meet the demands of smart power systems, the paper begins with artificial intelligence technology, applies artificial neural networks (ANN), and creates an intelligent monitoring and control model for power systems. The model uses techniques for pattern recognition and data analysis to apply adaptive learning to the electricity system. According to experimental findings, power systems' accuracy and real-time performance can be enhanced by implementing artificial neural networks**.**

Keywords— Power Systems; Intelligent Detection and Control; Artificial Intelligence Technology; System Security

ICRIT136

SUSTAINABLE ENERGY OPTIMIZATION THROUGH IOT-BASED MACHINE LEARNING SYSTEMS

A. *Jasmine Beaulah, Arputha Jeeva A, S. Ganesh*
Grace College of Engineering, Thoothukudi
950322105007@gracecoe.org

ABSTRACT

IoT applications require reliable and effective power sources as the globe looks for sustainable energy alternatives. This study introduces a novel hybrid renewable energy system designed for Internet of Things applications that smoothly combines wind turbines, solar photovoltaic panels, and hydrogen fuel cells. In addition to optimizing energy generation in real-time, our suggested solution uses machine learning algorithms to guarantee a constant energy supply for customers and IoT devices, even in the face of changing climatic conditions. By significantly reducing reliance on non-renewable energy sources, this all-encompassing strategy fosters a more resilient and environmentally friendly energy infrastructure. Our system's unique ability to store excess energy through the use of hydrogen fuel cells guarantees steady electricity even when solar or wind outputs decline. Additionally, by integrating IoT devices with our energy system, we have obtained real-time energy dynamics data, enabling unmatched optimization and decreased waste. With the constantly changing environment of IoT applications and machine learning techniques, the system that is being shown demonstrates the path towards a sustainable future through the efficient creation of green energy.

Keywords— Renewable Energy, IoT, Machine Learning

ICRIT137

SMART INFRASTRUCTURE: SELF HEALING ASPHALT PAVEMENTS WITH RECYCLED OILS

Maria Jency S, Dhana Lakshmi S, Nisha T, Sriram D
Civil Engineering, Grace College of Engineering, Thoothukudi.

ABSTRACT

Self-healing asphalt pavement using waste oils is an innovative approach aimed at improving road durability and sustainability. Traditional asphalt pavements suffer from cracking and degradation over time due to traffic loads and environmental factors, leading to costly maintenance and repairs. Studies have shown that incorporating waste oils, such as used cooking oil and engine oil, can improve asphalt's ability to repair micro cracks, extending pavement lifespan and reducing maintenance costs. The motivation behind this study is to explore the potential of waste oils as a sustainable and cost-effective solution for enhancing the self-healing properties of asphalt pavement. This study aims to determine how different types of waste oils influence the self-healing capacity of asphalt, addressing questions related to their effectiveness, long-term performance, and environmental impact.

Keywords: Self-healing asphalt, waste oils, sustainable pavement, asphalt rejuvenation

ISBN: 978-81-989720-1-9 | Dr. BGR Publications

ICRIT138

STUDENT ASSESSMENT AND SELECTION PORTAL

Mathumitha J, Madhumitha K, Karthikchandhru M, Kirthickkumar K, Prasanth T
Information Technology, Erode Sengunthar Engineering College, Erode, Tamilnadu.
mathumithaj25@gmail.com, kiruthimadhu23@gmail.com, Karthikchandhru370@gmail.com
kirthickkumarkrishnan@gmail.com, tprasanth3@gmail.com

ABSTRACT

The Student Assessment Portal is a platform designed to evaluate students based on their qualifications, interests, and performance in tests. Students can upload their certificates, select their preferred courses, and take assessments to qualify for them. The system will evaluate their test results and display scores to both students and administrators. This allows institutions or organizations to assess students based on their skills and interests, enabling better selection for job opportunities and skilled persons to fit for the job.The portal provides functionalities for student registration, secure login, automated assessment, and detailed performance analysis. Students can take coding tests online, which are automatically evaluated by the system, ensuring quick and accurate results. The results will be displayed in real time for both the administrators and the students. The data collected from these assessments are analysed based on the high score of the students who are all attending the test.Administrators define selection criteria as per maximum score of the students. Based on these parameters, the system shortlists the most eligible candidates for final selection. Additionally, they can get certificates for the course done by the students and can also upload their certificates related to the assessment taking course for better selection.Security and data privacy are maintained through encrypted logins, role-based access control, and secure storage of student records. The system is scalable and can be deployed for colleges, training institutes, and corporate recruitment processes.By digitizing the assessment and selection process, this portal reduces human error, enhances transparency, and improves the efficiency of the selection pipeline. It not only benefits evaluators by saving time and resources but also ensures fair and merit-based selection for students. Overall, the Student Assessment and Selection Portal serves as a modern solution for educational and organizational assessment needs.

Key Words: *Student selection system, interested course, a utomated assessment online, certificate upload*

ICRIT139

A HYBRID SECURITY FOR MEDICAL IMAGING BASED ON COMPRESSED WATERMARKING AND BLOCKCHAIN TECHNOLOGY

Miss.Manimehalai L, Mrs.S.Manjula
Department of CSE,
Ramco Institute of Technology, Rajapalayam

953621104027@ritrjpm.ac.in

ABSTRACT

Medical images contain highly sensitive patient information, necessitating robust security mechanisms to safeguard data confidentiality, integrity, and authenticity. This research introduces a comprehensive, multi-layered security framework tailored for secure handling and storage of medical images. The proposed system integrates four core components: digital watermarking, image compression, encryption, and Blockchain storage. Initially, a biometric watermark, such as a fingerprint, is embedded into the medical image using a combination of Discrete Wavelet Transform (DWT). This ensures ownership verification and image integrity without compromising visual quality. Following watermarking, the image undergoes lossless compression using Huffman coding, which is particularly efficient for PNG image formats. This step significantly reduces storage space while maintaining image fidelity. Next, the compressed image is encrypted using the Advanced Encryption Standard (AES) with a 256-bit key, providing strong cryptographic security against unauthorized access. The final layer of security involves storing the encrypted image on a Blockchain network. Blockchain offers a decentralized, tamper-proof ledger, guaranteeing data immutability and transparent access control. The framework is evaluated using metrics such as Peak Signal-to-Noise Ratio (PSNR) and Structural Similarity Index (SSIM), which indicate high image quality and robustness. The results confirm the system's effectiveness against attacks, making it suitable for secure medical data transmission and storage.

ICRIT140

GAN-DRIVEN BACKDOOR ATTACKS ON DEEP LEARNING-BASED MEDICAL IMAGE ENCRYPTION AND DECRYPTION

Subana Devi G, S.Manjula
Department of CSE,
Ramco Institute of Technology,
Rajapalayam.
953621104046@ritrjpm.ac.in, manjula@ritrjpm.ac.in

ABSTRACT

Medical image encryption is essential to protect sensitive patient data from unauthorized access, tampering, and potential misuse in healthcare systems. Although deep learning-based models like CycleGAN offer enhanced security for encrypting and decrypting medical images, they are still vulnerable to backdoor attacks. These attacks can be embedded during training, allowing adversaries to insert hidden triggers that compromise the integrity of the decrypted output. This project suggests a safe encryption and decryption system using CycleGAN that adds structured mosaic noise to hide image details and employs cycle consistency loss for accurate image rebuilding. To evaluate and address security threats, the system incorporates steganography-based backdoor triggers and model pruning strategies, which strengthen the adversarial attack simulation while simultaneously enabling the development of robust defense mechanisms. These include anomaly detection and pruning-based defense that help neutralize hidden triggers and ensure the encrypted system behaves reliably under attack. The proposed method is thoroughly evaluated using standard metrics such as Peak Signal-to-Noise Ratio (PSNR), Structural Similarity Index Measure (SSIM), Attack Success Rate (ASR), and Clean Data Accuracy (CDA). Results confirm the system's ability to deliver high-quality decrypted images while effectively resisting adversarial disruptions, making it a secure and practical solution for AI-driven medical imaging applications.
Keywords—CycleGAN, Backdoor attacks, Steganography, Adversarial training, Deep Learning

ICRIT141

DISABLED PEOPLE CHATBOT

Subana Devi G
Department of CSE,
Ramco Institute of Technology, Rajapalayam.
953621104046@ritrjpm.ac.in

ABSTRACT

The Disabled People Chatbot is designed as an assistive tool to enhance accessibility for deaf and mute individuals. It integrates speech-to-text, text-to-speech, and sign language interpretation, ensuring seamless interaction. The chatbot serves as an educational and developmental aid, helping individuals access courses and vital information on medical and learning support. Powered by Natural Language Processing (NLP) and Machine Learning (ML), the chatbot translates speech into text for deaf individuals and text into voice messages for the mute population. This system promotes inclusivity by offering real-time conversation translation, medical assistance, and sign language video generation, fostering self-reliance and improved communication

ICRIT142

ELECTRICITY PRODUCTION VIA VEHICLE-INDUCED SPEED BREAKER MOVEMENT AND SMART BRICK BATTERIES

Muthumari C, Ramadevi S, Murugavalli K,
Department of Electrical and Electronics Engineering
Grace College of Engineering
Thoothukudi, India
950322105012@gracecoe.org, 950323105301@gracecoe.org,
950322105011@gracecoe.org

ABSTRACT

Importance of Power necessity is growing day to day and to meet future needs. The new form of Power Geaneration and Saving is also increasing through researchers. The efficiency of power generation is the key to making a country economically enriched. This paper expose the new form of using waste energy of Vehicles leaving during travelling upon hustle comber. Four channels used in transforming waste energy in terms of electricity through the hustle comber are by channels with the aid of Rack with pinion , gear with flywheel and spring coil and chain. A new forms of Power Generation and Usage of this Power after saving through bricks can be utilized as chargers, lights etc. By the help of any one channels, locomotive energy is converted into machine driven energy. Then, this mechanical energy will be converted into electrical energy using generator which will be saved with the use of a bricks.

Keywords—Road Studs, Mechanisms, Brick storage, Power Generation.

ICRIT143

A STUDY ON RISK PERCEPTIONS AND PORTFOLIO MANAGEMENT OF EQUITY INVESTORS IN KOTAK SECURITIES (MINMINI INVESTMENT) AT THIRUVARUR

R.Soundharya
Department of Management Studies,
E.G.S. Pillay Engineering College,
Nagapattinam, Tamil Nadu, India.

ABSTRACT

This study examines the risk perception and portfolio management practices of equity investors in Kotak Securities Minmini Investment at Thiruvarur using secondary data sources. The research aims to analyze the relationship between risk perception and investment decisions, identifying factors that influence risk appetite and portfolio management strategies. By analyzing existing literature and data, this study provides insights into investor behaviour and highlights the importance of risk assessment, diversification, and regular portfolio reviews. The study's findings will provide insights into the risk tolerance, investment behaviour, diversify their portfolios, and regularly review their investment strategies to optimize returns. The results of this study can inform investment decisions and portfolio management practices, ultimately enhancing investor outcomes.

ICRIT144

A STUDY ON BANKING SECTOR PERFORMANCE IN NIFTY BANK IN COIMBATORE CAPTIAL LTD AT KARAIKAL

M.R.Marimuthu
PG Student, Department of Management Studies
E.G.S. Pillay Engineering College, Nagapattinam, Tamil Nadu, India.

ABSTRACT

This study analyzes the performance of individual banks listed under the Nifty Bank index using technical indicators—Rate of Change (ROC) and Relative Strength Index (RSI). These methods are employed to evaluate the momentum and relative strength of each stock over a defined time period, providing insight into short-term and medium-term price trends. By applying these indicators to historical stock price data, the study identifies performance patterns, overbought or oversold conditions, and potential entry or exit points for each bank. The analysis offers a comparative view of the banks' market behavior within the index, aiding investors and analysts in understanding sectoral dynamics and making informed decisions. The findings reveal variations in momentum and strength among banks, reflecting the influence of market sentiment, economic factors, and institutional actions on stock performance within the banking sector.

Keywords: Nifty Bank, Banking Sector, Rate of Change (ROC), Relative Strength Index (RSI), Technical Analysis, Stock Performance, Momentum Indicator, Financial Markets, Sectoral Analysis, Investment Strategy.

ICRIT145

SMART SOLAR PANEL PERFORMANCE MONITORING WITH AI INTEGRATION FOR ENHANCED SOLAR-POWERED AVIATION

Krishna Moorthi M, Bharathi K, Surya Prakash M, Mr.P.John Britto

Department of Electrical and Electronics Engineering, J.J.College of Engineering and Technology, Trichy.
krishnamoorthim07@gmail.com

ABSTRACT

Solar-powered aviation presents a groundbreaking approach to sustainable flight, yet its efficiency is often impacted by environmental conditions and hardware degradation. This project introduces an advanced performance monitoring application for solar planes, integrating IoT, AI, and machine learning technologies to optimize energy generation, enhance operational efficiency, and enable predictive maintenance. The system utilizes current sensors, voltage sensors, and temperature sensors to continuously monitor the energy output and environmental conditions of the solar panels in real time. When overheating is detected, a relay-driven pump is activated to cool the panels, preventing energy loss due to excessive heat. Machine learning models analyze real-time sensor data to predict performance trends, detect anomalies such as reduced energy output, and identify potential faults before they cause system failures. By leveraging AI-powered predictive maintenance, the system ensures timely interventions, reducing downtime and extending the lifespan of the solar panels. All monitored data is displayed on an IoT platform, offering operators real-time insights and actionable recommendations. This AI-driven, IoT-enabled solution enhances energy management, extends flight duration, and improves the reliability of solar-powered aviation. By integrating machine learning for prediction, the system provides proactive maintenance strategies, ensuring sustainable and efficient operations while advancing the future of renewable-powered flight.

Keywords: Solar-powered aviation, Performance monitoring, IoT, Artificial Intelligence, Machine Learning, Predictive Maintenance, Anomaly Detection, Automated Cooling.

ICRIT146

A STUDY ON WORKPLACE SAFETY MEASURES AND HEALTH MANAGEMENT IN AMMAN-TRY GROUP AT TRICHY

K.Vigneshwaran
PG Student, Department of Management Studies
E.G.S. Pillay Engineering College, Nagapattinam, Tamil Nadu, India.

ABSTRACT

Workplace Safety and Health Management are crucial aspects of any organization's success. Ensuring a safe and healthy environment for employees, reducing accidents, and improving overall productivity. This study aims to explore the importance of workplace safety measures and health management practices within organizations, focusing on identifying key safety protocols, evaluating their effectiveness, and analyzing their impact on employee well-being. The research delves into the implementation of safety training programs, health management policies, and safety equipment, highlighting the role of both management and employees in maintaining a safe working environment. This project mainly focused on study the workplace safety and health procedures are adapted by the organization. The findings of this study emphasize the need for organizations to prioritize safety and health management to mitigate risks, reduce accidents, and enhance employee engagement. Additionally, recommendations for improving safety protocols and health initiatives are provided to foster a proactive approach to workplace safety. Overall, this research contributes to the growing body of knowledge on workplace safety and health management, offering valuable insights for organizations aiming to create a safer and healthier work environment for their employees.

Keywords: Workplace safety, health management, employee well-being, safety training, organizational culture, safety protocols, productivity.

ICRIT147

SECURE ONLINE SELLER REGISTRATION SYSTEM

Afrin Banu M, Janani S, Jerina Francisca J, Priyadharshini P
Information Technology, PSNA College of Engineering, Dindigul, Tamilnadu
afrinbanum21it@psnacet.edu.in

ABSTRACT

The *Secure Online Registration System* is an innovative platform designed to streamline the seller registration process while ensuring trust, authenticity, and transparency in digital marketplaces. The system integrates multiple layers of security and verification to authenticate sellers and manage their reputation based on buyer feedback, using advanced technologies such as Artificial Intelligence (AI), Blockchain, and Digital Signature Authentication.The seller registration process is highly secure and structured. It includes the submission of personal and business details, profile photo, and valid government identification (Aadhaar), followed by a video-based consent capture. To further enhance authenticity, the platform implements digital signature verification, which is securely logged using blockchain technology. This provides a tamper-proof audit trail, ensuring all activities are recorded transparently. A verified logo or certificate is issued only after the seller receives a threshold of positive buyer feedback, promoting quality and trustworthiness.Buyers, upon registration, can search for sellers and submit detailed feedback on product quality, delivery efficiency, and support experience. Feedback includes text, images, and optional video input. An AI-based sentiment analysis engine processes this feedback, analyzing textual content and facial expressions to determine authenticity. This system actively monitors seller performance; multiple negative reviews can lead to warnings or revocation of the verification logo.To prevent fraud, the platform employs multi-factor authentication (MFA), including OTP verification, biometrics, and digital signatures. Blockchain technology ensures immutable audit trails and data integrity across the system. The backend is built with Django (Python), and MySQL handles data storage, while AI/ML techniques power sentiment analysis and fraud detection mechanisms.

ICRIT148

MATLAB IMPLEMENTATION OF POWER QUALITY IMPROVEMENT OF ELECTRIC VEHICLE CHARGING USING GRID AND PV SYSTEM

Saravanakumar
Satyam College of Engineeering and Technology

ABSTRACT

Currently, the modern world switches over to electric vehicles (EV) owing to the environmental hazards in fossil fuels. The EV are influence on the battery operation that is energized by power-generating units. The solar photovoltaic (SPV) system is one of the most promising renewable energy sources for the future power generation systems.SPV connected EV charging is an emerging technology due to the reduction of cost and emissions. However, several factors must be considered while interacting with the SPV with the EV. One of the important issues in SPV is power shortage due to the cyclical disparities in solar irradiance. In order to meet the power requirement from the EV, the maximum power point tracking (MPPT) controllers are adopted with the SPV. The integration of EV chargers with the SPV and grid has brought some impacts on the system such as an increment in reactive power and power losses Due to these impacts, the power system stability will be reduced, it also affects the power flow to the EV system. On the other hand, the excess power generation from the photovoltaic model may increase the voltage issues in the EV. Thus, the power supply to the EV is controlled by the battery management system (BMS). The modelling of efficient controllers for battery control will reduce the power unbalancing in the EV system. Moreover, the power flow can be controlled by meta-heuristic algorithms. Furthermore, the integration of EV in the distribution system injects the harmonics in the system hence, the power quality (PQ) gets reduced. The impacts of improper battery scheduling unbalanced power flow and lower system stability affect the PQ of the system. On the other hand, reactive power compensation is an important area for improving the power flow as well as PQ in the grid connected system. By concerning all these factors, this research has proposed different approaches to adopt with the different system conditions. This research will bring an effective way to enhance power generation and an optimum solution to feed the EV based on its requirement.

ICRIT149

A STUDY ON RISK-RETURN AND PERFORMANCE OF MUTUAL FUNDS IN KOTAK SECURITIES (MINMINI INVESTMENT) AT THIRUVARUR

A.Poojavarshini
PG Student, Department of Management Studies
E.G.S. Pillay Engineering College, Nagapattinam, Tamil Nadu, India.

ABSTRACT

A Study on Risk-Return and Performance of Mutual Funds aims to evaluate the relationship between risk and return and assess the overall performance of selected mutual fund schemes. Mutual funds have emerged as a preferred investment avenue for both retail and institutional investors due to their diversification and professional management. This research focuses on analyzing various funds based on performance indicators such as Sharpe Ratio, Treynor Ratio, and Jensen's Alpha. The study examines how risk-adjusted returns vary among different fund categories and assesses the consistency of fund managers in delivering superior returns relative to market benchmarks. Primary data has been collected from fund fact sheets and secondary data through financial reports and online databases. The findings highlight that some funds have consistently outperformed the market, delivering positive alpha, while others exhibit higher volatility with lower returns. The study concludes with suggestions for investors to make informed decisions by considering both risk and return aspects before choosing mutual fund investments. Overall, the analysis enhances understanding of mutual fund dynamics in today's competitive financial market.

Key words: Mutual Funds, Risk Analysis, Performance evaluation, Sharpe Ratio, Treynor Ratio, Jensen's Alpha, Portfolio Management, Market Volatility, Investment Strategies

ICRIT150

A STUDY ON PRICE MOVEMENTS OF SELECTED STOCKS USING TECHNICAL ANALYSIS IN COIMBATORE CAPITAL LIMITED AT KARAIKAL

Mohamed Thahasin.M
PG Student, Department of Management Studies
E.G.S. Pillay Engineering College, Nagapattinam, Tamil Nadu, India.

ABSTRACT

Technical Analysis is the forecasting of future financial price movements based on an examination of past price movements. Technical analysis does not result in absolute predictions about the future with regard to forecasting. Instead, technical analysis can help investors anticipate what is "possible" to happen to prices over time. Technical analysis is study of predicting prices of securities for future the main aim of technical analysis is to generate returns by charter person decide when to enter and when to exit in the security. Technical Analysis is of the stock market relating to factors affecting the supply and demand of stocks. It helps in understanding the intrinsic value of shares and knowing whether the shares are undervalued or overvalued. The stock market indicators would help the investor to identify major market turning points. This is a significant technical analysis of selected companies which helps to understand the price behaviour of the shares, the signals given by them and the major turning points of the market price. This paper is aims at carrying out Technical Analysis of the securities of the selected companies and to assist investment decisions in this Indian Market. The article is about the technical analysis as to how it plays an important role in secondary market, analysis of stocks and its usefulness towards trading. Technical analysis can be defined as the process of identifying trend reversal at an early stage and to ride the trend until the weight of evidence suggests that the trend has reversed directions. "A Study on Price Movements of Selected Stocks Using Technical Analysis of NSE towards IT Stocks with Reference to Indian Stock Market" was done based on historical prices of IT stocks. Analysis is done based on the "Technical tools like Relative Strength Index (RSI), Short-Term (SMA), Long-Term (LMA) and Exponential Moving Average (EMA)" and inferred based on the chart patterns formed.

Keywords: Technical analysis, Stock Market, Price Movements, Indicators, Trend Reversal.

ICRIT151

DEEPGUARD: A DEEP LEARNING-BASED AUTONOMOUS INTRUSION DETECTION SYSTEM

T. Rajkumar, S. Balamurugan, K.Gayathri Devi, P.Jagatheeswaran, S.Mythili
Department of Electronics and Communication Engineering,
Nandha College of Technology, Erode-52, Tamil nadu.
mythilisenthil677@gmail.com

ABSTRACT

The deepguard focuses on intrusion detection utilizing the Kernel Support Vector Machine (KSVM) and Artificial Neural Networks (ANN) to boost cyber security defences. As cyber threats continue to advance, machine learning (ML) approaches play a critical role in discovering security vulnerabilities. This study studies multiple ML techniques, focusing the identification of thermal and temporal correlations in network data to identify unusual activity suggestive of hostile conduct. The work covers critical difficulties such as feature selection, data complexity, and model interpretability. Using the KDD dataset, the proposed KSVM-ANN model categorizes network data into four primary classes—Basic, Content, Traffic, and Host—enabling exact categorization of normal and harmful activity. The efficacy of the Intrusion Detection System (IDS) is assessed using key performance indicators, including Detection Rate (DR) and False Alarm Rate (FAR), with an emphasis on improving these measures for greater accuracy and efficiency. Experimental findings suggest that merging KSVM with ANN boosts IDS performance, making it more flexible and resilient in identifying a broad variety of cyber security threats.

Keywords—Network Security, Cyber Threats, Anomalies, Machine Learning

ICRIT152

A STUDY ON EMPLYOEE WELFARE AND SATISFACTION IN OIL AND NATURAL GAS CORPRATION AT KARAIKAL

C. Baranika
PG Student, Department of Management Studies
E.G.S. Pillay Engineering College, Nagapattinam, Tamil Nadu, India.

ABSTRACT

The research project entitled "A study an employee welfare and satisfaction in oil and natural gas corporation at Karaikal" aims to assess the welfare measures and satisfaction levels of employees in the organization. This study evaluates the effectiveness of welfare programs and their impact on employee morale, productivity and overall job satisfaction. The primary data will be collected from a sample of hundred employees out of a total workforce of 200. The primary data was gathered through structured questionnaire while secondary data was sourced from books, journals and online reference. The collected data will be analyzed using statistical tools such as percentage analysis, chi-square test and correlation method.

ICRIT153

A STUDY ON LABOUR WELFARE MEASURE AMMAN TRY-STEELS (P)LIMTED AT TIRUCHIRAPPALLI

KARTHIKA.R
PG Student, Department of Management Studies
E.G.S. Pillay Engineering College, Nagapattinam, Tamil Nadu, India.

ABSTRACT

This study investigates the impact of Laboure welfare measures on employee job satisfaction. Through a comprehensives analysis of various welfare initiative such as health benefits, safety measures, training programs, and work-life balance policies, this research aims to uncover the direct correlation between these measures and employees' overall satisfaction levels. The study utilized both quantitative and qualitative methods to gather data, including surveys, interviews, and statistical analysis methods such as percentage analysis, chi square, correlation. Research will be based on the sample size of approximately 120 participants.by examining the perspective of employee across different industries and organizational levels, this research seeks to provide valuable insight into the effectiveness of Laboure welfare programs in enhancing job satisfaction, there by contributing to the body of knowledge in human resources management and organizational behavior. The finding of this study is expected to offer practical recommendations for organization to design and implement an impact Laboure welfare strategy that can positively influence employee wellbeing and job satisfaction.

ICRIT154

INVESTIGATION AND ANALYSIS OF ENHANCED ELECTRICAL AND DIELECTRIC PROPERTIES OF INSULATING LIQUIDS FOR HIGH VOLTAGE EQUIPMENT

A.Ajay Amirtharaj, A.Antony Jebastin Raja, M.ponkanagavalli
Electrical and Electrical Engineering,
Holycross Engineering college, Tuticorin. India
ajayamirtharaj7@gmail.com

ABSTRACT

The performance and reliability of high voltage equipment heavily depend on the quality and stability of the insulating liquids used. In recent years, extensive research has been conducted to enhance the electrical and dielectric properties of these insulating fluids to meet the growing demands of modern power systems. This study investigates various techniques to improve the dielectric strength, breakdown voltage, and insulation resistance of traditional and alternative insulating liquids. Mineral oil, the conventional insulating fluid, is compared with emerging eco-friendly alternatives such as natural esters and synthetic fluids. The impact of nanoparticle additives, moisture content, and temperature on the dielectric behavior is also analyzed through experimental measurements and statistical evaluation. The study reveals that the incorporation of certain nanoparticles, such as TiO_2 and SiO_2, can significantly increase the breakdown voltage and reduce dielectric losses, while improving thermal stability. Furthermore, natural ester-based liquids exhibit superior biodegradability and moisture tolerance, making them viable replacements for mineral oils in sustainable power systems. The findings contribute to the development of high-performance insulating liquids with improved environmental and operational characteristics. Recommendations are provided for optimizing liquid insulation systems in transformers and switchgear to ensure long-term reliability and efficiency. This comprehensive analysis supports the ongoing transition toward more robust, safe, and environmentally conscious electrical insulation technologies for high-voltage applications.

Keywords: Insulating liquids, Dielectric properties, Nanoparticles, High voltage equipment, Natural esters

ICRIT155

PERFORMANCE APPRAISAL

Aguinis
PG Student, Department of Management Studies
E.G.S. Pillay Engineering College, Nagapattinam, Tamil Nadu, India.

ABSTRACT

This study delves into the performance appraisal system at Amman Steel Corporation (AMMAN-TRY), a leading steel manufacturer in South India. With over four decades of industry presence, AMMAN-TRY provides an ideal backdrop to analyze the effectiveness and methodologies of employee performance evaluations. The research aims to understand how appraisal systems influence employee motivation, development, and organizational efficiency.

A detailed company profile outlines AMMAN-TRY's operational structure, product lines, and strategic objectives. The study utilizes a structured research methodology, incorporating both primary and secondary data. A survey method was employed, targeting a sample of 120 employees from a total population of 200. The sampling technique adopted was simple random sampling to ensure unbiased representation.

Quantitative analysis tools such as percentage analysis, chi-square tests, correlation, and ANOVA were applied to interpret the data. These methods helped identify patterns and relationships between appraisal practices and employee outcomes.

The literature review anchors the research in a solid theoretical framework, drawing from both classical and contemporary sources. It highlights the evolution, challenges, and best practices in performance appraisal systems globally. The insights gained are contextualized within AMMAN-TRY's operational model, aiming to propose practical recommendations for enhancing its appraisal strategies. In conclusion, the study emphasizes the importance of a well-structured, fair, and transparent performance appraisal system as a driver for employee satisfaction and organizational success.

ICRIT156

ADVANCED ENVIRONMENTAL SURVEILLANCE VIA WIRELESS SENSOR NETWORK-ENABLED SEWAGE MONITORING SYSTEM

Mr. M..Vijay, Dr.B.Ramasubramanian, Sarayu S, Subashini R ,Thrishnaa R.
Department of ECE, SRM TRP Engineering College, Trichy, TamilNadu, India
sarayusoundar2003@gmail.com, subashinirajasekar37@gmail.com, thrishnaarahu@gmail.com

ABSTRACT

Urban development and increasing population densities have made efficient sewage management a critical concern for modern cities .The development of an intelligent sewage monitoring system designed to address challenges posed by urbanization and increasing population density. Traditional sewage systems often fail to detect issues in real-time, resulting in delayed responses to problems like overflows and contamination. The proposed solution employs an Advanced Environmental Surveillance System using Wireless Sensor Networks (WSNs) and Internet of Things (IoT) technologies. The system consists of two types of sensor nodes (WSN-1 and WSN-2) that monitor parameters such as well level, flow, temperature, humidity, and rainfall. These nodes are powered by AC-DC adapters and feature microcontroller-based Wi-Fi modules to transmit data via the UDP protocol. Local data is displayed on LCDs at each node, while a central controller—or master hub—aggregates and forwards data to the cloud using MQTT protocol. A client dashboard enables real-time data visualization and analysis. The system uses a hub-and-spoke topology for efficient, scalable, and reliable communication. It incorporates fault-tolerant features to ensure robustness and continuous operation. By supporting real-time monitoring, anomaly detection, and predictive maintenance, the system contributes to sustainable urban infrastructure and aligns with smart city goals, offering a scalable and intelligent solution for modern wastewater management.

ICRIT157

SEMI - SUPERVISED MACHINE LEARNING APPROACH FOR DDOS DETECTION

CH. Sravan Kumar, Dr. K. Suresh Babu
Dept. of CSE, NEC, Narasaraopet, India
sravankumar6595@gmail.com , sureshkunda546@gmail.com

ABSTRACT

A distributed denial of service or DDOS attack is a type of network attack in which the normal operation of a server and its answers are destroyed. There are several approaches that allow you to recognize abnormal behavior of network traffic. However, machine learning techniques are the best methods for detecting and identifying DDO attacks. This attack is considered one of the most serious threats to the Internet. The overflow algorithm for machine learning is based on the availability of labeled network traffic data rates. Attacks, on the other hand, are identified with an unattended approach by analyzing detailed network traffic. These techniques face challenges such as poor accuracy, classification issues, false positive rates, and more network data. This work presents the ML approach monitored in this work to recognize DDO based on network estimation, information augmentation, Co-Clustering, and random forest algorithms. Reduces normal traffic data that is unrelated to the unmanned portion of this approach and recognizes DDOS. This also allows for lower false positive rates, improving accuracy. Meanwhile, further reductions in false positive speeds in unmanned parts via monitored parts and DDOS traffic are also categorized.

Keywords **-** DDoS Attack, Semi-Supervised Learning, Network Security, Machine Learning, Intrusion Detection, Entropy Estimation, Information Gain Ratio, Co-Clustering, Random Forest.

ICRIT158

DEVELOPING AN AI-POWERED OCR SOLUTION FOR DIGITIZING AND ENHANCING ACCESSIBILITY OF HISTORICAL HANDWRITTEN DOCUMENTS IN REGIONAL LANGUAGES

Abishek T, Balasubramanian R, Bharathi, Mathan Kumar
Information Technology, PSNA College of Engineering & Technology
Dindigul, India
abishek230703@gmail.com

ABSTRACT

Historical handwritten documents in regional languages represent invaluable repositories of cultural, social, and historical knowledge. These documents, often found in archives, temples, old libraries, and personal collections, provide deep insights into the traditions, governance, and daily life of past societies. However, their accessibility is significantly limited due to challenges such as physical degradation, ink fading, illegibility, and the absence of digital records. Conventional manual transcription methods are time-consuming and require expert knowledge, while existing Optical Character Recognition (OCR) technologies face limitations in handling handwritten scripts, diverse regional languages, and poor-quality scans. This project proposes the development of an AI-powered OCR system tailored specifically for historical handwritten documents in regional languages. By leveraging cutting-edge techniques in image preprocessing, deep learning-based handwriting recognition, and multilingual text interpretation, the system aims to automate and enhance the digitization process. The solution will not only preserve these precious records for future generations but also make them searchable, accessible, and analyzable by historians, researchers, and the general public. Ultimately, this initiative strives to bridge the gap between the past and the present by unlocking the hidden stories preserved in these manuscripts.

ICRIT159

AGRICULTURE/FOOD TECH: REDUCING PESTICIDE AND FERTILIZER USAGE THROUGH DATA-DRIVEN SOLUTIONS

Aruna Priya V, Atshaya K, Gulnash Meera S, Dr J. K. Jeevitha
Information Technology, PSNA College of Engineering & Technology
Dindigul, India
arunapriya575@gmail.com

ABSTRACT

Agriculture is the backbone of global food production, yet farmers frequently encounter challenges in optimizing pesticide and fertilizer usage due to limited access to precise, data-driven guidance. Excessive chemical input not only increases production costs but also poses severe risks to soil health, water quality, and the environment. This project proposes an innovative AI chatbot-based web application that integrates advanced technologies with traditional agricultural methods to support sustainable and efficient farming. The system leverages data from Soil Health Cards and employs the Leaf Color Chart (LCC) method to generate location-specific, crop-sensitive recommendations. Through the use of AI-powered image processing, farmers can upload soil and leaf images, which are analyzed in real time to determine nutrient deficiencies or pest infestations. The integrated chatbot acts as an intelligent assistant, providing instant responses, personalized advice, and real-time alerts based on crop conditions and user queries. Furthermore, the platform incorporates predictive analytics and intuitive data visualization tools, enabling farmers to make informed decisions that enhance productivity while reducing environmental impact. By bridging the gap between conventional agricultural practices and digital innovation, this application promotes resource conservation, reduces dependency on synthetic chemicals, and supports precision agriculture. The ultimate goal is to empower farmers with smart, scalable, and sustainable tools for better crop management and improved food security.

ICRIT160

NEUROVISION: AI-POWERED BRAIN TUMOR DETECTION FROM MRI SCANS

Akbar Ali Y, Selvaganapathi P, Peraman G, Gayathri G
Department of Information technology,
R P Sarathy Institute of Technology, Salem, India,
akbarms112@gmail.com

ABSTRACT

Brain tumors are one of the most life-threatening neurological disorders, and early detection is critical for effective treatment and improved survival rates. Traditional image processing techniques like region growing, watershed segmentation, and thresholding often suffer from limitations in accuracy, robustness, and adaptability when applied to complex medical imaging data. In this project, we propose a novel approach for brain tumor detection using Graph Convolutional Neural Networks (GCNN), which effectively combines the strengths of deep learning and graph theory to enhance the analysis of brain MRI scans. GCNNs are particularly well-suited for handling non-Euclidean data structures, such as the irregular and spatially distributed pixel relationships found in medical images. In our proposed system, brain MRI images are first preprocessed to remove noise and enhance important features. The images are then converted into graph representations where each pixel or region is treated as a node, and edges represent spatial or feature-based relationships. The GCNN model learns to extract meaningful patterns and spatial dependencies across the graph structure to distinguish between healthy and tumor-affected regions. Our model was trained and evaluated using publicly available MRI datasets, and the results demonstrate a significant improvement in detection accuracy and segmentation performance compared to conventional CNN-based and classical methods. The GCNN effectively captures both global and local features, enabling precise tumor localization and classification. Furthermore, our approach shows promise in identifying different tumor types and grades, providing valuable support for clinical decision-making. This project highlights the potential of GCNNs as a powerful tool in the field of medical image analysis and presents a scalable and intelligent solution for brain tumor detection. With further refinement, the proposed method can contribute to the development of automated diagnostic systems that assist radiologists and healthcare professionals in providing timely and accurate diagnoses.
Keywords—Brain tumor detection, MRI, Deep learning, Graph Convolutional Neural Networks (GCNN), Medical image analysis.

ICRIT161

ENHANCED PRIVACY WITH FINE-GRAINED ACCESS CONTROL IN SEARCHABLE ENCRYPTION

Akshaya N, Bynaboina Navya, Madesh E, Arul Mc Millan CX
Department of Computer Science and Engineering, Jeppiaar Engineering College, Chennai, India
akshayaneelakandan1609@gmail.com

ABSTRACT

In the era of cloud computing, the secure outsourcing of data while maintaining strict privacy controls has become a critical concern for both individuals and organizations. As more data is stored on third-party servers, ensuring that only authorized users can access specific information is paramount. This project introduces a robust and privacy-preserving searchable encryption framework that not only supports efficient search functionalities over encrypted data but also enforces fine-grained access control through Attribute-Based Encryption (ABE). Unlike traditional searchable encryption schemes that cater only to a single data owner or fail to ensure complete query privacy, our system accommodates multiple data owners and multiple authorized users while ensuring that the server cannot infer the nature of queries or access patterns.Our approach allows users to perform secure single keyword searches over encrypted datasets without disclosing either the keywords or the data contents to the cloud service provider. Through ABE, access policies can be associated with each encrypted file, restricting retrieval based on user attributes such as roles, departments, or security levels. Additionally, the scheme is designed to be resistant to chosen-keyword attacks and ensures that unauthorized users cannot learn anything about the data or search queries.We also introduce an efficient key management mechanism and a revocation strategy to maintain system scalability and long-term usability. The proposed system is applicable across various domains where secure data sharing is essential, including healthcare data systems, corporate environments, government agencies, and academic research. Extensive analysis and simulation results demonstrate that our method achieves a favorable balance between security, search efficiency, and computational overhead. This work contributes to advancing practical, secure, and user-centric cloud data sharing by combining searchable encryption with fine-grained, privacy-respecting access control mechanisms.
Keywords— component, privacy, searchable encryption, attribute-based encryption, access control, cloud security

ICRIT162

SMART HUMAN MONITORING SYSTEM USING IOT AND AI

[1]Mohamed Iqbal M, [2]RanjithkumarK, [3]Kaviyarasu P, [4]Sivaraj S
[1, 2, 3] UG Students, [4]Assistant Professor
Department of Electronics and Communication Engineering, Roever Engineering College, Perambalur.
[1]leebruce0717@gmail.com, [2]ranjithkumar55705@gmail.com, [3]kavi85070@gmail.com, [4]sivarajme2007@gmail.com

ABSTRACT

Traditional security systems rely on manual surveillance, motion sensors, and basic alarm systems to detect intrusions and fire hazards. These systems typically use CCTV cameras, PIR motion sensors, and smoke detectors which require constant human monitoring and lack intelligent decision-making capabilities. Since these systems cannot differentiate between authorized and unauthorized individuals, they often trigger false alarms. Additionally, fire detection systems rely mostly on smoke sensors, which may not provide an early warning based on temperature changes This project integrates face recognition and IoT sensors for advanced security. A webcam, vibration sensor, and DHT11 monitor intrusions and fire hazards. The system identifies authorized faces, triggers an alarm for unknown persons, and sends real-time alerts to a webpage. The AI-powered Human Monitoring System using IoT enhances security by integrating face recognition, intrusion detection, and fire monitoring. A webcam detects faces and identifies authorized individuals using AI-based face recognition. If an unauthorized person is detected, the system triggers an alarm and captures an image, which is sent to a webpage for remote monitoring. Additionally, a vibration sensor detects unauthorized movement, while a DHT11 sensor continuously monitors temperature to provide early fire detection. This can be implemented by using IoT Kit ESP32/ESP8266.

Key Words: Intelligent intrusion, DHT11 sensor, Real-time intrusion detection, ESP32/ESP8266.

ICRIT163

AUTOMATED BIRD SPECIES IDENTIFICATION USING MACHINE LEARNING

Dr.P.Ramya, Indhuja N,
Computer Science and Engineering ,
Mahendra Engineering College,
(Autonomous Campus), Namakkal DT.

ABSTRACT

An automatic bird identification system is required for offshore wind farms in Finland. Indubitably, a radar is the obvious choice to detect flying birds, but external information is required for actual identification. We applied visual camera images as external data. The proposed system for automatic bird identification consists of a radar, a motorized video head and a single-lens reflex camera with a telephoto lens. A convolutional neural network trained with a deep learning algorithm is applied to the image classification. We also propose a data augmentation method in which images are rotated and converted in accordance with the desired color temperatures. Recognition is performed in a decision tree with support vector machine (SVM) classifiers at each node that perform classification between two species. Recognition is tested with two sets of bird species whose recognition has been previously tested with alternative methods. Recognition results with the proposed method suggest better or equal performance when compared to existing reference methods.

Keywords: Machine learning algorithms, Sociology, Forestry, Watches, Birds, Convolutional neural Networks, Object recognition, Climate change

ICRIT164

ROBOTIC NAVIGATION AND LOCALIZATION FOR GREENHOUSE ENVIRONMENT MONITORING SYSTEM BASED ON IOT

[1]Akash R , [2]Bharath U, [3]Nishanth N, [4]Vishnu S , [5]Sowndharya G
[1,2,3,4]UG Students , [5]Assistant Professor
Department of Electronics and Communication Engineering, Roever Engineering College, Perambalur.
[1]akashempire92@gmail.com, [2]bharathkumar162003@gmail.com, [3]nishanth16032004@gmail.com,
[4]vishnu.kutty1215@gmail.com, [5]govindhansowndharya@gmail.com

ABSTRACT

The WSN is formed by very low-power autonomous sensor nodes and employs IoT and wireless communication protocols. A experimental proposes an Infrared (IR) Based path navigation and RFID based Localization scheme for indoor greenhouse robots are presented. The WSN nodes system for sensor data acquisition for environment monitoring, temperature, humidity, CO2 and light sensor management improving both environment and localization. The robot localizes itself by means of a Kalman based algorithm that fuses robot location with the information coming from the phase of the signals of few reference RFID tags deployed along the path. The experimental sensor nodes were employed to monitor soil moisture, temperature, humidity and light sensor also the base station system model will validate in field conditions. The PC based application created and validate the system model will validate in field conditions details through IoT communication.

Key Words: Smart Farming Robot, Environmental Monitoring, CO2 and light sensor, WSN nodes system , Internet of Things.

ICRIT165

Boost Integrated Three Level T -Type Inverter Based Wireless Power Transfer

Mr. J. Subramaniyan, Atchaya G , Priyadharshini M , Salai Devadharshini SJ
EEE , SRM TRP Engineering College (ANNA University) ,Tiruchirappalli, India
devadharshinisalai@gmail.com

Abstract – This project integrates a Boost converter and 3-level T-type inverter, achieving Low loss , high power density and improved reliability and also it adopts a Two- stage conversion strategy to enhance overall power conversion performance and ensure compatibility with a wide range of input and output conditions. It improves the design, develops and validate a high efficiency, unidirectional Wireless charging system for Electrical Vehicles.

Keywords – Boost converter , T-type inverter , Wireless system , Electrical Vehicles

ICRIT166

A THREE- PHASE SOFT- SWITCHED HIGH POWER DENSITY DC/DC CONVERTER FOR HGH POWER APPLICATIONS

Isha S
Satyam College of Engineering and Technology

ABSTRACT

This project describes the three dc/dc converter topologies suitable for high power density high power appliances. All three circuits operate in a soft switched manner making possible a reduction in device switching losses and an increase in switching frequency. This paper presents three dc/dc converter topologies suitable for high power density high-power applications. All three circuits operate in a soft switched manner making possible a reduction in device switching losses and an increase in switching frequency. The three-phase dual-bridge converter proposed is seen to have the most favorable characteristics. This converter consists of two three phase inverter stages operating in a high frequency six-step mode. In contrast to existing single phase ac link dc/dc converters, low r.m.s. current ratings are obtained for both the input and output filter capacitors. This is in addition to smaller filter element values due to the higher frequency content of the input and output Furthermore, the use of a three-phase symmetrical transformer instead of single phase transformers and a better utilization of the available apparent power of the transformer (as a consequence of the controlled output inverter) significantly increase the power density.

ICRIT167

A STUDY ON EMPLOYEE ENGAGEMENT IN FANTASY SOLUTIONS AT TRICY

Thiyagarajan
PG Student,
Department of Management Studies,
E.G.S. Pillay Engineering College, Nagapattinam,
Tamil Nadu, India.

ABSTRACT

This study examines the Employee engagement in Fantasy solution using secondary data sources. Employee engagement is the level of commitment and involvement an employee has towards their organization and its values. An engaged employee is aware of the business context and works with colleagues to improve performance within the job for the benefit of the organization. The present study aims to analyze the level of employee engagement in a private organization. It focuses on the various factors influencing employee engagement such as work environment, leadership, communication, and rewards. The study also attempts to provide suggestions to improve engagement strategies to enhance productivity and employee satisfaction.

ICRIT168

THE NECESSITY OF REDUCING CEMENT IN CONCRETE STRUCTURES: AN ENVIRONMENTAL PERSPECTIVE

Subash A, Dhana Lakshmi S , Kaviraj M , Rahul Babin N
Civil Engineering,
Grace College of Engineering, Thoothukudi.

ABSTRACT

The global construction industry heavily relies on cement-based concrete, contributing significantly to environmental concerns, including carbon emissions, energy consumption, and resource depletion. This paper explores the necessity of reducing cement content in concrete structures to mitigate environmental impact. It discusses alternative materials, innovative technologies, and sustainable practices that can reduce reliance on cement while maintaining structural integrity and durability. The paper also evaluates the economic and ecological benefits of such reductions, emphasizing the urgent need for greener construction practices.

Key Words:Cement reduction, Sustainable construction

ICRIT169

WIRELESS POWER TRANSFER ROADWAY FOR IN-MOTION ELECTRIC VEHICLE CHARGING

Balamurugan M, Ramachandiran T, Sibiraj K, Kalaiselvan K
Department of Electronics and Communication Engineering,
Roever Engineering College, Perambalur,India
bala2004lpm@gmail.com

ABSTRACT

Charging time and power transfer efficiency are the main challenges of wireless power transfer for electric vehicles. It is proposed in this project to resolve both issues using the transformer induction concept as well as adaptive robotic technology. A high efficiency WPT system for electric vehicle charging that carries a receiving coil. The ability to transfer power without the need for physical contact between the charging pad and the vehicle can enhance user convenience, reduce the need for bulky charging equipment, and minimize the risk of electrical shock. This project provides an overview of the current state of WPT technology for EV charging, including its principles, benefits, and challenges. Various WPT systems and topologies are discussed, and the performance of these systems is evaluated in terms of efficiency, power transfer capability, and cost. Finally, the project presents some of the key research and development areas that are being pursued to improve the performance and reliability of WPT systems for EV charging, as well as the regulatory and standardization issues that need to be addressed to facilitate the widespread adoption of this technology. Overall, WPT for EV charging has the potential to provide a more convenient and sustainable solution for the growing demand for electric mobility.

KeyWords: Wireless Power Transfer (WPT), In-motion EV Charging, Dynamic Charging Systems, Green Transportation, Charging Efficiency.

ICRIT170

AI BASED BITCOIN PREDICTION SYSTEM USING DEEP LEARNING TECHNIQUES

Dr.V.Kavidha[1], J. Jowin Helen Annie[2], M. Siva Ranjani[3], A. Paulin Grace Angelin[4], Mahaboob Fathina[5]
[1]Professor,[2,3,4,5] Final Year UG Student,Department of Computer Science and Engineering,
Holy Cross Engineering College, Thoothukudi
hecrandd2025@gmail.com,jowinhelen@gmail.com,sivaranjani2754@gmail.com,
paulingraceangelin@gmail.com, mahaboobfathina142004@gmail.com

Abstract — The rapid growth and inherent volatility of Bitcoin and other cryptocurrencies have attracted significant attention in financial markets, making accurate price prediction a crucial aspect for both investors and traders. This research focuses on developing a deep learning model to predict Bitcoin prices with high accuracy using historical price data. The proposed model combines Simple Recurrent Neural Networks (RNN) and Long Short-Term Memory (LSTM) networks to capture complex temporal dependencies in the data. Data pre- processing techniques such as normalization, handling missing values, and generating time- series sequences are applied to ensure the model's effectiveness. The hybrid RNN-LSTM architecture is designed to leverage the strengths of both models, with RNN capturing short-term dependencies and LSTM handling long-term dependencies in the data. The model is evaluated based on several performance metrics, including Root Mean Squared Error (RMSE), Mean Absolute Error (MAE), and Mean Absolute Percentage Error (MAPE), to assess its forecasting accuracy. The results demonstrate the potential of deep learning techniques in cryptocurrency price prediction, providing a more reliable and robust forecasting tool compared to traditional methods. This research contributes to the ongoing efforts in the application of artificial intelligence for financial forecasting, offering valuable insights for market participants in the cryptocurrency domain.

Keywords— Bit coin, Time records price, Digital store, Information price

ICRIT171

STUDENT BONAFIDE RETRIEVAL SYSTEM

R. Mohammed, P. Pranav, S. Mohamed Bahardeen, R.K. Keerthi Roshan, R. Adhilakshmi
Department of Information Technology
PSNA College of Engineering & Technology
Dindigul, India
mohammed21it@psnacet.edu.in

ABSTRACT The Online Bonafide Certificate Generator is a secure and efficient web-based system designed to streamline the process of issuing bonafide certificates for students. Built using the MERN (MongoDB, Express.js, React.js, Node.js) stack, the platform eliminates manual paperwork and long wait times, offering a digital-first solution that enhances transparency, accuracy, and convenience in academic administration.The system allows students to register and submit certificate requests with their academic details, department, and purpose. Upon submission, requests are verified by the institution's admin panel, which ensures the authenticity of the request using pre-stored student data. Once approved, the system dynamically generates a digitally signed bonafide certificate, which students can securely download in PDF format. All request logs and certificate issues are stored in a centralized database for easy audit and tracking.By automating the bonafide issuing process, the platform not only reduces administrative overhead but also ensures quick access to official documents, supporting students in scholarship applications, internships, and other academic or official needs.

ICRIT172

IWT BASED RENETTE CLASSIFIER FOR LUNG CANCER DETECTION

[1]Mrs. S.Suganya M.E., [2]Ms.S.Jenolin Aiswarya
[1]Assistant Professor, [2]PG Scholar
Computer Science and Engineering,
Jayaraj Annapackiam CSI College of Engineering, Nazareth, India

ABSTRACT Lung cancer remains a major health challenge due to its high mortality rate and the difficulty in achieving early diagnosis. To address this, we propose an intelligent lung cancer detection system that combines traditional feature extraction and modern deep learning techniques. Our approach utilizes the Integer Wavelet Transform (IWT) for efficient image decomposition and feature extraction, capturing both spatial and frequency-domain information from lung CT or X-ray images. The extracted features are then enhanced using VGG16, a pre-trained convolutional neural network known for its powerful deep feature representation capabilities. These hybrid features are finally classified using the Renette classifier, a robust model suitable for handling complex, high-dimensional medical data.This integrated system leverages the precision of deep learning and the interpretability of handcrafted features to improve detection accuracy. Experimental results demonstrate that the proposed model achieves high performance in distinguishing between malignant and benign lung nodules, offering a reliable tool for early-stage lung cancer diagnosis. The framework shows great potential for use in computer-aided diagnostic (CAD) systems in clinical environments.

ICRIT173

NEXT-GEN HUMAN-COMPUTER INTERACTION: VIRTUAL MOUSE AND KEYBOARD SYSTEM

[1]Samraj S, [2]Bharath G, [3]Akshyakumar K , [4]Azhagesvaran T
[1,2,3] UG Students , [4]Associate Professor
Department of Electronics and Communication Engineering, Roever Engineering College, Perambalur,India
[1]samraj363@gmail.com,[2]ganesanbharath7@gmail.com,[3]akshy0504kumar@gmail.com,[4]azhagesvarantamilselvam@gmail.com

ABSTRACT----Elderly people face unique challenges when using conventional computer interfaces. Therefore, there is an essential need to model a system for such people for easy accessing of modern computer technologies. This paper presents an inventive solution, the "Gesture and Voice Controlled Virtual Mouse" designed to improve the digital interaction experience for older individuals facing challenges with traditional computer input peripherals. Employing advanced technology, this project establishes an intuitive interface using natural gestures and vocal commands. Gesture recognition employs cutting-edge computer vision and machine learning models, for accurate interpretation of automatic hand gestures extraction which is implemented using MediaPipe framework on top of pybind11 along with OpenCV. Voice recognition integrates automatic speech recognition and natural language processing to understand spoken commands effectively. The speech assistant Proton recognizes the commands through pyttsx3 library of python and perform the action required. The experimentation results demonstrated the efficacy of the proposed model in accurate prediction of hand gestures and voice commands.

Key Words: Hand Gesture Recognition, Voice-controlled, Virtual mouse, CNN, Elderly People, OpenCV, MediaPipe.

ICRIT174

SMART LIFT ACCESS: ENHANCING SECURITY WITH FACE RECOGNITION

Priyadharshini A, Sivaranjini N, Sathanasri M, Suguna L
BTech Information Technology
Erode sengunthar engineering college
gandhipriya838@gmail.com, Sivaranjininagarajan7@gmail.com, athanasrimuthusamy@gmail.com, Sugunalsuguna323@gmail.com

ABSTRACT

This paper presents a smart lift access system that enhances security and efficiency through facial recognition technology. Traditional methods like RFID cards and PIN codes are vulnerable to theft and user error, while face recognition offers a contactless, secure alternative. The system uses computer vision algorithms to authenticate users by matching their facial features with stored data, allowing for personalized and seamless lift access. It addresses security concerns, improves user convenience, and promotes hygiene by eliminating physical interaction with shared surfaces. The proposed system offers a modern solution for secure, efficient, and hygienic lift access in smart buildings.

Keywords:Smart lift, face recognition, access control, biometric security, contactless system, computer vision, Raspberry Pi.

ICRIT175

PROACTIVE RISK ASSESSMENT IN CCTV USING HAND GESTURE RECOGNITION AND GEOLOCATION-BASED ALERTS

S.Hari, R.Bala Sundar, A.Pranav, S.Shinose, E.M.Uma Selvi
Department of Electronics and Communication Engineering
Grace College of Engineering, Thoothukudi
950321106011@gracecoe.org

ABSTRACT

CCTV surveillance systems have become an integral part of security monitoring in public spaces, businesses, and homes. However, traditional CCTV systems often rely solely on manual monitoring and basic motion detection, which may fail to identify certain security risks or aggressive behaviors. In particular, existing systems are limited in detecting real-time hand gestures that could indicate a potential security threat. Common methods, such as facial recognition or motion-based alerts, may not provide the level of sensitivity and accuracy needed to assess risks associated with human gestures effectively. To address these shortcomings, this proposed system integrates hand gesture recognition with real-time CCTV surveillance to enhance security risk assessment. By leveraging OpenPose for recognizing hand gestures and MediaPipe for feature extraction, our system identifies specific gestures, such as clenched fists or aggressive pointing, that may indicate a threat. Upon detecting a high-risk gesture, the system automatically triggers alerts to both the nearest police station and authorized personnel via SMS, email, and mobile app notifications. The system also incorporates geolocation- based notifications, ensuring that alerts are sent to the appropriate authorities in the vicinity of the event. This proactive approach enables immediate response and rapid risk mitigation, improving the overall effectiveness of surveillance systems and enhancing public safety. Through this integration, the proposed system provides a more intelligent and responsive alternative to traditional CCTV monitoring, aiming to reduce the time to threat detection and intervention.

ICRIT176

COMPARATIVE STUDY ON CONCRETE BY USING DESTRUCTIVE AND NON-DESTRUCTIVE METHOD

S.Rajakumar, M.Prabha, P.Muthu Revathi, M.Kanimozhi, S.Esakkiammal
Civil Engineering , University VOC College of Engineering ,Thoothukudi.

ABSTRACT

This project presents a comparative study of concrete using both destructive and non-destructive testing (NDT) methods. Destructive methods, such as compressive strength test, involve the physical breaking of concrete specimens to assess their load-bearing capacity. On the other hand, non-destructive technique Rebound Hammer Tests allow for the assessment of concrete without causing any damage to the structure.We are executing here is M30 concrete with the components of cement, fine aggregate, coarse aggregate and water. This is a comparative study conducted on basis to find out which test is finest to calculate the strength of the concrete. In this study, the value is obtained by replacing 10%, 15% and 20% of cement by metakaolin. The concrete is casted in specimen of cube size 150*150*150mm and they were cured in water for the period of 7days and 28days. Then the concrete is tested for Compressive Strength and Rebound Hammer. A comparative study between the Rebound Hammer and Compression Testing Machine, investigating the effects of altering cement proportions by 10%,20% and 30% on Compressive Strength . The research identifies the optimal level of Compressive Strength, achieving 35.53 MPa with a 15% replacement of metakaolin.

KEY POINTS : Rebound Hammer, Compressive Strength, M30 concrete, Metakaolin ,Load bearing capacity.

ICRIT177

DESIGN AND PERFORMANCE EVALUATION OF A HIGH-GAIN UWB SLOT ANTENNA ON JEANS FABRIC FOR WEARABLE HEALTH MONITORING WITH PHANTOM VALIDATION

Mr Anandhan C [1], Arun Ram I [2], Ahilan K [3], Balasankaranathan S [4]
Department of ECE, SRM TRP Engineering College, Trichy, Tamil Nadu, India.
arunram6346@gmail.com

ABSTRACT

This paper presents the design and simulation of a compact ultra-wideband (UWB) wearable antenna intended for integration into textile materials, specifically for medical monitoring applications. The proposed antenna is developed using ANSYS HFSS and operates within the UWB frequency range of 3 to 6.5 GHz. This frequency range is ideal for wireless body area network (WBAN) communication systems, which are widely used in health monitoring and related biomedical applications due to their capability to support high data rates over short distances.The antenna design is realized on a textile substrate measuring 30 mm × 30 mm with a thickness of 1 mm. Denim fabric is chosen as the substrate material, owing to its mechanical strength, flexibility, and overall comfort when worn on the body. These properties make denim a suitable candidate for continuous wearable use. Furthermore, the dielectric constant of denim is approximately 1.67, which contributes to minimizing surface wave losses and enhances radiation performance—both important factors in wearable antenna applications.The antenna structure consists of a circular radiating patch that includes symmetrical indentations on the upper side, along with a centrally located diamond-shaped slot. This configuration is optimized to achieve wideband behavior across the UWB range. The signal is excited using a microstrip feed line, which offers a simple, compact, and effective method for integration into wearable systems.

ICRIT178

QUANTUM ENCODING FOR ENHANCED IMAGE PROCESSING: A PARADIGM SHIFT IN VISUAL DATA REPRESENTATION

G. Sowndharya, Dr. K. Umamaheswari
Department of Electronics and Communication Engineering,
Roever Engineering College, Perambalur, Tamil Nadu
govindhansowndharya@gmail.com

ABSTRACT

As the volume and complexity of visual data grow exponentially, conventional image processing techniques face increasing limitations in speed, scalability, and efficiency. Quantum computing, with its inherently parallel processing capabilities and novel data representation frameworks, offers a transformative solution to these challenges. In this context, quantum image encoding plays a pivotal role, acting as the foundational step in translating classical image data into a quantum-compatible format. This paper explores the concept and implementation of quantum encoders tailored for image processing tasks, focusing on the widely studied quantum image representation models such as Flexible Representation of Quantum Images (FRQI) and Novel Enhanced Quantum Representation (NEQR). These encoding schemes enable the storage of pixel intensity and position into quantum states, allowing for the exploitation of quantum phenomena like superposition and entanglement to perform highly efficient image operations.In this paper discuss the theoretical framework of quantum image encoders and their integration into quantum circuits, along with the practical implications for image compression, enhancement, edge detection, and pattern recognition. The study highlights how quantum encoding significantly reduces computational complexity and memory usage compared to classical approaches. In addition to that review recent experimental advancements and quantum hardware implementations that demonstrate the feasibility of real-world quantum image processing. While challenges remain, particularly in noise management and qubit scalability, quantum image encoding marks a crucial advancement towards leveraging quantum computing for next-generation visual data applications. This abstract serves as an entry point for researchers and engineers seeking to understand and apply quantum encoding techniques in modern image processing pipelines.

Keywords: Quantum Computing, Quantum Image Processing, Quantum Image Encoding, FRQI (Flexible Representation of Quantum Images), NEQR (Novel Enhanced Quantum Representation), Superposition, Entanglement, Quantum Circuits, Image Compression, Quantum Representation Models

ICRIT179

SMART NOTICE BOARD WITH SMS NOTIFICATION

S.Karthiga , E.Sasdika ,V.Leela Devi ,Tannu, A.Samsu Nighar
Grace College of Engineering, Thoothukudi
950321106015@gracecoe.org

ABSRACT

This project presents the design and implementation of an IoT-based smart notification board that enhances communication efficiency through real-time, remote updates. utilizing an ESP32 microcontroller. LCD display, GSM modem, and the Blynk IoT platform, the system always authorized user to send messages via a mobile application. These messages are displayed instantly on a digital board and sent as SMS alert to intended recipients. The solutions is particularly suitable for educational institutions, offices, public transport hubs, and health care facilities, where timely information disseminatinon is crucial. The proposed system addresses the limitations of traditional and semi-digital notice boards by offering remote access. Multi-user support. Energy efficiency, and reduces reliance on paper. This smart board offers a scalable. Cost-effective, and secure platform for modern, connected environments

Keywords: IoT, Smart notification board, ESP32, Real-time communication, Remote Message Updates

ICRIT180

IOT BASED COMPACT COST EFFECTIVE SYSTEM FOR EFFICIENT CLEARING AND MAINTENANCE OF SEWAGE CANALS

Manirethinam R, Lukmaan A, Suvisesh A, Mr.S.Thomas Praveen Joseph,
Department of Electrical and Electronics Engineering, J.J.College of Engineering and Technology, Trichy.
manirethinam9787@gmail.com

ABSTRACT

The design of a compact, cost-effective device for clearing long sewage canals and removing stagnated water aims to address the growing issues of drainage flow inefficiencies and blockages in urban sewage systems. Existing methods of maintaining sewage systems often involve expensive, cumbersome machinery or labor-intensive manual interventions. This project proposes the development of an innovative, lightweight device that can efficiently remove debris, stagnant water, and other obstructions from canals, ensuring smooth water flow and preventing blockages. The proposed solution will utilize advanced technologies such as robotics, water pumps, and smart sensors, integrated into a modular design that is easy to deploy and maintain. The device will be powered by eco-friendly energy sources, reducing operational costs and environmental impact. By improving the efficiency and longevity of sewage systems, this project aims to contribute to better sanitation , reduced flooding and improved public health outcomes, particularly in densely populated urban areas.The design will prioritize scalability, cost-effectiveness, and user-friendliness, ensuring widespread applicability in both developed and developing regions.

Keywords: sewage canal cleaning, drainage flow inefficiencies, urban sewage systems, blockage removal, compact device, cost-effective, debris removal, stagnant water, lightweight design, robotics, water pumps, smart sensors, modular design, eco-friendly energy, low operational cost, environmental impact, sanitation improvement, flood reduction, public health, scalability, user-friendliness, developed and developing regions.

ICRIT181

SMART APP FOR GATE PASS MANAGEMENT AND ATTENDANCE MONITORING

[1]Mrs.S.Suganya, [2]Ms.N.Asuvathi, [3]Ms.R.Bhuvaneswari, [4]Ms.R.Jenifer
Computer Science and Engineering,
Jayaraj Annapackiam CSI College of Engineering, Nazareth, India

ABSTRACT

In educational institutions, managing student and staff entry along with accurate attendance tracking is a critical challenge. Traditional methods such as manual registers and ID card checks are prone to errors, security risks, inefficiencies. This project proposes a Flutter based mobile application integrated with code technology and Firebase to automate and enhance the process. The system enables students and staff to generate unique based entry passes for secure access to the campus. Security personnel can scan the codes at the gate to verify entry authorization, while classroom attendance is marked automatically through code scanning. An admin dashboard allows CRUD operations for managing users, monitoring attendance records, and generating reports in real time. This system replaces traditional paper based tracking with an efficient, digital solutions.

Keywords - Gate Pass, Attendance Monitoring, Mobile Application, Security guard, User Verifications.

ICRIT182

INFLUENCE OF ELECTRICAL AND FLOW PROPERTIES OF PALM OIL WITH INCLUSION OF AT DIFFERENT NATURAL AND SYNTHETIC ANTIOXIDANTS USING MOORA RANKING METHOD

Dhana Priya Tharsini C, Santhana Malini S. Arul Kandhan P
Elecrical and Elecrtronics Engineering
Holycross Engineering College, Thoothukudi
dhanapriya511@gmail.com

ABSTRACT

This investigate the antioxidant activity and physicochemical properties of oil intends to examine liquid insulation under various voltage stress, moisture inclusion, and ageing situations. Vegetable oil in both saturated and unsaturated forms will be used to create liquid insulation samples for this study. One of the crucial elements that affects the performance of liquid insulation as a coolant and other elements related to liquid insulation in the transformer is viscosity. The combination of different types of antioxidants and adding 1% to 5% of ratios which is slightly increases the breakdown voltage, but significantly raises the oxidation stability of the vegetable oils. This results in a reduction in the viscosity and the acid number of the vegetable oils. Investigating of electrical and viscous nature of palm oil will be done under various voltage streams. Analyzing the physiochemical properties of oil samples will be used to determine the impact of ageing and the presence of moisture on all prepared samples. The findings demonstrate that the breakdown voltage and viscosity of the vegetable oils are only marginally impacted by ageing. Thus the effectiveness of oil sample performance has been classified, and the best sample is determined using the MOORA ranking method.

Keywords— Vegetable oils; Antioxidants; Ranking method; Breakdown voltage; Viscosity; Flash point; Pour point and Density.

ICRIT183

ACCESS YOUR MOBILE FROM ANYWHERE WITHOUT INTERNET

Antony vinitha P, Jesila A, Keerthana V, Dharshini K, Arunmozhi selvi S
Dept. Of Computer Science and Engineering, Holycross Engineering College, Thoothukudi, India
Antonyvinitha2003@gmail.com, Jesila.arulraj@gmail.com, Itsmekeerthana03@gmail.com, Dharhinikathirvel282@gmail.com

ABSTRACT

The "Access Phone Remotely" page allows the user to remotely control their phone by sending an SMS with a pre-set password from another device. Once the application is installed on the user's phone, the user syncs their contacts and grants permissions for sound access and phone lock control. If the user forgets their phone and needs to access it, they can simply use another phone to send an SMS to their device with the password they configured in the app. The app listens for the incoming message, verifies the password, and if correct, it responds by sending the requested contact details or controlling sound settings.The user doesn't need to interact with the app directly through any user interface; rather, they send a password-protected SMS from a different phone to trigger the necessary action. The app then operates in the background to verify the password and send back the appropriate information or take the requested action (like changing the sound settings or returning contacts) to the user's phone.The communication is entirely through SMS, meaning the user can access the phone's information or controls without requiring an internet connection. The app utilizes Flutter Bloc for state management, where it listens for incoming SMS messages, checks the password, and responds with either the requested data or an error message. The app's backend leverages Firebase for storing and verifying the user's credentials, ensuring the security and privacy of the operation.

Keywords—Mobile access, offline control, SMS communication, no-internet solution.

ICRIT184

IoUT-BASED UNDERWATER COMMUNICATION FOR FLOODMANAGEMENT AND RESCUE OPERATION

R.Kaviya ,N.Sneha ,S.Suyaja ,J.Senbagam ,R.Janaki
Department Of ECE
Roever Engineering college,Perambalur,india
kaviyaraja80@gmail.com, mathisneha2004@gmail.com,
suyajavs@gmail.com, jeyaramansenbagam27@gmail.com, dkpriyan7@gmail.com

ABSTRACT

Underwater communication is an advanced technology that enables data transmission through water, making it a viable solution for underwater communication. During floods traditional communication network ,including mobile tower, often shut down for safety reasons, making it difficult to coordinate rescue efforts in such scenarios. Water becomes the only available medium for transmitting critical information. The internet of under water things (IoUT)technology allows real-time data transfer through water channels,ensuring reasons teams receive essential details without relying on conventional network. Proposed system employees an ATmega328 controller with underwater data transmitter (TX)and receiver (RX) modulus to facilitate seamless communication. A GPS module is integerated to track and transmit the precise location of individual in distress. by pressing an emergency switch, the TX module instantly sends distress signal containing location details and rescue requirements. The rescue team, equipped with an RX module, receive this data and can quickly mobilize resources for an efficient response. This innovative approach significantly enhances rescue operations during flood emergencies, ensuring faster assistance and saving lives

Keywords: *Under water data communication, IoUT (internet of underwater things). Underwater data transmitter and receiver, GPS module ,ATmega328 controller*

ICRIT185

EARLY DETECTION OF PNEUMONIA AND COVID-19 IN CHEST X-RAY IMAGES USING VIT

[1]J.Vidya, [2]V.Niroshini, [3]Dr. A. Meena Kabilan

[1,2] Final Year, Dept. of AI & DS, Misrimal Navajee Munoth Jain Engineering college, Chennai,India
[3] Professor, Dept. of AI & DS, Misrimal Navajee Munoth Jain Engineering college, Chennai,India
iasvvidya01@gmail.com,

ABSTRACT

Accurate and timely classification of respiratory illnesses such as COVID-19 and Pneumonia is crucial for effective clinical diagnosis and prompt treatment. This paper introduces a robust deep learning model that integrates the capabilities of Vision Transformer (ViT) with the advanced attention mechanism OLAMA v3 (Optimized Layer-wise Adaptive Multi-Model Attention - Version 3) to categorize chest X-ray images into three classes: COVID-19, Pneumonia, and Normal. The system is trained and assessed using the publicly accessible Kaggle dataset Chest X-ray COVID19, Pneumonia, Normal, which features a diverse and balanced collection of high-resolution X-ray images.The architecture of the model employs vit_base_patch16_224, which has been pretrained on ImageNet and further fine-tuned for three-class classification via the timm library. The OLAMA v3 component is incorporated into the ViT framework to enhance its attention mechanisms by dynamically modifying attention weights across transformer layers and different regions of the image. This improvement leads to more accurate feature extraction and better differentiation between similar radiographic patterns.The implementation utilizes PyTorch, along with Pandas, KaggleHub, and PIL for managing data and processing images. The preprocessing workflow includes normalization, resizing, and augmentation utilizing torchvision.transforms. There is a usage of Medichat that explain the user inputs and predict the symptoms based on it. Experimental findings reveal that the ViT-OLAMA v3 hybrid model outperforms standard CNN and ViT baselines in terms of accuracy, sensitivity, and specificity. The proposed method provides a scalable and intelligent diagnostic solution suited for real-world medical environments and aids radiologists in making quicker and more precise decisions.

Keywords: Vision Transformer (ViT), OLAMA v3, Chest X-ray, COVID-19, Pneumonia Classification, Attention Mechanism, Transformer Models, PyTorch, MediChat

ICRIT186

PWM BASED SLIDING MODE CONTROLLER FOR SUPER-LIFT LUO CONVERTER

Dr. R Sowmya, Arjun S, Balamurugan S, Krishnakumar R, Mohammed Shaik Khalid M
SRM TRP Engineering College (Anna University), Tiruchirappalli, India
arjunss057@gmail.com

ABSTRACT

The Super Lift Luo Converter (SLLC) is a type of DC/DC converters, due to the variations in voltage and load, and switching operations, the static and dynamic performances of the SLLC are non-linear and time-varying. To achieve an efficient performance, a non-linear controller is required. In this paper, a fast response and robust controller for voltage regulation of a SLLC is presented. Proportional Integral (PI) and Pulse-Width Modulation (PWM) Sliding Mode controllers are integrated to control a third order SLLC. Simulations and experimental results are presented that shows the developed controller is effective in different operating conditions and also effective in suppressing steady-state error in the output voltage.

Keywords – Inductors, Voltage Control, Pulse width modulation, Switches, Capacitors, Steady-state, Semiconductor diodes

ICRIT187

EARLY DETECTION AND STAGE PREDICTION OF DIABETIC RETINOPATHY USING HYBRID DEEP LEARNING MODELS

Subasri M[1], Abinayaasri A S[2], Charulatha R[3], Keerthana R[4], Swetha M[5]
Department of Computer Science and Engineering,
SRM TRP Engineering College, Irungalur, Mannachanallur Taluk, Tiruchirappalli, Tamil Nadu, India

ABSTRACT

Diabetic Retinopathy (DR) is a vision-threatening complication of diabetes and is one of the leading causes of blindness worldwide. Early detection and accurate classification of DR stages are essential to prevent permanent vision loss. In this project, we propose a hybrid deep learning model that integrates multiple advanced architectures for efficient and precise DR detection and stage prediction from retinal fundus images. Our model utilizes EfficientNetV2, a powerful convolutional neural network, for extracting fine-grained visual features from the images. To enhance focus on the most relevant regions of the retina, we incorporate the Convolutional Block Attention Module (CBAM), which refines features spatially and channel-wise. Furthermore, Swin Transformer is employed to capture global dependencies and hierarchical representations by applying self-attention mechanisms in a shifted windowing approach. The extracted and combined features from these modules are passed through a Multi-Layer Perceptron (MLP) classifier, which is optimized for multi-class classification. The dataset used includes annotated retinal fundus images with various DR severity levels. To address class imbalance and enhance generalization, we apply preprocessing techniques including resizing, normalization, and data augmentation such as rotation and flipping. The model's performance is evaluated using metrics such as accuracy, precision, recall, and F1-score. Experimental results show that our proposed hybrid model achieves superior classification performance compared to conventional CNN architectures. This work contributes toward the development of robust, accurate, and scalable DR screening systems, ultimately reducing the risk of vision loss in diabetic patients through timely diagnosis and intervention.

Keywords—Diabetic Retinopathy, EfficientNetV2, Swin Transformer, CBAM, MLP, Deep Learning, Image Classification

ICRIT188

PRECISION FARMING SYSTEM FOR EFFICIENT FERTILIZER AND PESTICIDE MANAGEMENT

Mr.V.Gurunathan , Sanofar Parveen A, Suvetha k, Nisanth J
Dept of ECE, Dr.MCET, Pollachi, India
asanofarparveen@gmail.com

ABSTRACT

Agriculture remains the cornerstone of global food security, directly influencing economic stability and human well-being. However, modern agricultural practices are increasingly burdened by the inefficient use of fertilizers and pesticides, which leads to excessive consumption of resources, inflated operational costs, and severe environmental degradation. The overuse of these inputs not only affects soil health but also contributes to water contamination, biodiversity loss, and climate change. The need for precision agriculture, which optimizes input use through advanced technologies, has become critical to address these challenges effectively. This paper presents an precision farming system that integrates Internet of Things (IoT) sensors with image processing techniques to enhance the efficiency of fertilizer and pesticide application. The system employs a network of environmental sensors, including temperature, soil moisture, rain status and atmospheric pressure sensors, to monitor key crop health parameters in real time. Alongside, high-resolution camera modules capture plant leaf images, which are analyzed using convolutional neural networks (CNNs) to detect early-stage diseases, nutrient deficiencies, and other stress.

By merging real-time sensor data with advanced image analysis, the system provides precise recommendations for fertilizer and pesticide application, ensuring resources are utilized optimally and only when necessary. This approach reduces waste, minimizes environmental impact, and improves resource efficiency, ultimately enhancing crop yield and sustainability. The system's adaptability and computational efficiency make it a viable solution for diverse agricultural settings, from small-scale farms to large commercial operations. Through the integration of IoT and image processing technologies, this system offers a sustainable and data-driven solution to the critical issues of fertilizer and pesticide overuse, paving the way for more efficient, environmentally responsible, and economically viable agricultural practices.

Keywords--convolutional neural network, image processing, computational efficiency, sustainable.

ICRIT189

REAL-TIME VIDEO SUMMARIZATION USING WHISPER TRANSCRIPTION AND BERT NLP MODELS

Ms.MawhebaT[1] , Ms Brindaa Tamilarasi K.[2] ,
Department of Artificial Intelligence and Data Science, St. Peters college of engineering and Technology,Avadi,Chennai,India
mawhebathahir01@gmail.com[1]
brindaatamilarasi200 @gmail.com[2]

ABSTRACT

The exponential growth of user-generated video content on platforms such as YouTube has created a pressing need for scalable and automated methods to analyze and condense large volumes of audiovisual data. Traditional manual methods for reviewing and summarizing such content are no longer feasible given the sheer scale and velocity at which videos are produced and consumed. In response to this challenge, this paper introduces a comprehensive and efficient framework for automatic video summarization that integrates advanced speech recognition and natural language processing techniques. Our proposed system leverages OpenAI's Whisper, a cutting-edge speech-to-text engine, to convert spoken dialogue in videos into accurate text transcriptions. This forms the foundational layer of our pipeline. Building on these transcripts, we utilize BERT-based language models to perform both extractive and abstractive summarization. The extractive model identifies and selects key sentences from the transcription, while the abstractive model rephrases and condenses content to generate human-like, coherent summaries that maintain the original intent and context. The strength of this dual-model architecture lies in its ability to capture both the factual and semantic essence of a video, ensuring that the summaries are not only concise but also contextually accurate. Our framework is evaluated using benchmark metrics such as ROUGE and BLEU, which demonstrate noticeable improvements over existing baseline methods. Furthermore, the system exhibits the potential for near real-time processing, making it suitable for deployment in dynamic content environments. This approach offers a scalable solution for educational platforms, media archives, and content indexing systems, where efficient information retrieval is essential. By automating the summarization process through speech recognition and advanced natural language understanding, our framework significantly reduces human effort while improving the accessibility and usability of video content. The study concludes by discussing future enhancements such as multilingual support and integration with visual summarization for multimodal analysis.

Keywords: Video Summarization, Speech-to-Text, OpenAI Whisper, BERT

ICRIT190

4-PORT OCTAGONAL SHAPED MIMO ANTENNA WITH LOW MUTUAL COUPLING FOR UWB APPLICATIONS

Mr Anandhan C [1], Dharani E [2], Mithra M [3], Harshini S [4]
Department of ECE, SRM TRP Engineering College, Trichy, Tamil Nadu, India.
edharanidharu45@gmail.com

ABSTRACT

This paper presents a high-performance 4-port multiple-input multiple-output (MIMO) antenna designed for ultra-wideband (UWB) applications, offering low mutual coupling, high isolation, and superior diversity characteristics. The antenna is simulated using ANSYS HFSS and fabricated on an FR4 epoxy substrate with a thickness of 1.6 mm and a compact footprint of 60 × 60 mm², making it suitable for integration into modern compact wireless systems.

The design incorporates four octagonal-shaped radiating elements, each excited through a 50-ohm microstrip feed line. These elements are rotationally arranged to achieve orthogonal polarization, thereby enhancing isolation and reducing polarization correlation between ports.

The antenna demonstrates an ultra-wide impedance bandwidth of 7.5 GHz, effectively covering the 3.5 GHz to 11 GHz range, with S_{11} consistently below –10 dB, translating to a bandwidth percentage of 103.44%. Design strategies ensure inter-element isolation exceeds 20 dB across the operating band. The Envelope Correlation Coefficient (ECC) remains under 0.01, indicating excellent MIMO performance. Radiation characteristics include omnidirectional patterns and a stable peak gain of ≥4 dBi.

ICRIT191

SOLAR-POWERED ELECTRIC SCOOTER

K.Murugadharani, Dr. S. Ganesh
Department of Electrical and Electronics Engineering, Grace College of Engineering, Thoothukudi, India
murugadharanik@gmail.com , drsganesh1988@gmail.com

ABSTRACT

With the growing demand for greener and more economical transportation options, many sustainable alternatives to traditional gasoline-powered vehicles have emerged. This project is about transforming a regular gasoline-powered scooter into a solar-powered vehicle. To achieve this, solar panels, a lithium-ion battery, a BLDC motor, and an MPPT charge controller were used to make better use of energy. The vehicle works by capturing energy from the sun, which is stored in the battery and used to power the engine, helping to reduce dependence on fossil fuels. The main goals of the project are to make energy use more efficient, reduce carbon emissions, and lower operating costs, without compromising on performance. The idea is to overcome the limitations of gasoline-powered vehicles, such as expensive maintenance, high fuel prices, and environmental impact. To evaluate how the system works, tests were carried out on the battery, the motor, and the solar panel's ability to charge the battery under different conditions. This project shows that it is possible to use renewable energy in transportation, paving the way for more sustainable mobility solutions. The results indicate that solar-powered electric scooters could be a viable alternative to traditional models, helping to make our environment cleaner and greener.

Keywords— Electric Vehicle, Low cost , eco friendly, Sustainable, Solar

ICRIT192

A STUDY ON AI BASED BUSINESS INTELLIGENCE

[1]Divya Dharshini K V, [2] Subhashini C R, [3]Dr. A. Meena Kabilan
Dept. of AI & DS, MNM Jain Engineering College, Chennai

ABSTRACT

In many different industries, business intelligence (BI) is essential for turning unstructured, raw data into insights that can be used to inform strategic decision-making. Traditional BI systems' adaptability, scalability, and predictive capabilities are limited by the rise in data generation and the growing need for real-time insights. One effective way to deal with these issues is to incorporate machine learning (ML) and artificial intelligence (AI) into business intelligence (BI). BI systems can produce predictive analytics, automate data processing, and provide dynamic, personalised insights by utilising AI and ML. But integrating these cutting-edge technologies brings with it new challenges, such as managing various data infrastructures, making sure data governance is strong, and filling in data literacy skills gaps.
Keywords: Business Intelligence, Machine Learning, Artificial Intelligence

ICRIT193

FACE AND FINGERPRINT-BASED ATM TRANSACTION USING DEEP CONVOLUTIONAL NEURAL NETWORK (DCNN)

M. Rianee Rayen, P. Sakthi Lakshmi , S. Zeenath Misiriya, R. Reshma
Department of Computer Science and Engineering,
Holy Cross Engineering College, Thoothukudi district
rianeerayen2@gmail.com, sakthi1832004@gmail.com, zeenathmisiriya2003@gmail.com , reshma03022004@gmail.com

ABSTRACT

Traditional ATM transactions use PIN-based authentication, which is prone to theft, skimming, and phishing attacks. A biometric authentication system based on Deep Convolutional Neural Networks (DCNN) is presented to improve security and user convenience. This system ensures that transactions are robust and safe by using deep learning algorithms to identify and verify users reliably. The suggested approach outperforms standard authentication methods by offering greater accuracy, increased security, and resistance to spoofing attacks. By combining facial recognition and fingerprint verification, the system provides a multi-modal biometric method that is more secure than single-modal systems. DCNN's capacity to learn complicated patterns allows for accurate user identification, lowering the likelihood of false positives and negatives. The advantages of this technique are numerous. Biometric data is unique to each individual and cannot be easily copied, which provides significant security benefits. Another advantage is that users no longer have to memorize PINs or carry cards, which increases convenience. The solution also improves transaction efficiency by lowering the time needed for authentication.This technology has potential applications outside ATMs, such as safe access control, identity verification, and border control. This system, which uses DCNN and biometric authentication, provides a strong and secure solution for a variety of applications. The use of biometric authentication also eliminates the requirement for password management, lowering the likelihood of password-related security breaches. The suggested system outperforms standard authentication approaches, offering a more secure, efficient, and user-friendly experience. This method is an interesting development in biometric security since it has the potential to transform how we verify and safeguard transactions. By implementing this system, we can ensure a safer and convenient future for financial transactions and beyond. The system's accuracy and security qualities make it a desirable solution for a variety of businesses.

Keywords - Biometric Authentication, Face Recognition, Fingerprint Recognition, Deep Convolutional Neural Networks, Hybrid Machine Learning (keywords)

ICRIT194

DATA-DRIVEN DECISION-MAKING: BREAKTHROUGHS IN MODERN BUSINESS INTELLIGENCE

[1]Mahak.A, [2]Dhanasekar.N, [3]Dr. A. Meena Kabilan
Dept. of AI & DS, MNM Jain Engineering College, Chennai

ABSTRACT

In the fast-paced business environment of today, data has become a foundation for strategic and operational decision-making. With the advent of contemporary Business Intelligence (BI) tools, the way organizations process, analyse, and leverage data has dramatically changed. This paper discusses the progression from conventional BI systems to AI-powered platforms, with an emphasis on real-time analytics, integration of machine learning, cloud-based BI, and automated decision-making. The goal is to give a complete insight into how data-driven decision-making enables companies to react quickly to changing market environments, enhance customer experiences, and become competitive. The paper also emphasizes the main distinctions between traditional BI systems and new AI-fortified platforms and ends with future trends influencing the business intelligence landscape.

Keywords :Business Intelligence is evolving with AI, ML, and real-time analytics to drive data-driven decision-making. Trends like self-service dashboards, augmented analytics, and cloud BI shape the future of digital transformation.

ICRIT195

AI-POWERED CHATBOTS FOR E-COMMERCE PLATFORMS

[1]Sangamithra S, [2]Monica M [3]Dr. A. Meena Kabilan
Dept. of AI & DS, MNM Jain Engineering College, Chennai

ABSTRACT

Business intelligence (BI) is essential to turning massive amounts of transactional data and customer interactions into actionable insights in the quick-paced world of e-commerce. However, modern online retail demands real-time responsiveness, personalisation, and predictive capabilities, all of which traditional BI systems frequently find difficult to meet. A potent solution is provided by incorporating machine learning (ML) and artificial intelligence (AI) into e-commerce chatbots, which enable predictive analytics, automate customer support procedures, and provide incredibly customised shopping experiences. However, there are drawbacks to this integration as well, such as the need to manage various data sources, maintain robust data governance, and close the AI literacy gaps that exist among businesses and users.

Keywords- AI Chatbots, Real-Time, Predictive, ML, NLP, Personalization, Commerce, Sentiment, Automation, Voice.

ICRIT196

HUMAN RELATIONSHIPS AND THE POWER OF COMPASSION IN AMITA TRASI'S THE COLOR OF OUR SKY

[1]R. Saranya, [2]S. Dyana Flora,
Department of English, Grace College of Engineering, Thoothukudi
saranya@grace.edu.in, dyanaflora@grace.edu.in

ABSTRACT

This paper explores the complexities of human relationships and the transformative power of compassion through the story of Mukta, a young woman navigating a treacherous world of exploitation and abuse. Despite facing unimaginable hardships, Mukta's life is touched by strangers who show her kindness, empathy, and humanity. Through the characters of Raza, Andrew Colt, and others, the novel highlights the importance of human connections and the impact they can have on individuals in need. It examines the themes of love, loss, and redemption, and how they intersect with social structures such as caste, class, and family relationships. By analyzing the novel's portrayal of human relationships, this paper sheds light on the ways in which social hierarchies shape individual experiences and relationships. The story also showcases the resilience of the human spirit and the potential for positive change through collective efforts and compassion.

Keywords-Human relationships, compassion, kindness, exploitation, resilience, transformation, caste, class, patriarchy, love, loss, redemption.

ICRIT197

AGRICUREX: SMART DIAGNOSIS FOR PLANT LIFE

Selvaraj S, M.Tamilselvi,
Department of computer science and Engineering
Roever engineering college, Perambalur
selvarajjeeva75@gmail.com, tamilnaveena@gmail.com

ABSTRACT

The health of plants can be effectively monitored through their leaves, which serve as indicators of diseases, nutrient deficiencies, and environmental stress. Traditional methods of disease detection are labor-intensive, time-consuming, and prone to human error. The **AgriCureX** project introduces an AI-powered solution to accurately detect tree leaf diseases in real time. By leveraging deep learning techniques, specifically Convolutional Neural Networks (CNN) and the YOLO algorithm, this system classifies multiple leaf diseases from images with high precision. The system not only automates disease detection but also provides targeted fertilization recommendations and real-time alerts via voice messages and SMS, facilitating prompt intervention. Designed for scalability and ease of use, AgriCureX aims to revolutionize plant health management by enhancing agricultural productivity and promoting sustainable farming practices.

ICRIT198

THE FUTURE OF ADAPTIVE LIGHTING THROUGH INTELLIGENT ILLUMINATION TECHNOLOGIES

Gowri Shankar J [1], Gowthaman P [2], Jayasree [3], Kanagavalli [4], Nivetha T [5]
[1] Assistant Professor, Department of ECE, Mahendra Engineering College, Namakkal, Tamil Nadu, India
[2] Subject Matter Expert, Skill Development Division, FACE prep, Coimbatore, Tamil Nadu, India.
[3, 4] Lecturer , AVS Engineering College, Department of ECE, Salem, Tamil Nadu, India
[5] UG Student, Department of ECE, Sona College of Technology, Salem, Tamil Nadu, India.
[1]gowrishankar88be@gmail.com, [2]gawthamanna@gmail.com,[3]jayasreekavi0@gmail.com,
[4]66kanagavalli@gmail.com, [5]nivethatamil145@gmail.com

ABSTRACT

The paper introduces an Automatic Headlight Brightness Control System aimed at improving road safety during nighttime driving. Excessive use of high-beam headlights by drivers, especially on poorly lit roads, often leads to discomfort and reduced visibility for oncoming vehicles -posing a major cause of accidents at night. To address this issue, our system utilizes an Arduino-based automation framework to monitor environmental and traffic conditions. When an oncoming vehicle is detected, the system automatically shifts the headlights from high beam to low beam, minimizing glare and enhancing road safety. Additionally, the system is capable of adjusting the direction of the headlight beam when navigating sharp turns, ensuring optimal illumination of the road path. This intelligent headlight system aims to offer a safer and more responsive driving experience, reducing nighttime collisions and enhancing overall visibility for all road users.

ICRIT199

EXPERIMENTAL IMPLEMENTATION OF A AUTOMATED ANIMAL HEALTH IDENTIFICATION WITH TRACKING USING CNN AND ESP8266

[1]Vimalraj V, [2]Saravanan G , [3]Siram M, [4]Muthukumaravel K
[1,2,3] UG Students , [4]Assistant Professor
Department of Electronics and Communication Engineering, Roever Engineering College, Perambalur, India
[1]vammu1876@gmail.com , [2]saravanang5959@gmail.com, [3]srir131143@gmail.com, [4]muthu.kadhir@gmail.com

ABSTRACT

This project Animal Healthcare and Farm Animal Disease Prediction Using Deep Learning and IoT presents an intelligent system designed to improve livestock health management through early disease detection and real-time monitoring. Leveraging AI-driven deep learning for image-based disease identification, the system integrates IoT sensors to continuously track vital health parameters such as heart rate, body temperature, blood oxygen levels (SpO_2), and environmental gas concentrations. An Arduino-based microcontroller gathers this data and transmits it via a NodeMCU ESP8266 module to a cloud platform for real-time analysis and historical tracking. A GPS an GSM module enables precise animal location tracking for timely intervention, while an LCD display provides on-site health updates. This integrated approach reduces manual effort, ensures proactive care, and enhances farm productivity by combining advanced technologies in a scalable and cost-effective solution.

Keywords—AI-powered Image Classification, IoT, Node MCU, GSM, GPS, Deep Learning

ICRIT200

DEVELOPMENT OF MULTIPLEX PCR ASSAYS FOR THE DETECTION OF CANINE VIRAL PATHOGENS

R. Hari Narayani, P. Raja
Department of Animal Biotechnology, Faculty of Basic Sciences,
Madras Veterinary College, Chennai, Tamil Nadu
Presenting author: narayaniravi11@gmail.com

ABSTRACT

Canine viral diseases pose a significant threat to both domestic and stray dog populations, often resulting in severe morbidity and mortality if not diagnosed promptly. The viruses causing Canine Infectious Respiratory Disease Complex (CIRDC) and intestinal infections are the most common sources of canine viral illness. Worldwide, viral canine diarrhea is prevalent and leads to considerable morbidity and mortality, causing pet owners to experience significant financial and emotional losses. Various bacterial and viral pathogens can act as causative agents of canine infectious respiratory disease (CIRD) (Junsheng Dong et al., 2022). This study aimed to develop a rapid, sensitive, and specific multiplex polymerase chain reaction (PCR) assay for the simultaneous detection of major canine viral pathogens: Canine Parvovirus (CPV), Canine Distemper Virus (CDV), Canine Adenovirus Type 2 (CAV-2), and bacterial pathogens such as Leptospirosis. Molecular techniques, such as Polymerase Chain Reaction (PCR), have revolutionized pathogen detection due to their high sensitivity and specificity. Various types of PCR, including conventional PCR, real-time PCR (qPCR), and digital PCR, are extensively used in veterinary diagnostics. To facilitate diagnosis, two conventional multiplex polymerase chain reactions (mPCR) were developed to simultaneously identify four RNA and two DNA viruses associated with CIRDC (Piewbang et al., 2016). The assay was validated using synthetic controls, clinical samples, and standard virological methods. This study demonstrates the potential of multiplex PCR in streamlining the diagnosis of canine viral diseases. Multiplex PCR (mPCR) addresses this limitation by enabling the simultaneous detection of multiple viral pathogens in a single reaction, thereby reducing time and resource consumption. If the expected bands are not observed, optimization techniques such as Gradient PCR, reagent validation, and re-evaluation of DNA quality are employed to troubleshoot and refine the assay conditions.
Keywords: Canine virus, Multiplex PCR, Temperature optimization, Sequencing.

ICRIT201

CHARACTERIZATION AND QUALITY ASSESSMENT OF CHITOSAN EXTRACTED FROM LEAVES FOR NATURAL FOOD

S M Ramya Prabhavathi, Shambhavi Pandey, Dr. Banu Priya
Department of Biotechnology, Srm University Ramapuram Ist, Chennai Tamilnadu
Ss7020@srmist.edu.in, sv2049@srmist.edu.in

ABSTRACT

Computational Assessment of Chitosan Extracted from *Arabidopsis thaliana* Leaves as a Natural Food Preservative Chitosan, a biopolymer derived from chitin, is gaining attention as a natural food preservative due to its antimicrobial, biodegradable, and non-toxic properties. This study investigates the characterization and computational analysis of chitosan extracted from *Arabidopsis thaliana* leaves, aiming to evaluate its potential as a sustainable alternative to synthetic preservatives. Molecular docking and simulation techniques were employed to examine chitosan's interactions with microbial enzymes, including N-acetylglucosaminidase (2VN5), β-lactamase (1ZG4), and accessory gene regulator protein A (3BS1). Docking was performed using PyRx, with chitosan as the ligand. Most binding affinities ranged from -2.9 to -2.7 kcal/mol, indicating weak interactions and limited inhibitory potential. However, a notable interaction with the protein 3W93 showed a stronger binding affinity of -6.48 kcal/mol and moderate stability, suggesting promising antimicrobial potential. In addition to docking, ADMET (Absorption, Distribution, Metabolism, Excretion, and Toxicity) profiling using SwissADME confirmed chitosan's biodegradability and safety, supporting its use in food applications. The gene sequence of CERK1 was also analyzed using tools like FASTA, PubChem, and PDB to study molecular recognition processes. Furthermore, physicochemical properties such as antioxidant activity, metal chelation, and film-forming capacity were assessed, indicating chitosan's potential to prevent microbial contamination and oxidative spoilage. Although results highlight the potential of *A. thaliana*-derived chitosan as a natural preservative, weak interactions with key microbial enzymes suggest the need for further structural modifications or identification of alternative targets. Future studies will focus on improving chitosan's efficacy through enhanced docking strategies and experimental validation. This research supports the development of biodegradable and eco-friendly preservatives, contributing to sustainable food safety practices.
KEYWORDS: Chitosan, Arabidopsis thaliana, Food preservative, Molecular docking, Antimicrobial activity, Biodegradability, Computational biology, Enzyme inhibition Film-forming capacity.

ICRIT202

RICE LEAF DISEASES CLASSIFICATION USING CNN WITH TRANSFER LEARNING

Aashmi J.S[1], Adlin Judi.J[2], Dhurshini. P[3], Mersa Angala Dhas. A[4], Dr. Herlin L.T
Department of CSE, Mar Ephraem college of Engineering and Technology
aashmijs@gmail.com

ABSTRACT

Rice is a staple food crop for a large portion of the global population, and its yield is significantly affected by various leaf diseases. Early and accurate detection of these diseases is crucial for minimizing crop loss and ensuring food security. This project presents a deep learning-based approach for automatic classification of rice leaf diseases using Convolutional Neural Networks (CNN) enhanced with transfer learning techniques. A pre-trained CNN model (such as ResNet50 or MobileNetV2) is fine-tuned on a labelled dataset of rice leaf images comprising multiple classes, including healthy leaves and common diseases such as brown spot, bacterial leaf blight, and leaf blast. The model leverages the feature extraction capabilities of large-scale ImageNet-trained networks, allowing for high accuracy even with limited agricultural data. Extensive data augmentation is employed to increase model robustness. The proposed method achieves high classification accuracy and demonstrates potential for real-time deployment in mobile or embedded systems for smart agriculture applications. This system provides a reliable, efficient, and scalable solution for assisting farmers in early disease detection and precision farming.

ICRIT203

DESIGN OF 8×3 ENCODER USING REVERSIBLE LOGIC GATES FOR BIOMEDICAL IMAGE COMPUTING APPLICATIONS

[1]Mrs A Sugantha, [2]Subhashini.S, [3]Swathi S, [4]Subasri S
[1]Assistant Professor, Department of ECE, SRM TRP Engineering College, Trichy.TamilNadu, India
[2,3,4]Final year, Department of ECE, SRM TRP Engineering College, Trichy, TamilNadu, India
sugantha.a@trp.srmtrichy.edu.in, subhashinisiva2004@gmail.com, swathirajan2610@gmail.com, kavithasubasri1975@gmail.com

ABSTRACT

The increasing need for energy-efficient and high-performance systems in biomedical image computing has directed attention toward reversible logic, a promising approach for low-power circuit design. Unlike conventional logic circuits, reversible logic prevents information loss and significantly reduces power dissipation, making it ideal for sensitive medical applications. This paper proposes the design of an 8×3 encoder using reversible logic gates tailored for biomedical image computing systems. The encoder is constructed using optimized combinations of reversible gates to ensure low quantum cost, minimal garbage outputs, and reduced constant inputs. The proposed design aims to enhance computational efficiency and power optimization in biomedical hardware like image scanners, real-time analyzers, and embedded diagnostic tools. Performance metrics including gate count, delay, power dissipation, and quantum cost are analyzed and compared with traditional irreversible designs. The results confirm that the reversible 8×3 encoder is well-suited for biomedical image computing applications, providing a pathway toward more sustainable and reliable medical devices.

ICRIT204

IOT BASED AVOID FIRE ACCIDENT IN EV VEHICLE WITH MULTIPLE FAULT DETECTION AND LI-ON BATTERY MANAGEMENT

[1]Dr.C.Chellaswamy, [2]Reegan rayar S, [3]Vijay C, [4]Vivek S
[1]Assistant Professor, Department of ECE, SRM TRP Engineering College, Trichy.TamilNadu, India
[2,3,4]Final year, Department of ECE, SRM TRP Engineering College, Trichy, TamilNadu, India
[1]drchellaswamy@gmail.com, [2] reeganrayar321@gmail.com, [3]vijaychinnathambi777@gmail.com,
[4] vivekssekart@gmail.com

ABSTRACT

IoT based Battery Monitoring System for Electric Vehicles (EVs) ensures the safety, efficiency, and longevity of EV batteries by providing real-time monitoring and automated safety mechanisms. This system integrates various sensors and IoT technologies to continuously monitor battery parameters and trigger safety protocols when abnormal conditions arise. If abnormal conditions such as high temperature or flame detection occur, the system activates safety protocols to mitigate risks. When the flame sensor detects a fire or the temperature exceeds a critical threshold, the system triggers the buzzer to alert the user and automatically disconnects the battery. The relay provides an immediate shutdown mechanism that minimizes potential hazards and ensures the safety of both the vehicle and passengers. The NodeMCU, an IoT-enabled microcontroller, facilitates real-time data transmission to a cloud server, allowing users to remotely monitor battery status via a web or mobile interface. The data is displayed on an LCD for local monitoring, giving users instant feedback on battery conditions. This combination of real-time cloud monitoring and on-device alerts enhances the reliability and security of the system, ensuring timely responses to abnormal battery behavior. The system's IoT integration ensures continuous remote monitoring, enabling predictive maintenance and timely interventions. Users can receive real-time notifications on battery health and safety conditions, enhancing operational efficiency and prolonging battery lifespan. The system also logs historical data for analysis, facilitating pattern recognition and failure prediction to further improve EV safety. By providing real-time battery monitoring and automating safety actions, this IoT-based system ensures the optimal performance and safety of electric vehicle batteries. The implementation of this advanced monitoring system significantly reduces the risk of battery-related accidents, protecting both passengers and vehicles while promoting the broader adoption of electric vehicles.

ICRIT205

CHARACTERIZATION AND QUALITY ASSESSMENT OF CHITOSAN EXTRACTED FROM LEAVES FOR NATURAL FOOD

S *M Ramya Prabhavathi, Shambhavi Pandey, Dr. Banu Priya*
Department Of Biotechnology, Srm University Ramapuram Ist, Chennai Tamilnadu

ABSTRACT

Computational Assessment of Chitosan Extracted from *Arabidopsis thaliana* Leaves as a Natural Food Preservative
Chitosan, a biopolymer derived from chitin, is gaining attention as a natural food preservative due to its antimicrobial, biodegradable, and non-toxic properties. This study investigates the characterization and computational analysis of chitosan extracted from *Arabidopsis thaliana* leaves, aiming to evaluate its potential as a sustainable alternative to synthetic preservatives. Molecular docking and simulation techniques were employed to examine chitosan's interactions with microbial enzymes, including N-acetylglucosaminidase (2VN5), β-lactamase (1ZG4), and accessory gene regulator protein A (3BS1). Docking was performed using PyRx, with chitosan as the ligand. Most binding affinities ranged from -2.9 to -2.7 kcal/mol, indicating weak interactions and limited inhibitory potential. However, a notable interaction with the protein 3W93 showed a stronger binding affinity of -6.48 kcal/mol and moderate stability, suggesting promising antimicrobial potential. In addition to docking, ADMET (Absorption, Distribution, Metabolism, Excretion, and Toxicity) profiling using SwissADME confirmed chitosan's biodegradability and safety, supporting its use in food applications. The gene sequence of CERK1 was also analyzed using tools like FASTA, PubChem, and PDB to study molecular recognition processes. Furthermore, physicochemical properties such as antioxidant activity, metal chelation, and film-forming capacity were assessed, indicating chitosan's potential to prevent microbial contamination and oxidative spoilage. Although results highlight the potential of *A. thaliana*-derived chitosan as a natural preservative, weak interactions with key microbial enzymes suggest the need for further structural modifications or identification of alternative targets. Future studies will focus on improving chitosan's efficacy through enhanced docking strategies and experimental validation.
This research supports the development of biodegradable and eco-friendly preservatives, contributing to sustainable food safety practices.
KEYWORDS: Chitosan, Arabidopsis thaliana, Food preservative, Molecular docking, Antimicrobial activity, Biodegradability, Computational biology, Enzyme inhibition Film-forming capacity.

ICRIT206

IMPLEMENTATION OF CAPACITOR BANKS TO IMPROVE REACTIVE POWER

Mrs.P.Veera Bhadra Kumari, Mrs.N.Madhuri, Dr.P.Chandra Sekhar,
Department of EEE, Mahatma Gandhi Institute of Technology, Hyderabad, Telangana, India,
patsachandrasekhar @gmail.com

ABSTRACT

This paper presents an efficient solution for reactive power control in a power system network and capacitor bank using changes in reactance of connected reactor. This solution ensures smooth control of reactive power of capacitor banks and of power system network as important operational characteristic for maintaining the quality of supply. The proposed method works for a wide-range of reactive power variations in the system and is capable of injecting or absorbing reactive power when necessary. This control method can be successfully used in distribution and industrial networks where many loads vary their demand for reactive power.

.

ICRIT207

AN EFFECTIVE SYSTEM FOR SEGREGATION OF WASTES INTO BIODEGRADABLE AND NON-BIODEGRADABLE FRACTION USING IOT MECHANISM

Naveen S, Minarraja K, Mrs.S.M.C.Subashini
RP Sarathy Institute of Technology

ABSTRACT

Segregation of waste has become a critical component of modern urban planning, aiming to maintain cleanliness, reduce environmental pollution, and optimize waste collection processes. As urban populations grow and waste generation increases, efficient waste management solutions are necessary to handle the challenges associated with traditional methods. This project proposes a GSM based system that uses smart sensors to monitor the waste levels in bins, transmitting real-time data to a centralized system via GSM technology. By eliminating the need for manual inspection of waste bins, the system minimizes human intervention, streamlines operations, and ensures that bins are only collected when necessary, preventing overflows and inefficiencies. The integration of GPS for route optimization further reduces fuel consumption, operational costs, and the carbon footprint, contributing to more sustainable waste management practices. Additionally, the system offers real-time insights and historical data via a mobile or web-based dashboard, allowing waste management authorities to make data-driven decisions for better resource utilization and strategic planning.

ICRIT208

AI DETECTION FOR AUTISM SPRECTION DISORDER

Sinchu. C[1],Selsia. S. V[2],Sherin. L[3],Shanu Godwin. D[4],Dr. Jerusalin Carol
Dept of CSE,Mar Ephraem College of Engineering and Technology,Elavuvilai,Kanniyakumari
[1]sinchu397@gmail.com, [2] shanugodwin@gmail.com, [3] lsherin2003@gmail.com,
[4]svselsia@gmail.com,carol@marephraem.edu.in

ABSTRACT

This project presents an AI-based system for the early detection of Autism Spectrum Disorder (ASD) through facial image analysis. Utilizing deep learning techniques, we developed a binary image classification model based on a Convolutional Neural Network (CNN) architecture, implemented using the Keras framework with a Sequential model structure. The model was trained on facial image data sourced from the UCI Machine Learning Repository, allowing it to learn and identify subtle facial features and patterns that may be indicative of autism. Prior to model inference, input images undergo preprocessing, including resizing to 256×256 pixels and pixel value normalization. The processed image is then passed through the CNN model, which outputs a prediction score. A custom threshold is applied to this score to determine whether the individual is likely autistic or not. To make this system user-friendly and accessible, we deployed the model using Gradio, a Python library that provides an interactive web-based interface for real-time predictions.This system offers a cost-effective, accessible, and non-invasive screening tool to support clinicians and researchers in the early diagnosis of ASD. Our project showcases the power of AI in augmenting healthcare, particularly in the domain of mental health and neurodevelopmental disorders.

Keywords—Autism Detection, Convolutional Neural Network, Keras, Image Classification, Gradio Interface

ICRIT209

A SURVEY OF DEEP LEARNING TECHNIQUE BASED BRAIN TUMOR DETECTION AND SEGMENTATION PROCESS USING MRI IMAGES

S.Ramya, and Dr. R.S Rajesh,
Department of Computer Science and Engineering, Manonmaniam Sundaranar University, Tirunelveli, India
sweetramyasaravanan555@gmail.com, rsrajesh@msuniv.ac.in

ABSTRACT

Brain tumors represent a significant threat to human health, making early detection and accurate classification crucial for effective treatment. The identification and classification of brain tumors are key components of clinical practice, as tumors can vary widely in terms of size, texture, and location. Medical imaging plays a vital role in diagnosing brain tumors, offering essential insights for treatment planning, surgical decisions, and educational purposes. Primary brain tumors, including gliomas, meningiomas, and pituitary adenomas, originate within the brain, while secondary (metastatic) tumors occur when cancer from other body parts spreads to the brain. Recent advances in deep learning, particularly Convolutional Neural Networks (CNNs), have proven to be powerful tools in automating the detection and classification of brain tumors from medical imaging data, such as MRI scans. This paper presents a survey of deep learning-based approaches for brain tumor detection and classification, covering various image processing techniques such as filtering, thresholding, geometry models, graph-based methods, and region-based analysis. Unique variants of CNN evolved over time large models which were considered as milestones within the mind tumor detection were CNN, U-Net,ResNet and many others. The pre-processing steps involve normalizing images and correcting bias fields, followed by a feed-forward pass through a CNN to eliminate small false positives near the skull region.

Keywords: Deep learning; Brain Tumor Detection; Classification; Preprocessing; Datasets.

ICRIT210

OPTIMIZING ENERGY USE IN SMART AGRICULTURE THROUGH WSN-BASED DEEC CLUSTERING

Mr. Rajkumar. T[1], Monisha.S[2], Sivashanmugam.S[3], Sridhar.S[4], Adaikkammai.P[5]
[1]Assistant Professor, [2,3,4,5] UG Scholar
[1,2,3,4,5] Department of Electronics and Communication Engineering,
[1,2,3,4,5] Nandha College of Technology, Erode-638052, Tamil Nadu
padaikkammai2019@gmail.com

ABSTRACT

Wireless Sensor Networks (WSNs) are transforming smart agriculture by enabling precise monitoring and efficient resource allocation. Despite their potential, the limited energy capacity of sensor nodes poses a persistent challenge, often leading to shortened network life spans and disrupted operations. This paper presents an enhanced framework for the Distributed Energy Efficient Clustering (DEEC) protocol, specifically designed to address these challenges in agricultural IoT applications. The protocol prioritizes efficient cluster head selection by considering factors such as residual energy, proximity to base stations, and adaptability to diverse farming environments. Advanced clustering techniques, including K means and bio-inspired algorithms, are integrated into the framework to improve scalability and optimize energy use. Low power communication technologies, such as Bluetooth Low Energy (BLE) and LoRa, are incorporated to ensure reliable data transmission, even in resource-constrained settings. Rigorous simulations evaluate the performance of the enhanced DEEC protocol against standard alternatives like LEACH and SEP, focusing on metrics such as energy efficiency, network lifetime, and data throughput. Results indicate that the proposed framework extends network lifetime by up to 30% and reduces energy consumption by 25%, making it particularly suited for precision farming. These findings underscore the potential of tailored WSN protocols to overcome energy limitations, providing a pathway toward more sustainable and effective smart agriculture solutions.

Keywords–Wireless sensor networks, Energy Harvesting, Microcontroller, Storage battery, LoRa, Zigbee, Topologies, Sensors.

ICRIT211

LIVEDOCS: A PEER-TO-PEER REAL-TIME COLLABORATIVE DOCUMENT EDITOR USING WEBRTC AND CRDTS

1st Charankumar E G D, 2nd Arunprasad S, 3rd Dharani Dharan R, and 4th Sangeetha A
Department of Information Technology, PSNA College of Engineering and Technology, Dindigul, Tamil Nadu, India
E-Mail: charankumaregd21it@psnacet.edu.in

ABSTRACT

LiveDocs is a decentralized, real-time collaborative document editor designed to enable seamless and efficient collaboration without reliance on centralized servers. Unlike traditional cloud-based solutions such as Google Docs, LiveDocs utilizes WebRTC for direct P2P communication and Yjs (CRDTs) for distributed data synchronization. This architecture ensures low-latency collaboration, enhanced fault tolerance, and seamless scalability, supporting millions of concurrent users. Key features include real-time editing, and role-based access control, all powered by a resilient P2P network. Secure authentication is ensured through JWT-based access control, enabling efficient document indexing and user management while delivering a modern and sleek user experience. By eliminating centralized infrastructure, LiveDocs reduces server costs, enhances scalability, and improves fault tolerance, making it an ideal solution for teams, enterprises, and large-scale applications requiring secure and real-time document collaboration.

Keywords – Peer-to-Peer Collaboration, Real-Time Document Editing, WebRTC, CRDTs (Yjs), Decentralized Collaboration, JWT Authentication.

ICRIT212

SMART OVERVOLTAGE AND UNDER VOLTAGE PROTECTION SYSTEM WITH IOT MONITORING AND GSM ALERTS

V. Vasanthnagaraj, V.Arun. L.Joel, M.karthick, M.Priya
Department of Electrical and Electronics Engineering,
J.J. College of Engineering and Technology, Trichy. vasanthnagaraj26@gmail.com

ABSTRACT

This project presents the design and implementation of a smart protection system aimed at safeguarding electrical appliances from overvoltage and undervoltage conditions. Utilizing a ZMPT101B voltage sensor, the system continuously monitors AC voltage levels, identifying deviations from the standard 230V supply. An ESP8266 microcontroller processes the sensor data and interfaces with the Blynk IoT platform, providing real-time voltage status updates to users. In the event of voltage anomalies, a relay disconnects the load to prevent potential damage. Simultaneously, a GSM module sends SMS alerts to designated recipients, informing them of the irregularity and its location. This integration ensures prompt response and minimizes downtime. The system's effectiveness was validated under various voltage conditions, demonstrating reliable performance. This IoT-enabled solution enhances the safety and longevity of electrical devices, offering a cost-effective and user-friendly approach to voltage protection. Its applications are particularly beneficial in regions with unstable power supply, providing users with both local and remote monitoring capabilities. Future enhancements may include predictive analytics and integration with smart grid systems for proactive energy management

Keywords: Overvoltage Protection, Undervoltage Protection, IoT Monitoring, GSM Alerts Voltage Sensor, Microcontroller, Relay Control, SMS Notification, Real-Time Monitoring, Electrical Safety.

ICRIT213

QUANTUM AND QUANTUM INSPIRED APPROACHES FOR ENGINEERING AND SCIENTIFIC APPLICATIONS

Karthiganesh Durai
EEE Dept, Nitte Meenakshi Institute of Technology, Bengaluru, India,
karthi.ganesh@nmit.ac.in

ABSTRACT

Quantum Computing is an emerging computing technology which has working quantum prototypes built by many organizations globally. Recent advancements in error corrections in NISQ Era Quantum Computing have opened new frontiers in both engineering and scientific domains. The exponential power of computational capabilities offered by Quantum Computers help for solving complex problems in cryptography, optimization, and material science. These approaches are powered by natively parallel computing paradigm. There are many challenges including errors in computation and acquiring native data in quantum information format. While quantum sensing is enabling ultra-precise measurements in biomedical imaging and environmental monitoring. These approaches are leveraging quantum principles such as superposition, entanglement and interference. Quantum Inspired approaches try to solve the problem without requiring actual quantum hardware. The exponential computational capabilities are applied into areas like machine learning, structural engineering, and fluid dynamics for building, engineering workflows to simulate complex systems. This paper surveys current breakthroughs in quantum and quantum-inspired methodologies, highlights their real-world applications, and demonstrates two practical implementations.

Keywords—quantum, quantum inspired, qml, simulation, qubit, quantum algorithm

ICRIT214

FLASHOVER PERFORMANCE OF AN AC INSULATOR IN UNIFORM AND FAN SHAPED NON UNIFORM CONTAMINATION CONDITIONS

Mr.Arul Kandhan P, Bavani S, Karthika G
Elecrical and Elecrtronics Engineering
Holycross Engineering College Thoothukudi India
iskconarulsamy@gmail.com

ABSTRACT

Different types of insulators are put in risky situations by pollution, ultraviolet (UV) radiation, and electro-thermal stress. Pollution builds up on insulators in a variety of ways, including uniform, non-uniform, and uneven accumulations. This study presents the results of uniform and fan-shaped non-uniform (FSNU) pollution tests conducted under AC voltage on four distinct types of clean and weathered insulators. To settle contaminants on the insulator surface, the solid layer approach is applied. When assessing the performance of FSNU filthy insulators in various proportions, the flashover voltage of clean and old samples falls and the pollution non-soluble deposit density(U_f) grows. Insulators were aged for up to four weeks during the investigation (672h). Although one week (168h) of accelerated aging had a visible influence on flashover voltage and insulator morphology, the flashover strength of the samples decreased as the aging time lengthened. Statistical analysis was conducted using new insulators to assess the flashover voltage of accelerated aged insulators under uniform and FSNU contamination. The goal of the research was to find insulators that could resist sunny, and windy environments.

Keywords—AC insulators, flashover voltage, uniform contamination, fan-shaped non-uniform (FSNU) pollution, solid layer method, non-soluble deposit density (NSDD), accelerated aging, ultraviolet (UV) radiation, electro-thermal stress, insulator morphology, pollution severity, statistical analysis, weathered insulators, outdoor insulation performance.

ICRIT215

BUILDING A MACHINE LEARNING-POWERED DIAGNOSTIC SYSTEM FOR PREDICTING ALZHEIMER'S DISEASE USING MOBILENET ALGORITHM

Dr. S.N. Nisha Rani. Bharathi .G, Ragul Krishnan .S, Arun Kumar .S
Department of ECE,
Fatima Michael College of Engneering and Technology
Madurai
bharathig017@gmail.com

ABSTRACT

A dynamic dual-graph fusion convolutional network is suggested in this paper to enhance the accuracy of Alzheimer's disease (AD) diagnosis. The key contributions of the paper are as follows: The proposed architecture can dynamically adjust the graph structure for GCN to produce better diagnosis outcomes by learning the optimal underlying latent graph, propose a novel dynamic GCN architecture, which is an end-to-end pipeline for diagnosing AD, incorporate feature graph learning and dynamic graph learning, giving those useful features of subjects more weight while reducing the weights of other noise features. Experiments show that our approach achieves great classification results in AD diagnosis while offering flexibility and stability. This project is implemented for the Alzheimer disease classification using Graph convolutional network architecture like CNN with LSTM layer and fit the model in the training and testing and deploy the model for getting the test image output and then compare the accuracy of the model for getting the most perfect model for medical image classification and get the accuracy of CNN- LSTM layer with 98%.

ICRIT216

COMPARISON OF THIKNESS OF DIFFERENT MATERIALS USING AIR WEDGE AND LASER DIFFRACTION METHOD

T. Ganthi mathi, H. Epsibha vasantha rose, A. Madhumitha
Department of physics, popes collage, sawyerpuram, affliliated by manonmaniyam sundarnar university

ABSTRACT

The thickness of an object is defined as the smallest of three descriptive measurements: height, width and length. Our project is to determine the thickness of various materials using Air wedge interference method and Laser diffraction method. The formation of an image in the microscope relies on the complex interplay between two critical optical phenomena: diffraction and interference. Light passing through the specimen is scattered and diffracted into divergent waves by tiny details and features present in the specimen. Some of the divergent light scattered by the specimen is captured by the objective and focused onto the intermediate image plane, where the superimposed light waves are recombined or summed through the process of interference.

ICRIT217

CHALLENGES AND SCOPE OF CO-CR ALLOY IN DENTAL CROWNS THROUGH ADDITIVE MANUFACTURING- THE CURRENT STATE OF KNOWLEDGE

Mr. Ratnakar Lande [1], Dr. Achal Shahare [2] , Dr. Raju Tirpude [3]*
[1, 2] Mechanical Engineering Department, G H Raisoni College of Engineering & Management, Nagpur, India,
ratnakar1977@gmail.com achal.shahare@raisoni.net
[3] Automobile Engineering Department, Govt. Polytechnic, Nagpur, India rbtirpude@rediffmail.com

ABSTRACT

Dental prosthesis employs cobalt-chromium alloys because of their biocompatibility,strength, and resistance to corrosion. Dental crowns made of Co-Cr alloys are nowproduced using additive manufacturing (AM), particularly selective laser melting and directmetal laser sintering. These technologies provide great precision and personalisation, lessmaterial waste and design freedom.Problems still exist, though, including regulatingporosity, residual stresses, and surface roughness, applying post-processing techniques likeheat treatment and surface finishing and optimising process parameters for consistentmechanical characteristics and microstructural integrity. This review explores the currentstate of knowledge regarding the use of Co-Cr alloys in dental crown applications via AM. Itidentifies key challenges such as porosity, surface roughness, residual stresses, andbiocompatibility, while also discussing the scope of AM in improving design flexibility,material efficiency and patient-specific customization. AM is a promising option for next-generation dental prosthesis because of its synergistic advantages in efficiency andcustomisation.

ICRIT218

LI-FI BASED VEHICLE TO VEHICLE COMMUNICATION SYSTEM

P. Jebane., Ratheesh Sabari. S, Surenthiran. S, Maha Prabhu. G, Saravana Kumar. M
Department Of ECE, Fatima Michael College of Engneering and Technology, Madurai
sabariratheesh28@gmail.com

ABSTRACT

The increasing demand for intelligent transportation systems has highlighted theneed for efficient and secure communication between vehicles. Vehicle-to-Vehicle (V2V) communication facilitates the exchange of information such asspeed, position, and braking status, enhancing road safety and trafficmanagement. Traditional V2V systems often rely on radio frequency (RF)communication, which can be susceptible to interference, limited bandwidth,and security vulnerabilities. To address these challenges, this project exploresthe implementation of Light Fidelity (Li-Fi) technology as an alternativemedium for V2V communication.Li-Fi utilizes visible light emitted by Light Emitting Diodes (LEDs) to transmitdata, offering advantages such as high data rates, reduced latency, and immunityto electromagnetic interference. In the proposed system, vehicle headlights andtaillights are equipped with LEDs that modulate light intensity to encodeinformation. Photodiodes installed on adjacent vehicles detect these modulatedlight signals and decode the transmitted data. Microcontrollers, such as ArduinoUno and ESP8266 NodeMCU, process sensor inputs—including speed,distance, and acceleration—and manage the modulation and demodulationprocesses. Experimental evaluations demonstrate that Li-Fi-based V2Vcommunication achieves lower latency and higher data throughput compared toconventional RF-based systems. The system effectively transmits criticalinformation, including collision warnings and traffic updates, thereby enhancingdriver awareness and decision-making. Furthermore, the line-of-sight nature ofLi-Fi communication enhances security by confining data transmission tintended recipients and reducing the risk of unauthorized access.In conclusion, integrating Li-Fi technology into V2V communication systemspresents a promising solution to the limitations of existing RF-based methods.The adoption of Li-Fi can lead to safer, more efficient, and environmentallyfriendly transportation networks. Future work will focus on addressingchallenges related to ambient light interference, range limitations, andstandardization to facilitate widespread implementation.

ICRIT219

ANGANWADI DIGITAL SERVICE ENHANCEMENT SYSTEM

Dharshini Shree.M, Janani Sree.S, Jeeva Priya.R, Jeyaharini.M, P.Seethamani
Information Technology, PSNA College of Engineering & Technology,Dindigul, India
Email:jayajanas82@gmail.com

ABSTRACT

The Anganwadi system, an essential part of the Integrated Child DevelopmentServices (ICDS), is dedicated to rural development by offering critical services in health,nutrition, and early childhood care through trained women from local communities. EachAnganwadi worker undergoes approximately four months of training and is responsible foraround 1,000 residents within their village, reporting to a supervisor. Their deep-rootedconnection with the community enables effective delivery of services and communication ofhealth-related programs, making them vital to the social and health development of ruralareas. However, traditional operations rely heavily on manual processes such as paper-basedrecord-keeping, which often leads to inefficiencies, data inaccuracy, and challenges in real-time tracking. To overcome these limitations and enhance overall service delivery withOffline Connectivity, the Anganwadi Digital Service Enhancement System has beendeveloped. This cost-effective, integrated platform modernizes operations through mobileand web applications and is designed for use by Anganwadi workers,administrators, parents,and the general public. It includes key features such as digital monitoring of child growth(height and weight), QR code-based attendance tracking, and structured data management.The system functions both online and offline(Supports Offline Connectivity using SQlite),automatically synchronizing data once internet access is restored, thus ensuring uninterruptedservice. Parents and the public can use a dedicated web portal to track their child's health anda generated report of child's growth will be provided, access parenting resources, stayupdated on events, and share feedback, which promotes transparency and communityparticipation and additionally chatbot has been implemented which is developed using pythonprogramming and NLP libraries. Additional features such as health visitor tracking,Community engagement Gallery, and event announcement boards where parents can registerfor the event and regular notifications regarding the events will be sent as SMS to theregistered Mobile number, further strengthen engagement and efficiency. This digitaltransformation significantly reduces manual workload, increases operational effectiveness,and improves the accessibility and impact of ICDS services across rural regions, contributingto sustainable and inclusive community development.

ICRIT220

RICE LEAF DISEASES CLASSIFICATION USING CNN WITH TRANSFER LEARNING

Aashmi J S[1],Adlin Judi J[2],Dhurshini P[3],Mersa Angala Dhas A[4],Dr. Herlin L T
Dept of CSE,Mar Ephraem College of Engineering and Technology,Elavuvilai,Kanniyakumari
[1]aashmijs@gmail.com, [2] judij1301@gmail.com, [3] dhurshini2004@gmail.com,
[4]mersadhas03@gmail.com,lt.herlin@gmail.com

ABSTRACT

Rice is a staple food crop for a large portion of the global population, and its yield issignificantly affected by various leaf diseases. Early and accurate detection of these diseasesis crucial for minimizing crop loss and ensuring food security. This project presents a deeplearning-based approach for automatic classification of rice leaf diseases usingConvolutional Neural Networks (CNN) enhanced with transfer learning techniques. A pre-trained CNN model (such as ResNet50 or MobileNetV2) is fine-tuned on a labelled datasetof rice leaf images comprising multiple classes, including healthy leaves and commondiseases such as brown spot, bacterial leaf blight, and leaf blast. The model leverages theeature extraction capabilities of large-scale ImageNet-trained networks, allowing for higaccuracy even with limited agricultural data. Extensive data augmentation is employed toincrease model robustness. The proposed method achieves high classification accuracy anddemonstrates potential for real-time deployment in mobile or embedded systems for smartagriculture applications. This system provides a reliable, efficient, and scalable solution forassisting farmers in early disease detection and precision farming.
Keywords—Rice Leaf Disease, CNN, Transfer Learning, Image classification, Keras,Future Extraction

ICRIT221

HOSPITAL MANAGEMENT SYSTEM

Mrs.J. Princess Bala
Computer Science Engineering, Jayaraj Annapackiam CSI College of Engineering, Nazareth,

Abstract:

The Hospital management system is a computer software system, which is used to managing the functioning and events of any clinic or multi-speciality hospital. We developed Hospital management system application for multi-speciality hospital to maintain hospital data such as doctors detail, rooms detail, patients detail, bill detail and patient payment detail etc. Hospital management system project used to maintain and track patients record for any multi-speciality hospital. Only hospital staff or admin staff can operate this software to maintain all details regarding hospital

ICRIT222

SPEECH EMOTION RECOGNITION

Pandi Deepa P, Uma Maheswari R, Thepaak Raajhan D R
Master in Computer Applications, SRM Valliammai Engineering College
umamaheswari2t3@gmail.com, thepaak02@gmail.com

Abstract-Speech Emotion Recognition (SER) is an evolving field within affective computing that has drawnconsiderable attention due to itspractical applications , algorithmic progress, and the richness of paralinguisticcues in human speech such as pitch, intensity, and Mel-Frequency Cepstral Coefficients (MFCCs). Typically, SER involves three core stages: data preprocessing, feature extraction or selection, and emotion classification.These stages, along with the inherent complexity of vocal signals, make Machine Learning (ML) a fittingapproach for implementing SER systems. Although numerous studies have applied ML techniques to SER, many fall short in thoroughly addressing the methodologies that underpin each stage of the process.Furthermore, critical challenges such as the consistently low accuracy observed in speaker-independent modelsare often overlooked or insufficiently explored. This paper presents a comprehensive review of ML-based SERresearch from the past decade, with a particular focus on the three foundational steps of implementation. Itexamines key challenges and highlights state-of-the-art strategies employed to address them. In addition, thereview outlines standardized evaluation practices, including commonly used benchmarks and performancemetrics. The aim is to offer a structured reference for researchers, guiding the development of more effectiveSER systems and encouraging innovative approaches to advance the field.

Keywords: Speech Emotion Recognition (SER), Affective Computing; Machine Learning (ML), FeatureExtraction, Mel-Frequency Cepstral Coefficients (MFCCs), Speaker-Independent Models, EmotionClassification, Paralinguistic Features, Systematic Review, Signal Processing.

ICRIT223

SMART SURVEILLANCE SYSTEM USING YOLO-V8 AND COMPUTER VERSION FOR CRIME DETECTION

Dr. R. Thenmozhi, Blessing Bowmi J
Computer Applications, SRM Valliammai Engineering College
blessingbowmi@gmail.com

ABSTRACT

This project targets the creation of an intelligent surveillance system based onreal-time object detection with the aid of YOLOv8 (You Only Look Once,Version 8), which is a highly developed deep learning algorithm that has earnedits fame due to its speed and accuracy. The system takes images from CCTVcameras and applies computer vision methods to detect and classify multipleobjects like human beings, cars, weapons, and abandoned luggage. In contrastto conventional approaches, YOLOv8 handles full images in one pass through aneural network, allowing it to detect multiple objects at once with high accuracyand low latency. Each object detected is marked with a bounding box, labeledappropriately, and given a confidence score to indicate the detection accuracy.This object detection feature is vital in surveillance because it enables thesystem to monitor environments automatically and mark out-of-the-norm orsuspicious activity in real time. For instance, the system can recognize thepresence of a weapon, illegal entry into a restricted area, or actions such asloitering, all through object detection patterns. When the potential threats aredetected, warnings may be triggered to security officers or control systems totake action immediately. The object detection system is extremely versatile andcan be applied in different fields like public areas, traffic intersections,corporate campuses, and high-security areas like airports or banks. Through theautomation of object identification and tracking, the system increases securityoperations, decreases the amount of manual monitoring required, and speeds upresponse times, and thus it is an effective tool in contemporary surveillance andpublic safety initiatives.

Keywords: YOLOv8, Real-time Object Detection, Intelligent SurveillanceSystem, Computer Vision, Suspicious Activity Recognition

ICRIT224

EXPECTEASE: CALENDER & NUTRITION SUPPORT FOR MOMS-TO-BE

Nandhini K, Sathya Shree Venkateshan.Sivapriya S, Suryapraba M
Erode Sengunthar Engineering College

ABSTRACT

Maternity monitoring is crucial in guaranteeing pregnant women and their unbornbabies are healthy and safe. One of the most important issues encountered whenone is pregnant is having a balanced diet. As more people embrace digital healthsolutions, an integrated mobile app that is specifically intended for pregnantwomen can provide a simple and easy mechanism to plan both nutrition and healthschedules during the pregnancy term.This expected mobile app will be a holistic maternity tracking system thatintegrates a customized meal planning system with an active pregnancy calendar.The meal planner will be designed to meet every trimester's nutritionalrequirements . The system will also give daily meal recommendations, andnutrition monitoring, promoting healthier food habits and avoiding complications. The calendar function will enable users to monitor significant dual dates and fetalgrowth milestones.Automated reminders and educational materials will walkmothers through every stage of pregnancy, enhancing engagement and readinessThis examines the creation, advantages, and effects of a comprehensive maternitytracking application, particularly among women in both urban and rural areas. Byintegrating nutrition suggestion and health care into one convenient platform, theapp has the potential to facilitate healthier pregnancies, encourage self- awareness,and minimize fetal and maternal health risks through timely interventions.

ICRIT225

CRYPTO-ID VERIFICATION

Mrs. N. Jothi [1], Kamalini. S [2]
[1]Assistant Professor, Master of Computer Applications, SRM Valliammai Engineering College affiliated to Anna University, Tamil Nadu, India.
[2]Stutents, Master of Computer Applications, SRM Valliammai Engineering College affiliated to Anna University, Tamil Nadu, India.
kamalini2002@gmail.com

ABSTRACT

The Blockchain-Based Identity Verification System provides a secure, efficient way to manageidentity verification, addressing problems like bulky paper documents, identity theft, and lack ofpersonal data control. Using blockchain technology, this system creates a decentralized platformto store personal records, allowing three types of users—individuals, authorities, and third-partyrequesters—to interact effectively. Individuals can decide who accesses their data and trackrequests; authorities can upload verified records and approve requesters; and third parties canrequest information for verification. Blockchain's secure, transparent, and unchangeablestructure protects data, reducing risks tied to traditional centralized systems.Drawing fromexamples like Aadhaar, the system uses smart contracts to boost trust and simplify processes,cutting out middlemen. Built with an agile approach, it was developed and tested on web andmobile platforms using Microsoft Visual Studio Code and Android Studio. System andacceptance testing ensured smooth operation for features like registration, data uploads, andrequest management.A survey showed public support for accessible online verification, thoughsome raised privacy concerns, suggesting features like one-time passwords and data deletionoptions. Looking ahead, the system could add biometric authentication—such as fingerprints orvoice recognition—and support more record types, like family information. Moving to a realblockchain would enable commercial use, while features like push notifications for data requests,time-limited access, and screenshot bans would enhance privacy.This system empowers peopleto control their digital identities, building trust in data authenticity. It highlights the need toexpand blockchain beyond business to personal identity management, creating a safer, moretransparent digital world for everyone.Keywords: blockchain, digital identity, decentralized, verification,authentication, privacy,smart contracts

ICRIT227

DEEPFAKE AUDIO DETECTION

R. Nagadeepa, Veerasabareeswaran. S, Hariharan T.G., Ramasamy. M
Department Of ECE, Fatima Michael College of Engneering and Technology, Madurai
haribalaji838@gmail.com

ABSTRACT

As the prevalence of deepfake Audios continues to escalate, there is anurgent need for robust and efficient detectionmethods to mitigate the potentialconsequences of misinformation and manipulation. This abstract explores theapplication of Long Short-Term Memory (LSTM) networks in the realm ofdeepfake Audio detection. LSTM, a type of recurrent neural network (RNN),has proven to be adept at capturing temporal dependencies in sequential data,making it a promising candidate for analyzing the dynamic nature of Audios.The research delves intothe intricacies of utilizing LSTM architectures for thedetection of deepfake Audios, emphasizing the significance of understandingtemporal patterns inherent in manipulated content. The proposed methodologyinvolves preprocessing of Audio data,including the creation of high-qualitytraining datasets and the application of data augmentation techniques to enhancemodel generalization. The training process and optimization strategies specificto LSTM networks are explored to achieve optimal performance in deepfakedetection. Evaluation metrics such as accuracy, precision, recall, and F1 scoreare employed to assess the model's effectiveness in distinguishing betweengenuine and manipulated content. The abstract also addresses challenges andlimitations inherent in deepfake detection, including mitigating false positivesand negatives, and discusses potential avenues for future research to enhancethe robustness of LSTM-based detection systems.The findings of this research have implications for real-world applications,particularly in the context of social media platforms and Audio hosting services,where the integration of LSTM-based deepfake detection can contribute to asafer and more secure online environment.

ICRIT228

FAKE/ REAL NEWS HEADLINES IDENTIFICATION USING REAL-TIME API FETCHING SYSTEM

Pandi Deepa P, Kumanan S, Thejesh M,
Master of Computer Application, SRM Valliammai Engineering College, kattankulathur.
skumanan9@gmail.com

ABSTRACT

In the current quick-paced digital landscape, the wide dissemination of fake news anddisinformation has grown to be an important challenge. Social media sites and online newswebsites allow users to post whatever they want to, making it more challenging to differentiatebetween factual and fabricated information. Fake news can have harsh effects, determiningpublic opinion, elections, medical choices, as well as societal stability. Hence, creating a systeto identify automatically fake news is crucial in order to enhance credible information andminimize misinformation. This project introduces a Fake/ Real News Identification Systembased on machine learning algorithms to predict news headlines as real or fake. The system istrained on a labeled dataset with both real and fake news items. It applies TF-IDF vectorizationto extract significant features from the text and a Naive Bayes classifier for prediction. After themodel has been trained, it will be able to scan a user-input headline and provide a judgment ofwhether or not it is likely real or fake. The solution aids in automating verification and providesinstant, reliable outcomes. In order to enhance the system's reliability, the application is coupledwith the News API that retrieves associated news articles in real-time according to the inputheadline of the user. The application is developed with Flask for web backend and HTML andCSS for frontend. Machine learning parts are developed utilizing Python libraries such as scikit-learn and pandas. The end result is a simple web interface where users can just enter the newsheadline and get an instant verification of its authenticity. This system can prove to be aneffective weapon in the hands of journalists, students, researchers, and the common public tobattle the increasing menace of false news.

ICRIT230

CORNEAL FEATURE EXTRACTION FOR THE DETECTION OF EYE CATARACT

Dr.R Thenmozhi, Divya S,
Dept of Master of Computer Applications, SRM Valliammai Engineering College, kattankulathur.
divyasakthi6666@gmail.com

Abstract-Cataract is one of the leading causes of blindness worldwide, primarily due to the clouding of theeye's natural lens which impairs clear vision. Early detection and classification of cataracts cansignificantly reduce the rate of blindness and alleviate the need for invasive surgical procedures.This study presents an automated eye cataract detection system leveraging image processing andmachine learning techniques. The system employs a feedforward neural network to classify eyeimages into cataract and non-cataract categories. Initial preprocessing includes imagesegmentation and boundary extraction to isolate the region of interest. Feature extraction isperformed using the Gray Level Co-occurrence Matrix (GLCM) algorithm to capture texturalinformation. Furthermore, the system identifies the centroid and sweep of the pupil and iris,aiding in accurate facial region segmentation. The extracted features are then input into afeedforward neural network for classification. Experimental results demonstrate the effectivenessof the proposed method in accurately detecting cataract presence, highlighting its potential foruse in clinical screening and remote diagnostics.

Keywords: Eye Cataract Detection, Feedforward Neural Network, GLCM, ImageSegmentation, Pupil and Iris Detection, Medical Image Analysis

ICRIT231

DECENTRALIZED AI-DRIVEN THREAT DETECTION AND RESPONSE SYSTEM FOR IOTSECURITY USING BLOCKCHAIN

Dr.Parthasarathy S, Head Of Department (Computer Application), SRM Valliammai Engineering College, Affiliated to Anna University,
Akash S, I Year, Department: Master Of Computer Application, SRM Valliammai Engineering College, Affiliated to Anna University.
Email:aakashsel9097@gmail.com

ABSTRACT-With the exponential growth of Internet of Things (IoT) devices in critical sectors such ashealthcare, smart homes, and industrial systems, real-time security and data integrity havebecome a major challenge. Traditional centralized methods are usually susceptible to singlepoints of failure and data tampering. To mitigate these shortcomings, we present a DecentralizedAI-driven Threat Detection and Response System that utilizes both machine learning andblockchain technologies for intelligent, tamper-evidence security in IoT deployments.The systemgathers multi-sensor IoT data such as temperature, humidity, gas levels, CO_2, sound, motion,light, vibration, and battery status. The system uses a hybrid anomaly detection model based onIsolation Forest and Autoencoder to identify malicious or abnormal behavior in real timeIdentified anomalies are not only stored in a MongoDB database but are also immutably writtenon the Binance Smart Chain Testnet using a deployed smart contract to guarantee integrity andtraceability.A full-stack web dashboard, built using React and Flask, offers real-time monitoring,alert visualization, blockchain transaction tracking, and role-based access for users andadministrators. The system incorporates WebSocket (Socket.IO) for live updates andaccommodates both user and admin functionality with secure authentication.On a synthetic testdataset of more than 1000 samples with introduced anomalies, the system was able to attain gooddetection accuracy, with Isolation Forest and Autoencoder reinforcing one another for increasedreliability. Any threat data stored on-chain can be checked via an embedded blockchainexplorer.This project illustrates a decentralized and scalable IoT security solution, integratingAI-driven threat detection with the immutability of blockchain. It provides real-time awareness,transparency, and automated response—making it ideal for use cases where data security.

Keywords:IoT Security, Anomaly Detection, Blockchain, Decentralized System, IsolationForest, Autoencoder, Smart Contract, Real-Time Monitoring, Binance Smart Chain, AI-Driven Security.

ICRIT232

IMPROVED BLACK-START AND HOT-SWAP CAPABILITIES IN GRID-FORMING VSC-BASED PV-BATTERY SYSTEMS VIA ADVANCED CONTROL STRATEGIES

Dr.P.Shanthi[1], Dr. M. Manimegalai [2], Dr. S.Sivakumar[3] , Dr.AyyaSamy [4] , Dr. Uma Devi [5]
Associate Professor, Professor, Professor, Associate Professor, Professor
shasavi7@gmail.com

ABSTRACT

Grid-forming (GFM) control in voltage-source converter (VSC)-basedphotovoltaic (PV) systems is effective for associate the grid frequency and inertia.However, the literature on GFM control for VSC-based PV systems is limited, particularlyin evaluating dynamic performance under critical conditions like black-start (autonomousgrid restoration) and hot-swap (transition between islanded and grid-connected modes).Additionally, previously have not explored differences in dc- and ac-side stability forthese systems. This study addresses these gaps by analyzing the dynamic performanceand stability of GFM VSC-based PV systems under various operating conditions. Itintroduces active compensators to improve dynamic performance and stability for GFMsystems. Compared to conventional GFM VSC, the proposed approach offers enhancefrequency stability during black-start and hot-swap, greater robustness to griimpedance variations, and effective current limiting during faults. Comprehensive offlineand real-time simulations validate the comparative analysis and the efficacy of theproposed active damping techniques for GFM systems.Index Terms—Black-Start, Frequency Dynamics, Grid Following and Forming Control, Hot-Swap, Islanded Operation, PV Systems.

ICRIT233

CONSTRUCTION OF RECYCLE WASTE MATERIAL ROAD USING GEO TEXTILES

Dr.K.Nelsia Priya Dharshini, M.Pragadeesh, V.Mahalakshmi, B.Jefferson, B.Dineshswathi
Civil Engineering, University VOC college of Engineering, Thoothukudi.
mpragadeesh2006@gmail.com

ABSTRACT

Leaving the waste material to the environment directly can cause environmental problem.Hence the reuse of waste material has been emphasized.Marble stone industry generatesboth solid waste and stone slurry. And also waste of Solid glass material is changed into thepowder with some new techniques.There are several reuse and recycling solutions for this industry by product, both at anexperimental phase and in practical. Construction and maintenance of roads and highwaysinvolve millions of tonnes of aggregate. Considering the scarcity of freshaggregate,replacement of part of the fresh aggregate with recycled aggregate is consideredin the present study. Construction of the road is quite cost intensive. Material alone costmore than 60% of the total construction cost, out of which aggregate cost component,isapproximately 30%.We can use recycled aggregate in place of fresh aggregate inconstruction of road and provide economy to the project. For making best use of recycledaggregates,it is essential to study the suitability of the same in various pavementcomponents. In the present study recycled aggregate are used in Granular Sub Base (GSB).

Keypoints : Bitumen, Glass powder, Marble Powder, Penetration test, Softening point test.

ICRIT234

REAL-TIME INTELLIGENT FACE RECOGNITION USING SIAMESE NEURAL NETWORKS AND CUSTOM DATASET INTEGRATION

Dr.P.Shanthi [1], Dr. M. Manimegalai [2] , Dr. S.Sivakumar [3] , Dr.AyyaSamy [4] , Dr. Uma Devi [5]
Associate Professor, Professor, Professor, Associate Professor, Professor
Contact Mail ID: shasavi7@gmail.com

ABSTRACT

This project presents an intelligent real-time face recognition system using a Siamese NeuralNetwork (SNN) for robust identity verification. The system operates by computing similarityscores between facial embeddings extracted from paired input images. A custom dataset of givencelebrities is used to train the model with contrastive loss, enabling it to distinguish betweensimilar and dissimilar faces effectively. Real-time face detection is achieved using Open CV'Haar Cascade, and matched identities are recognized through Euclidean distance-basedcomparison. The trained model is integrated into a Flask web application that supports live videofeed, user registration, and dynamic identity matching. This approach ensures lightweightdeployment and demonstrates adaptability to culturally contextual datasets. Future enhancementsinclude deeper networks, advanced detectors like MTCNN or YOLOv8, and cloud-basedscalability.Index: Siamese Neural Network (SNN), MTCNN, YOLOv8, Face recognition

ICRIT235

HUMAN-CENTRIC EXPLAINABLE AI FOR ETHICAL AND FAIR DECISION-MAKING

Dr.S.Sumathi[1], G.Ponseka [2], A.Ananthakumari [3], K.Daniel raj [4]
[1]Department of Computer Science and Engineering, University VOC College of Engineering Thoothukudi , India.
[2,3,4] Department of Computer Science and Engineering, Dr.G.U.Pope College of Engineering, Sawyerpuram, India.

ABSTRACT

As Artificial Intelligence (AI) becomes increasingly integral to decision-making in high-stakesdomains such as healthcare, finance, and law, the demand for systems that are ethical, transparent,and aligned with human values has never been more critical. Human-Centric Explainable A(HCXAI) emerges as a key paradigm aimed at narrowing the gap between the complexity of AImodels and the need for human interpretability, thereby fostering trust, accountability, andinformed decision-making.This study investigates practical methodologies to enhance theexplainability of AI systems while simultaneously promoting fairness and ethical integrity. Weexplore a range of approaches, including model-agnostic explanation techniques, inherentlyinterpretable architectures, and intuitive visualization tools designed to improve usercomprehension. Furthermore, we examine strategies for identifying and mitigating algorithmic bias,ensuring compliance with regulatory frameworks, and embedding ethical principles into AI-drivenprocesses.By integrating the principles of HCXAI, this research advocates for a future where AIsystems are not only technically robust but also socially responsible, equitable, and aligned with thebroader values of the communities they serve.

Keywords:Explainable AI, Human-Centric AI, Ethical AI, Fair AI, Bias Mitigation, Algorithmic Fairness,Responsible AI, AI Governance.

ICRIT236

BATTERY PROTECTIVE ELECTRIC VEHICLE CHARGING USING INTELLIGENT CHARGING ALGORITHMS

R.Siva Rajam , M.Gnana Sundari
Author 1: Department of EEE, Research Scholar, Government College of Engineering, Tirunelveli, Tamil Nadu, India. Email: sivarajam2k@gmail.com
Author 2: Department of EEE, Professor (CAS), Government College of Engineering, Tirunelveli, Tamil Nadu, India.

ABSTRACT:

Battery is the vital role for the functioning and a critical component ofelectric vehicles (EVs), as it holds the energy required for their operation. So,managing effectively of its health is essential to maximizing both its lifespanand performance. On developing a comprehensive battery management systemthat protects electric vehicle batteries from potential damage due to overchargingand over-discharging. By integrating advanced protection mechanisms andintelligent charging management algorithms, the proposed system aims toenhance battery longevity, improve energy efficiency, and optimize the overallperformance of electric vehicle charging operations. This paper proposes toovercome, increased battery degradation during the charging process,minimizing risks of damage or failure by using Grey Wolf Optimization (GWO)Intelligent charging algorithms were identified as a promising solution,optimizing the charging process and reducing the risk of overcharging or over-discharging for Electric Vehicles that can protect the battery, optimize chargingefficiency.

Keywords: Battery, Electric Vehicle, Grey Wolf Optimization (GWO),Intelligent charging algorithm.

ICRIT237

DECEPTION DECODED: CATCHING DEEPFAKES WITH CLASSIC ML

Mr. Loganathan E , Anushiya P , Dhana Sri N , Gopikadevi C N
Dept of CSE, Erode SengunthарEngineering College, Perundurai.

ABSTRACT

This paper introduces a novel video-only deepfake detection method using a TemporalAttention-Based Framework, aimed at identifying forgeries in video content. The approachleverages a 3D CNN backbone (I3D or Slow Fast) to extract spatio-temporal features fromvideo frames, capturing both short-term facial dynamics and long-range temporalinconsistencies. It incorporates a Temporal Transformer to model dependencies betweenframes, allowing the system to detect subtle manipulations that span across multiple frames.Key manipulation artifacts, such as blinking anomalies, lip-sync mismatches, and temporalflickers, are identified by analyzing frame transitions. The model is trained on overlappingvideo clips with cross-entropy loss and auxiliary attention loss, enhancing both detectionaccuracy and interpretability. Additionally, multi-scale attention is used to capture temporalinconsistencies across different time scales, while facial region attention focuses the model onthe face, improving its ability to detect manipulations specific to facial features. Evaluations ondatasets like Face Forensics++ show the model's robustness against common perturbations likcompression and blur. The framework also generates attention maps that visualize manipulatedregions, making the detection process more transparent and interpretable. These attention mapsnot only aid in understanding model decisions but also pave the way for future research intoreal-time, lightweight model deployment. The proposed method demonstrates strong potentialfor enhancing video deepfake detection in various real-world applications, providing both highaccuracy and efficient deployment for real-time usage.

Keywords: Video-only, Artificial Intelligence, Machine Learning, 3D CNN (I3D, SlowFast),Lip-sync Mismatches, Face Forensics++, Real-time Deployment, Deepfake Detection,Compression and Blur Robustness

ICRIT240

A STUDY ON EMPLOYEE SATISFACTION OF BUZZWORKS

G.Harini
E.G.S Pillay Engineering College (Autonomous)
Nagapattinam.

ABSTRACT

This study explores the various dimensions of employee satisfaction at BuzzworksBusiness Services Private Limited. Employee satisfaction, a critical determinant oforganizational performance and employee retention, is influenced by a variety of factorsincluding compensation, job role clarity, workplace environment, supervisor support, andrecognition. Utilizing survey data from a diverse group of employees, this study identifieskey trends such as age distribution, gender ratio, educational background, work experience,departmental representation, and income brackets. Statistical tools such as Chi-Square,ANOVA and correlations were used in this research. The findings reveal that a majority ofemployees are satisfied with their work environment, supervisor support, and medicalbenefits, though areas such as compensation fairness and IT support still requireimprovement. Hypothesis testing further highlights significant correlations betweenexperience and recognition, and between age, job satisfaction, and stress levels. This researchunderscores the importance of continuous employee engagement, structured feedbackmechanisms, and proactive HR practices to enhance workplace satisfaction and overallproductivity at Buzzworks.

Keywords : Employee satisfaction, Organizational Performance, Job role clarity, Medicalbenefits, Statistical tools, Employee Engagement.

ICRIT241

OPTIMIZED ARTIFICIAL INTELLIGENCE MODEL FOR DDOS DETECTION IN SDN ENVIRONMENT

Dr.I.Jeya Kumar [1], Anzil Mohammand A [2], Justin Reji [3], Detton G George [4], Roshan V Mathew [5]
Department of Computer Science and Engineering,
Mar Ephraem College of Engineeringtechnology, Marthandam, India
jeyakumar7372@gmail.com

ABSTRACT

Distributed Denial-of-Service (DDoS) attacks pose a severe threat to network security by overwhelming target systems withmassive traffic, leading to service disruptions. Traditional detection systems often fail against evolving attack vectors. Thispaper proposes a machine learning-based DDoS Detection Algorithm (DDA) utilizing anomaly detection, feature extraction,and classification techniques in Software Defined Networking (SDN). The model employs Random Forest, Support VectorMachine (SVM), and Long Short-Term Memory (LSTM) for both supervised and unsupervised learning. Evaluated on real-world datasets, it achieves high detection accuracy, reduced false positives, and adaptability in real-time scenarios. Challengessuch as scalability and computational efficiency are also addressed.

Keywords:DDoS Detection, Software Defined Networking, Random Forest, LSTM, Machine Learning

ICRIT242

AI-POWERED INTEGRATED GYM FITNESS APPLICATION

Pandi Deepa P, Assistant Professor, Department of Computer Applications, SRM Valliammai Engineering College Kattankulathur.
Lakshmanan S, Dept : Master of Computer Applications, SRM Valliammai Engineering College, Kattankulathur.
lakshman4232@gmail.com

ABSTRACT

Maintaining physical fitness has become crucial in today&fast-paced world, but manypeople still struggle to get individualized training. The "AI-Powered Integrated GymFitness Application" project tackles this problem by providing a web-based platformthat uses computer vision and artificial intelligence technologies to provide intelligentworkout assistance.The main innovation is its capacity to use MediaPipe and OpenCVto provide real-time pose correction via a webcam, allowing users to execute exerciseswith appropriate form. This system helps users improve their technique by analyzingbody movements and providing instant visual feedback. Poor posture during workoutsfresults in injury and decreased effectiveness. The AI-powered assistant,which uses natural language processing to communicate with users, is anothernoteworthy feature. Based on inputs like age, fitness level, and goals, it can createcustomized workout plans and provide answers to questions about routines, diet, andfitness. The application is both interactive and educational because of itsconversational support. Because the front-end is constructed with common webtechnologies like HTML, CSS, and JavaScript, the platform is very accessible anddoesn& require installation. A primary focus is the user experience, which is ensuredby responsive elements and intuitive design. Users who exercise at home or don't haveaccess to personal trainers will find this system especially helpful. It is a singlesolution that integrates intelligent feedback, scalability, and affordability.Additionally, by integrating user feedback and the most recent advancements infitness science, the application is made to be improved continuously. In summary, thisproject offers users an AI-based personal trainer experience by meaningfully fusingtechnology and fitness. It is a step toward ensuring that everyone has safe, effective,and accessible smart fitness advice.Keywords: Artificial Intelligence (AI), Real-Time Pose Correction, MediaPipe, Opencv,Human Pose Estimation, Home Workout Technology, Interactive Fitness Guidance

ICRIT243

GPS-ENABLED SMART ASSISTIVE TECHNOLOGY FOR THE VISUALLY IMPAIRED

[1] Balmurugan K , [2] Manikandan K , [3] Ramakrishnan S, [4] Dr.J.William
Department of Electronics and Communication Engineering, Roever Engineering College Perambalur, India
raagavbala07@gmail.com

ABSTRACT

Generally, visually challenged people tends to have difficulties in traveling and managing manykinds of challenges in their routine life. Mostly, wooden Sticks are used to sense barriers and obstacles nextto them. As a result, visually impaired people cannot know exactly what kind of challenges they face andmust thus rely entirely on lead sticks and training to navigate safely and in the right direction. This projectpresents a integrating AI-powered smart glasses and shoes to enhance navigation and safety. The systememploys YOLO v11 for real-time object detection, enabling the smart glasses to recognize and classifyobstacles such as vehicles, people, and objects. The glasses provide voice-based feedback, ensuringdetailed environmental awareness for seamless navigation. Additionally, ultrasonic sensors embedded thesmart glasses and shoes detect nearby obstacles, preventing collisions. A buzzer and vibration motor in theshoes alert the user to ground-level hazards like uneven surfaces, ensuring enhanced mobility. The entiresystem operates via a Node MCU (ESP8266), processing real-time data efficiently while maintaining cost-effectiveness and low energy consumption. Furthermore, the system incorporates GPS tracking, allowingcaregivers or guardians to monitor the user's location in real-time through an IoT-based mobile application.In case of an emergency or if the user goes missing, an automated alert is sent to the guardian's mobile app,ensuring immediate assistance and enhanced safety. By integrating artificial intelligence, IoT-basedsensors, real-time feedback mechanisms, and GPS tracking, this affordable and scalable solutionsignificantly improves the independence, mobility, and security of visually impaired individuals, reducingrisks and enhancing their quality of life.

Key Words: Smart glasses, Smart shoes, YOLO v11, AI, Real-time object detection, Voice-basedfeedback, Buzzer and vibration motor, GPS tracking, IoT-based mobile application

ICRIT244

CROPPRECISIONGUARD APP: INNOVATING SUSTAINABILITY THROUGH PRECISION AGRICULTURE

K.Emily Esther Rani, C. Vinuja, M. Swetha, S. Vivega, M.Selvanayaki
Department. of Computer Science and Engineering,
Jayaraj Annapackiam CSI College of Engineering, Affiliated to Anna University, Tamil Nadu, India
emilyestherrani@gmail.com

ABSTRACT

Traditional agricultural practices often rely on generalized pesticide and fertilizer recommendations, leading to inefficient resource utilization, increased costs, and environmental degradation. To address these challenges, we propose an innovative solution that integrates precision agriculture techniques with machine learning to optimize farming practices. This work collects and processes data from multiple sources, including Soil Health Cards (SHC), weather patterns, and crop diagnostics such as the Leaf Color Chart (LCC). By analyzing these datasets using advanced algorithms, the system generates precise and actionable recommendations for pesticide and fertilizer application, ensuring sustainable and cost-effective farming. The application also adapts to real-time conditions. For instance, if a farmer's SHC indicates low nitrogen and phosphorus levels, an initial fertilizer recommendation is provided. During the growing season, farmers can use the LCC to monitor nitrogen levels and adjust applications accordingly. In cases where weather forecasts predict heavy rainfall, the system advises delaying fertilizer application to prevent nutrient leaching.

Keywords—Precision agriculture, Soil Health Card, Leaf Color Chart, crop diagnostics, machine learning, fertilizer recommendation, pesticide optimization, sustainable farming, real-time monitoring, smart farming

ICRIT245

A PREDICTIVE PLACEMENT MANAGEMENT SYSTEM WITH DYNAMIC SKILL ENHANCEMENT

Dr. S Parthasarathy Professor, Alex Franklin M,
Master of Computer Applications, SRM Valliammai Engineering College, Kattankulathur.
alexfranklin0406@gmail.com

ABSTRACT

The growing demand for effective job placement portals within educationalenvironments has spurred research to develop intelligent systems to facilitate studentmatching with professional opportunities. The current work proposes "A PredictivePlacement System with Dynamic Skill Enhancement," an online web-basedapplication meant to empower students by providing tailored job suggestions and skilldevelopment tips and to empower administrators by making placement processesseamless. Built using Python, Flask, and MongoDB, the system also incorporatesmachil learnin for a personalized and optimal user experience.The recommendationengine in the system adopts a hybrid solution, integrating skill-based matching,collaborative filtering, and predictive analysis. Skill match percentages are determinedby matching student profiles against job requirements, while collaborative filteringuses Jaccard similarity to enhance recommendations from peer application patterns. Alogistic regression model, run wi scikit-learn's MultiOutputClassifier, predictsmissing skills by passing job descriptions through TF-IDF vectorization, givingstudents personalized learning resources to fill skill gaps. Other features include role-based student and admin access, management of job applications, messaging, andplacement metric analytics.Tested on a simulation dataset, the system performed at75% accuracy in predicting skills, with recommendations boosted by collaborativefiltering. As a proof of concept, it shows the capabilities of machine learning ineducational applications, providing an extensible solution for career guidance. Futuretasks involve incorporating bigger datasets, trying out more advanced algorithms suchas Random Forest, and incorporating email notifications to maximize user interaction.

ICRIT246

LORA BASED SMART BLACK BOX FOR AIRCRAFT SAFETY

Dr. K. Pandiammal. Surya Prasath. R, Thaha Sahith. S, Yasar Arabath. N,
Department of Ece, Fatima Michael College of Engneering and Technology
Madurai

ABSTRACT

In modern transportation and aviation systems, black box devices play a crucialrole in recording critical operational parameters for analysis, safety auditing and post-incident investigations. Traditional black boxes rely heavily on onboard storage such as SD cards or EEPROMs, making them vulnerabdata loss in extreme conditions like crashes, fire, or hardware damage. Thisproposes an advanced and automated black box system that leveragescloud technology to overcome these limitations by providing real-time, remotedata logging and monitoring. The proposed system integrates an STM32 Nucleomicrocontroller with multiple sensors, including an MPU6050gyroscope/accelerometer and a NEO-6M GPS module, to capture vehicleorientation and location data. These data packets are transmitted using a long range, low-power LoRa (SX1278) communication module to a receiver unit which then uploads the information to a cloud database. This allows real-tiime visualization, secure storage, and accessibility from anywhere via a web basedashboard developed using ReactJS and Google Maps API. By automating datacollection and leveraging cloud infrastructure, the system enhances reliability,ensures data survivability in criticaevents, and supports remote diagnostics andmonitoring. This cloud-connected black box approach is particularly useful inintelligent transportation systems, drone monitoring, and industrial safetyapplications, where real-time data access and remote fault analysis are essential.Furthermore, the system minimizes maintenance efforts and enables continuousmonitoring of assets, ensuring timely interventions in case of abnormalbehavior. The scalability of cloud storage allows the system to handle largevolumes of data over extended periods, making it suitable for fleet managementand long-term studies. Its modular design enables easy integration withemerging sensors and analytics software, paving the way for future.

ICRIT248

ANALYSIS OF ELECTRIC VEHICLES CONNECTOR TOPOLOGY

Dr.P.Chandra Sekhar, Associate Professor,
Department of EEE, Mahatma Gandhi Institute
of Technology, Hyderabad, Telangana, India, patsachandrasekhar @gmail.com
Dr.Ch.Raja, Associate Professor, Department of ECE, Mahatma Gandhi Institute of
Technology, Hyderabad, Telangana, India

ABSTRACT

Electric Vehicles(EV) are becoming more common mobility in the transportationsector in recent times .The dependence on oil as the source of energy for passenger vehiclehas economic and political implications ,and the crisis will take over as the oil reverses of theworld diminish .As concerns of oil depletion and security of the oil supply remain as severeas ever ,and faced with the consequences of climate change due to greenhouse gas emissionsthe tail pipes of vehicles, the world today is increasingly looking at alternatives totraditional road transport technologies.

.KEYWORDS-Electric Vehicles, AC Connectors and DC Connectors

ICRIT249

PREDICTIVE MODEL TO OPTIMIZE INVENTORY AND LOGISTICS FOR SUPPLY CHAIN OPTIMIZER

M.Vignesh Babu[1], M.Manimathavan[2], C.Sri Balaji[3], Pa.Suriyan [4].
Computer Science and Engineering, Sacs Mavmm Engineering College, Madurai,Tamilnadu.
vigneshbabu260590@gmail.com

ABSTRACT

The Supply Chain Optimizer project aims to build an intelligent system thatcombines inventory optimization and shipment tracking to improve efficiencyin logistics and inventory management. Using machine learning algorithms,the system predicts future inventory needs to minimize overstocking andstock outs while providing real-time shipment tracking with predictive ETA.And advanced AI models for demand forecasting, the system is designed tostreamline operations, reduce costs, and enhance decision-makin within thesupply chain. This solution combines predictive capabilities and real-timedata to offer a comprehensiveapproach to modern supply chain challenges.

Keywords : Supply Chain Optimizer, Overstocking, Stock Outs, Expected TimeArrival(ETA), Demand Forecasting.

ICRIT250

HIGH-EFFICIENCY FIXED-FREQUENCY LCC RESONANT BATTERYCHARGER FOR EVS

Mr. V. Vengatesan, Mahaveer AR, Mothilan Babu A, Prabhakaran G, Rahul Raj R
SRM TRP Engineering College (Anna University), Tiruchirappalli, India
umaravind2016@gmail.com

ABSTRACT

This project presents the design and implementation of a high-efficiency LCCresonant battery charger powered by solar energy for electric vehicle (EV) applications.The system integrates a solar panel, voltage sensor, Arduino Uno microcontroller, andLCD display to enable real-time monitoring and intelligent power management. At its core, the LCC resonant converter facilitates stable and low-loss energy transfer, optimizing thecharging process by ensuring high efficiency and soft-switching operation. The voltagesensor continuously monitors battery voltage to prevent overcharging, thereby enhancingsafety and extending battery lifespan. The Arduino Uno processessensor data and providesreal-time feedback via the LCD, allowing users to monitor system parameters effectively.By leveraging renewable solar energy and employing an advanced resonant convertertopology, the proposed system offers an efficient, reliable, and eco-friendly solution for EVbattery charging.

Keywords – LCC resonant converter, Solar energy, Electric vehicle (EV), Battery charging, Arduino Uno, Voltage sensor, High efficiency

ICRIT252

HERBAL LEARNING USING MOBILE APPLICATION

[1]Mrs. Y. Sheela, [2]Ms. S. Beulah, [3]Ms. M. Nivetha, [4]Ms. G. Rajalakshmi, [5]Ms. K. Swetha
Computer Science and Engineering
Jayaraj Annapackiam CSI College of Engineering, Nazareth, India

ABSTRACT

This project proposes an Android-based mobile application developed to provide an accessible digital platform for herbal learning. The system integrates a structured herbal plant database with key attributes such as botanical name, medicinal uses, and type of land suitable for cultivation. The mobile application is designed to support both admin and user modules. The admin panel facilitates CRUD (Create, Read, Update, Delete) operations to manage herbal plant data, including plant names, images, and medical properties. Users can search, explore, and view detailed plant information through the user interface. Additionally, the platform includes a basic Q&A section to assist users in deepening their knowledge about traditional herbal remedies. This system replaces conventional, fragmented documentation methods with a centralized, efficient, and user-friendly mobile solution, promoting the preservation and learning of herbal practices through modern technology.

Keywords - Herbal Plants, Mobile Application, Botanical Name, Medicinal Uses, Cultivation.

ICRIT253

HYBRID BASED SKIN DISEASE CLASSIFICATION USING VGG19 AND ResNET50

Prof.S.R.Naresh, K. Santhiya
Electronics and communication Engineering, K.L.N. College of Engineering, Sivaganga, Tamilnadu, India
santhiyaaer@gmail.com

***ABSTRACT**:*

Skin diseases are more common than other diseases. It may be caused by Fungal infection, Bacteria and Viruses. They encompass various skin issues such as Acne, Rashes, Rosacea, Hives, Nail Fungus, Melanoma, Dermatofibroma, Actinic keratosis, Basal Cell Carcinoma etc.The advancement of laser and photonics based diagnosis of skin lesions are much more quickly and accurately, but it is still limited and cost expensive. So Image processing technique is used to identify the skin lesions. The **Convolutional Neural Networks (CNNs)** stand out as powerful tools for image classification tasks, including skin disease detection. The proposed hybrid CNN Model (VGG19 and ResNet50) works on GLCM (Gray level co-occurance matrix) Pseudo-images offer a powerful method for skin lesion detection which is more accurate and cost effective. It takes 14 skin diseases dataset and 1 healthy dataset for their work from the ISIC 2019 and DermNet. The process involves several stages which includes Image preprocessing, Feature extraction by GLCM, GLCM Pseudo-image conversion and Classification. The final classification phase uses softmax to provide whether a skin lesion is present or not, identify the specific type of skin disease if affected also its stages, severity and provide valuable suggestions for illness. The performance of the proposed system is measured by using standard Metrices like Accuracy, Precision, Recall and F1-Score. The proposed system achieved an accuracy of above 98% of skin lesion prediction.

Keywords: ISIC 2019, DERMNET Dataset, Pre-processing, Feature extraction by GLCM, GLCM Pseudo-image conversion, Skin disease classification.

ICRIT254

From Seed to Splendor: A Scalable Manual Scheduling System Using CNN and Random Forests

Mr. Parthiban R, Bavatharani M , Durga Sri V , Kowshika J
Dept of CSE, Erode Sengunthar Engineering College, Perundurai

ABSTRACT

Effective plant care requires timely actions such as watering, fertilizing, pruning, and disease management. Performing these tasks manually can lead to inconsistencies, particularly in large-scale or home gardening setups. To address this challenge, the Plant Nurturing and Growth Management Scheduling System utilizes Artificial Intelligence (AI) and Machine Learning (ML) techniques to automate plant care routines through intelligent schedule generation. The system adapts to individual plant requirements by considering factors such as plant type, soil characteristics, local weather conditions, and past care data.User-provided inputs and real-time data retrieved from external APIs, like weather services, are used to analyze optimal care strategies. The AI-driven scheduling module creates personalized care plans, adjusting them dynamically as environmental conditions or plant health statuses change. This ensures that each plant receives the right care at the right time.To enhance plant health monitoring, the system employs Convolutional Neural Networks (CNNs) to analyze images of plant leaves for early detection of diseases. When abnormalities are identified, a Random Forest model is used to suggest suitable treatments and prioritize tasks according to urgency and the plant's growth phase. This dual-model approach improves accuracy and decision-making in care scheduling.Users are notified through an intuitive mobile or web interface, making it easy to follow care routines. The platform is designed to be accessible and practical, especially for users without advanced farming tools. By removing the dependency on costly IoT devices, it offers a budget-friendly alternative for both home gardeners and agricultural professionals.This system bridges the gap between conventional plant care and modern smart agriculture, offering an efficient, data-driven solution to promote healthy plant growth and sustainable gardening practices.

Keywords: Plant care, Artificial Intelligence, Machine Learning, Smart agriculture, Growth monitoring, Schedule generation, CNN, Random Forest, Disease detection, Plant health management.

ICRIT255

Real-Time Smart Attendance System Using OpenCV Based On Facial Detection and Recognition

Indu Krishna K S, Jane Berffia M J, Jerifa J I, Jincy C G, Mrs. Benisha Janice
Dept of CSE, Mar Ephraem College of Engineering and Technology, Kanniyakumari, India
indukrishnaks@gmail.com, janeberffia14@gmail.com, jerifa197@gmail.com,
jincychrist16@mail.com, benishajanice@marephraem.edu.in

ABSTRACT

In the digital transformation era, automating routine tasks such as attendance marking can significantly enhance productivity, accuracy, and hygiene. This paper presents a Real-Time Smart Attendance System that leverages face detection and face recognition technologies using OpenCV and Python to automate attendance in educational institutions and corporate environments. The system captures live video from a webcam, detects multiple faces in real time, and recognizes registered individuals by comparing their facial features with a pre-stored database. Face detection is achieved using robust computer vision models, while face recognition models rely on encoding unique facial features and comparing them through a similarity metric. Once a match is confirmed, the system marks attendance automatically, including details like the person's name, date, and timestamp. This approach eliminates the need for physical contact or manual input, making it a hygienic, error-free alternative to traditional methods such as registers, fingerprint scanners, and RFID cards. It supports multi-face recognition in a single frame, making it ideal for classrooms and meetings. The system architecture consists of key modules: user registration, face detection, face alignment, feature extraction, face recognition, attendance logging, database management, and reporting. It provides structured data storage in formats like CSV, and reports can be exported for administrative use. Experimental results demonstrated high accuracy and fast processing under varying lighting and background conditions. The system proved scalable, cost-effective, and easy to deploy, with potential for future enhancements like cloud integration, mobile app access, and AI-driven adaptive recognition. This research showcases how modern computer vision, face recognition models, and the NumPy library can redefine traditional processes, offering an efficient, contactless, and intelligent solution for attendance management.

Keywords—Face Recognition, Face Detection, OpenCV, Python, NumPy, Face Recognition Models, Attendance System

ICRIT256

REVOLUTIONIZING PHISHING DETECTION EVALUATION MACHINE LEARNING ALGORITHMS

Dr. S. Parthasarathy [1], Arun. J [2]
[1] Head of the Department, Master of Computer Applications, SRM Valliammai Engineering College affiliated to Anna University, Tamil Nadu, India.
[2] Student, Master of Computer Applications, SRM Valliammai Engineering College affiliated to Anna University, Tamil Nadu, India.
***E-mail:** arunjayakanthan29@gmail.com*

ABSTRACT

Phishing attacks are among the most common and destructive cyberthreats, taking advantage of user trust to steal private data like usernames and passwords for credit cards, and personal identities. The cross-platform phishing detection system described in this project using machine learning to categorize websites to identify phishing or authorized based on a collection of features that have been extracted. A Python and Flask are used in the building process of the system's backend. Through the help of a trained Random Forest machine learning model, it is capable of predicting whether a URL is likely to be phishing by analyzing a dataset of website attributes. In order to make predictions in real time, the model is saved as a.(pkl) file and trained on publicly accessible datasets.The frontend is developed using React Native, enabling deployment on both Android and iOS devices. Users can enter or send features from a suspected site using a simple mobile interface. The app sends this data to the Flask API, gets a prediction, and shows the predicted outcome (authorized or phishing) to the user. This architecture ensures device-independent accessibility, offline capability with local hosting, and fast local deployment. Through the use of machine learning, local backend services, and a cross-platform mobile interface, this project provide a fast, accurate, and portable phishing detection tool that can be used for practical cybersecurity applications, research, or education.

KEYWORDS : Phishing Detection, Machine Learning, Cybersecurity, Python, React Native, URL Classification, Cross-Platform App, Real-time Prediction.

ICRIT257

IOT BASED AUTONOMOUS MINE DETECTION AND DEFUSAL SYSTEM

Shruthika A, Renuga E, Sujitha S
Department of ECE, SRM TRP Engineering College, Trichy, TamilNadu, India
shruthianbu2409@gmail.com, renuga.e2910@gmail.com, sujithasakthi15@gmail.com

ABSTRACT

Landmines and unexploded ordnance pose severe threats in conflict zones, endangering both military personnel and civilians. This project introduces an IoT based Autonomous Mine Detection and Defusal System, integrating Arduino Uno and Node MCU with various sensors and actuators for efficient mine detection, monitoring, and defusal. The Arduino Uno microcontroller serves as the central processing unit, managing sensor inputs and controlling robotic functions, while Node MCU enables wireless data transmission to a remote command center for realtime monitoring. The system incorporates multiple sensors: An IR sensor for obstacle detection, PIR sensor for motion sensing, Gas sensor for detecting explosive gases, and Proximity sensor for locating metal objects near the ground surface. A camera module provides realtime visual feedback, while an LCD display presents system status and a buzzer triggers an alert upon detecting a potential explosive device. The robotic vehicle, powered by two DC motors,ensures smooth movement across rugged terrains. Once a landmine is detected, the system deploys a cutting mechanism to safely disable trigger wires. A rechargeable battery supply provides power to all components, ensuring continuous operation in remote areas. Wireless communication via Node MCU enables military personnel to receive realtime data, allowing them to assess threats from a safe distance. This system is particularly valuable for border security, battlefield reconnaissance, and humanitarian demining operations, significantly reducing human risk while improving efficiency. Its automation and remote monitoring capabilities offer a transformative approach to mine clearance technology.

KEYWORDS: IoT based Autonomous System , Mine Detection and Defusal , Arduino Uno & Node MCU Integration , MultiSensor Detection (IR, PIR, Gas, Proximity) , Wireless Communication & Remote Monitoring , Robotic Vehicle with Cutting Mechanism , Realtime Surveillance & Threat Assessment , Military & Humanitarian Applications.

ICRIT258

SMART ENERGY METER: INTELLIGENT MONITORING & PROTECTION SYSTEM

Jeyanth Sp, Kishorekanna K, Prasanth B, Pavithra R
K.L.N.College of Engineering , An Autonomous Institution, Chennai,India
jeyanthkln@gmail.com

ABSTRACT

Smart Energy Meter: Intelligent Monitoring & Protection System The "Smart Energy Meter" is an IoT-enabled solution designed to optimize energy consumption, enhance electrical safety, and provide real-time monitoring and control of power usage. This system employs an ESP32 microcontroller integrated with precision voltage and current sensors to continuously track energy parameters. A key feature of the design is its proactive protection mechanism, which disconnects power supply upon detecting overloads (above 30A) or low voltage conditions (below 180V), thus safeguarding connected devices. The device features a user-friendly LCD display that provides real-time values for voltage, current, and cumulative energy units consumed monthly. Additionally, it offers seamless wireless data transmission via Wi-Fi to a mobile or web application, enabling users to remotely monitor energy usage and control the system, including power cut-off or reset functionalities. Security protocols are in place to protect transmitted data. The system is scalable for residential and industrial environments, offering benefits such as reduced energy costs, improved safety, and support for grid management. Future enhancements include integration with smart home platforms, predictive analytics using AI, and compatibility with renewable energy sources to support sustainable energy practices. By combining precise sensing, wireless communication, and automation, the Smart Energy Meter represents a step forward in intelligent energy management.

ICRIT260

AGRICULTURAL ADVISORY APPLICATION: ENHANCING FARM PRODUCTIVITY THROUGH EXPERT CONSULTATION

Sri Hariharan .S, Venkatesh S, Ravikumar M, Meena G
Dept of computer Science and Engineering, R P Sarathy Institute of Technology

ABSTRACT

Agriculture plays a crucial role in sustaining hum an life, yet farm ers often face challenges suc h as inadequate access to expert advice, lac k of tim ely inform atio n, and difficulty in selling their produce efficiently. AG RIPRO is a web -based platform designed to bridge the gap between farm ers and agric ultural experts by enabling direct com munication, knowledge sharing, and m arketp lac e transactions. This system features two separate log in portals one for farmers and one for experts. Farm ers can post their agric ultural issues in various form ats suc h as text, im ages, audio, or video, while experts can v iew and provide tailored solutions.

ICRIT261

ENVIRONMENTAL MONITORING SYSTEM USING EDGE TECHONOLOGY

Aasha.M, Mari Devi.P, Abhinaya.S, Jeyapariya.M
Department of Electronics and Communication Engineering,
Grace College Of Engineering, Mullakkadu, Thoothukudi, Tamilnadu - 628005.
950321106001@gracecoe.org, 950321106018@gracecoe.org, 950321106002@gracecoe.org, 950321106014@gracecoe.org

ABSTRACT

This project presents the design and implementation of a real-time environmental monitoring system leveraging the power of edge computing. Traditional cloud-based monitoring systems often suffer from latency issues, high bandwidth consumption, and reliance on continuous network connectivity. To address these limitations, our system employs edge devices strategically deployed in the environment to collect, process, and analyse sensor data locally. This approach enables rapid detection of critical environmental changes, reduces data transmission overhead, and enhances system reliability, particularly in remote or resource-constrained locations.The system integrates various environmental sensors to monitor key parameters such as temperature, humidity, air quality (e.g., particulate matter, CO2 levels), and potentially water quality. The edge devices, equipped with microcontrollers and processing capabilities, perform initial data filtering, aggregation, and anomaly detection. Only relevant information or alerts are then transmitted to a central server or cloud platform for further analysis, visualization, and long-term storage. This intelligent data processing at the edge significantly improves response times to environmental events, facilitates proactive decision-making, and contributes to more efficient and sustainable environmental management. The project explores the hardware and software architecture of the edge devices, the communication protocols used, and the development of algorithms for real-time data analysis and alert generation. A prototype system is developed and evaluated to demonstrate the feasibility and effectiveness of the proposed edge-based environmental monitoring solution.

Keyword: AI, drone, surveillance, autonomous, detection, monitoring, fire detection, human detection, real-time, alert, security, efficiency, industrial, remote, disaster

ICRIT262

A DECENTRALIZED FINANCIAL TRANSACTIONS USING BLOCKCHAIN TECHNOLOGY

M. Anantha Malathi[1], A. Brightline Viji[2], M. Esaikala[3], N. Krishnaveni[4], D. Merlin Gethsy[5]
Department of CSE, V V College of Engineering, Thoothukudi, TamilNadu, India
ananthamalathi51@gmail.com, brightlineviji77@gmail.com, esaikala944@gmail.com, krishnaveni.n1188@gmail.com , merlingethsy@gmail.com

ABSTRACT

The emergence of blockchain technology has revolutionized the financial landscape by enabling decentralized financial transactions, which operate independently of traditional banking systems. This project explores the development and implementation of a decentralized money transaction system, leveraging blockchain to facilitate peer-to-peer (P2P) transfers, eliminate intermediaries, enhance security, and reduce transaction costs. In traditional financial systems, banks or other centralized authorities act as intermediaries in money transfers, often resulting in high fees, delays, and increased vulnerability to fraud or hacking. A decentralized financial transaction system addresses these challenges by utilizing a distributed ledger to enable direct exchanges between individuals or entities, with no central authority required to validate or approve transactions. Each transaction is securely recorded on the blockchain, ensuring transparency, immutability, and resistance to censorship. This project involves the design and development of a prototype decentralized transaction platform based on a blockchain infrastructure, such as Ethereum or Solana. The platform will include smart contract functionality to automate payment processes, implement user wallets, and provide a user-friendly interface for seamless transactions. It also explore the integration of cryptocurrency or token-based systems as the medium of exchange within the platform. The implementation of a decentralized financial transaction system is poised to transform the financial industry by offering greater financial inclusion, reducing reliance on traditional banking systems, and empowering individuals with more control over their financial transactions. Through this project, it aims to demonstrate the practical benefits and scalability of blockchain based decentralized payment solutions in real-world financial applications by increasing transaction speed, security and reduces the transaction cost.

.

ICRIT263

VOICE CONTROLLED MOBILITY AID FOR PHYSICALLY CHALLENGED INDIVIDUAL

Mrs. S.Jai metilda, Pavithra A, Subha D, Swetha M
Electrical and Electronics Engineering
J.P. College of Engineering Ayikudi, India
subhadharmaraj82@gmail.com

ABSTRACT

The Voice-Controlled Wheelchair is an innovative mobility solution designed to enhance the independence and quality of life for individuals with physical disabilities or limited mobility. This project focuses on developing a wheelchair that can be operated through voice commands, reducing the need for manual operation and providing a hands-free, user- friendly experience. The system integrates a microcontroller with a voice recognition module, allowing users to control the wheelchair's movement forward, backward, left, right, and stop through simple voice commands. Motor drivers and DC motors enable smooth and precise movement, enhancing safety during operation. design prioritizes comfort, durability, and ease of use, making it suitable for indoor and outdoor use The voice recognition system is programmed to recognize specific commands with high accuracy, even in moderately noisy environments. Additionally, the wheelchair's. This project has the potential to significant improve the autonomy and freedom of movement for individuals with disabilities, contributing to a more inclusive society. Ultrasonic sensors are used in voice-controlled wheelchairs.

ICRIT264

VEHICLE TO VEHICLE WIRELESS POWER TRANSMISSION

Dr. R Sowmya, Naveen Kumar V, Naveen Kumar K, Kumaresan V, Vallarasu R
SRM TRP Engineering College (Anna University), Tiruchirappalli, India
naveenkumar20031206@gmail.com

ABSTRACT

Vehicle-to-Vehicle (V2V) Power Transmission represents a transformative innovation in the field of electric mobility, enabling the wireless and wired transfer of electrical energy between electric vehicles (EVs). As the adoption of EVs accelerates globally, range anxiety and charging infrastructure limitations remain significant challenges. V2V power transmission addresses these issues by allowing energy-rich vehicles to share power with energy-deficient counterparts, creating a decentralized, mobile energy-sharing network. The system relies on advanced technologies such as bidirectional onboard chargers, DC fast charging capabilities, wireless power transfer (WPT) via resonant inductive coupling, and secure vehicle-to-everything (V2X) communication protocols. By using real-time data exchange and predictive analytics, vehicles can identify optimal energy exchange opportunities based on parameters like battery state-of-charge, route planning, traffic conditions, and energy demand. Potential use cases include emergency roadside assistance, dynamic energy transfer during platooning, peer-to-peer energy trading, and fleet-level energy optimization. Additionally, integration with intelligent transportation systems (ITS) and smart grids could enable vehicles to act as mobile energy nodes, contributing to grid stability and resilience. However, with advancements in power electronics, AI-based energy management, and 5G-enabled communication, V2V power transmission holds immense potential in shaping a more sustainable, efficient, and collaborative transportation future.

Keywords – Arduino Uno (ATMEGA328P), Voltage Sensor, Switches, Inverter, receiver coil, transmitter coil, L293d Motor

ICRIT265

ONLINE BLOOD DONATION MANAGEMENT SYSTEM

Dr.R Thenmozhi, Assosciate Professor, Dept : Master of Computer Applications, SRM Valliammai Engineering College, kattankulathur.
Dinakaran K, Dept : Master of Computer Applications, SRM Valliammai Engineering College, kattankulathur.
kannandina174@gmail.com

ABSTRACT

The online blood donation information will be developed as part of the online blood donation management system project. The distributed client-server computing technology has been considered throughout the online Blood Donation Management System project. The purpose of the Online Blood Donation Management System is to collect data about donors and seekers who are interested in donating blood or who require it. Anyone who wants to sign up to donate blood can do so through this web application like anyone who wants to sign up to this website can do so. In addition, this website makes it possible for any general consumer to request blood online. The admin is the primary authority if necessary and can perform addition, deletion, and modification. The main objective of the online blood donation management system is to keep track of information about donors, blood banks, blood groups, and blood seekers.

Keywords: Blood Donation, Online Management System, Donor Registration, Blood Request, Blood Bank, Client-Server Architecture, Web Application, Healthcare System, Database Management, Admin Control.

ICRIT266

AUTONOMUS FIRE NAVIGITION SYSTEM USING LIGHT OF 170NM WAVELENGTH

V Gurunathan, Arun Kumar S, Harish J A, Mohamad rithik roshan S
Dept of ECE, Dr.MCET, Pollachi,India
sarunkumar200105@gmail.com

ABSTRACT

Detecting and putting out fires is a dangerous job that always puts a firefighter's life at jeopardy. The speed, effectiveness, and accessibility of conventional fire detection and extinguishing systems are frequently restricted. The novel solution presented in this study is a fire detection and extinguishing robot that can detect and put out fires on its own in a variety of settings.Smoke detectors, temperature sensors, and gas sensors are among the sensors that make up the robot's hardware, which allows it to detect possible fire dangers in its surroundings. These sensors give the Arduino controller real-time data while continuously monitoring the environment.The sensor data is processed by the Arduino controller, which uses clever algorithms to analyze the inputs and precisely identify whether a fire is present. When the robot detects a fire, it quickly advances toward the source using its actuation system, which consists of motors and a chemical extinguisher. Wheels or tracks help the robot move around, allowing it to move quickly over a variety of surfaces. The robot effectively puts out the flames by activating the extinguishing mechanism as soon as it reaches the fire source.

ICRIT267

PNEUMONIA DETECTION: A CNN BASED FEATURE EXTRACTION APPROACH

Ponmozhi K[1], Rajavel J[2], Ruthra R[3], Santhosh Kumar T[4]
[1]Associate Professor, Master in Computer Applications, SRM Valliammai Engineering College affiliated to Anna University
[2,3,4] Stutents, Master in Computer Applications, SRM Valliammai Engineering College affiliated to Anna University
kumarsanthosh8182@gmail.com, rajaveloffical2003@gmail.com

ABSTRACT

Pneumonia remains a critical public health concern, particularly in developing countries, where it significantly contributes to mortality rates. In India, pneumonia accounts for nearly one in every three deaths, as reported by the World Health Organization (WHO). It is typically caused by bacterial infections such as Streptococcus pneumoniae and results in inflammation of one or both lungs. Early and accurate diagnosis is vital to prevent severe complications, yet access to expert radiologists especially in remote or underserved areas remains limited. Chest X-ray imaging is a common diagnostic tool, but its interpretation requires specialized expertise. To address this gap, automated detection systems based on machine learning and deep learning offer a promising solution. This study explores the use of Convolutional Neural Networks (CNNs) for automated classification of chest X-ray images into normal and pneumonia-infected categories. Specifically, we evaluate the performance of various pre-trained CNN models originally trained on large-scale image datasets as feature extractors. These deep features are then passed through multiple supervised classification algorithms to identify the most accurate and efficient combination for pneumonia detection. By leveraging the transfer learning capabilities of pre-trained models, we significantly reduce the need for large annotated medical datasets, which are often scarce. Experimental results demonstrate that certain pre-trained CNN architectures, when coupled with appropriate classifiers, achieve high diagnostic accuracy in distinguishing pneumonia from normal cases. This approach not only accelerates the diagnostic process but also provides a scalable, cost-effective solution that can be deployed in healthcare systems with limited resources. The findings support the integration of deep learning-based tools into clinical workflows to aid radiologists and improve patient outcomes.

Keywords: Pneumonia Detection, Convolutional Neural Networks (CNN), Deep Learning, Machine Learning, Chest X-ray Classification, Transfer Learning, Medical Image Analysis, Automated Diagnosis, Pre-trained Models, Supervised Learning.

ICRIT269

IoT Based smart dustbin for real-time waste level monitoring System

[1]Aridass S, [2]Dhileep S, [3]Gokul P, [4]Nallathambi A
[1, 2,3,] UG Students, [4]Associate Professor
Department of Electronics and Communication Engineering, Roever Engineering College, Perambalur,India
[1]dassaridass@gmail.com, [2]dhileepking11032004@gmail.com, [3]gokulgokulsamy@gmail.com, [4]nallathambiarjunan@gmail.com

ABSTRACT

Recently, the huge increase in waste production has become a big global problem, causing dirty environments, bad smells, and the spread of diseases in cities and public areas. Old methods of waste management have not been effective in solving this issue. The project focuses on developing a smart dustbin that uses IoT and sensors for automated waste management. It includes features like real-time monitoring, automatic lid opening, and notifications when the bin is full. The system uses an Arduino Uno microcontroller to process data from ultrasonic and fire sensors, ensuring efficient waste level detection and fire hazard prevention. Additionally, the system integrates a toxic gas sensor to detect harmful gases like methane (CH4), ammonia (NH3), and carbon monoxide (CO). If toxic gas levels exceed a predefined threshold, immediate alerts are sent to the college management via IoT for prompt action, ensuring safety. The ESP8266 Wi-Fi module enables IoT connectivity, allowing data to be sent to a cloud server for analysis and remote monitoring. An LCD display and buzzer provide local alerts and status updates for users. This enhanced IoT-based smart dustbin aims to improve public hygiene, reduce waste overflow, ensure safety from hazardous gases, and promote sustainable living within college environments.

Keywords—Dustbin, Waste management, IoT, level monitoring, Arduino, PIR sensor, Ultrasonic sensor, GSM module, Buzzer, Servo motor.

ICRIT270

A DEEP LEARNING-BASED GROUNDNUT LEAF DISEASE DETECTION SYSTEM

S.M.C.Subashini, K.Sasikala, A.Shanthi, R.K.Dharanivenkatesh, M.Gopinath
Department of Information Technology,
R P Sarathy Institute of Technology, Salem, India
subainfotech11@gmail.com

ABSTRACT

This project employs deep learning techniques to detect leaf diseases, enhancing agricultural productivity through early diagnosis. A Convolutional Neural Network (CNN) model is trained on images of healthy and diseased leaves for accurate classification. The system enables real-time identification of plant diseases, allowing timely intervention and treatment.Accessible via mobile and web applications, farmers can capture and upload leaf images for instant analysis and recommendations. This approach improves crop health monitoring, reduces losses, and increases yield efficiency. By automating disease detection, the system supports sustainable farming and precision agriculture, promoting proactive crop management and resource optimization.

Keywords:Leaf disease detection, deep learning, Convolutional Neural Network (CNN), real-time diagnosis, precision agriculture, crop health monitoring, automated disease detection, sustainable farming, mobile application, web application, agricultural productivity.

ICRIT271

NEOAUTOMATION IOT BASED SMART CONTROL

Maheshkumar M
Dept of CSE , Ramco Institute of Technolgy , Rajaplayam, Tamil Nadu, India

ABSTRACT

The growing demand for scalable and efficient Internet of Things (IoT) solutions has driven the development of mobile platforms for remote device monitoring and control. This project presents a cross-platform IoT mobile application built using Flutter, designed to interact seamlessly with ESP32 and ESP8266-based IoT devices. The system employs MQTT (Message Queuing Telemetry Transport) for real-time communication, with an MQTT broker hosted on an AWS EC2 instance using Mosquitto, ensuring reliable and low-latency messaging. User authentication and data storage are managed through Firebase, providing secure access control and scalable cloud-based user management. The application allows users to monitor sensor data and control connected devices via an intuitive dashboard. Key functionalities include real-time data visualization, remote device control, and a responsive user interface. Flutter ensures cross-platform compatibility, while MQTT optimizes data transmission efficiency. Hosting the MQTT broker on AWS EC2 enhances scalability and reliability, making the system adaptable for various IoT applications. This project demonstrates a cost-effective, customizable, and secure IoT solution, offering full control over data flow and system architecture. Potential future enhancements include multi-protocol support, edge computing integration, and advanced data analytics for improved performance. The developed application serves as a versatile foundation for IoT deployments in smart homes, industrial automation, and remote monitoring systems.

Keywords: IoT, Flutter, MQTT, Firebase, AWS EC2, ESP32, ESP8266, Mosquitto, Real-time Monitoring, Cross-platform Application.

ICRIT272

BLOCKCHAIN BASED AN EFFICIENT AND SECURE PRIVACY PRESERVED FRAMEWORK FOR SMART CITIES

Mrs.G.Meena, T.Balaji, N.Gokulananth, P.Gowtham, P.Jothimani,
Department of Computer Science and Engineering,
R P Sarathy Institute of Technology, Salem, India
meenakirtan@gmail.com

ABSTRACT

To Building smart services for smart cities has become a significant focus of the Internet of Things (IoT). These IoT devices are able to sense their surroundings and react appropriately. Smart city applications emphasize the necessity of safe data sharing across heterogeneous devices. Certain behaviors taken while sharing could aim at compromising security, privacy, and integrity. The centralized repository that is currently in place made the majority of hacks possible. The sharing of sensitive data and authentication are essential stages in guaranteeing the security of applications associated with IoT. Blockchain and IoT are two widely used technologies, with IoT focusing on data collection via various devices and blockchain enabling data integrity. This paper introduces a novel blockchain-based framework to ensure the security and integrity aspects of IoT data. The proposed SecPrivPreserve framework ensures security through various phases including initialization, registration, data protection, authentication, data access control, validation, and data sharing and download. Diverse security mechanisms such as passwords (OTP), encryption, and hashing have been deployed in various phases to strengthen security merits confidentiality, privacy, and integrity. Since the SecPrivPreserve framework is simulated in a permissioned blockchain platform the merits and tamper-proof and non-repudiation are automatically considered. Moreover, data protection uses Chebyshev polynomials and interpolation. The presented framework has experimented with Fabric SDK. The experimental results of the proposed framework are compared with the BaseLine state-of-the-frameworks, The experimental analysis reveals that the proposed SecPrivPreserve approach achieved 34 Sec improvement in terms of responsiveness 94 Sec as computational time, encryption quality as 0.87 Sec and 0.82 Sec for detection rate.

ICRIT273

BRAIN TUMOR DETECTION AND TUMOR SIMILARITY PREDICTION

Swetha S, Nagarajan M.
Department Of Computer Applications (MCA), SRM Valliammai Engineering college, Chennai, India.
Email:swethakamali2004@gmail.com , nagarajanm.mca@srmvalliammai.ac.in

ABSTRACT

This article presents a lightweight, efficient pipeline for analyzing T2-weighted MRI scans to detect brain tumors, designed to run on off-the-shelf hardware. The system leverages Python, NumPy, NetworkX, Tkinter, and OpenCV, incorporating advanced techniques like graph neural networks (GNNs), counterfactual prediction, and emotional importance estimation, all optimized for small datasets.The pipeline begins by preprocessing MRI scans with OpenCV to extract tumor features, such as size and location. It then constructs a GNN-based graph that links tumors, using neighbor-informed aggregation to produce a similarity score for effective clustering of linked tumors. Counterfactual prediction generates alternative tumor configurations by interpolating matched features, which are visualized as boundaries on the MRI images, enabling exploration of potential tumor variations.A key feature of the system is the real-time calculation of emotional importance, which factors in tumor size and anatomical location, with a bias toward large or centrally located tumors. This adds an emotional context to the analysis, reflecting the potential impact of different tumor configurations on the patient.The system is designed to be user-friendly, with a minimal resource footprint, displayed via Tkinter. It has been tested for robustness, showing consistent results compared to more resource- intensive methods. The pipeline's speed and efficiency make it ideal for low-resource environments, where it provides immediate, practical utility in small-scale diagnostic applications and research, such as identifying important tumor clusters and conducting pattern analysis.Overall, this system offers a hands-on, replicable platform that transcends the limitations of traditional approaches, enabling more accessible and efficient brain tumor detection and analysis, with potential for future upgrades and broader applications.

ICRIT274

DYNAMIC AI POWERED CONVERSATIONAL PDF SUMMARIZER

Avinash S R, Elumalai A, Dr V. Santhanam Marichamy,
Department of Computer Applications, SRM Valliammai Engineering College, Kattankulathur
avinashsr273@gmail.com

ABSTRACT

With an increasing number of digital documents, especially PDFs, users frequently struggle to find relevant information from vast amounts of unstructured data. To solve this, we introduce an AI-Powered Conversational PDF Summarizer, a clever document assistant that enables users to interactively query PDF content with natural language and obtain accurate, contextually relevant answers. Our system utilizes PyPDF2 to extract text from your PDFs and then uses semantic-aware splitting to divide the text into manageable chunks. To understand the deeper meaning of the words, we use Hugging Face's effective all-MiniLM-L6-v2 model, which transforms each section into searchable vectors stored in a quick FAISS database. It immediately finds the most relevant parts when you ask a question, then provides them to Google's Gemini 1.5 Pro, generates human-like responses specific to your question. As your were speaking with an informed expert, you obtain accurate, relevant answers. For your PDFs, this system serves as an informed assistant. It's as simple as having a conversation—just upload your files and start asking questions in ordinary language. Anyone can use it without any training. You can ask for explanations, page summaries, or assistance finding important information. This system actually understands your documents, unlike simple search tools. It does more than simply search for words that match your query. It uses proficient AI to understand the purpose and context of your query before identifying the most appropriate sections from your materials. By utilizing the cost-effective and fast MiniLM embeddings in combination with advanced LLMs, the project achieves a balance between performance, accuracy, and scalability. This solution is ideal for students, researchers, legal professionals, and anyone dealing with large PDFs, allowing them to summarize, search, and interact with documents conversationally saving time and boosting productivity.

Keywords: AI-powered PDF Summarizer, Natural Language Processing (NLP),Hugging Face , Embeddings, Conversational Retrieval, FAISS Vector Store, Gemini 1.5 Pro, Semantic Search, LangChain, Text Embedding, Recursive Character Text Splitter, Vector Similarity Search, Context-aware Response Generation

ICRIT275

LOAN SHIELD AI

INTELLIGENT ID VERIFICATION FOR EFFICIENT LOAN WAIVERS

Dr. C. Prema[1], Santhanamari Abi M[2], Isabel S[3], Jemima Hannah P[4]
Computer Science and Engineering, Jayaraj Annapackiam CSI College of Engineering, Nazareth, Tamil Nadu
cp20121970@gmail.com[1], abisanthanamari@gmail.com[2], isaprinku@gmail.com[3], jemimahannah1709@gmail.com [4]

ABSTRACT

Identity authentication is a critical component in the processing of government loan waivers. Manual authentication tends to cause errors and forgery, thus delaying the approval of the loans. To address this, a smart system named Loan Shield AI has been created. It utilizes Deep Learning, OCR, and Federated Learning to authenticate documents such as Aadhaar and Smart Cards and auto-extract crucial details. A voice assistant is also provided to assist users by assisting them and completing loan forms from the extracted data. The system is containerized in an application for seamless deployment and tested for document verification, face matching, and fraud detection. Automation and voice support make the loan application quick, precise, and user-friendly. The system also accommodates various document types and various languages to enhance usability and dependability.

Keywords—Identity Verification, Loan Shield AI, OCR, Aadhaar, Smart Card, Deep Learning, Fraud Detection, Voice Assistant, Form Filling

ICRIT276

PV-INTEGRATED HYBRID COMPENSATION WIRELESS CHARGING SYSTEM FOR EFFICIENT AND SUSTAINABLE EV CHARGING

Srimathi Muthukumaran [1,], Dhanalakshmi kannan [2], Akashsharma Tamilselvan [3], Muthukumar Karuthadurai [4], Manjuladevi AR [5]*
Department of Electrical and Electronics Engineering, J.J. College of Engineering and Technology
srimathimuthukumaran04@gmail.com

ABSTRACT

This method proposes a modified PV-integrated wireless charging system for electric vehicles using a hybrid compensation technique. The conventional H-bridge converter at the input is replaced with a more efficient half-bridge converter to reduce switching losses. On the receiver side, a series resonant converter is substituted with an active rectifier to improve power transfer efficiency and minimize diode conduction losses. The system eliminates the need for MPPT by operating under controlled input conditions, making it suitable for stable PV outputs. Simulation results validate the improved performance in terms of reduced total harmonic distortion (THD), increased efficiency, and enhanced charging reliability. This approach ensures an energy-efficient and cost-effective solution for wireless EV charging using renewable energy sources.

Keywords— Wireless power transfer, PV integration, hybrid compensation, half-bridge converter, active rectifier, electric vehicle charging.

ICRIT277

AUTOMATED DETECTION OF MYOCARDIAL INFARCTION AND HEART FAILURE FROM ECG IMAGES USING DEEP LEARNING FRAMEWORK

A. Blessy Hethsiyal, PhD Scholar, VV College of Engineering, Tisayanvilai
Dr. G. Sumilda Merlin AP/CSE, VV College of Engineering, Tisayanvilai

ABSTRACT

Cardiovascular diseases such as myocardial infarction (MI) and heart failure (HF) are among the leading causes of global mortality, emphasizing the need for rapid, accessible, and accurate diagnostic tools. While traditional approaches often rely on a combination of ECG data and clinical biomarkers, this work demonstrates that raw ECG signals alone are sufficient for the simultaneous detection of MI and HF using advanced deep learning techniques.We propose a novel deep learning framework that leverages 2D spectrogram representations of 12-lead ECG signals to encode temporal, spectral, and inter-lead spatial relationships. A lightweight convolutional neural network (CNN) based on SqueezeNet, enhanced with custom cardiac-specific feature layers and attention mechanisms, is employed to capture abnormalities unique to MI (e.g., ST-segment elevation in leads V2–V4) and HF (e.g., low QRS amplitude in lead I).The model was trained on over 20,000 ECG recordings from the PTB-XL and Chapman-Shaoxing datasets. It achieved 98.9% accuracy for MI detection (sensitivity: 98.6%, specificity: 99.2%) and 97.8% for HF (sensitivity: 97.1%, specificity: 98.3%). Compared to traditional 1D CNN models, our 2D spectrogram approach improved performance by 13–16%. External validation across three hospitals yielded 96.2% accuracy on ambiguous clinical cases. The system operates in under 25 milliseconds on a Raspberry Pi 4, making it highly suitable for real-time deployment in low-resource settings.Grad-CAM-based visualizations enhance interpretability by highlighting spectral patterns relevant to MI (50–100 Hz) and HF (<20 Hz), supporting clinical trust in model predictions. Field trials in rural clinics demonstrated a 30% reduction in unnecessary referrals, underscoring its potential as a standalone, ECG-only screening solution for scalable cardiovascular risk assessment.

Keywords *- Electrocardiogram (ECG), Myocardial Infarction, Heart Failure, Deep Learning, Convolutional Neural Networks, spectrogram analysis, edge AI.*

ICRIT278

CROP YIELD PREDICTION AND RECOMMENDATION USING MACHINE LEARNING

Tamilselvi S ,Nagarajan M.
. Department Of Computer Applications (MCA), SRM Valliammai Engineering college, Chennai, India.

tamilselvishan2020@gmail.com, nagarajanm.mca@srmvalliammai.ac.in

ABSTRACT

Agriculture remains a cornerstone of the global economy, particularly in developing countries where a large portion of the population depends on farming for their livelihood. However, traditional agricultural practices often lead to inefficient use of resources and unpredictable crop yields due to varying climatic, soil, and environmental conditions. To address these challenges, this project proposes a machine learning-based system for crop yield prediction and recommendation, aiming to optimize agricultural productivity and support data-driven decision-making for farmers.The proposed system utilizes historical agricultural data, including weather patterns, soil parameters, crop types, rainfall, temperature, and fertilizer usage, to train predictive models capable of estimating crop yields with high accuracy. Supervised learning algorithms such as Random Forest, XGBoost, and Linear Regression are employed to forecast expected yields for various crops in specific geographical regions. Additionally, the system incorporates classification techniques to recommend the most suitable crops based on real-time environmental inputs and soil health parameters.The project includes data preprocessing, feature engineering, model training, and validation using standard datasets from agricultural research organizations and open government data portals. Furthermore, an intuitive user interface is designed to enable farmers and stakeholders to input relevant data and receive actionable insights on optimal crop choices and expected production levels.By leveraging the power of machine learning, this system not only enhances crop yield predictions but also supports sustainable agricultural practices. It empowers farmers with reliable recommendations, enabling them to make informed decisions that reduce risk, maximize yield, and promote efficient resource usage. The ultimate goal is to bridge the technological gap in agriculture and contribute to food security through intelligent, adaptive, and scalable solutions.

KEYWORDS: Crop Yield Prediction, Machine Learning, Agricultural Data Analysis

ICRIT279

BREATHALYZER WITH ENGINE LOCK

Ms Savitha M, Rajapradeep S, Tamilkumaran B, Naga Arjun S
CSE, (Erode Sengunthar Engineering College), Erode, India,

savithasavi299@gmail.com

ABSTRACT

The Alcohol Detection and Engine Lock System using Arduino, Java, and IoT is a smart safety solution designed to prevent accidents caused by alcohol-impaired driving or machinery operation. It uses an MQ-3 gas sensor integrated with an Arduino microcontroller to detect blood alcohol concentration (BAC) from a user's breath. When BAC exceeds a predefined threshold, the system activates a buzzer, displays a warning on an LCD screen, and automatically disables the engine to prevent operation. The data is simultaneously transmitted to a cloud platform for real-time monitoring and analysis. A Java-based application provides an intuitive interface for accessing live and historical data, making it suitable for fleet management, industrial safety enforcement, and parental supervision. This compact, cost-effective system showcases the integration of embedded systems and IoT to enhance public and workplace safety, promoting responsible behavior while demonstrating the potential of technology in building smarter, safer environments.

KEYWORDS Alcohol Detection, Drunk Driving Prevention, IoT Safety System, Real-Time Monitoring, Engine Lock, Embedded Systems, Workplace Safety, Smart Vehicle Control, MQ-3 Sensor, Arduino Integration.

ICRIT280

DEEP LEARNING-BASED NAIL DISEASE CLASSIFICATION USING MOBILENETV3-CAPSULE ARCHITECTURE

Babin Nivya P, J Sophia Jone
ECE department, Bethlahem Institute of Engineering, Karungal, Kanyakumari
sophiajone@gmail.com

ABSTRACT

The World Health Organization recognizes the importance of early diagnosis in reducing morbidity and mortality associated with various medical conditions. Nail abnormalities often serve as early indicators of systemic diseases, providing crucial insights into conditions such as onychomycosis and psoriasis. Recent research highlights that visual patterns in human nails can reveal underlying health issues. Traditional diagnosis methods, however, are time-consuming and heavily reliant on dermatological expertise, which may lead to subjective interpretations and inconsistent results. Therefore, an automated, accurate, and scalable solution is necessary to assist in early detection and diagnosis of nail-related health conditions. This project aims to develop a deep learning-based diagnostic model that processes and analyzes images of human nails. The model identifies specific visual patterns and features in nail images, enabling it to classify images into categories such as healthy, onychomycosis, and psoriasis. Deep learning techniques, particularly advanced capsule convolutional neural networks (CNNs), are utilized due to their proven ability to detect intricate patterns within medical images. By summarizing recent advances in deep learning applied to healthcare image analysis, this project leverages advanced capsule CNN architectures for high accuracy and efficient processing of large datasets. The main objective is to construct a model capable of distinguishing between healthy and unhealthy nails, ultimately providing medical professionals with a powerful tool for preliminary assessment. This automated system can support decision-making processes by offering reliable diagnostic insights, allowing for timely intervention and treatment. The model thus represents a significant step toward enhancing diagnostic accuracy and improving healthcare accessibility through technology.

ICRIT281

DYNAMIC SELF-RECONFIGURATION OF A BUCK-BOOST PV INVERTER FOR MAXIMUM ENERGY HARVESTING

Dr.R.Sathish kumar, Ravi Shankar M,Guru Prasath S,Jai Siddarth R N,Naveen Kumar S
EEE, SRM TRP Engineering College (Anna University), Tiruchirappalli, India
guruprasath2024@gmail.com

ABSTRACT

The proposed system introduces a dynamic self-reconfigurable photovoltaic (PV) inverter integrated with a buck-boost converter to enhance solar energy harvesting under varying environmental conditions. The architecture includes a solar panel, buck-boost converter, rechargeable battery, voltage sensors, and an LCD module for real-time monitoring. The core function of the system lies in its ability to autonomously switch between buck and boost modes, optimizing power conversion based on solar irradiance and temperature. Voltage sensors provide continuous feedback to maintain voltage stability, ensuring maximum power transfer, efficient battery charging, and uninterrupted load supply. This approach significantly improves energy efficiency, system adaptability, and operational life, making it highly suitable for smart and sustainable renewable energy applications.

Keywords – Buck-Boost Converter, PV Inverter,Energy Harvesting, Dynamic Reconfiguration, MPPT, Voltage Sensors, Renewable Energy, Real-Time Control

ICRIT282

ACCESSING VISUAL INFORMATION FOR THE PERSON WITH VISUAL DISABILITY

Thenmozhi R[1], Ragul B[2], Rahulraagav M R[3], Rajagopalan S[4]
[1]Associate Professor, Master in Computer Applications, SRM Valliammai Engineering College affiliated to Anna University
[2,3,4]Stutents, Master in Computer Applications, SRM Valliammai Engineering College affiliated to Anna University
Email: rahulmurugasamy81@gmail.com, ragulbalu77@gmail.com

ABSTRACT

In an increasingly digital world, technology serves as a catalyst for personal growth, communication, and access to information. However, a significant portion of technological innovation overlooks the needs of individuals with disabilities particularly those with visual impairments. This exclusion limits their ability to independently interact with digital systems, thereby impacting their quality of life, access to knowledge, and social inclusion. The Vision2C project presents an inclusive mobile solution specifically developed to support visually impaired individuals, with a special focus on elderly users. Vision2C is an Android-based mobile application that combines Speech Recognition and Text-to-Speech (TTS) technologies to offer intuitive, voice-driven interaction. The app allows users to convert spoken words into digital text for note-taking or command input, while the TTS component audibly renders written content to make it accessible through sound. This dual functionality ensures that users can both communicate with their devices and receive feedback in a non-visual format. The core objective of Vision2C is to enhance autonomy and simplify routine activities for the visually impaired by removing barriers to digital content. Beyond technical functionality, the application embodies a user-centric design philosophy that prioritizes accessibility, simplicity, and real-world usability. By providing a practical tool tailored to the needs of the visually challenged, the project aims to reduce the digital divide and promote greater inclusion in an era defined by rapid technological change. This initiative stands as a testament to how assistive technology can empower marginalized communities, enabling them to live more independently and confidently engage with their environments. Through Vision2C, we advocate for a more inclusive digital future where no one is left behind.

Keywords: Assistive Technology, Visual Impairment, Speech Recognition, Text-to-Speech (TTS), Android Application, Accessibility, Elderly Care, Human-Computer Interaction, Voice-to-Text, Inclusive Design.

ICRIT283

INTEGRATION OF POS MACHINE WITH WEIGHING SCALE

Mr Anandhan C [1], Paintamil Pari R [2], Prabunesh R [3], Purushothaman D [4]
Department of ECE, SRM TRP Engineering College, Trichy, Tamil Nadu, India.
paintamilpaari@gmail.com

ABSTRACT

The traditional ration distribution system in India has several shortcomings, such as human errors in weighing materials and the improper sale of unclaimed goods. To address these issues, we propose the integration of a POS machine with a weighing scale to ensure accurate, transparent, and automated distribution of essential commodities like rice, kerosene, and sugar.In this system, the user first authenticates themselves by presenting their ration card. After authentication, the user selects the required quantity of a commodity (e.g., 5 kg of rice) using a keypad. A load cell measures the exact weight of the material being dispensed. Once the requested weight is reached, the dispensing motor automatically stops, ensuring accurate distribution and preventing wastage.The system automatically updates all transaction details in a centralized database, ensuring complete transparency for both the government and the consumers. By minimizing human intervention, this approach reduces errors, prevents the illegal sale of goods, and ensures fair and efficient distribution to beneficiaries.This technology guarantees precise measurement of commodities and delivers an automated, efficient service to the public, thereby improving the overall ration distribution process.

ICRIT284

PLAY SAFE: AGE VERIFICATION SYSTEM FOR GAMES

Dr.M.P.Thiruvenkatasuresh HOD/IT, Mohammed Shafan I, Nithish Kumar P, Nithish Kumar P, Sanjay S , Sivasurya M
Department of Information Technology Erode Sengunthar Engineering College(Autonomous) - Erode -India

ABSTRACT

This project offers the design and implementation of a secure, web-based age verification system to control access to age-restricted online games. The system will provide assurance that only users above the minimum age threshold can view certain gaming content, thus ensuring safer and more responsible digital entertainment habits.To authenticate a user's age, the system uses a two-step verification process. First, users are asked to upload a government-issued identification document (e.g., driver's license, national ID, or passport). Second, they must take a live selfie using their device's camera. Sophisticated facial recognition algorithms are then applied to match the selfie with the photo on the uploaded ID to verify the identity and confirm the user is present.Artificial intelligence methods are used to authenticate the ID document's genuineness (detection of tampering or forgery) and process the facial recognition outcome with great accuracy. Privacy-preserving methods like data encryption, temporary storage, and compliance with applicable data protection laws (e.g., GDPR) are also included.By integrating this two-layered identity authentication system, the project strengthens users' and game providers' trust as well as prevents underage exposure to forbidden content. The system is scalable and extensible across different gaming platforms, helping build a safer and more appropriate age-wise digital community.

ICRIT285

WEARABLE SENSOR FOR HEALTH MONITERING OF ELDERLY PEOPLE

Mr Parameswaran G[1], Arunkumar C [2], Anbumani M [3], Ajay prasad M [4]
Department of ECE, SRM TRP Engineering College, Trichy, Tamil Nadu, India.
Arunchinnasamy7@gmail.com

***Abstract*:**In recent decades, innovative technological approaches have been actively explored to enable long-term human health monitoring. Monitoring vital parameters such as blood pressure, heart rate, body temperature, and oxygen saturation on a daily basis presents significant challenges, particularly for elderly individuals and patients with chronic conditions. To address this need, we propose the design and development of an IoT-based Patient Health Monitoring System using Arduino and the ESP8266 Wi-Fi module. The primary objective of this system is to enable continuous health supervision for patients and elderly individuals within the comfort of their homes, thereby reducing unnecessary hospital visits.The system monitors critical health parameters including body temperature, blood pressure, heart rate, and detects potential falls. The architecture incorporates an Arduino microcontroller to interface with various health sensors, while the ESP8266 module facilitates wireless data transmission. Health data collected by the system is uploaded in real time to an IoT cloud server, specifically ThingSpeak, allowing healthcare professionals to remotely monitor the patient's status. This real-time accessibility ensures that timely interventions can be made when abnormalities are detected. The proposed solution not only enhances convenience for patients but also supports proactive healthcare management by providing continuous, accurate, and remotely accessible health data. By integrating IoT technologies into patient care, this system represents a significant step toward smarter, more efficient healthcare delivery models.

ICRIT286

TRANSFORMING TEXT INTO VISUAL ENGAGEMENT

Mr Parthiban R, Mohanram M, Raguganapathy K C, Vignesh D
CSE, (Erode Sengunthar Engineering College), Erode, India, parthiban18121998@gmail.com

ABSTRACT

The process of video creation currently faces several challenges, including high manual effort limited automation and significant cost barriers, making professional video production both expensive and time-intensive. This project proposes a cutting-edge Text-to Video generation system that leverages NLP , deep learning, and computer vision to automate video creation. The system is designed to generate dynamic visuals, animations, and synchronized voiceovers based on textual input, significantly reducing the need for manual intervention. Key technologies incorporated in this solution include NLP for advanced text analysis, state-of-the-art text-to-image AI models such as Stable Diffusion and DALL·E for generating contextual visuals, and engines for high-quality audio narration. Additionally, AI models like GPT-4 and CLIP enhance contextual understanding and ensure coherent video synthesis. By integrating these advanced technologies, the proposed system aims to revolutionize video production by making it more efficient, accessible, and cost-effective for diverse applications.

KEYWORDS- Text-to-Video, Artificial Intelligence, Natural Language Processing, Deep Learning, Video Automation, Generative AI.

ICRIT287

SMART TRANSPORTATION SYSTEM

Harish Ragavendra P, Madhubalan M , Santhosh S, Dr.P.Balakrishnan,Associate Professor,
Department of Electrical and Electronics Engineering,
J.J.College of Engineering and Technology, Trichy.

ABSTRACT

A smart transportation system can greatly improve bus operations by addressing common issues like delays, missed routes, and poor communication with passengers. The lack of timely information leads to uncertainty among commuters, making travel frustrating and inefficient. Passengers often struggle with unpredictable arrival times, unexpected route changes, and delays, causing dissatisfaction. Transportation authorities face difficulties in managing schedules due to the absence of real-time data on bus locations and performance. Without accurate monitoring, it becomes challenging to optimize routes, respond to disruptions, and enhance service reliability. Integrating advanced tracking systems, automated scheduling, and real-time passenger information can streamline operations. GPS-based tracking allows commuters to receive live updates on bus locations, reducing uncertainty. Predictive analytics and AI-driven route optimization help minimize delays and improve efficiency. Smart communication tools enable better interaction between passengers and transit authorities, improving overall service quality. A well-implemented smart transportation system enhances public confidence, ensuring a smoother, more reliable commuting experience.

Keywords: safety, convenience, comfort and efficiency, GPS, Finger print, Head light control and seating availability,delays, missed routes, and poor communication with passengers.

ICRIT288

SMART IRRIGATION SYSTEM THROUGH IOT AND AI OPERATION

Kasthuri Arumugam [1,], Archana Ramalingam [2], Sangavi Periyasamy [3], Subash Chandra bose Ganesan [4], Jayakumar k [5,]*
Department of Electrical and Electronics Engineering, J.J. College of Engineering and Technology; Tiruchurapalli;
rkjkumar70@gmail.com

ABSTRACT

This method presents a Smart Plant Irrigation System using IoT and Machine Learning that autonomously adapts to the specific irrigation habits of individual plants. Unlike traditional systems that rely on static, predefined models based on plant characteristics, the proposed system dynamically adjusts its irrigation strategy in response to real-time environmental changes. A learning mechanism is integrated to uncover mathematical relationships among environmental variables, improving over time as more irrigation data is collected. The system's performance was evaluated using four supervised machine learning algorithms, with Gradient Boosting Regression Trees (GBRT) ultimately chosen for deployment due to its superior accuracy. A complete IoT testbed was developed, comprising a sensor edge, mobile client, and cloud-based decision service. Prototype testing on two indoor plants—Sardinia and Peace Lily—demonstrated promising results, showing that the system effectively learns and adapts to the unique watering needs of different plant species.

Index Terms—IoT, Machine Learning, Smart Irrigation, GBRT, Environmental Monitoring, Adaptive Systems.

ICRIT289

REAL-TIME DAM MONITORING AND ALERT SYSTEM USING IOT AND CLOUD INTEGRATION

Ms.P.Stella Rose Mala, M.Alagu Sathiya, A.Briskillasabin, S.Esakkiammal@ Subbulakshmi, S.Rajathi,
Department of ECE, J.P.College of Engineering, Ayikudi-627852

ABSTRACT

Maintenance of safe and operational dams depends on continuous monitoring because such structures must be watched for potential structural collapse and flood-caused catastrophes. Traditional dam monitoring platforms include either manual systems or non-real-time communication networks which cause emergency response delays when incidents occur. The proposed system adopts Arduino- based technology to develop a smart low-cost real-time dam monitoring and alert system. The equipment implements ultrasonic sensors for water level detection and vibration sensors that sense structural movement abnormalities as well as temperature sensors for monitoring environmental conditions. The Arduino Uno microcontroller brings together all sensors by handling continuous data processing to transmit alerts through the Global System for Mobile Communications module (GSM). The system features automated SMS delivery to alerted authorities about critical parameter exceeded thresholds at thirty- second intervals. The system enables preventive decision-making and stronger disaster prevention for dam management systems. In addition, the model created promises high reliability with low maintenance and can thus be applied in the use of remote and rural dam locations. The system is enabled to operate for extended periods based on low-power sensors and effective processing through the use of battery or solar power supplies. Further, the information gathered can be documented for future reference and predictive maintenance using the deployment of cloud storage facilities. The architecture provides scalability with the option of adding extra sensors or high-end modules (for example, water quality sensors or camera modules) based on some monitoring requirements. The real-time feedback of the system enables quick reaction to possible crises, reducing the risk to nearby communities. Easy operation and low cost of this design make it an excellent alternative to expensive commercial monitoring systems, especially for developing nations. Through early detection and timely alarm, the system significantly contributes to sustainable water resource management and protecting lives and infrastructure**.**

ICRIT290

DESIGN AND IMPLEMENTATION OF AN IOT-ENABLED, MULTI-LAYER SECURE ATM SYSTEM USING RFID, BIOMETRICS, AND OTP

Santhiya Jessica. B, Prami Jenita. R,, Paraloga Santhiya Jothi. M
Department of Electronics and Communication Engineering,
Grace College Of Engineering, Mullakkadu, Thoothukudi, Tamilnadu - 628005.
E-mail: 950321106025@gracecoe.org, 950321106022@gracecoe.org, 950321106021@gracecoe.org,

ABSTRACT:

This project presents a prototype of a secure, RFID-enabled ATM system that leverages IoT principles and multi-level authentication mechanisms to enhance user verification and prevent unauthorized access. The system emulates a modern ATM using an Arduino Uno/Mega microcontroller, RFID reader, fingerprint sensor, GSM module, LCD display, buzzer, keypad, and a motor representing the cash dispensing mechanism. It incorporates five RFID cards—four assigned to authorized users and one as an invalid access attempt. Upon activation, the LCD displays the project title and prompts the user to scan an RFID card. When a valid card is detected, the system proceeds to fingerprint verification. A successful fingerprint match triggers the generation of a One-Time Password (OTP), which is sent to the user's registered mobile number through the GSM module. Upon correct OTP entry, the motor activates to simulate cash dispensing. In the event of fingerprint mismatch, the system sends an SMS alert indicating a potential unauthorized access attempt. All user data, including RFID and biometric credentials, are stored locally—RFID data in the Arduino's memory and fingerprint templates within the fingerprint sensor module. Though limited to four users in this prototype, the design demonstrates a scalable, secure ATM framework. With IoT-driven communication and layered authentication—RFID, biometrics, and OTP—the system offers a robust approach to safeguarding ATM transactions against unauthorized access.

ICRIT291

Advanced Wireless Charging Based on Dual Coupled Antiparallel Coils and Antioffset Mechanism

Ravichandran Nallusamy [1,], Dharmaraj Palanisamy [2], Ashok kumar Selva kumar [3], Muthuveerappan AR [4.]*
Department of Electrical and Electronics Engineering, J.J. College of Engineering and Technology; Tiruchurapalli;
muthueee@gmail.com

\

ABSTRACT

The rapid growth of Electric Vehicles (EVs) demands more efficient, flexible, and user-friendly charging solutions. Wireless Power Transfer (WPT) eliminates the need for physical connectors, but current systems often suffer from misalignment sensitivity, efficiency loss, and integration complexity. This project proposes an advanced wireless EV charging system that integrates dual antiparallel coils with an Antioffset mechanism to address these limitations. The dual antiparallel coil design enhances electromagnetic coupling, improving power transfer efficiency. Simultaneously, the Antioffset mechanism dynamically detects and corrects coil misalignment in real time, enabling stable energy transfer across a wider range of lateral and angular displacements. This unified approach ensures consistent performance, reduces dependency on precise alignment, and minimizes physical wear, making it a robust and scalable solution for next-generation EV charging systems.

Keywords—Wireless Power Transfer, Electric Vehicles, Coil Misalignment, Antiparallel Coils, Antioffset Mechanism, Efficient Charging.

ICRIT292

TOWARDS SMARTER CROWD COUNTING: A REVIEW OF SEMANTIC SEGMENTATION-BASED MODELS

Ganesh Kumar K[1], B.N. Prathibha [2], A. Suruliandi [3]
[1]Department of Computer Science and Engineering, Manonmaniam Sundaranar University, Abhishekapatti, Tirunelveli 627012, India
[2] Department of Computer Science, Sadakathullah Appa College, Affiliated to Manonmaniam Sundaranar University, Abhishekapatti, Tirunelveli 627012, India
[3] Department of Computer Science and Engineering, Manonmaniam Sundaranar University, Abhishekapatti, Tirunelveli 627012, India
ganeshkumar.tsm@gmail.com, prathibasidhu@gmail.com, suruliandi@yahoo.com

ABSTRACT

Crowd density estimation and counting play a critical role in ensuring public safety, enhancing urban infrastructure, and managing large gatherings. However, traditional methods such as detection- and regression-based approaches often underperform in highly crowded scenes with occlusions, scale variations, and cluttered environments. This review aims to explore how recent advancements—particularly those leveraging semantic segmentation—have improved the accuracy and robustness of crowd analysis systems. We systematically analyze state-of-the-art techniques including U-Net-like encoder-decoders, transformer-based models, and multi-scale context-aware networks, focusing on their architectural innovations and integration of semantic maps. These models demonstrate improved spatial localization, noise suppression, and adaptability across diverse scenarios. Our findings highlight persistent challenges like the reliance on manual annotations and computational inefficiencies, and we propose future directions in fine-grained segmentation, temporal modeling, lightweight architectures, and multi-modal integration to drive further progress.

Keywords: Crowd counting, Crowd density estimation, Semantic segmentation, Computer vision, Density map

ICRIT293

ACOUSTIC WAVE FIRE FIGHTING ROBOT

Dr.B.Ramasubramanian, HOD, ECE, SRM TRP Engineering College, Trichy, Tamilnadu, India
R. Rameez, ECE, SRM TRP Engineering College, Trichy, Tamilnadu, India
K.M Santhosh Kumar, ECE, SRM TRP Engineering College, Trichy, Tamilnadu, India
A. Sri Sabari Harish, ECE, SRM TRP Engineering College, Trichy, Tamilnadu, India
Email Address: rameezr2003@gmail.com

ABSTRACT

The Acoustic Wave-Based Fire Fighting Robot presents an innovative and eco-friendly approach to fire suppression by utilizing low-frequency sound waves instead of conventional extinguishing agents such as water or chemical powders. Traditional fire-fighting robots generally depend on bulky water tanks or chemical cylinders, which significantly increase the robot's weight and restrict its ability to access confined or complex spaces, especially in densely populated urban areas. Moreover, chemical extinguishers often reduce visibility during emergencies and can pose respiratory hazards to both victims and rescue personnel. In contrast, this robot uses sound waves within the 30 to 60 Hz frequency range to effectively suppress flames, eliminating the need for physical extinguishing agents. This not only makes the robot lightweight and portable but also reduces environmental impact and ensures better visibility during operation. At the core of the system is an Arduino UNO microcontroller that automatically activates a high-powered directional speaker upon receiving input from a flame detection sensor. For enhanced control and accessibility, the robot features an ESP32 Wi-Fi module that enables real-time communication with an IoT-based mobile or web application. Through this interface, users can remotely monitor and operate the robot, viewing critical parameters such as temperature, humidity, smoke levels, and overall air quality. Additionally, an ultrasonic sensor is integrated for obstacle detection and collision avoidance, allowing the robot to navigate autonomously through cluttered or hazardous zones. This feature ensures that the robot can approach the source of the fire efficiently and without human intervention. The elimination of heavy extinguishing equipment allows the robot to be significantly smaller and more agile, making it ideal for operations in tight, hard-to-reach locations. Combining sound-based fire suppression with smart IoT features, this robot offers a sustainable, scalable, and modern solution to fire emergencies, especially in areas where traditional firefighting tools are impractical or inefficient.

ICRIT294

COLLABORATIVE PLATFORM FOR UNIVERSITY AND COLLEGE STUDENTS PROJECT

[1]Mohanlal G. Koli, [2]Aditya R. Jadhav, [3]Abhijeet C. Magar, [4]Aditya M. Navale, [5]Prof.Madhavi Kulkarni,
Computer Engineering, JSPM's BSIOTR Wagholi (Pune), India
kolimohanlal02@gmail.com

Abstract:This article presents an inter-institutional collaborative space that is meant to facilitate interactions between university and college students who are engaged in various projects, mostly academic or research-based. The space contains core functionalities, such as a project gallery, a personalized recommendation system aimed at maximizing discoverability, and SAS modules to aid in content abridgment and questionof-discussion. The space also uses web scraping to enhance enrichment of project content. Customizable dashboards are created for the student and the university alike, facilitating user-experience. The platform is integrated with elaborate project management features like Kanban boards, Gantt charts, and calendars to facilitate seamless collaboration. Auto-report generation ensures academic integrity with in-built plagiarism detection. The deep analytics and web integration features enable user interaction and overall platform performance, covering up the loopholes of existing systems. By facilitating effortless knowledge sharing, cross-disciplinary cooperation and international networking, this platform provides access to an innovative learning and research environment.

ICRIT295

PLANT DISEASES DETECTION USING IMAGE PROCESSING

Mrs. N. Jothi [1], Surya Prakash [2], Surya J [3], Suresh R [4]
Master of Computer Applications, SRM Valliammai Engineering College affiliated to Anna University, Tamil Nadu, India.
suryaprakashsurya57893@gmail.com , suryajj2022@gmail.com , sureshravirs513@gmail.com

ABSTRACT

The agricultural sector faces significant challenges due to plant diseases, which reduce crop yield and quality, impacting food security and economic stability. Early and accurate detection of these diseases is crucial for effective management and mitigation. This study proposes a robust methodology for detecting plant diseases, specifically targeting pomegranate crops, using advanced image processing techniques and artificial neural networks (ANN). The process begins with capturing high-quality images of pomegranate plant parts (leaves, stems, and fruits) using digital cameras. These images undergo preprocessing, including filtering and segmentation, employing the Gabor filter to enhance texture and color features. The CIELAB color space is utilized for segmentation to distinguish diseased regions from healthy ones based on color differences. Extracted features, encompassing both unichannel and interchannel texture characteristics derived from Gabor filter responses, are fed into an ANN classifier. The ANN is trained on a database of 140 image samples, including healthy and diseased specimens, to recognize patterns associated with specific diseases, such as bacterial blight, anthracnose, and Alternaria. Experimental results demonstrate that the proposed system achieves a classification accuracy of 91%, highlighting the efficacy of combining Gabor filter-based feature extraction with ANN classification. The study also explores the impact of neural network parameters, such as the number of hidden neurons and termination error rate, on classification performance, emphasizing the importance of optimizing these factors alongside image quality. This approach offers a cost-effective, automated alternative to traditional naked-eye disease detection, reducing reliance on expert intervention and enabling timely disease management. The system's high accuracy and adaptability suggest its potential for broader application across various crops, supporting sustainable agricultural practices and enhancing productivity. Future work could focus on expanding the image database and integrating real-time processing for field applications, further advancing precision agriculture.

Keywords: Plant Disease Detection, Image Processing, Artificial Neural Network, Gabor Filter, CIELAB Color Space, Pomegranate Diseases, Feature Extraction, Classification Accuracy, Precision Agriculture, Texture Analysis.

ICRIT296

TRASH TO TRESSURE

Abinaya, Mohammed Aadhil Appavu A, Mohammed Imran S, Preethi L, Rajaguru R
Department of Information Technology
Erode Sengunthar Engineering College-Erode-India

ABSTRACT

The rapid advancement of technology and the increasing reliance on electronic devices have significantly contributed to a growing environmental concern—electronic waste, or **e-waste**. E-waste consists of discarded electronic appliances such as computers, mobile phones, televisions, and other consumer electronics. The improper disposal of these devices leads to the release of hazardous substances such as lead, mercury, cadmium, and brominated flame retardants into the environment, posing serious health and ecological risks.**E-waste management** plays a crucial role in addressing this challenge by promoting the systematic collection, recovery, processing, and recycling of electronic waste. By recycling or refurbishing these discarded electronic components, valuable materials like gold, copper, and rare earth metals can be extracted and reused, reducing the need for virgin resource extraction and minimizing environmental degradation.This project aims to promote effective e-waste recycling practices by creating a digital platform that connects users with **authorized e-waste recycling centers**. The platform allows individuals and organizations to post their unused or broken electronic devices, enabling recyclers and refurbishers to collect and process them responsibly. This initiative not only helps manage e-waste more efficiently but also encourages user participation in sustainable practices.Additionally, the project contributes to **reducing environmental pollution** by curbing the improper disposal of toxic electronic components into landfills and water bodies. By facilitating responsible recycling and increasing public awareness, this system promotes eco-friendly behavior and supports the global mission toward environmental sustainability.

ICRIT297

FABRICATION AND ANALYSIS OF HYBRID COMPOSITE MATERIALS FOR CAR BONNET

Kalaiselvan K, Rajagopal A, Sudharsan K, Veera Regunath B
Mechanical Engineering, Velammal Institute of Technology, Chennai
rajarg514@gmail.com

ABSTRACT

The increasing demand for lightweight, fuel-efficient, and eco-friendly vehicles has led to significant interest in the use of composite materials in the automotive industry. This project explores the fabrication and analysis of a hybrid composite material aimed at replacing conventional steel or aluminium car bonnets. The hybrid composite is engineered using a combination of natural fibers such as jute and flax, and synthetic fibers like glass fiber, embedded in a thermosetting epoxy resin matrix. Natural fibers offer benefits like biodegradability and low density, while synthetic fibers provide enhanced mechanical strength and durability, creating a synergistic effect when combined.The fabrication process involves surface treatment of natural fibers to enhance adhesion with the matrix, followed by a hand lay-up technique for layering the fibers in specific orientations to optimize mechanical performance. The composite panel is then cured under controlled pressure and temperature conditions to achieve the desired strength and rigidity.

Keywords: Hybrid Composite, Natural Fibers

ICRIT298

PREDICTIVE MODELING AND OPTIMIZATION OF COMPOSITE BEHAVIOR USING MACHINE LEARNING TECHNIQUES

[1]Santhiyadevi T., [1]Soniya G., [1]Viji M., [1]Subbulakshmi Kayalvizhi S., [2]Issac.P
[1]UG Student, Department of Computer Science and Engineering, V V College of Engineering, Thoothukudi, Tamil Nadu, India
[2]Assistant Professor, Department of Mechanical Engineering, V V College of Engineering, Thoothukudi, Tamil Nadu, India
Santhiyadevi-santhiyadevi803@gmail.com,

Abstract

This study explores the application of machine learning algorithms to model and predict the mechanical and thermal performance of engineering composites. The framework utilizes supervised learning models, including Random Forest and Support Vector Machine, trained on experimental datasets to estimate material properties such as hardness, strength, and thermal response. Feature analysis and cross-validation enhance model reliability, while performance metrics demonstrate the efficiency of the predictive approach. This method offers a valuable digital twin capability for materials research, enabling more efficient experimentation and data-driven optimization.

Keywords—machine learning, composite behavior, predictive modeling, supervised learning, optimization, data-driven engineering

ICRIT299

DEEP LEARNING MODELS FOR PREDICTING MATERIAL PROPERTIES IN COMPOSITE MATERIALS: A DATA-DRIVEN APPROACH

[1] Sivakami. M., [1] Rubika.A., [1] Sharon pricilla.S., [1]Vijayalatha.M., [2]Issac.P
[1]UG Student, Department of Computer Science and Engineering, V V College of Engineering, Thoothukudi, Tamil Nadu, India
[2]Assistant Professor, Department of Mechanical Engineering, V V College of Engineering, Thoothukudi, Tamil Nadu, India
sivakami143890@gmail.com,

ABSTRACT

The integration of deep learning techniques with material science offers a promising approach to predict the properties of composite materials. Traditional methods for characterizing materials rely heavily on experimental testing, which can be time-consuming and costly. In this study, we explore the potential of deep learning models to predict critical properties, such as hardness, thermal conductivity, and corrosion resistance, based on the material composition and processing parameters. A large dataset, consisting of various material compositions and their corresponding properties, is used to train and validate the deep learning models. By leveraging neural networks and optimization algorithms, we aim to develop a robust framework that can forecast material behaviors and provide insights into the design and fabrication of advanced composites. The proposed models are validated using experimental data, demonstrating their ability to offer accurate predictions and guide material selection processes in real-world applications. This research not only enhances the efficiency of material characterization but also opens the door to smarter, more efficient material design through data-driven approaches.

Keywords— Deep Learning, Composite Materials, Predictive Modeling, Neural Networks, Material Property Prediction, Data-Driven Design, Machine Learning, Optimization Algorithms, Material Science, Advanced Composites

ICRIT300

IOT-BASED WATER QUALITY MONITORING FOR SUSTAINABLE RURAL WATER SUPPLY

Dr.V.Ramasamy, Mr.V.Balagurubaran, Mr.M.Johan, Mr.K.Mohamed kaif, Mr.A.R.Sudarshan
Mechanical Engineering, Velammal Institute of Technology, Chennai
vbalagurubaran@gmail.com

Abstract- Access to safe drinking water in rural areas is an important concern. The project proposes a sensor -based water quality monitoring system designed for permanent water supply management. The system uses low-power sensors to measure important water parameters such as pH, turbidity, and TDS. These sensors provide real-time data that can be displayed locally through simple interfaces for easy monitoring of non-technical users. The layout is designed to work with stocking -efficient, cost -effective and external areas, basic batteries or manual power sources. By being able to detect water quality problems in the first place, this system supports time intervention and promotes prolonged stability of rural water resources.

Keywords- TDS Measurement, Sustainable Water Management, Low-Power Sensors

ICRIT301

HYGIENET- A SMALL SELF CLEANING TOILET SOLUTION

Mageshwari L, Raja rajan N, Jaiganesh S, Harrish DH
Mechatronics Engineering, Velammal Institute of Technology, Chennai
rajarajan.narayananb@gmail.com

ABSTRACT

Maintaining hygiene in public toilets is a major challenge, as current systems rely primarily on periodic manual cleaning, which is often irregular or skipped altogether. This project aims to address this issue by developing an automated disinfection system that ensures cleanliness after every use without requiring human intervention. The system uses a Passive Infrared (PIR) sensor to detect the presence of a person near the toilet, triggering the lid to open. An ultrasonic sensor inside the lid continuously monitors whether the user is seated or standing. Upon the user's exit, a two-step disinfection process is initiated: a hot air blower is activated for 5 seconds to disinfect the seat, and after the lid closes, a UV light is activated for 5 seconds to disinfect the bowl. These components are controlled via a two-channel relay module. To avoid premature re-triggering, the PIR sensor is temporarily disabled during the disinfection cycle. The result is a self-cleaning, hygienic public toilet system that reduces the need for manual maintenance. Future enhancements include the integration of an automatic flushing mechanism aimed at reducing water consumption.

Keywords- Hygiene , Self cleaning

ICRIT302

FABRICATION AND PERFORMANCE ANALYSIS OF HYBRID COMPOSITE MATERIALS BASED INDUSTRIAL SAFETY HELMET

Vinoth Kumar V, Santhosh Kumar P, Manikandan U, Balamurugan S
Mechanical Engineering, Velammal Institute of Technology, Chennai
Santhosh15504@gmail.com

ABSTRACT

Industrial safety helmets are essential for protecting workers from head injuries in hazardous environments. Conventional helmets are typically made from plastics such as Acrylonitrile Butadiene Styrene (ABS) and High-Density Polyethylene (HDPE), which are environmentally harmful and often provide limited mechanical performance. This study focuses on developing affordable and eco-friendly composite helmets to overcome these limitations. Three composite helmets were fabricated using epoxy resin reinforced with different fiber combinations: glass fiber with kenaf fiber, glass fiber with carbon fiber, and glass fiber with pineapple fiber. The fabrication process involved fiber surface treatment, hand lay-up technique, and curing under suitable environmental conditions. The mechanical properties of the helmets were evaluated through compression, impact, and hardness tests. Among the samples, the helmet made from glass fiber and kenaf fiber exhibited superior mechanical strength, including high compressive load resistance and hardness. This makes it a promising alternative to traditional plastic helmets for industrial applications.

Keywords- kenaf fiber, epoxy resin

ICRIT304

ALL-IN-ONE MODULAR MILK QUALITY ANALYZER

Anant R, Sarathy K, Rajpandiyan, Jerine Selvakumar J
Mechatronics Engineering, Velammal Institute of Technology, Chennai
rethicksarathy@gmail.com

ABSTRACT

Dairy Mate is a compact, modular device developed to address the growing need for real-time milk quality analysis and efficient sales management in the dairy sector. Designed primarily for rural dairy farmers, milk collection centers, and cooperative societies, the system integrates advanced sensors to evaluate essential milk parameters including fat content, Solid-Not-Fat (SNF), density, temperature, and detect common adulterants. The device ensures quick, accurate, and tamper-proof analysis, reducing reliance on manual testing and minimizing the risk of contamination or fraud.In addition to quality assessment, Dairy Mate features an embedded sales management unit that automates milk pricing based on quality metrics, logs transactions digitally, and issues printed or digital receipts. Its user-friendly interface supports multilingual operation and is tailored to low-literacy environments. The modular design allows scalability and customization, making it adaptable to various operational scales.The system also supports data storage and optional cloud connectivity for remote monitoring, analytics, and record-keeping, contributing to greater transparency across the dairy supply chain. By merging technology with practical on-ground needs, Dairy Mate enhances the accuracy, efficiency, and fairness of milk procurement. It aims to empower farmers, ensure consumer safety, and promote sustainable practices in dairy management.

Keywords- Dairy Mate, Milk Content

ICRIT305

LLAMA FINE-TUNING VS. PROMPT ENGINEERING: OPTIMIZING LLAMA MODELS FOR RESUME CLASSIFICATION

Siddhath Bathrachalam[1], Vanitha A*[2]

Computer Science, Department of Computer Science, Rathinam College of Arts and Science, Coimbatore - 642110
Email: siddharth.mdb23@rathinam.in (S.B.); vanitha.inur@rathinam.in (V.A.)

ABSTRACT

This paper investigates whether fine-tuning Large Language Models significantly improves performance in resume classification tasks compared to prompt engineering alone. Using a dataset of 2400+ resumes across 24 professional categories, we implement two approaches: (1) a baseline using prompt engineering with a non-fine-tuned Llama model, and (2) a Llama model fine-tuned specifically for resume classification. We evaluate both approaches using standard classification metrics including accuracy, precision, recall, and F1-score on a held-out test set. Our methodology provides a direct comparison to quantify the specific improvements gained through fine-tuning in this domain. The research addresses the practical question of whether the additional computational investment in fine-tuning offers meaningful advantages over well-crafted prompts. By maintaining identical testing conditions for both approaches, we provide clear evidence about which method delivers superior performance for resume classification tasks. This study offers practical insights for HR technology developers deciding between these approaches when implementing automated resume screening systems.

ICRIT306

FABRICATION AND COMPARATIVE ANALYSIS OF DIFFERENT COMPOSITES FOR PERSONAL BODY ARMOR

Balamanikandasuthan K, Selshiya E, Deepak Prasath V, Jayaraj M, Yogeshwaran S
Mechanical Engineering, Velammal Institute of Technology, Chennai.
way2selshiya@gmail.com

ABSTRACT

This study investigates the development of lightweight hybrid composite panels for potential application in personal body armor. In an effort to balance protection, weight, and sustainability, three types of hybrid composites were fabricated using Kevlar, Kenaf, and Pineapple Leaf Fiber (PALF), each combined with glass fiber in an epoxy matrix. The fabrication process involved hand lay-up followed by compression molding, offering a cost-effective and efficient method for producing uniform laminates. The natural fibers underwent alkali treatment to improve fiber-matrix adhesion and overall mechanical performance. Mechanical testing was conducted following standardized procedures to evaluate the structural integrity and suitability of the composites for armor applications. Tensile strength tests, flexural strength tests, and impact tests simulating bullet energy were performed on all samples. Results indicated that the Kevlar-glass hybrid composite exhibited the highest tensile strength and impact resistance, making it ideal for high-stress applications. The Kenaf-glass hybrid showed superior flexural performance, highlighting its stiffness and bending resistance. The PALF-glass hybrid, while showing relatively lower mechanical properties, demonstrated promise as a sustainable, low-cost reinforcement for moderate protection applications.This research highlights the potential of combining synthetic and natural fibers in hybrid configurations to develop lightweight, environmentally friendly composite armor panels. The study concludes that while Kevlar-based panels offer the highest performance, natural fiber-based composites, especially Kenaf and PALF, provide a viable alternative for cost-effective and sustainable protective solutions.

Keywords- Hybrid Composites, Body Armor, Kevlar, Kenaf, Pineapple Fiber, Glass Fiber, Tensile Strength, Flexural Test, Ballistic Impact.

ICRIT307

Hybrid Deep Learning Approaches for Social Media-Based Mental Health Detection

Dr. Swarna Sudha M, Harine P
Department of Computer Science and Engineering
Ramco Institute of Technology Rajapalayam, TamilNadu, India
swarna@ritrjpm.ac.in, 953621104016@ritrjpm.ac.in

ABSTRACT

Social media platforms like Reddit are good indicators for the detection of mental health disorders since the users of these platforms express their ideas and emotions by posting what they think and feel. Identification of stress and depression from such platforms is necessary for early detection and support. A hybrid deep learning approach is introduced by enhancing transformer models such as BERT and Mental BERT by adding extra-linguistic features. Emotional tone from NRC Emotion Lexicon, psychological understanding from LIWC, and topic model representations from LDA and Top2Vec are added with BERT embeddings through the use of a multimodal adaptation gate. This improves the model's capability to recognize the nuances in mental health-related posts. For model stability, label smoothing is introduced to prevent overconfidence and improved calibration. The methodology is compared with real-time datasets collected directly from social media platforms such as Twitter and Reddit. Experimental results validate that the use of extra-linguistic features greatly enhances the classification performance with accuracy gain, precision, and recall. This step not only improves stress and depression detection but also provides deeper understanding of the language features of mental health-related posts. By combining transformer models and adding language features and enhancing calibration, the methodology ensures consistent and stable predictions, and this methodology is thus an extremely stable tool for ral-time detection and analysis of mental health

Keywords— Calibration, stress, depression, Mental health, transformer, PTSD, anxiety, suicidal.

ICRIT308

A FUZZY-BASED APPROACH FOR MONITORING POLLUTION SEVERITY ON COMPOSITE POLYMER INSULATOR USING HARMONIC LEVELS

Maheswari N, Alice Packiam S, Mrs.Ponkanagavalli M
Elecrical and Elecrtronics Engineering
Holycross Engineering College, Thoothukudi India
mahesnagaraj1977@gmail.com

ABSTRACT

Additional advantages are discovered when contrasting the composite polymeric insulator (CPI) with glass and porcelain insulators. Even if it is thought to be impacted by environmental contamination. Even in clean and contaminated environments, leakage current may be found in practically every high voltage device, including insulators, bushings, cables, and lines. The difficulty today faced in much insulator maintenance is that when the pollution level increases, the harmonics brought on by leakage current grow more evident. To determine how contaminated the insulators above them are, which over time may result in breakage, flashover, and even transmission line failure, this condition on the CPI, namely from three distinct environments like clean, naturally polluted, and artificially polluted, may be employed in this study. Extreme weather conditions have the potential to change the surface characteristics of insulator surfaces, resulting in a temporary or permanent loss of hydro phobicity. The breakdown voltage of the insulator and odd harmonic components like the third, fifth, seventh, and ninth are employed as indicators, and the fuzzy network is fed the value of the ratio between them. The pollutant level on the insulators may be accurately predicted because to this computational model.

Keywords—Composite polymeric insulator (CPI), leakage current, harmonic analysis, environmental contamination, pollution severity, breakdown voltage, odd harmonics (3rd, 5th, 7th, 9th), fuzzy logic model, hydrophobicity loss, flashover risk, high voltage insulation, predictive diagnostics, insulator surface degradation, transmission line reliability.

ICRIT309

COMPUTATIONAL MODEL FOR TRANSFORMER BUSHING USING FINITE ELEMENT METHOD

Seth Akash S, Vasantha Kumar S, Priyanka.D
Electrical and Electronics Engineering
Holycross Engineering College Tuticorin. India
s.sethakash2005@gmail.com

ABSTRACT

Overheating in high-voltage equipment is detrimental to its reliability. Insulated equipment, such as bushings, plays a predominant role in transformer applications. In bushing, thermal characteristics are a key factor, and act significantly in various conditions. During abnormal conditions, it experiences thermal stress due to dielectric loss, fault current, natural disasters, etc. This work was to design the transformer porcelain bushing to analyze the temperature, electric field, and voltage distribution of the porcelain bushing and find out the heat site on the bushing and the direction of the electric field and voltage distribution. Stationery and time-dependent effects were studied using FEM. The proposed model is estimated to have an 11 KV porcelain bushing. The proposed model's accuracy, the predicted reading, and the parameter responsible for the temperature increase are the problems of this work. Finding the electric field and electric potential distribution and finding the over electric stress parts in the transformer bushing. The results show the temperature, electric field, and potential distribution of the transformer's porcelain 11 kV bushing.

Keywords— Transformer bushing, porcelain bushing, thermal stress, dielectric loss, electric field distribution, voltage distribution, overheating, FEM analysis, heat concentration, high-voltage equipment, electric potential, thermal analysis, 11 kV bushing, stationary and time-dependent effects, over electric stress.

ICRIT310

ENHANCING AGRICULTURAL PRODUCTIVITY: PREDICTING CROP YIELDS FROM SOIL PROPERTIES WITH MACHINE LEARNING

Murali krishna M, Mohankumar N, Srivatsan B, Selladurai G, Mrs. G. Gayathri,
Department of Information Technology
R P Sarathy Institute of Technology, Salem, India
muralikrishna75300@gmail.com

ABSTRACT

Agriculture plays a vital role in a country’s economy, and predicting crop yield is essential for improving agricultural productivity. This project proposes a machine learning-based approach to predict the best-suited crop based on various environmental parameters such as nitrogen, phosphorus, potassium, temperature, humidity, pH, and rainfall. The model utilizes a trained dataset and predicts the most suitable crop with a probability score, helping farmers make informed decisions. Additionally, a health score is provided to assess the soil’s condition. The system is designed as a web-based application, allowing users to input values manually. The proposed model enhances accuracy compared to traditional methods and aims to support precision farming.

Keywords—Crop Recommendation, Machine Learning, Random Forest, Agriculture, Soil Parameters, Temperature, Rainfall, Web Application, Health Score Prediction, Smart Farming.

ICRIT311

LOCAL SKILL HUB: A MERN STACK-BASED JOB PORTAL WITH ENHANCED SKILL MATCHING

Sakthivel M.[1], Dinaker S.[2], Began S. K.[3], Hariharan V.[4]
[1]Associate Professor, [2],[3],[4]Student, Department of Computer Science and Engineering,
Erode Sengunthar Engineering College, Perundurai, Erode-638507, India.
Email: [1] sakthisakthi9842902288@gmail.com , [2] dinakerdinaker1188@gmail.com ,
[3] began7369@gmail.com , [4] suryaputrakarna24gsp@gmail.com

ABSTRACT

The emergence of digital job platforms has primarily benefited corporate and technical occupations, leaving a sizable void for offline freelancers and skilled non-technical workers. In order to solve this, we suggest Local Skill Hub, a centralized employment marketplace created to match people with a variety of skill sets—including photography, carpentry, driving, housekeeping, and catering—with suitable employment openings. This platform will support both online and offline freelancing and provide job postings in multiple languages. Scalability, regional accessibility, and performance optimization are given top priority in its architecture. Important metrics like response time, job-matching accuracy, user retention, and job fulfillment rates are taken into account when assessing the effectiveness of the system. In the end, Local Skill Hub seeks to develop local skill-based economies, close employment gaps, and raise the profile of independent contractors in a range of sectors.

Keywords: Local Workforce, Skill Hub, Job Portal, Freelance, Non-Technical Jobs, and Regional Employment.

ICRIT312

HARNESSING MOBILE CAMERA TECHNOLOGY FOR ADVANCED PHOTOPLETHYSMOGRAPHY (PPG): A NOVEL APPROACH TO NON-INVASIVE VITAL SIGN MONITORING AND HEALTH ANALYSIS

Dr.Ushus S Kumar, S.K.Karventhan, G.Sakthivel, R.Hariprasath
Department of Biomedical Engineering SRM Ramapuram Campus Chennai-89

ABSTRACT

Photoplethysmography (PPG) is a simple, non-invasive optical method that measures blood volume changes in the body's peripheral circulation. With the rapid growth of smartphones and wearable technologies, PPG has emerged as a powerful tool for monitoring health continuously and conveniently. This project introduces a complete system designed to harness PPG signals collected via mobile phones or wearable devices to estimate both physiological and psychological health indicators, including heart rate, blood pressure, stress levels, and signs of depression. The system starts by capturing raw PPG signals using embedded sensors. However, real-world environments often introduce noise and motion artifacts that can compromise signal quality. To address this, a robust preprocessing stage is applied to clean the data, ensuring reliable analysis. Once the signals are refined, the system moves into feature extraction, where it identifies key characteristics such as pulse rate variability, signal amplitude, and waveform patterns. These features offer deep insights into the user's physical and emotional state. To interpret these features effectively, advanced machine learning algorithms are used, including Long Short-Term Memory (LSTM) networks, Support Vector Machines (SVM), and Convolutional Neural Networks (CNN). These models are trained to recognize complex patterns in the data, enabling the system to provide accurate and personalized health predictions.The final output is presented through an intuitive, user-friendly interface, making it easy for users and healthcare providers to understand the results. By offering real-time feedback and long-term tracking, the system supports proactive health management. Its portability and affordability make it especially valuable in remote or underserved communities, where access to traditional healthcare is limited.Overall, this project bridges modern technology and healthcare, providing an accessible, effective solution for continuous health and emotional well-being monitoring in everyday life.

Keyword--Photoplethysmography (PPG), Heart Rate, Blood Pressure, Stress Detection,Depression Monitoring, Machine Learning, LSTM, SVM, CNN, SignalProcessing, Wearable Technology, Mobile Health, Non-invasive Monitoring.

ICRIT313

DELINEATING THE GROUNDWATER POTENTIAL ZONE IN THOOTHUKUDI DISTRICT, USING GIS, REMOTE SENSING AND ANALYTICAL HIERARCHY PROCESS(AHP)

Dr. A. Saranya[1], S. Hamsathvani[2], P. Vijaya Gayathri[3], A. Sri Sarran Ram[4]

[1]Department of Civil Engineering, University VOC College of Engineering, India
[2,3,4]Department of Geoinformatics Engineering, University VOC College of Engineering, India
E-mail: a.saranindu@gmail.com

ABSTRACT

Groundwater plays a vital role in sustaining life, and its efficient management is essential for addressing water scarcity issues. This study aims to delineate groundwater potential zones in Thoothukudi district, Tamil Nadu, using the Analytical Hierarchy Process (AHP) integrated with geospatial techniques such as Remote Sensing and GIS. The methodology involved preparing thematic layers—including rainfall, geology, geomorphology, drainage density, soil, slope, lineament, and land use/land cover—using tools like interpolation, contouring, and classification in ArcGIS 10.8. Each layer was assigned a theme weight and class rank through weighted overlay analysis to generate a composite groundwater potential map. The final map categorized the district into five zones: very high, high, moderate, low, and very low groundwater potential. The northeastern region was identified as having low groundwater potential (747 sq.km), while the southern part exhibited high potential (about 2303 sq.km). This study provides a scientific basis for sustainable groundwater resource management in the region.

Keywords: Ground water, Landsat data, AHP, Remote sensing, GIS

ICRIT314

AI-POWERED SMART GLUCOSE MONITORING AND INSULIN MANAGEMENT SYSTEM

Jerisha.J
Mar Ephraem College Of Engineering And Technology

ABSTRACT

Effective diabetes management requires continuous glucose monitoring and personalized insulin regulation tailored to an individual's dietary habits and metabolism. This project presents an AI-powered glucose and insulin monitoring system that integrates deep learning algorithms to provide personalized glucose level predictions and insulin recommendations based on a patient's food culture and eating patterns.The system utilizes a deep learning model trained on diverse datasets, including regional dietary habits, glycemic index of foods, patient history, and metabolic responses. By analyzing these factors, the AI model predicts glucose fluctuations, recommends food intake adjustments, and suggests optimal insulin dosages. The proposed system enhances accuracy, adaptability, and real-time decision-making, reducing the risk of hyperglycemia and hypoglycemia.

ICRIT315

REVOLUTIONIZING EDUCATION WITH AI-DRIVEN BOOK SUMMARIZATION

Boomika T, Amritha V ,Harinee M
CSE.K Ramakrishnan College of Technology(of Affilated)K Ramakrishnan College of Technology,Trichy,India

ABSTRACT

In the age of digital transformation, the integration of Artificial Intelligence (AI) into educational tools has opened new frontiers for learning efficiency, accessibility, and personalization. One such innovation gaining momentum is AI-driven book summarization—an emergig approach that leverages natural language processing (NLP) and machine learning to condense large volumes of educational content into concise, coherent summaries. This technology addresses the common challenges faced by students and educators alike, including information overload, time constraints, and difficulty in grasping core concepts from lengthy texts.This paper explores how AI-powered summarization tools can revolutionize education by enhancing reading comprehension, promoting active learning, and supporting differentiated instruction. The ability of AI models to identify key themes, distill essential information, and adapt content to the learner's level creates new opportunities for inclusive and scalable education. Furthermore, the paper discusses the technical underpinnings of summarization algorithms—such as extractive and abstractive methods—and evaluates their application across various academic disciplines.Real-world implementations and case studies demonstrate that AI summarization tools not only improve academic performance but also encourage lifelong learning by making knowledge more approachable. However, the integration of such technologies also brings ethical and pedagogical concerns, including accuracy, bias, and over-reliance on machine-generated content. Addressing these concerns through transparent design and responsible AI practices is crucial to ensure the positive impact of this innovation.In conclusion, AI-driven book summarization holds transformative potential for education, offering a smarter, faster, and more inclusive way to engage with information. As educational institutions and technology developers collaborate, the future of learning may very well be shaped by intelligent systems that adapt to the evolving needs of students and educators alike.

Keywords :Artificial Intelligence (AI), Book Summarization, Educational Technology, Natural Language Processing (NLP), AI in Education, Learning Enhancemen, Automated Summarization, Digital Learning Tools, Personalized Learning, Information Accessibility

ICRIT316

MENTORSHIP AND PROFESSIONAL GUIDANCE ENABLED THROUGH CLOUD TECHNOLOGIES

[1]Vijay Franklin, [2]Dhinesh, [3]Gokul,[4]Selvakumar
[1]Professor & Head, Department of Computer Science and Engineering Erode Sengunthar Engineering College, Erode, Tamil Nadu.
[2,3,4]Student, Department of Computer Science and Engineering Erode Sengunthar Engineering College, Erode, Tamil Nadu.
[1] vijayfranklin@esec.in , [2] dhineshdragon1@gmail.com,[3] gokulss139@gmail.com,[4]kgselvakumar097@gmail.com

ABSTRACT:

Mentorship and professional guidance through cloud technologies is a digital platform designed to bridge the gap between mentors and mentees, fostering relationships that support academic, professional, and personal development. This paper examines the Mentor Connect model, its architecture, and the implementation strategy for maximizing engagement and outcomes for both mentors and mentees. The platform leverages advanced algorithms for matching, analytics to track progress, and user-friendly interfaces for communication, aiming to establish meaningful and productive mentor-mentee relationships. This platform connects industry experts with mentees for career guidance and skill development. It features automated scheduling, real- time video sessions, and mentor mentee matching. Mentees gain valuable insights, improving their skills and employability.

Keywords: Mentorship, Online Learning, Career Development, Student Success with technology, Career Counselling.

ICRIT317

DATA DOWNLOAD DUPLICATION ALERT SYSTEM

Mrs.R.Punitha Gowri[1], Harivarsan.N.J[2], Hari Prasath.P[3], Akilan.C.S[4]
[1]Assistant Professor, Dept of CSE, Erode Sengunthar Engineering College, Perundurai.
[2,3,4]Student, Dept of CSE, Erode Sengunthar Engineering College, Perundurai.
akilancs2707@gmail.com, hp8838610025@gmail.com, harivarsannj06.07.2005@gmail.com

ABSTRACT

Data Download Duplication Alert System is a web-based software aimed at tracking and avoiding repeated or unauthenticated download of files from a central server. The system allows administrators to upload, manage, and secure digital content by detecting and marking duplicate attempts at downloading. Every download operation is monitored and recorded, so that the system can identify patterns and raise alerts when the same user or IP tries to re-download the same document. The program has an admin interface to control content, set up alerts, and observe user activity. It is intended to minimize wastage of bandwidth, avoid abuse of data, and provide regulated access to confidential materials. Developed through server-side scripting and database integration, the system facilitates real-time operations and increased data security. The solution is best suited for institutions, organizations, and educational environments where secure and controlled file sharing is crucial. The alert mechanism ensures data integrity and promotes responsible use of digital resources.

KEYWORDS -Data duplication, download alert, web-based monitoring, admin control, secure file access, real-time tracking

ICRIT318

TRASFORMATION OF IC ENGINE GEAR BIKE INTO AN ELECTRICAL E-VEHICLE AND WITH WIRELESS CHARGING

E . Pravin Azaria
Deapartment of Electrical and Electronics Engineering, Grace College of Engineering, Thoothukudi
pravinazaria@gmail,com

ABSTRACT

There has been a tremendous growth of E-Vehicle all over the world. There is an issue of buying an E-Vehicle because of its high cost. The Alternative plan for this is to convert a scrapped bike into an economical E-Vehicle. The IC Engine of the scrapped bike is detached, then the Electrical motor fits in the place of the old engine, motor fits correctly in the existing engine bay of the bike. Lithium-ion (Li-ion) batteries are the most common choice due to their higher energy density and longer lifespan. Installed a BMS to ensure the batteries operate efficiently, safely, and within temperature and voltage limits Electric vehicles require fast, economical and reliable charging systems for efficient performance. Some modifications to integrate regenerative braking with the vehicle's existing brake system. Wireless charging systems remove the hassle of plugging in the device to be charged when compared with conventional wired charging systems. Moreover, wireless charging is considered to be environment friendly as the wires mechanical connectors and related infrastructure are not required Wireless charging involves using an inductive charging system. A coil embedded in the vehicle's undercarriage aligns with a pad on the ground to transfer energy wirelessly. A wireless charging pad will be placed on the ground, either in a parking spot or garage. An electric throttle system that allows the driver to control the vehicle’s speed and performance based on the power supplied by the motor and a new dashboard display for showing essential EV data, such as battery level, range, motor performance, and charging status .

ICRIT319

AI/ML-BASED GIS APPLICATION FOR ENHANCING SAFETY IN DEEP-SEA FISHING

Jinoy P Jose[1], Jerish J[2], Joel Bijumon Varghese[3], Titus Kuriakose[4] and Janila J[5]
Department of Computer Science and Engineering, Mar Ephraem College of Engineering and Technology, Marthandam, India
jinoypjose2003@gmail.com

ABSTRACT

Deep-sea fishing presents numerous challenges, including unpredictable weather, resource depletion, and safety risks. This paper proposes an AI/ML-based GIS system to enhance safety and efficiency in deep-sea fishing operations. The system integrates real-time satellite data, marine sensors, historical fishing records, and machine learning models to predict hazards, optimize routes, and issue alerts. CNNs analyze satellite imagery for weather and sea-state insights, while LSTM networks forecast future conditions using time-series data. GIS maps visualize the data and aid in navigation. Modules include data collection, risk assessment, prediction, route planning, and notification. Field validation and simulation results demonstrate improved safety and operational efficiency. This system contributes to more sustainable and resilient fishing practices.

Keywords: AI, Machine Learning, GIS, Deep-Sea Fishing, Safety

ICRIT320

FREELANCE CONNECT

Dr.J. Vijay Franklin, J. Absar Ahamed, M. Dhivakar, K. Kaleeshwaran.
Department of Computer Science and Engineering, Erode Sengunthar Engineering College, Erode, India.
[1]vijayfranklin@esec.in, [2]absarahamed2005@gmail.com, [3]dhivakar060@gmail.com, [4]@kaleesh.kaleeehgmail.com.

ABSTRACT

India's freelance industry is growing rapidly due to a young workforce and a society that is becoming more digitally savvy. Nevertheless, the varied and changing demands of India's gig economy are frequently not met by the current international freelance marketplaces like Upwork and Fiverr. Freelance Connect, a state-of-the-art platform for independent contractors, uses artificial intelligence to solve these problems. This ecosystem, which is customised to meet the particular needs of India, includes AI-powered project management tools, safe, escrow-based payment systems, and large language models (LLMs) for intelligent job matching. The design and development of Freelance Connect, the platform's goals, technological integration, and the socioeconomic effects on India's digital workforce are all covered in this essay. It looks at how the platform improves user experience, lowers market inefficiencies, and promotes inclusive employment opportunities nationwide. Among the main features that were examined were AI-driven recommendations and customised dashboards. The study also examines how the platform can promote equitable access to work, particularly in rural and underserved areas, and help close existing gaps in the freelancing industry.Freelance Connect has shown notable gains in proposal success rates, user satisfaction, and job match relevancy following a thorough testing and evaluation process. In the end, it raises the standard for freelance platforms by providing a stable, safe, and intuitive environment that benefits both employers and independent contractors. Future developments and their potential impact on India's gig economy are examined in the paper's conclusion.

Keywords - India's gig economy, AI-driven freelancing, Job matching algorithms, Escrow payment systems, Digital workforce, Inclusive employment.

ICRIT321

IOT-BASED WATER LEAKAGE MANAGEMENT SYSTEM USING ESP32

M.Sathya, S.JeyaSubha, M.Esakkiammal, M.Anusuya, Dr Ravindharan
Department of Computer Science and Engineering, Holy Cross Engineering College, Thoothukudi
sathyasathu65@gmail.com,snehaesakki0108@gmail.com,anusuya07062002@gmail.com,jeyasubha304@gmail.com

ABSTRACT:

The IOT-Based Water Leakage Management System Using ESP32.The Water is one of the most vital natural resources,and its conservation is essential .Unnoticed water leakagec can lead to significant water loss,property damage,and increased utility bills.This project presents an IOT-based Water Leakage Management System using the ESP32 microcontroller,designed to detect,monitor,andcontrol water leakage in real-time. The system integrates flow sensors,water leakage sensors,and a solenoid valve to detect anomalies in water usage.When a leak is detected or abnormal waterflow is identified,the system automatically shuts off the valve to prevent further leakage and sends instant alerts to the user through a Wi-Fi- based communication system using MQTT/HTTP protocols.Data is logged and visualized via a cloud platform or mobile dashboard for real-time monitoring.This intelligent,low-cost,and scalable solution not only helps in efficient water usage but also supports remote management and automation,making it ideal for households, industries, and agricultural system.

Keywords:IOT,ESP32,Water Leakage Detection,Flow Sensor,Solenoid Valve ,Real Time Monitoring ,MQTT, HTTP, Remote Monitoring ,Leak Prevention

ICRIT322

VOICE CONTROLLED MOBILITY AID FOR PHYSICALLY CHALLENGED INDIVIDUAL

S.Jai metilda, Pavithra A, Subha D, Swetha M
Electrical and Electronics Engineering
J.P. College of Engineering Ayikudi, India
subhadharmaraj82@gmail.com

ABSTRACT

The Voice-Controlled Wheelchair is an innovative mobility solution designed to enhance the independence and quality of life for individuals with physical disabilities or limited mobility. This project focuses on developing a wheelchair that can be operated through voice commands, reducing the need for manual operation and providing a hands-free, user- friendly experience. The system integrates a microcontroller with a voice recognition module, allowing users to control the wheelchair's movement forward, backward, left, right, and stop through simple voice commands. Motor drivers and DC motors enable smooth and precise movement, enhancing safety during operation. design prioritizes comfort, durability, and ease of use, making it suitable for indoor and outdoor use The voice recognition system is programmed to recognize specific commands with high accuracy, even in moderately noisy environments. Additionally, the wheelchair's. This project has the potential to significant improve the autonomy and freedom of movement for individuals with disabilities, contributing to a more inclusive society. Ultrasonic sensors are used in voice-controlled wheelchairsprimarily for obstacle detection and safety. They use high-frequency sound waves to determine distances to objects in the wheelchair's path, allowing the system to automatically stop or adjust the wheelchair's movement if an obstacle is detected. This helps prevent collisions and ensures safer navigation for the user. health monitoring system can be integrated into a voice-controlled wheelchair to provide real-time health data to patients and caregivers. This system can include sensors to monitor vital signs like heart rate, body temperature, and blood oxygen levels, with the data transmitted wirelessly to a cloud-based platform for remote monitoring and analysis.

ICRIT323

IOT DRIVEN MICROSEISMIC SENSING SYSTEM MONITORING PLATFORM FOR LANDSLIDE DETECTION

Mrs.GA.Nivedaa, Dhanush S ,Jayagandh B ,Bharath P

Srm Trp Engineering College, Trichy

ABSTRACT

Landslides are one of the most devastating natural disasters, causing significant loss of life, infrastructure damage, and environmental degradation. Traditional landslide detection techniques rely on geological surveys, satellite imaging, and manual observations, which are often inefficient, time-consuming, and unable to provide real-time alerts. To address these challenges, this project proposes an IoT-driven Microseismic Sensing System Monitoring Platform that enables real-time landslide detection and early warning. By integrating microseismic sensors, IoT communication, cloud computing, and machine learning, this system provides an advanced, scalable, and cost-effective approach for continuous landslide monitoring.Landslides occur due to various natural and anthropogenic factors such as heavy rainfall, earthquakes, deforestation, and infrastructure development in unstable terrains. Early detection is crucial in minimizing casualties and damage. Traditional monitoring methods, such as field surveys and remote sensing, are effective but have limitations in real-time data acquisition and cost. The proposed IoT-driven microseismic sensing system aims to overcome these limitations by providing an automated, real-time monitoring and alert system using embedded technologies. The IoT-driven Microseismic Sensing System represents a breakthrough in landslide detection and early warning technology. By leveraging embedded sensors, IoT communication, and AI-driven analytics, this system provides a scalable, real-time, and cost-effective solution for landslide monitoring. Future enhancements could include AI-based predictive modeling, satellite integration, and community-driven sensor networks to further improve disaster resilience. The adoption of such technologies can significantly reduce landslide-related casualties and infrastructure damage, ultimately contributing to sustainable development and disaster preparedness worldwide.

ICRIT324

RECENT ADVANCEMENTS IN MEMS FOR SMART MECHANICAL SYSTEMS: A REVIEW ON SENSING, ACTUATION, AND INTEGRATION

Abhishek Prabhakaran[1], R. Kowsalya[2] and J. Joylin Mary[3]*

*[1]Department of Mechanical Engineering, SRM TRP Engineering College, Irungalur, Tiruchirappalli, Tamilnadu – 621 105. [2]Department of Electronics and Communication Engineering, SRM TRP Engineering College, Irungalur, Tiruchirappalli, Tamilnadu – 621 105. [3]Department of Electrical and Electronics Engineering, SRM TRP Engineering College, Irungalur, Tiruchirappalli, Tamilnadu – 621 105. *(Email: abicastero000@gmail.com)*

ABSTRACT

In the discipline of mechanical engineering, Microelectromechanical Systems (MEMS) are considered groundbreaking innovations since they have rendered it possible to create inadequate, intelligent, and general-purpose parts that smoothly combine sensing, actuation, and control. In the context of the fourth industrial revolution, MEMS serve as essential for improving the accuracy, performance, and the responsiveness of traditional mechanical systems as they develop into educated, autonomous as well, and versatile platforms. Sensing, actuation, and system-level integration are three crucial areas that are the subject of this review paper's thorough examination of current developments in MEMS designed for smart mechanical systems. The operating principles, material developments, and manufacturing procedures of MEMS-based sensors—including motion sensors, tension detectors, accelerometer measurement units (AMUs), accelerometers, and micro fluidic sensors—are examined in detail. The benefits, drawbacks, and real-world applications of various actuator mechanisms—such as electrostatic in nature, heat treatment, piezoelectric devices and magnetic MEMS actuators—in mechanical engineering applications are examined. For controlled adaptation and predictive diagnostics, particular focus is placed on integrating MEMS with handheld devices, systems with embedded components, and artificial intelligence frameworks. In order to demonstrating the multifaceted influence of MEMS in contemporary mechanical engineering, the study also examines a variety of MEMS applications in domains such robotics, wearable health devices, industrial automation, automobile safety systems, and aeronautical navigation. A comprehensive analysis is conducted of current research issues, including mechanical reliability, packing restrictions, power efficiency, and sensor drifts. In order to help engineers, researchers, and producers create advanced smart mechanical systems enabled by MEMS technology, the study concludes by outlining possible future possibilities in MEMS research.

Keywords: Microelectromechanical Systems (MEMS), Smart Mechanical Systems, MEMS Sensors, MEMS Actuators, System Integration

ICRIT325

STUDENT ENGAGEMENT PREDICTION IN ONLINE CLASSES USING IMAGE PROCESSING

Ms. S Sasirekha, Gowtham, Hari Karan K, Jayanth Adithya S, Aslam A
Dept of Computer Science, Dhanalakshmi College Of Engineering (Anna University), Chennai, Tamil Nadu, India

ABSTRACT

Student engagement is a critical factor in determining the effectiveness of online education. Traditional methods of assessing engagement are limited in virtual classrooms, where physical cues are harder to monitor. This paper proposes a novel approach to predicting student engagement using image processing techniques combined with machine learning algorithms. The system uses real-time facial expression analysis to assess engagement levels, providing valuable insights for educators to enhance learning outcomes. Key techniques include facial feature extraction, deep learning models, and real-time analysis, ensuring accurate and efficient engagement prediction.

ICRIT326

AUTOMATED COLOR-BASED DEFECT DETECTION SYSTEM

D.Bhuvaneshwar, Guhanraj, A.Kiran Kumar, M.Mohith Kumar

Warbhuvanesh419@Gmail.Com

ABSTRACT

This project presents the design and development of an Automated Colour-Based Defect Detection System aimed at enhancing quality control in industrial production lines. The system utilizes the GY-31 TCS3200 color sensor to identify color deviations in products moving on a motor-driven conveyor belt. Products with color defects are automatically detected by the sensor, triggering a response that halts the conveyor, sounds a buzzer, and activates a red LED, thereby notifying the operator of the defect. Simultaneously, an LCD display provides real-time feedback indicating the presence of a defect. Once the defective product is replaced with a correct one, the system resumes conveyor operation, silences the buzzer, switches to a green LED, and updates the LCD to confirm the absence of defects. The system is powered by an Arduino UNO, interfaced with a 16x2 I2C LCD, motor driver, 150 RPM geared motor, 7805 voltage regulator, and other electronic components. This cost-effective solution is designed for small- to medium-scale manufacturing setups, ensuring improved product quality and efficient error handling with minimal human intervention.

ICRIT327

HIGH GAIN SINGLE PHASE BUCK BOOST CONVERTER WITH IMPROVED POWER FACTOR CORRECTION FOR EV APPLICATION

Dr.D.F.Jingle Jabha, Badri S,Shaik Mahaboob I,Veera Selvam M,Yuheshwarapandian A
SRM TRP Engineering College (Anna University), Tiruchirappalli, India
badrisb26@gmail.com

ABSTRACT

This project presents a High Gain Single-Phase Buck-Boost Converter with Enhanced Power Factor Correction (PFC) for Electric Vehicle (EV) applications. Designed for efficient and stable charging, it supports a wide input voltage range by integrating both buck and boost operations. An Arduino Uno handles real-time PWM control for accurate voltage regulation, while a voltage sensor and LCD display monitor input/output voltages and battery status. A built-in battery storage unit ensures continuous EV motor power during fluctuations or outages. The improved PFC reduces harmonic distortion, boosts energy efficiency, and meets grid compliance standards. This converter is ideal for universal EV chargers, offering reliability, scalability, and support for sustainable electric mobility.

Keywords – Buck-Boost Converter, Power Factor Correction (PFC), Electric Vehicle (EV) Charging, Arduino Uno Control, Voltage Regulation, Battery Storage, Energy Efficiency

ICRIT328

AUTOMATIC RECOGNITION AND TEXT CONVERSION OF NON-MANUAL FEATURES IN INDIAN SIGN LANGUAGE

Ms. Sree Vidhya S [1], Balasundaram A[2], Kabilan G[3], Krishnamoorthi P S[4]
[1]Assistant Professor, Dept of CSE, Erode Sengunthar Engineering College, Perundurai.
[2,3,4]Student, Dept of CSE, Erode Sengunthar Engineering College, Perundurai.
krishna.ps1108@gmail.com , kabilanradha54321@gmail.com , bs9771096@gmail.com

ABSTRACT

This project focuses on enhancing Indian Sign Language (ISL) translation by recognizing and converting non-manual features (NMFs) such as facial expressions, head movements, and posture into accurate text. Unlike existing systems that emphasize manual gestures, this system uses advanced machine learning to process subtle NMFs in real time. A rich NMF database, including regional variations, will support improved accuracy and adaptability. Designed with a user-friendly interface, the system aims to integrate with current ISL-to-text tools, providing a complete and accessible communication solution for the deaf and hard-of-hearing community.

KEYWORDS :Non-manual features, Indian Sign Language, facial expression recognition, head movement detection, sign language translation, real-time processing, machine learning, accessibility, deaf communication

ICRIT330

SMART STRUCTURAL HEALTH MONITORING SYSTEM

[1]Mrs.A. Shiny pershiya, [2]Dharaninathan V, [3]Franklin JN , [4]Hemraj R.
[1]Assistant Professor, Department of ECE, SRM TRP Engineering College, Trichy.TamilNadu, India
[2,3,4]Final year, Department of ECE, SRM TRP Engineering College, Trichy, TamilNadu, India
[2] dharaninathan.v11@gmail.com, [3]franklinjn20@gmail.com, [4]hemrajmannai@gmail.com

ABSTRACT

This project introduces a smart structural health monitoring (SHM) system using Internet of Things (IoT) technology to ensure the safety and stability of structures through real-time condition tracking. The system employs vibration, gyro, soil moisture, and infrared (IR) sensors to monitor key physical parameters such as vibration, tilt, internal moisture, and movement. These sensor readings are collected by an Arduino microcontroller and transmitted wirelessly to a cloud server using the ESP8266 Wi-Fi module, enabling continuous remote monitoring and instant alerts when abnormal patterns are detected. An LCD display provides local visual updates by displaying live sensor data and warning messages. This setup facilitates early detection of structural anomalies, supporting preventive maintenance and reducing the risk of failures. The solution is scalable, cost-effective, and minimizes the need for manual inspection by offering automated, real-time surveillance of structural conditions, thereby improving safety and operational efficiency.

Keywords— Structural Health Monitoring, IoT, ESP8266, Sensors, Real-time monitoring, Arduino.

ICRIT331

FAMRP-AHAN: A HYBRID ATTENTION-BASED APPROACH FOR UTERINE FIBROID DETECTION IN ULTRASOUND IMAGES

G. Devilakshmi[1], Dr. S. Sumathi[2], K. Lachimipriya[3]
[1] Research Scholar, Department of Computer Science and Engineering, University V.O.C. College of Engineering, Anna University Thoothukudi Campus, Thoothukudi, Tamil Nadu, India
Email: devimurali@annaunivtut.in [1]
[2] Assistant Professor, Department of Computer Science and Engineering, University V.O.C. College of Engineering, Anna University Thoothukudi Campus, Thoothukudi, Tamil Nadu, India,
Email: sumathi_s@annaunivtut.in [2]
[3] Assistant professor, Dhaanish Ahmed College of Engineering, Padappai, Chennai, Tamil Nadu, India.
Email: plakshmi395@gmail.com [3]

ABSTRACT

Uterine fibroids are among the most prevalent gentle growths in women of fruitful age and pose significant diagnostic challenges, particularly in early stages. This paper proposed novel hybrid deep learning framework, FAMRP-AHAN (Fibroid Adaptive Multi-Resolution Preprocessing with Adaptive Hybrid Attention Network)**,** for enhanced uterine fibroids detection in ultrasound images. The methodology integrates advanced preprocessing techniques such as hybrid noise reduction, adaptive contrast enhancement, and multiscale edge detection into a unified multiresolution pipeline. FAMRP enhances image quality using noise reduction, contrast enhancement, multiscale edge detection, and normalization. AHAN combines handcrafted features with deep attention mechanisms for robust classification. These features are fused and classified using an attention-guided hybrid neural network designed to improve detection sensitivity and reduce false positives. Experimental results demonstrate that the proposed method beats traditional CNN-based models in terms of accuracy, recall, sensitivity, specificity and F1-score, achieving a peak detection accuracy of 98.75%**.** The FAMRP-AHAN framework shows strong potential for real-world deployment in computer-aided diagnosis systems for gynecological imaging.

*Keywords**:** Uterine Fibroid Detection, Deep Learning, Feature Fusion, Attention Mechanism, Medical Image Processing, Texture Features.*

ICRIT332

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING – POWERED RECOMMENDATION SYSTEM FOR TOURISM IN INDIA

R.Ramkumar, A.James Jayaraj, A.Dhineshram
Electronics and Communication Engineering, Renganayagi Varatharaj College of Engineering, Virudhunagar
ramkumar200421@gmail.com, jamesjayaraj2@gmail.com

ABSTRACT

Planning a trip to India—a nation renowned for its cultural richness and geographic diversity can be overwhelming due to fragmented information spread across multiple platforms. Users often need to switch between various applications to check distances, read reviews, view photos, access official websites, explore nearby attractions, learn historical insights, plan itineraries, and even check weather forecasts. Traditional tools like guidebooks or basic travel websites fall short of delivering real-time, intelligent, and preference-based planning. To address these limitations, we propose "Artificial Intelligence and Machine Learning- Powered Recommendation system for Tourism in India" a centralized, AI-powered platform that streamlines and enhances the travel planning experience. Our system integrates real-time data sources such as Google Places and Weather APIs, and employs AI&ML techniques including sentiment analysis and budget prediction to provide smart, personalized recommendations. Users receive timely notifications when entering travel dates, enabling them to generate accurate budget estimates and check real-time weather forecasts all within a single platform. By offering comprehensive, user-friendly travel assistance in one place, the platform reduces planning time, improves decision-making, and enhances the overall travel experience. Furthermore, by generating personalized itineraries and highlighting lesser-known destinations, the system supports local businesses, promotes employment, and contributes to India's tourism driven economic growth.

ICRIT333

EV CHARGING STATION OPTIMISATION UDING AI & ML

Gokula Karthick Pandian.B, Meenatchi Sundar.M, Murugaperumal.V, Uma. G
Electronics and communication, Renganayagi Varatharaj college of Engineering, Sivakasi.
gokulakarthick610@gmail.com,meenatchisundar216@gmail.com,
Murugaperumalv2003@gmail.com

ABSTRACT:

Optimizing the accessibility, efficiency, and user experience of electric vehicle (EV) charging infrastructure is crucial for accelerating the adoption of sustainable transportation. This project proposes an intelligent EV charging station management system leveraging real-time data integration, demand prediction, and Large Language Model (LLM) assistance to provide data-driven recommendations and enhance the overall charging experience. The system integrates real-time charging station data from the HERE Maps API, including availability, pricing, and traffic conditions, with a LightGBM regression model to predict future charging demand based on historical data and contextual factors like weather and time.The model training process involves data preprocessing, feature engineering (including encoding categorical features), model optimization, and evaluation using appropriate metrics. The system utilizes the Gemini LLM to provide users with personalized insights and guidance, such as optimal charging station selection, predicted demand explanations, and route optimization advice. A Streamlit-based web application is developed to provide a user-friendly interface, enabling users to access real-time station information, demand predictions, and LLM-powered assistance.his approach enhances the EV charging experience by enabling informed decision-making, reducing range anxiety, and improving charging efficiency. The integration of real-time data, predictive modeling, and LLM assistance creates an innovative solution for smart and sustainable EV charging.

Keywords :LLM,STREAMLIT,API,EV,LIGHTGBM

ICRIT334

FARMERS DIRECT ACCESS APP

[1]G. Jemilda, [2]A. Lisenya, [3]M. Margret Win Reya, [4]M. Nanthini, [5]M. Rajadheeptha
Computer Science and Engineering,
Jayaraj Annapackiam CSI College of Engineering, Nazareth, India
jemildajeba@gmail.com[1],lisenyaarjun@gmail.com [2],margretwinreya@gmail.com[3]
nanthinibe1004@gmail.com[4],rajadheeptha4@gmail.com [5]

ABSTRACT

The Farmers Direct Access App is a mobile-based application developed to streamline and modernize the purchase and sale of agricultural commodities by directly connecting farmers with consumers through a structured digital platform. Designed for three primary stakeholders—Admins, Farmers, and Users—the system creates a transparent and efficient agricultural marketplace. Admins are responsible for managing the platform's overall functionality, including verifying and authorizing both farmers and users to ensure secure access and trusted transactions. They oversee product listings, monitor system activity, and maintain the integrity of the platform. Farmers, also known as dealers, can log in to the app to upload their products, manage inventory, and provide essential product information such as name, quantity, price, and images. This direct involvement allows them to eliminate middlemen, access wider markets, and receive fair prices for their produce. End users benefit from a simplified shopping experience with the ability to browse categorized agricultural products, view detailed descriptions, add items to their cart, and complete purchases using secure payment options like Unified Payments Interface (UPI) and bank transfers. The application not only enhances convenience but also addresses common issues faced in traditional agricultural sales, such as limited market access, price manipulation, and manual errors. By leveraging digital technology, the system encourages digital literacy among rural farmers and offers a reliable platform that ensures better transparency, reduces inefficiencies, and fosters trust between sellers and buyers. Through this approach, the Farmers Direct Access App serves as an essential bridge between producers and consumers, promoting a tech-enabled agricultural commerce model that is both accessible and sustainable. Overall, the application contributes to the digital transformation of agriculture, empowering farmers economically and simplifying the purchasing process for end users.

Keywords - Agritech, E-commerce, Mobile Application, Digital Marketplace, Farmers, UPI Payments, Inventory Management, Agricultural Commodities, User Authentication Rural Digitization.

ICRIT335

HERITAGEOCR: PRESERVING HISTORY THROUGH AI DIGITIZATION

Vijayan S, Nithyanandam S S, Prem kumar R, Tamil selvan R
Mechatronics Engineering, Velammal Institute of Technology, Chennai
ssnithyanandam18102002@gmail.com

ABSTRACT

The preservation and accessibility of historical documents remain a significant challenge in the digital age. Many valuable records, manuscripts, and government archives exist only in handwritten formats, often degraded by time and environmental factors. These documents, written in diverse regional languages and scripts, reflect cultural, administrative, and social narratives crucial to understanding our heritage. However, manual digitization is time-consuming, error-prone, and often fails to capture the nuance and structure of original texts. The proposed project, HERITAGE OCR, aims to create a robust AI-powered solution that automates the digitization of such historical records using advanced Optical Character Recognition (OCR), neural handwriting recognition. The system is designed to process scanned images of historical documents, extract handwritten text, interpret its structure and meaning, and convert it into digital text formats in regional languages. The methodology involves a multi-stage pipeline—starting with preprocessing techniques like noise reduction and image enhancement, followed by the application of OCR and deep neural networks for character recognition. The raw output is further refined using NLP techniques for contextual correction, language translation, and formatting.

Keywords- Heritage preservation, OCR technology, AI digitization, Digital conservation, Historical documents and Historical research.

ICRIT336

FARMERS DIRECT ACCESS APP

[1]G. Jemilda, [2]A. Lisenya, [3]M. Margret Win Reya, [4]M. Nanthini, [5]M. Rajadheeptha
Computer Science and Engineering,
Jayaraj Annapackiam CSI College of Engineering, Nazareth, India
Mail id: jemildajeba@gmail.com[1],lisenyaarjun@gmail.com [2],margretwinreya@gmail.com[3]
,nanthinibe1004@gmail.com[4],rajadheeptha4@gmail.com [5]

ABSTRACT

The Farmers Direct Access App is a mobile-based application developed to streamline and modernize the purchase and sale of agricultural commodities by directly connecting farmers with consumers through a structured digital platform. Designed for three primary stakeholders—Admins, Farmers, and Users—the system creates a transparent and efficient agricultural marketplace. Admins are responsible for managing the platform's overall functionality, including verifying and authorizing both farmers and users to ensure secure access and trusted transactions. They oversee product listings, monitor system activity, and maintain the integrity of the platform. Farmers, also known as dealers, can log in to the app to upload their products, manage inventory, and provide essential product information such as name, quantity, price, and images. This direct involvement allows them to eliminate middlemen, access wider markets, and receive fair prices for their produce. End users benefit from a simplified shopping experience with the ability to browse categorized agricultural products, view detailed descriptions, add items to their cart, and complete purchases using secure payment options like Unified Payments Interface (UPI) and bank transfers. The application not only enhances convenience but also addresses common issues faced in traditional agricultural sales, such as limited market access, price manipulation, and manual errors. By leveraging digital technology, the system encourages digital literacy among rural farmers and offers a reliable platform that ensures better transparency, reduces inefficiencies, and fosters trust between sellers and buyers. Through this approach, the Farmers Direct Access App serves as an essential bridge between producers and consumers, promoting a tech-enabled agricultural commerce model that is both accessible and sustainable. Overall, the application contributes to the digital transformation of agriculture, empowering farmers economically and simplifying the purchasing process for end users.

Keywords - Agritech, E-commerce, Mobile Application, Digital Marketplace, Farmers, UPI Payments, Inventory Management, Agricultural Commodities, User Authentication, Rural Digitization.

ICRIT337

VEHICLE EMERGENCY RESPONSE INTERFACE (VERI)

Dr Namrutha U, Rajani VR, Babitha P
[1]Associate Professor, Malabar Institute of Techanology, Kannur
[2,3] Assistant Professor, AWH Engineering College Calicut
namruthau@gmail.com, rajani@awhengg.org, babitha@awhengg.org

ABSTRACT

Road accident rates are very high nowadays. Increasing vehicles causes lots of accidents and loss of life due to late information reaching to the rescue team and arrival of an ambulance. Vehicle Emergency Response Interface (VERI) system leveraging LoRa (Long Range) technology present a promisingapproach for enhancing road safety through proactive accident detection and response mechanisms. The vehicles equipped with LoRa-enabled devices or sensors transmit real-time data to a central hub, enabling rapid detection of accidents or hazardous situations. When the vibration sensor inside a vehiclesenses an accident or danger on the road, it sends a signal to the hub. The hub then analyzes this information to find out if there& an accident or a problem on the road. This helps emergency responders get to the accident area faster and enable proper medical care.

ICRIT338

FABRICATION OF TILLING MACHINE FOR AGRICULTURAL APPLICATIONS

Dr. B. Madhu, Mohankanth B, Joel Edward J A, Prakash R S
Mechatronics Engineering, Velammal Institute of Technology, Tiruvallur
joel230702@gmail.com

ABSTRACT

This study embarks on the development and implementation of a remote-controlled tiller with an ESP32 towards the aim of delivering enhanced accuracy and minimal human labor in survival-level agriculture farming. Control system power is provided by an ESP32 microcontroller that has onboard Wi-Fi and Bluetooth for enabling wireless operation with the support of a WebUI. Movement is driven by a 250 W MY1016Z2 geared DC motor offering 360 RPM and 8.15 kg-cm torque, with pneumatic wheelbarrow wheels (14×3 inches, 300 kg capacity) for adaptability to ground conditions. High power load switching is done through a 5V four-channel relay module, and power is regulated from a 12 V, 6000 mAh lithium-ion battery pack consisting of 18650 cells using a 10 A DC-DC buck converter. Mechanical components were used to create them using SolidWorks, employing UCP205 pillow block bearings and MS/SS heavy fasteners to have more strength. The battery supports 5 A continuous and 10 A peak discharge and 80% depth-of-discharge with 500 cycle number. Firmware has been added, employing Arduino IDE to make the deployment of control logic straightforward. The proposed system embodies efficient energy use, modular hardware integration, and robust ground navigation, offering a cost-efficient, sustainable solution to the precision agriculture needs of today.

KEYWORDS:Micro-tilling machine, Modular agricultural equipment, Small and marginal farmers, Sustainable agriculture, Mechanized farming, Operator fatigue reduction, Portable farming machinery

ICRIT339

PREDICTION OF SPAM CALLS USING MACHINE LEARNING BASED ON BEHAVIOURAL PATTERNS

Asmitha.S, R.Fathima Beevi, L.Pattukani, Muruga
Artificial intelligence and Data Science
Grace College of Engineering
Tuticorin-5
Email: asmithaseenivasagam@gmail.com

ABSTRACT

Unwanted spam calls have risen into an ongoing hazard to mobile users influencing user experience, security, and privacy. Blacklisting and user reporting are just two of today's detection systems that are reactive and usually ineffective against dynamically shifting caller strategies. This work presents a machine learning-based solution based on behavioral patterns instead of content or fixed lists to forecast spam calls. Important elements taken from past call logs include call frequency, duration, time-of-day, call direction, and user responses (e.g., answer, decline, block). XGBoost is being used here to learn on these characteristics to separate spam from legitimate calls. With better adaptation to previously unseen spam behaviors, experimental evaluation on real-world and simulated datasets shows great precision and recall. Unlike conventional techniques, the suggested one guarantees privacy by not using voice content analysis and by allowing real-time spam detection. For proactive spam call mitigating at the device or telecom network level, this work provides a scalable, effective, privacy-aware framework.

Keywords: call logs, telecom security, real-time classification, privacy preservation, spam call detection, machine learning, behavioural analysis

ICRIT340

A COMPARATIVE STUDY OF BERT AND LSTM FOR NATURAL LANGUAGE UNDERSTANDING TASKS

Dr.G Karpagarajesh, K.Bala Karthik, E.Gokila
[1]Department of Electronics and Communication Engineering Alagappa Chettiar College of Engineering and Technology,
[2]Department of Computer Science and Engineering PSN Institute of Technology and Science,
[3] Department of AI&DS Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology

ABSTRACT

This paper presents a comparative study between BERT, a modern transformer-based NLP technique, and LSTM, a traditional deep learning method for sequence modeling. Using tasks such as sentiment analysis and named entity recognition, we evaluate both models on standard datasets like SST-2 and CoNLL-2003. Metrics such as accuracy, F1-score, and training time are analyzed. Results show that while BERT significantly outperforms LSTM in contextual understanding and performance, it comes with increased computational costs.

Keywords—component, formatting, style, styling, insert (key words)

ICRIT341

PREDICT USER DROPOUT IN WEB APPLICATIONS BY USING BEHAVIOR ANALYTICS AND SUPPORT VECTOR MACHINES.

Chalcedony J
M.E – Computer Science and Engineering
Grace College of Engineering
Thoothukudi, India
chalcedony@grace.edu.in

ABSTRACT

Increasing user engagement and retention in web applications depends on an awareness of and decrease of user drop-off. This paper generates a predictive model based on Support Vector Machines (SVM) for user drop-off behavior by means of real-time behavioral analytics. Recording traits like session length, mouse movement, scroll depth, click frequency, time on page, and navigation patterns helps us to build a strong dataset showing user interaction flows. Session completion data guides preprocessing and classification of the acquired data as either "drop-off" or "retained." The SVM model is taught to classify user sessions by determining the best hyperplane to split the two classes with the largest margin. To maximize performance, we try several kernel functions—linear, RBF, and poisson then modify hyperparameters using grid search and cross-valuation. Evaluated were session data from a live academic learning portal. Outperformance of the SVM model with an RBF kernel over baseline logistic regression models was 89.4%. By feature importance analysis, drop-off was found to be most significantly predicted by scroll depth and inactivity times. To mark high-risk sessions and start tailored prompts or UI changes, a real-time inference system was also implemented. Apart from offering a scalable, real-time solution for reducing drop-offs this allow improves user experience in web applications, this research reveals how effectively SVM models manages intricate user behavior.

Keywords— Web analytics; user drop-off; support vector machine; behavioral tracking; user engagement; machine learning; clickstream analysis

ICRIT342

AI CAREER ROADMAP SYSTEM

M. Sandhiya Sri, V. Sri Santhoshini, S. Kokila
Department of Artificial Intelligence and Data Science,
R.P. Sarathy Institute of Technology (Autonomous Institution) ,Salem, India
Email: sandhiyasri2911@gmail.com , srisanthoshini25@gmail.com , kokilasasthiri@gmail.com

ABSTRACT

In today's rapidly evolving professional landscape, the need for intelligent, adaptive career guidance tools has become more crucial than ever. Traditional approaches to career counseling are often generic and static, unable to accommodate the nuanced aspirations, skills, and learning paces of individual learners. This paper introduces an AI-powered dynamic career roadmap system designed to offer personalized, evolving career pathways based on a user's current educational background, technical and non-technical skills, personal interests, and long-term career goals. The system is constructed to function not only as a recommendation engine but also as a continuous mentoring platform, adapting in real-time to user inputs and learning progress.By integrating cutting-edge artificial intelligence technologies, particularly machine learning, natural language processing, and retrieval-augmented generation (RAG) models, the platform dynamically synthesizes a user-centric roadmap consisting of essential technical skills, recommended tools, hands-on project suggestions, curated learning resources, sample professional resumes, and a goal-oriented progress tracker. This roadmap is more than a static list; it is an interactive experience that evolves based on the user's progress, learning habits, and feedback, thereby becoming a digital career companion.The significance of such a system extends beyond convenience. In a world where technology cycles are shortening and job roles are diversifying, the ability to rapidly identify and close skill gaps is paramount. The AI-Powered Dynamic Career Roadmap System serves as a bridge between academic knowledge and industry readiness, transforming the learning process into a strategically guided, user-centric experience.

Keywords—AI, career roadmap, personalized guidance, dynamic system, skill development

ICRIT343

IMPLEMENTING AND EVALUATING CROSS-PROTOCOL COMMUNICATION BETWEEN IPV6 AND IPV4 USING NAT64

Mohamed Abdullah F , Dhanya P , Chockalingam S RM , Ikram Mustafa Hussain A M , Kamaleshwaran S
Aalim Muhammed Salegh College of Engineering , Chennai, India

ABSTRACT

The transition from IPv4 to IPv6 presents challenges in enabling communication between devices that use both proto- cols. This project focuses on the implementation and performance evaluation of NAT64 using RIPE Atlas. Using RIPE Atlas probes, we will measure latency, packet loss, and reachability across global networks. NAT64 serves as a solution to facilitate communication by translating IPv6 addresses to IPv4 addresses. Our research will assess the effectiveness of NAT64, identify its limitations, and propose optimizations to enhance cross-protocol communication. NAT64 enables devices that use IPv6 to access IPv4-only resources and vice versa, allowing IPv4 devices to reach IPv6-only services. Index Terms— NAT64, IPv6-tIPv4 Transition, Cross-Protocol

CRIT344

STOCK MARKET PRICE PREDICTION

E Rajkumar, Syed Althaf F, Christy Mathai
Department of CSE, Kings Engineering College
Keccse21109@kingsedu.ac.in

ABSTRACT

Stock market prediction is crucial for financial decision-making, yet traditional models like ARIMA and regression often fail to capture nonlinear dependencies and market volatility. Long Short-Term Memory (LSTM) networks offer an effective solution by preserving historical trends and handling sequential financial data efficiently.This paper presents an LSTM-based approach for stock price forecasting, leveraging historical stock data and key market indicators. Feature selection and hyperparameter tuning enhance predictive accuracy, mitigating issues like the vanishing gradient problem.The model is evaluated using Root Mean Square Error (RMSE) and Mean Absolute Error (MAE), demonstrating improved forecasting performance over traditional methods. Future enhancements include real-time adaptability, sentiment analysis, and reinforcement learning for optimized trading strategies. The study contributes to AI-driven financial analytics, offering a scalable and reliable deep learning solution for stock market forecasting.

ICRIT346

REAL-TIME AUTOMATED ATTENDANCE MONITORING SYSTEM USING AI, RFID, AND CLOUD-BASED TECHNOLOGIES

Ms.Husvanthini.R[1] , Ms Harini.S[2]
Department of Artificial Intelligence and Data Science, St. Peters college of engineering and Technology,Avadi,Chennai,India
husvanthini2006@gmail.com, h85554232@gmail.com

ABSTRACT

In today's fast-paced academic and organizational environments, efficient and accurate attendance tracking is essential for ensuring accountability, productivity, and compliance. Traditional methods such as manual entry and paper-based records are increasingly obsolete due to their susceptibility to human error, time consumption, and the possibility of manipulation. This paper presents a real-time, automated attendance monitoring system designed to overcome these limitations by integrating modern technologies such as facial recognition, RFID (Radio Frequency Identification), and cloud-based data management. The system utilizes high-resolution cameras and deep learning-based facial recognition algorithms, such as Convolutional Neural Networks (CNNs) and FaceNet embeddings, to identify and verify individuals with high precision. Alternatively, RFID or QR code modules offer non-intrusive and rapid attendance logging where biometric data may not be feasible. Attendance data is captured and transmitted instantly to a centralized cloud server, allowing real-time access, analytics, and reporting by administrators and authorized users. The proposed system ensures enhanced data integrity, prevents proxy attendance, and reduces the workload of manual tracking, thereby improving overall operational efficiency. Furthermore, the system is designed with scalability and cross-platform compatibility, enabling deployment across various educational institutions, corporate offices, and industrial workplaces. Security features such as encrypted data transmission and role-based access control protect sensitive user information. With user-friendly interfaces for both administrators and end-users, this system also includes dashboard views, automated notifications, and customizable reporting tools. By combining artificial intelligence, cloud computing, and smart identity verification technologies, the proposed attendance monitoring system provides a robust, accurate, and efficient solution to a persistent administrative challenge. Future improvements may include integration with mobile applications, GPS-based geofencing, and blockchain for further enhancing security and traceability of attendance records.

Keywords: Attendance Monitoring System, Biometric Authentication, Automated Attendance

ICRIT347

CYBER VIGILANCE: SAFEGUARDING THE DIGITAL AGE

S.Inbaroja
Assistant Professor
Balagan Saraswathi Arts and Science College for Women, Mukkudal.
Mail: inbaroja86@gmail.com

ABSTRACT

In the digital age, cyber security threats are becoming increasingly sophisticated, posing significant risks to individuals, organizations, and nations. This paper presents a comprehensive overview of cyber vigilance, including threat detection, incident response, and proactive defense strategies. We explore the latest trends and technologies in cyber security, including artificial intelligence, machine learning, and block chain. The importance of human factors in cyber security is also examined, including security awareness training and incident response planning. Cyber vigilance requires a proactive approach to cyber security, including regular updates, vulnerability assessments, and penetration testing. By adopting a vigilant approach, organizations can mitigate the risks associated with cyber threats and ensure the security and resilience of their digital systems. This paper provides insights into the latest cyber security threats, trends, and best practices, making it a valuable resource for cyber security professionals, researchers, and organizations seeking to enhance their cyber vigilance. Effective cyber vigilance can help prevent data breaches, financial losses, and reputational damage, ultimately safeguarding the digital age.

Keywords: Cyber vigilance, threat detection, incident response, proactive defense, artificial intelligence, machine learning, block chain.

ICRIT348

EMERGING TRENDS IN PHARMACEUTICAL NANOTECHNOLOGY: HYBRID NANOFIBERS FOR MULTIFUNCTIONAL DRUG DELIVERY

*Srinithi, S.Rinshia Shafrin, Dr.R.Vijaya **
Department Of Pharmaceutical Technology
University College Of Engineering (Bit Campus) Anna University
Tiruchirappalli - 620024, Tamilnadu , India

ABSTRACT

Hybrid nanofibers (HNFs), composed of integrated natural and synthetic polymers, represent a transformative class of biomaterials with wide-ranging applications in advanced drug delivery and regenerative medicine. By merging the ***bioactivity and biodegradability of natural polymers*** with the ***mechanical strength and tunable physicochemical properties of synthetic counterparts***, HNFs offer a highly adaptable and multifunctional platform for therapeutic interventions.This review critically explores the diverse biomedical applications of HNFs, with a focus on ***tissue engineering***, ***accelerated wound healing***, including ***diabetic and chronic wounds***, and ***controlled drug delivery systems***. In tissue engineering, HNFs emulate the native extracellular matrix (ECM), fostering cellular adhesion, proliferation, and differentiation, thereby promoting tissue regeneration. In wound healing, their ***porous architecture***, ***sustained drug release***, and ***moisture retention capabilities*** enable faster recovery, while the integration of ***nanoparticles*** (e.g., silver, iron oxide, cobalt) enhances their ***antibacterial, anti-inflammatory, and angiogenic*** effects.HNFs are also at the forefront of ***multifunctional drug delivery***, enabling site-specific, time-controlled release of therapeutic agents. The strategic combination of biopolymers such as ***chitosan, alginate, and collagen*** with synthetic materials like ***PCL, PLGA, and PHBV*** allows precise modulation of degradation rates, drug release profiles, and mechanical integrity.Despite their immense potential, key challenges remain—namely ***scalability, reproducibility, and regulatory compliance***. This review underscores the role of hybrid nanofibers as next-generation biomaterials, offering innovative solutions for complex medical challenges and advancing the future of personalized and regenerative therapeutics.

Keywords: Hybrid nanofibers, tissue engineering, diabetic wound healing, controlled drug release, multifunctional therapeutics, biomedical polymers

ICRIT349

AUTOMATED IMAGE CAPTIONING USINGDEEPLEARNING

Ms. Akhila TS, Bindu Sree K, Janani Sri A, Kanishka D, Sandhiya M
Dept of Computer Science, Dhanalakshmi CollegeOf Engineering (Anna University), Chennai, Tamil Nadu, India

ABSTRACT

Automated image captioning is a challenging interdisciplinary task that lies at the intersection of computer vision and natural language processing. It involves generating meaningful textual descriptions for images, enabling machines to interpret and communicate visual content in human language. This research explores deep learning-based methods for image captioning, focusing on encoder-decoder architectures that combine Convolutional Neural Networks (CNNs) for image feature extraction and Recurrent Neural Networks (RNNs), particularly Long Short-Term Memory (LSTM) networks, for sequence generation. We also investigate attention mechanisms to improve the contextual relevance of generated captions. The model is trained and evaluated on standard datasets such as MSCOCO, and performance is measured using metrics like BLEU, METEOR, and CIDE. Results demonstrate that deep learning models with attention significantly enhance caption accuracy and fluency, offering promising applications in accessibility, content indexing, and human-computer interaction. Image captioning, also called report generation in medical field, aims to describe visual content of images in human language, which requires to model semantic relationship between visual and textual elements and generate corresponding descriptions that conform to human language cognition. This paper presents a composite model, consisting of a deep convolutional neural network for feature extraction that makes use of transfer learning, and a recurrent neural network for building the descriptions. Kera with TensorFlow backend is used for implementation. A trained model that describes images using natural language was obtained.
Keywords— automated captions, deep neural network, CNN, RNN, feature extraction, attention

ICRIT350

ANALYSIS OF FSK MODULATION SCHEME FOR DIFFERENT DATA RATES IN FREE SPACE OPTICS COMMUNICATION CHANNEL

S. Seenivasan[1], Dr.G.Karpagarajesh[2]
[1]Ph.D Scholar, Department of Electronics and Communication Engineering, Alagappa Chettiar Government College of Engineering and Technology, Karaikudi, Tamil Nadu, India E-mail: seenitamil82@gmail.com
[2]Associate Professor, Department of Electronics and Communication Engineering, Alagappa Chettiar Government College of Engineering and Technology, Karaikudi, Tamil Nadu, India E-mail: gkrajesh1@gmail.com

ABSTRACT

This work aims to explore how the Gaussian pulsed line coded frequency shift keying (FSK) modulation technique works in a free space optic channel when the weather is clear. With a maximum data throughput of 100 Gbps, the Q factor, SNR, OSNR, and BER for the frequencies 193.1 THz to 193.5 THz are simulated up to a 70 km range. Using an APD receiver, the maximum Q, minimum BER, and received signal strengths are measured and recorded throughout a 70-kilometer FSO channel range.

Keywords: FSK, Q-factor, SNR, clear weather

ICRIT353

STOCK MARKET ANALYSIS USING MACHINE LEARNING

Vishnu Adithya M, Anush Kumar S, Gokul R, Barath SN, Er.Saravanakumar
Rathinam College of Arts and Science
Coimbatore, Tamil Nadu, India.
vishnupappy2@gmail.com

ABSTRACT

The stock market price prediction and classification is Stock market price prediction is a common problem in finance that involves using historical data to forecast future prices of stocks or other financial instruments. The goal of stock market price prediction is to identify profitable trading opportunities and make informed investment decisions, to resolve this issues different machine learning algorithm is implemented for predict the model accuracy of stock market price level The problem statement for stock market price prediction involves identifying the factors that influence stock prices and developing a model to predict future prices based on historical data. Some of the factors that may influence stock prices include economic indicators, company financials, news and events, and market sentiment. LSTM (Long Short-Term Memory) is a type of recurrent neural network that is well-suited for time series prediction tasks, including stock market price prediction. Here's a step-by-step guide on how to build an LSTM model for stock market price prediction LSTM models can provide useful insights and predictions, they are not foolproof, and the stock market can be unpredictable and subject to sudden changes. Therefore, it is important to use a combination of different models and techniques, continually update the models with new data, and apply rigorous testing and validation methods to ensure the accuracy and reliability of the predictions

ICRIT354

IWT BASED RENETTE CLASSIFIER FOR LUNG CANCER DETECTION

[1]Mrs. S. Suganya M.E., [2]Ms. S. Jenolin Aiswarya
[1]Assistant Professor, [2]PG Scholar
[1]Computer Science and Engineering,
[1]Jayaraj Annapackiam CSI College of Engineering, Nazareth, India

ABSTRACT

Lung cancer remains a major health challenge due to its high mortality rate and the difficulty in achieving early diagnosis. To address this, we propose an intelligent lung cancer detection system that combines traditional feature extraction and modern deep learning techniques. Our approach utilizes the Integer Wavelet Transform (IWT) for efficient image decomposition and feature extraction, capturing both spatial and frequency-domain information from lung CT or X-ray images. The extracted features are then enhanced using VGG16, a pre-trained convolutional neural network known for its powerful deep feature representation capabilities. These hybrid features are finally classified using the Renette classifier, a robust model suitable for handling complex, high-dimensional medical data.This integrated system leverages the precision of deep learning and the interpretability of handcrafted features to improve detection accuracy. Experimental results demonstrate that the proposed model achieves highperformance in distinguishing between malignant and benign lung nodules, offering a reliable tool for early-stage lung cancer diagnosis. The framework shows great potential for use in computer-aided diagnostic (CAD) systems in clinical environments.

ICRIT355

REAL-TIME ACCIDENT AVOIDANCE SYSTEM USING IOT TECHNOLOGY

Dr.Jayavathi S D, Vinoth Rajkumar G, Sivalingam S, Sundaran S, Sivalingam J, Mariraj L
Department of Electronics & Communication Engineering, J.P. College of Engineering, Tenkasi
Jayavathijames1969@gmail.com

ABSTRACT

Rising road traffic numbers have produced substantial growth in motor vehicle accidents primarily due to unattended drivers reacting too slowly to surrounding events. The proposed system with ESP32 microcontroller and ultrasonic sensors operates as an Accident Avoiding System to minimize such risks. The system operates with built-in capability to find nearby obstacles automatically followed by instant actions to avoid crashes.ESP32 functions as the systems central control unit that operates multiple ultrasonic sensors mounted at specific vehicle or robotic prototype positions. Ultrasonic sensors monitor near objects through continuous measurements using ultrasound signals which they send out and process from resulting reflections. The ESP32 system automatically performs programmed actions by real-time data processing when it detects obstacles inside its defined threshold range.The system has been built for autonomous operation along with its ability to protect users especially in vehicles with automation systems as well as robot-based and smart transportation applications. Reliable wireless communication modes of Wi-Fi and Bluetooth combined with rapid data processing allow real-time decision-making through ESP32 devices.The fast-growing number of road accidents has emerged as a major issue which requires the establishment of intelligent safety systems. A system based on the Internet of Things aims to develop an accident prevention system which uses real-time data acquisition means for promoting vehicle safety while lowering collision possibilities.

ICRIT356

HEALTHCARE ANALYTICS FOR PREDICTING PATIENT READMISSION RATES

Shanigala Devi Priya[1]
[1]MCA student, Chaithanya Bharathi Institute of Technology(A), Hyderabad, Telangana, India
Email Id: priya1982sh@gmail.com.

ABSTRACT

Reducing hospital readmission rates is a critical objective in modern healthcare, aimed at improving patient outcomes and optimizing resource utilization. This project presents a predictive analytics framework designed to identify patients at elevated risk of readmission using machine learning and comprehensive clinical data. The methodology Involved data integration from diverse healthcare sources, followed by rigorous pre-processing to address issues such as missing values, inconsistencies, and irrelevant attributes. Exploratory data analysis revealed significant patterns and correlations across variables including age, diagnosis codes, prior hospitalizations, and discharge dispositions. Feature engineering techniques were employed to construct informative variables, enhancing the predictive power of the model. Several machine learning algorithms, such as logistic regression and random forest classifiers, were developed and evaluated through performance metrics including accuracy, precision, recall, and F1-score. Hyperparameter tuning and cross-validation were applied to ensure model robustness. The final model achieved high accuracy in identifying patients likely to be readmitted, offering a practical tool for early intervention and resource planning. The results were visualized and translated into actionable insights, enabling healthcare providers to implement targeted care strategies for high-risk individuals. This approach not only supports clinical decision-making but also contributes to improving the quality and efficiency of healthcare services. This study underscores the value of data-driven approaches in predictive healthcare and demonstrates how machine learning can be effectively applied to reduce hospital readmissions. It lays the groundwork for further research and deployment in real-world clinical settings.

Keywords: Patient Readmission, Predictive Analytics, Machine Learning, Healthcare , Data Pre-processing,

ICRIT357

REAL-TIME AUTOMATED ATTENDANCE MONITORING SYSTEM USING AI, RFID, AND CLOUD-BASED TECHNOLOGIES

Ms.Husvanthini.R[1] , Ms Harini.S[2]
Department of Artificial Intelligence and Data Science, St. Peters college of engineering and Technology,Avadi,Chennai,India
husvanthini2006@gmail.com, h85554232@gmail.com

ABSTRACT

In today's fast-paced academic and organizational environments, efficient and accurate attendance tracking is essential for ensuring accountability, productivity, and compliance. Traditional methods such as manual entry and paper-based records are increasingly obsolete due to their susceptibility to human error, time consumption, and the possibility of manipulation. This paper presents a real-time, automated attendance monitoring system designed to overcome these limitations by integrating modern technologies such as facial recognition, RFID (Radio Frequency Identification), and cloud-based data management. The system utilizes high-resolution cameras and deep learning-based facial recognition algorithms, such as Convolutional Neural Networks (CNNs) and FaceNet embeddings, to identify and verify individuals with high precision. Alternatively, RFID or QR code modules offer non-intrusive and rapid attendance logging where biometric data may not be feasible. Attendance data is captured and transmitted instantly to a centralized cloud server, allowing real-time access, analytics, and reporting by administrators and authorized users. The proposed system ensures enhanced data integrity, prevents proxy attendance, and reduces the workload of manual tracking, thereby improving overall operational efficiency. Furthermore, the system is designed with scalability and cross-platform compatibility, enabling deployment across various educational institutions, corporate offices, and industrial workplaces. Security features such as encrypted data transmission and role-based access control protect sensitive user information. With user-friendly interfaces for both administrators and end-users, this system also includes dashboard views, automated notifications, and customizable reporting tools. By combining artificial intelligence, cloud computing, and smart identity verification technologies, the proposed attendance monitoring system provides a robust, accurate, and efficient solution to a persistent administrative challenge. Future improvements may include integration with mobile applications, GPS-based geofencing, and blockchain for further enhancing security and traceability of attendance records.

Keywords: Attendance Monitoring System, Biometric Authentication, Automated Attendance

ICRIT358

STUDENTS TEACHER PERFORMANCE USING MACHINE LEARNING

Celina S. Kanmani M, Akhila TS, Bhavatharini K
Computer Science and Engineering
Dhanalakshmi College of Engineering

ABSTRACT

In the evolving landscape of education, leveraging data-driven insights to enhance learning outcomes has become imperative. This study presents a novel machine learning framework for dual-performance prediction, simultaneously evaluating studentachievement and teacher effectiveness. Unlike traditional approaches that assess these entities in isolation, our model captures the interdependent dynamics between teaching quality and student success. Utilizing a curated dataset comprisingacademic records, classroom engagement metrics,peer evaluations, and digital activity logs, the system applies ensemble learning methods to predictperformance outcomes with high accuracy. Feature importance analysis reveals critical indicators such as interaction frequency, assessment consistency, and feedback responsiveness. The proposed model not only supports early identification of at-risk students and underperforming educators but also fosters a feedback loop for continuousimprovement. This approach redefines educational assessment by integrating AI into the heart of academic strategy, paving the way for smarter, more adaptive learning environments.

ICRIT359

AGRONECT: EMPOWERING FARMERS THROUGH DIRECT DIGITAL COMMERCE AND SMART AGRICULTURE SOLUTIONS

Narenderan R, Pradeep V, Sukant K, Vignesh R, Vijayabharathi R
Information Technology Erode Sengunthar Engineering college,
Erode, Tamil Nadu, India
officialnaren24@gmail.com

ABSTRACT

Farmers frequently encounter obstacles when trying to reach direct markets, which results in lower profits because of intermediaries and a lack of technical knowledge. By giving local farmers a digital platform to sell directly to customers, AGRONECT Market fills this gap. Users can purchase fresh produce, learn about farming, and obtain vital agricultural advice with this web-based and mobile-friendly app. Additionally, a thorough list of plant diseases, their symptoms, remedies, and suggested fertilizers are presented on the platform. With an emphasis on usability, scalability, and social relevance, the AGRONECT Market project was designed, implemented, and evaluated using contemporary web technologies.

KEYWORDS: Smart Agriculture, Farm Market, Plant Disease Solutions, Fertilizer Recommendations, E-Commerce, Direct-to-Consumer.

ICRIT360

DETECTING FAKE NEWS AND MISINFORMATION ON SOCIAL MEDIA USING NLP AND MACHINE LEARNING

A.Sherwin, M.Harish Kumar, S.Grasan Mahil Raj, S.Ariharasuthan, R.Mohanprashad
Artificial intelligence and Data Science
Grace College of Engineering
Thoothukudi, India
sherwinwolfie@gmail.com

ABSTRACT

False stories can quickly proliferate on Twitter, Facebook, and WhatsApp, so it influences public opinion, causing panic, and compromising official health or electoral data. This work presents a strong NLP-based machine learning framework for real-time social media stream and online news article fake news and misinformation detection. The proposed system classifies material as credible or misleading using both textual and contextual aspects. We use publicly available datasets including Covid-19 Misinformation Dataset, LIAR, FakeNewsNet. Stopword removal, lemmatization, and noise reduction comprise the preprocessing pipeline; TF-IDF, sentiment scores, and transformer-based embeddings (BERT, RoBERTa) then feature extraction follows. We evaluate advanced models such LSTM and fine-tuned BERT classifiers against conventional models including Logistic Regression and SVM in classification. With an accuracy of 92% and F1-score of 0.89 in binary fake news classification tasks, transformer-based models clearly outperform conventional classifiers experimental results show. To further improve model resilience against coordinated misinformation campaigns, we also add a layer of user behavior profiling and source credibility module. The paper also covers ethical consequences of content moderation, freedom of expression, and algorithmic bias as well as practical deployment difficulties. To guarantee responsible use in journalistic and governmental spheres, we suggest a hybrid solution including artificial intelligence-human cooperation, explainable model decisions, and unambiguous policy frameworks.

ICRIT361

REAL TIME FACE RECOGNITION SECURITY SYSTEM

Antony Benifert Ditto A, Antony Vasanth A, Lakshmi Narayana Guru M, Rajan K, Vishnu Ram CK, T.Premalatha
Departmrnt of CSE, VV College of Engineering
dittojsv@gmail.com

ABSTRACT

This paper presents an advanced facial recognition security system that addresses critical challenges in biometric identification systems: image quality, detection accuracy, and unauthorized person identification. Our approach combines quality-controlled data collection with a sophisticated face recognition algorithm that incorporates temporal consistency and confidence metrics. The system features automatic face quality assessment during the data collection phase, outlier detection during encoding preparation, and an enhanced unauthorized person detection mechanism with adjustable strictness thresholds. Experimental results show an accuracy rate of 94% in correctly identifying authorized personnel while maintaining a low false positive rate of 3% when detecting unauthorized individuals. This system provides a robust solution for high-security environments requiring reliable biometric access control.

ICRIT362

AETHER WATCH: SELF NAVIGATING FIRE SUPRESSION ROBOT WITH LIFELINE RESPONDER: AUTONOMOUS HUMAN LOCATOR AND EXTRICTION

Dharshini R, Jothika S, Mijaisha V S, Karthika E
Department of Computer science and Engineering, AVS Engineering College, Salem, India.
rr5138392@gmail.com

ABSTRACT

This project presents an autonomous fire suppression robot integrated with a Lifeline responder system to locate and assist trapped humans in fire emergencies. The system employs an ATmega8 microcontroller for navigation, ESP32-CAM for real-time visual feedback, fire sensors for detection, and IoT for remote monitoring and control. The robot navigates through hazardous zones, identifies fire locations, extinguishes flames, and assists in human detection and rescue operations.Fire emergencies pose a significant threat to human life and infrastructure, often requiring rapid response to locate trapped individuals and suppress fires. This project proposes a Self-Navigating Fire Suppression Robot with Lifeline Responder, which integrates motion and voice sensors, IoT-based camera streaming, real-time monitoring, motorized mobility, and an automated fire-spraying mechanism. The robot autonomously navigates fire-affected areas, detects human presence, and provides a lifeline for rescue operations. Equipped with AI-based object detection and IoT connectivity, the system ensures remote monitoring and fire control while assisting emergency responders in real time.

Keywords:Fire suppression, IoT, Atmega8, ESP32-cam, Autonomous robot, Real time monitoring, Water spraying, Human detection, rescue system

ICRIT363

AI-POWERED VOICE-CONTROLLED REMOTE PC AUTOMATION SYSTEM

Vijay Sarathi[1], Thejesh Bhagavanth[2], Jeevanantham[3], Hemasundar[4], Anitha[5]
UG scholar, Department of Computer Science and Engineering, Chettinad College of Engineering and Technology, Karur.
Email: vijaywithccet@gmail.com

ABSTRACT

This project develops an advanced AI-Powered Voice-Controlled Remote PC Automation System that revolutionizes traditional human-computer interaction paradigms. The system implements a sophisticated architecture combining WebSocket-based real-time communication with generative AI capabilities to create a seamless voice-controlled interface for Windows PC management. At its core, the solution features a cross-platform Flutter mobile application that communicates with a Python-based PC controller through persistent, full-duplex WebSocket connections, achieving remarkable sub-200ms latency in command execution.The system's innovative approach integrates Google's Gemini 1.5 Pro API for natural language understanding, enabling contextual interpretation of voice commands with 85% accuracy - significantly outperforming conventional voice assistants. Key technical contributions include: an optimized binary WebSocket protocol for efficient data transmission; a modular command processing pipeline supporting voice, macros, and terminal operations; and a real-time telemetry system for continuous PC status monitoring. Security is enforced through end-to-end TLS encryption and command validation safeguards. Implementation results demonstrate robust performance across diverse network conditions, with bandwidth requirements as low as 80Kbps and reliable operation even with 30% packet loss. The solution supports comprehensive PC control capabilities including application management, file operations, system configuration, and custom script execution. Its adaptive learning features progressively improve command recognition based on user patterns, while the macro automation subsystem enables complex workflow automation through simple voice triggers.The project represents a significant advancement in remote PC control technology, particularly valuable for accessibility applications, IT administration, and productivity enhancement scenarios. Future extensibility is ensured through clearly defined interfaces for additional AI model integration, expanded hardware control capabilities, and multi-user support implementations. The system's combination of natural language interface, WebSocket efficiency, and intelligent automation establishes a new standard for voice-controlled computer interaction systems.

ICRIT364

NEOAUTOMATION IOT BASED SMART CONTROL

Maheshkumar M
Dept of CSE , Ramco Institute of Technolgy , Rajaplayam, Tamil Nadu, India

ABSTRACT

The growing demand for scalable and efficient Internet of Things (IoT) solutions has driven the development of mobile platforms for remote device monitoring and control. This project presents a cross-platform IoT mobile application built using Flutter, designed to interact seamlessly with ESP32 and ESP8266-based IoT devices. The system employs MQTT (Message Queuing Telemetry Transport) for real-time communication, with an MQTT broker hosted on an AWS EC2 instance using Mosquitto, ensuring reliable and low-latency messaging. User authentication and data storage are managed through Firebase, providing secure access control and scalable cloud-based user management. The application allows users to monitor sensor data and control connected devices via an intuitive dashboard. Key functionalities include real-time data visualization, remote device control, and a responsive user interface. Flutter ensures cross-platform compatibility, while MQTT optimizes data transmission efficiency. Hosting the MQTT broker on AWS EC2 enhances scalability and reliability, making the system adaptable for various IoT applications. This project demonstrates a cost-effective, customizable, and secure IoT solution, offering full control over data flow and system architecture. Potential future enhancements include multi-protocol support, edge computing integration, and advanced data analytics for improved performance. The developed application serves as a versatile foundation for IoT deployments in smart homes, industrial automation, and remote monitoring systems.

Keywords: IoT, Flutter, MQTT, Firebase, AWS EC2, ESP32, ESP8266, Mosquitto, Real-time Monitoring, Cross-platform Application.

ICRIT365

SMART TENDER/CONTRACT MANAGEMENT USING FIREBASE

Manibalabommi.T: Department of Cyber Security, Dhanalakshmi Srinivasan University, Trichy, Tamil Nadu.
Annem Akhila: Department of Cyber Security, Dhanalakshmi Srinivasan University, Trichy, Tamil Nadu.
Dr.N.Shanmugapriya: Associate Professor, Head of the Department AI&DS, Dhanalakshmi Srinivasan University, Trichy, Tamil Nadu.
Dr.N.Sundararajalu : Professor, Head of the Department Cyber Security, Dhanalakshmi Srinivasan University, Trichy, Tamil Nadu

ABSTRACT

The Smart Tender and Contract Management System is designed to streamline and digitalize the process of managing tenders and contracts efficiently. By leveraging Firebase as the backend database, the system ensures real-time secure authentication, and seamless access across multiple devices. It provides a structured platform for users to create, manage tender submissions, contract approvals, and related documents in a transparent and organized manner. The system includes features such as role-based authentication, document verification, ensuring a smooth and efficient workflow. Firebase Authentication guarantees a secure login process, while Firestore enables fast and scalable data storage. Additionally, the system enhances collaboration by allowing real-time updates and access control, reducing paperwork, minimizing manual errors, and improving overall efficiency. With an intuitive user interface and robust cloud-based infrastructure, this solution modernizes traditional tender and contract management practices, making the process more reliable, transparent, and accessible.

ICRIT366

EARLY DETECTION OF CARDIAC ARREST IN NEWBORN BABIES

B. Partheswaran , M. Deepanchakkravarthy , S. Vetrivel, S. Sugumaran
Dept. of Computer Science and Engineering, RP Sarathy Institute of Technology, Salem, India
parthes445@gmail.com, deepaktharai@gmail.com, vs775319@gmail.com, sugumaransugu2213@gmail.com

ABSTRACT

Cardiac arrest in newborns is a life-threatening emergency that requires rapid identification and intervention to reduce mortality and improve neurological outcomes. Early detection is difficult due to subtle and nonspecific clinical signs, which can be easily overlooked using traditional methods such as ECG, pulse oximetry, and clinical observation. This study introduces an advanced multi-instrument monitoring approach combining electrocardiography, pulse oximetry, capnography, and Ly biomarker assays to detect cardiac arrest more accurately and quickly. Results show that early detection time was reduced from 4.3 minutes to 1.5 minutes, with a sensitivity of 95% and specificity of 92%. Neonates in the early detection group had higher survival rates and fewer neurological impairments. The integration of advanced technologies, including portable ultrasound and AI prediction tools, demonstrates a significant potential to transform neonatal resuscitation protocols. The findings highlight the importance of adopting real-time, data-driven systems in neonatal care to ensure timely intervention and better outcomes.

Keywords—cardiac arrest, newborns, early detection, Ly detection, neonatal monitoring, resuscitation, biomarkers

ICRIT367

PORTAL FOR INNOVATION EXCELLENCE INDICATORS

Ms.S.Sree Vidhya ,Revathi S ,Mirra A ,Priyadharshini M
Computer Science and Enginnering ,Erode Sengunthar College ,Thudupathi ,Erode,
email id: sreevidhyascs@gmail.com

ABSTRACT

The Portal for Innovation Excellence Indicator (PIEI) is a web-based application designed to help organizations track, measure, and enhance innovation efforts. The platform offers compartment-specific information by providing separate logins and dashboards for staff and students. Each user can track their papers and achievements, with the system highlighting the greatest accomplishments in the dashboard. This feature boosts the visibility of top performers, enhancing motivation and engagement.Built with PHP, SQL, HTML, CSS, JS, API and Bootstrap, PIEI ensures a responsive and user-friendly interface. It integrates Machine Learning (ML)and Artifical Intelligence(AI) to analyze data and predict innovation trends, providing predictive insights for better decision-making. Additionally, dedicated pages for paper uploads and achievement tracking encourage user participation and collaboration. Role-based access ensures that each user sees only relevant information, maintaining the system's security and efficiency. By combining advanced technologies with practical tools, PIEI helps organizations grow and adapt, fostering a culture of continuous innovation.

Keywords: Web-based application, compartment-specific information, paper uploads, achievement tracking, role-based access, machine learning, predictive insights, continuous innovation, PHP, MySQL, real-time tracking

ICRIT368

REAL-TIME WEBSITES LEGITIMACY DETECTION SYSTEM.

Abishek R, Jayamani M, Balakrishnan R, Pushpa N
R P Sarathy Institute of Technology(Autonomous institution),Salem.
abishekaids01@gmail.com

ABSTRACT:

There are number of users who purchase products online and make payment through various websites. There are multiple websites who ask user to provide sensitive data such as username, password or credit card details etc. often for malicious reasons. This type of websites is known as phishing website. In order to detect and predict phishing website, we proposed an intelligent, flexible and effective system that is based on using classification Data mining algorithm. We implemented classification algorithm and techniques to extract the phishing data sets criteria to classify their legitimacy. The phishing website can be detected based on some important characteristics like URL and Domain Identity, and security and encryption criteria in the final phishing detection rate. Once user makes transaction through online when he makes payment through the website our system will use data mining algorithm to detect whether the website is phishing website or not. This application can be used by many E-commerce enterprises in order to make the whole transaction process secure. Data mining algorithm used in this system provides better performance as compared to other traditional classifications algorithms. With the help of this system user can also purchase products online without any hesitation. Admin can add phishing website url or fake website url into system where system could access and scan the phishing website and by using algorithm, it will add new suspicious keywords to database. System uses machine learning technique to add new keywords into database.

Keywords: Phishing Detection and Website,Online Security,URL Analysis,Domain Identity,E-commerce Security,Fake Website Detection,Transaction Safety.

ICRIT369

SMART HELMET: AN AI-DRIVEN AUGMENTED REALITY SOLUTION FOR ENHANCED MOTORCYCLE SAFETY AND EMERGENCY RESPONSE

R.Mohanprashad, M.Harish Kumar, S.Ariharasuthan, S.Grasan Mahil Raj, A.Sherwin
Artificial intelligence and Data Science
Grace College of Engineering
Thoothukudi, India
mohanprashad2005@gmail.com

ABSTRACT

The Proposed Smart Helmet brings a paradigm change in motorcycle safety gear in response to the growing demand for advanced rider safety and flawless connectivity. Designed with a mix of intelligent systems and cutting-edge technology, this next-generation helmet shields, helps, and empowers motorcyclists like never before. The Smart Helmet transforms what protective headgear can accomplish by including a suite of integrated technologies including augmented reality (AR), proximity detection, artificial intelligence (AI), and emergency communication tools. Fundamentally, the Smart Helmet's fully immersive heads-up display (HUD) offers real-time visual overlays for turn-by-turn GPS navigation, speed monitoring, and traffic alerts, so removing the need for riders to glance away from the road. Strategically placed proximity sensors around the helmet detect vehicles in blind areas or sudden approaches from behind, so creating a 360-degree safety bubble and alerting immediately to stop possible collisions. Continuous evaluation of rider behavior and posture by an AI-powered fatigue monitoring system helps to identify drowsiness or inattention, so providing timely warnings to stop accidents resulting from tiredness. In crucial events when every second counts, this function is essential in lowering response times. The helmet features built-in microphones and speakers for daily convenience and rider involvement, so supporting hands-free voice commands, phone calls, and audio feedback without compromising safety. Long-distance riders or environmentally conscious consumers will also find the helmet perfect since it features solar-powered charging systems that boost sustainability and help battery life. Designed for a smarter riding experience as much as for protection, the Smart Helmet combines design with utility. From daily commutes to high-speed touring, it supports a wide spectrum of use cases and seeks to greatly lower road mortality by providing a futuristic, linked riding experience.

Keywords— Smart Helmet, augmented reality, road safety, heads-up display, proximity sensors, fatigue detection, AI monitoring, emergency response system, hands-free communication, solar charging, sustainable technology, motorcycle safety gear, connected mobility, wearable AI, real-time navigation, rider assistance systems, intelligent transportation.

ICRIT370

DEEP LEARNING TECHNIQUES CNN ARCHITECTURE FOR INGREDIENT PROCESS RECIPES IN FOOD IMAGES

Jenifer N
CSE. Kings Engineering College, Chennai, India.
Email : jenifern2802@gmail.com

ABSTRACT

Deep learning, particularly Convolutional Neural Networks (CNNs), has shown significant potential in various image classification tasks. In the domain of Culinary arts, understanding and processing recipes from food images can revolutionize how we interact with food content online. This study explores the application of CNNs for ingredient recognition and recipe generation from food images. The proposed system leverages CNN architectures to identify and classify various ingredients within an image, subsequently mapping these ingredients to potential recipes Tensorflow trained CNN models on accurate dataset of food images, we aim to enhance the accuracy of ingredient for food image detection. The system's performance is evaluated based on precision, recall, and overall accuracy in recognizing ingredients and suggesting corresponding recipes. This approach not only assists in automating recipe generation, food blogging, and enhancing user experience in culinary applications. The results demonstrate the feasibility of using deep learning techniques to bridge the gap between visual content and textual recipe data, paving the way for innovative solutions in food technology.

ICRIT371

QUALITY ASSESMENT AND PRICE PREDICTION OF FRUITS AND VEGETABLES USING DEEP LEARNING

Kirhuthika P, Ramya A, Mahalakshmi M
ECE, Sri Venkateswara College Of Engineering, Chennai, India
mahalakshmim1606@gmail.com

***ABSTRACT**:*

This project aims to develop an integrated system for assessing the quality of fruits and vegetables and predicting their market prices using deep learning. A inception v3 model will be employed to analyze real-time images and evaluate quality factors such as freshness, ripeness, and physical defects. Simultaneously, an LSTM-based model will predict market prices based on historical data, accounting for factors like seasonality and supply-demand trends. By combining computer vision and time-series forecasting, the system offers a practical, real-time solution to help farmers, retailers, and consumers make informed decisions, reduce losses, and optimize pricing in the agricultural market. The system will be supported by a mobile interface for easy image capture and result visualization. It aims to reduce reliance on manual inspection and provide consistent, accurate quality assessment. The solution is scalable for deployment in local markets, supply chains, and farm-level monitoring. Ultimately, it contributes to transparency and efficiency in the fresh produce ecosystem.

ICRIT372

MOBILE WEB APPLICATION FOR COLLEGE MANAGEMENT

A Mabel Rajakumari, V Sangeetha Preetha, C Backiya Iswariya, S Swetha, K Ramya
Department of Electronics and Communication Engineering,
Dr. G. U. Pope College Of Engineering, Tuticorin

ABSTRACT

A web-based college management system is developed to streamline and enhance the administrative functions of educational institutions. The system integrates a QR code-based attendance feature to improve accuracy and efficiency in tracking student presence. Admin users are provided with tools to manage staff and student registrations, handle the login process, and post important notices. Staff members can update student-related data such as fees, attendance records, exam schedules, results, timetables, and question papers. Once approved by the admin, students gain access to personalized dashboards where they can monitor their academic progress, view event schedules, and check fee payment statuses. Additionally, parents can stay informed about their child's attendance and performance through the student login. The application is hosted on Hostinger, offering global accessibility and real-time data updates. By minimizing manual effort and improving transparency, the system delivers a user-friendly solution for modern educational management.

Index Terms—College Management System, QR Attendance, Web Hosting, Admin Panel, Staff Portal, Hostinger, Real-Time Data

ICRIT373

DESIGN AND DEVELOPMENT OF AUTONOMOUS SURVEILLANCE ROBOT

Thirunavukkarasu C, Chethan Balaji P, Rethish Gb, Sharath K, Udhaya Kumar D
Mechanical Engineering, Velammal Institute of Technology, Chennai
Sharath99941@gmail.com

ABSTRACT

This project focuses on the design and development of an autonomous surveillance robot intended to enhance security operations through continuous and intelligent monitoring. The robot is engineered to navigate autonomously using obstacle detection sensors, such as ultrasonic or infrared, and follows a programmed path or adapts to dynamic environments. It is equipped with a camera module that streams real-time video to a remote control center, allowing users to observe the monitored area from a distance. The system is built around a microcontroller or single-board computer (such as Arduino or Raspberry Pi), which integrates motion control, sensor data processing, and communication modules. The robot can be deployed in areas that are difficult or dangerous for human access, such as military zones, industrial sites, or disaster-prone regions. This project demonstrates the practical application of robotics and automation in surveillance tasks, reducing the need for human presence while improving safety, efficiency, and real-time response capabilities.

Keywords- Ultrasonic , microcontroller, surveillance robot

ICRIT374

INTELLIGENT GESTURE RECOGNITION FRAMEWORK FOR ACCESSIBLE COMMUNICATION AMONG THE HEARING AND SPEECH IMPAIRED

Jerin P Jose, Manoj, Shrimahavignesh C, Jeron R
Department of Electronics and Communication Engineering,
Grace College of Engineering, Mullakkadu, Thoothukudi-628005
950321106012@gracecoe.org

ABSTRACT

Sign language serves as a fundamental way of communication for individuals with hearing or speech challenges. Developing AI-driven systems that can automatically recognize sign language is crucial for bridging communication gaps and enhancing Human-Computer Interaction (HCI) for the differently-abled community. However, automatic recognition of sign language remains a complex problem due to its intricate structure and expressive nature. A core aspect of this challenge lies in recognizing isolated signs, which are individual hand gestures that convey specific meanings. Over the past decade, advancements in machine learning have significantly contributed to the recognition of such isolated signs from video data. Building on a detailed survey of current recognition methodologies and publicly available datasets, this research introduces a refined hybrid model based on the Inception architecture. The proposed approach enhances the InceptionV4 network by incorporating optimized back propagation strategies with uniform connection patterns. Furthermore, an ensemble framework combining multiple Convolutional Neural Networks (CNNs) is designed to further elevate recognition performance and robustness. The proposed system is validated using a benchmark dataset of isolated gesture signs, demonstrating superior results in sign recognition, with a high accuracy of 98.46% and improved overall stability.

Keywords: Sign Language Recognition, Deep Learning, Human-Computer Interaction (HCI), Hearing and Speech Impaired, Convolutional Neural Networks (CNNs).

ICRIT375

A COMPACT WEARABLE SELF GROUNDING ANTENNA FOR 4G/ WLAN/BLUTOOTH AND WI-MAX APPLICATIONS

Riyaa D, Muthu Mahalakshmi P, Saranitha R, Varshitha C R
Department of Electronics and Communication Engineering, SRM TRP Engineering college-621105 Trichy ,Tamil Nadu
riyaadhaya27@gmail.com, mahathi2028@gmail.com, saranitharaja92@gmail.com

ABSTRACT

This paper presents the design and development of a compact, flexible, and wearable self-grounding antenna intended for modern wireless communication systems, including 4G LTE, Bluetooth, WLAN (IEEE 802.11), and WiMAX (IEEE 802.16) applications. As wearable technologies gain significant momentum in smart healthcare, sports monitoring, and military communication systems, there is an increasing demand for robust, low-profile antennas that maintain high performance despite their proximity to the human body. The proposed antenna addresses these needs through an innovative self-grounded structure that minimizes body interaction effects while ensuring wideband and multiband functionality. The antenna is designed using a low-loss, flexible textile substrate suitable for integration into garments or wearable gear. A planar monopole configuration is adopted and optimized to cover multiple frequency bands of interest: 2.3–2.7 GHz (WiMAX), 2.4–2.5 GHz (Bluetooth/WLAN), and 3.3–3.8 GHz (4G LTE). To achieve stable performance in close proximity to the body, a self-grounded patch technique is employed, which involves the use of integrated ground planes and shorting vias. This configuration significantly reduces the Specific Absorption Rate (SAR) and body loading effects while enhancing radiation efficiency and front-to-back ratio. Comprehensive electromagnetic simulations are carried out using CST Microwave Studio/HFSS, followed by fabrication and testing of a prototype. The measured results show a good agreement with simulations, demonstrating a compact form factor, stable gain (~2.5–4 dBi), omnidirectional radiation patterns, and return loss (S11) below –10 dB in all targeted bands. Bending and on-body performance evaluations confirm the robustness and reliability of the antenna under real-world wearable conditions. The proposed antenna offers a promising solution for next-generation wearable devices by combining compact size, multiband operation, and body isolation through self-grounding—making it highly suitable for integrated communication in personal and healthcare electronics.

KEYWORDS: wearable, compact, self grounding, multiband communication, flexible textile substrate,4G LTE.

ICRIT376

INTELLIGENT AUTONOMOUS CAR

Jerin Samuel .J, Paramasivan .E, Simson .S, Abdul Rahman .H.M, V. Subash
Nellai college of Engineering

ABSTRACT :

To detect and track the items is one of the critical issues in surveillance system using which it can Monitor important tasks and stop distrustful actions. During surveying the data is captured, Interpreted and analyzed for further actions. This surveying aids autonomous systems to implement Real time applications. There is huge demand for the intelligent autonomous systems that has Facilitated variety of applications in transportation, manufacturing industry, etc. It is highly Challenging to design and implement autonomous systems that detect obstacles effectively. There Are very few works that have been proposed which focus on effective obstacle detection and speed Control of car during rain. The objective of this paper is to design and implement autonomous Electric car that is capable of detecting obstacle, control the speed of car, reduce the temperature Of car cabin during parking and detect charging points automatically. Along with these Implementations, the system is made to work using electricity thereby reducing pollution, in turn Contribute to the reduction in global warming.

ICRIT377

OIL PRODUCTION PREDICTION BASED ON WATER INJECTION RATE

[1]Aravindh T, [2]Giriraaj L, [3]Muthuannammalai S V, [4]Sivaramakrishnan A
Department of Computer Science and Engineering, Chettinad College of Engineering and Technology, Karur, India.
(Email: sivainccet@gmail.com)

ABSTRACT:

Efficient and accurate prediction of oil production plays a vital role in optimizing reservoir management, planning enhanced oil recovery (EOR) strategies, and making informed economic decisions in the petroleum industry. In many oilfields, water injection is used as a secondary recovery method to maintain reservoir pressure and enhance oil displacement. Understanding and forecasting the relationship between water injection rates and future oil production can significantly improve field performance and reduce operational risks. This project presents a data-driven predictive modeling framework to estimate future oil production using historical production data with a focus on water injection rates. The dataset spans three years and includes various features such as monthly production volumes, water production, and gas production from multiple oil wells. A comprehensive feature engineering process was employed to extract meaningful patterns and enhance the predictive capability of the models. Three machine learning models—Support Vector Regression (SVR), Random Forest Regression (RFR), and Long Short-Term Memory (LSTM) networks—were implemented to learn the underlying trends in the data. While each model captures different aspects of the production dynamics, their predictions were further combined using a meta-model based on Linear Regression to improve generalization and accuracy. This ensemble approach leverages the strengths of all three models and mitigates their individual weaknesses. The performance of each model was evaluated using metrics such as the R^2 score and Root Mean Squared Error (RMSE). The results indicate that the meta-model outperforms individual models in terms of predictive accuracy. Visual comparisons and residual analysis further validate the effectiveness of the ensemble approach. This hybrid modeling framework demonstrates the potential of combining classical machine learning and deep learning methods for robust prediction in petroleum production forecasting. It provides a scalable and flexible solution that can be adapted to different reservoirs and injection strategies.

ICRIT378

SMART RAILWAY INFORMATION SYSTEM

Dr. J. Vijay Franklin, Nandhini G, Nithitaa A, Poovika S
Computer Science and Enginnering, Erode Sengunthar College, Thudupathi, Erode,
poovikaselvam13@gmail.com

***ABSTRACT**:*

The Smart Railway Information System is a comprehensive web-based platform designed to simplify train travel by providing a seamless digital experience for passengers. The system enables users to search for trains, select seats, and book tickets through a responsive and intuitive interface. A key feature is the gender-based seat selection, which displays adjacent passengers' genders to promote comfort and safety, especially for solo travellers. The platform also incorporates real-time ticket generation with QR codes, enabling easy validation and streamlined boarding processes. Developed using HTML, CSS, React.js, Node.js, and MongoDB, the system ensures high responsiveness and secure data handling. Role-based dashboards offer tailored experiences for users and administrators, while integrated tracking enhances system transparency and user trust. Designed with scalability and usability in mind, this project provides a modern alternative to traditional railway booking systems, ensuring convenience, safety, and digital empowerment for commuters.

Keywords: Smart Railway, web-based system, seat selection, gender visibility, QR code ticketing, React.js, Node.js, MongoDB, real-time validation, user-centric design, digital transportation

ICRIT379

AI-ASSISTED SURGERY STIMULATION

Maria Cecilina. D, Divya Dharshini. B, Mrs. R. Devika
Author 1: dept. Artificial Intelligence and Data Science, Dhanalakshmi Srinivasan University, Tiruchirappalli, India
Author 2: dept. Artificial Intelligence and Data Science, Dhanalakshmi Srinivasan University, Tiruchirappalli, India
Author 3: Associate Professor, SET, dept. Computer Science Engineering, Dhanalakshmi Srinivasan University, Tiruchirappalli, India
mariacecilina2003@gmail.com, bdiviyadharshini04@gmail.com, devikar.set@dsuniversity.ac.in

ABSTRACT

Artificial Intelligence (AI) is rapidly reshaping surgical education by introducing advanced simulation systems that significantly enhance the learning environment for trainees. These intelligent platforms support a wide range of applications, from planning procedures before surgery to providing visual aids and decision-making support during operations, all aimed at elevating patient safety standards. While still evolving in terms of clinical integration, AI-powered simulators offer tailored feedback and performance evaluation, enabling more targeted and effective training. Technologies used in current surgical education, including 3D modeling and procedural simulation, are increasingly relying on machine learning algorithms to mimic real-life scenarios. Despite these advancements, widespread adoption faces several obstacles. High development costs, limited large-scale validation studies, and technical constraints continue to hinder broader implementation. This paper aims to assess the current landscape of AI-based surgical simulations, review their potential and limitations, and highlight approved medical devices that use AI in training. Furthermore, it advocates for more clinical studies to bridge the gap between academic innovation and real- world adoption in surgical training.

ICRIT380

ML AND NLP BASED HATE SPEECH AND CYBERBULLYING DETECTION AND CLASSIFICATION IN SOCIAL MEDIA

Sathish Kumar Pandian Anbalagan
AP, Department of Artificial Intelligence and Data Science
Grace College of Engineering
Thoothukudi, India
sathishpask@gmail.com.

ABSTRACT

With anonymity and reach, the rapid growth of internet sites including Twitter, Facebook, Instagram, and YouTube has fundamentally changed human communication. But this digital freedom has resulted in a rise in hate speech and cyberbullying events, so profoundly affecting users' mental health and fueling online harassment, polarization, and social upheaval. On large scale, manual content moderation is impractical and usually fails to react in real time, hence intelligent, automated systems are increasingly important. This work presents a machine learning–driven method for user-generated text hate speech and cyberbullying detection and classification. To translate unprocessed text into meaningful representations, the work investigates several natural language processing (NLP) methods including TF-IDF, Word2Vec, GloVe, and contextualized embeddings (BERT, RoBERTa). We use both deep learning models (LSTM, Bi-LSTM, and transformers) and conventional classifiers (Logistic Regression, SVM) and assess both. Training and testing draw on publicly available databases including HateXplain, Toxic Comment Classification, and Davidson's Hate Speech Dataset. Binary (hate vs. non-hate) and multiclass (racist, sexist, toxic, neutral) classification tasks are used to evaluate the system. Over 92% F1-score in identifying hateful or bullying content, experimental results show that transformer-based models outperform baseline algorithms. Apart from helping to detect abusive language, the suggested model offers a basis for real-time moderation, user protection, and early intervention programs. To guarantee responsible AI deployment, ethical issues including false positives, freedom of expression, and bias reduction also underline.

Keywords— Machine learning, natural language processing, BERT, RoBERTa, LSTM, TF-IDF, word embeddings, social media moderation, text classification, deep learning, online harassment—hate speech detection

ICRIT381

FACE RECOGNITION BASED ON ATTENDANCE MANAGEMENT SYSTEM

Anantham J N V V S S Subrahmanyam, Jagarlamudi Ramakrishna, Kuna Kanna Sai Manikanta
AI and DS –DSU
nagrudr0808@gmail.com

ABSTRACT

The Face Recognition-Based Attendance Management System operates through face recognition technology to automate educational institutions and business workplaces attendance processes. The attendance tracking methods based on ID systems, together with manual roll calls, are known to be inefficient and time-consuming, with inherent human error possible in the process. This system utilizes computer vision technology together with machine learning algorithms to identify faces in real-time, then compare them against pre-existing database entries for automatic user marking. The system obtains images from its cameras, then processes facial attributes using the CNN method to execute high-precision individual identification. Real-time updates of attendance status become possible using a system that can handle numerous subjects at once. Such monitoring systems can track the movements of users between entry and exit points to maintain the reliability of attendance records during meetings.

ICRIT382

FROM BOWL TO BRAIN: AI-POWERED INNOVATIONS IN PET FEEDING SYSTEMS

Ramesh Prabhu Srinivasan[1], Kavitha Suresh Kumar[2], Dr.D.Prince Winston[3], Dr.G.Shakthivel[4]

[1,2,4]Assistant Professor, Department of EEE, Kamaraj College of Engg & Tech, Madurai, Tamilnadu

[3]Professor & Head, Department of EEE, Kamaraj College of Engg & Tech, Madurai, Tamilnadu

ramesheie@kamarajengg.edu.in

ABSTRACT:

Traditional pet feeders lack flexibility and real-time monitoring, despite the fact that automated alternatives have replaced manual approaches in pet feeding systems. By combining artificial intelligence (AI), the Internet of Things (IoT), and smart sensors, AI-Pet Nourish improves pet care by providing adaptive portion management, real-time monitoring, and customized feeding regimens. To ensure prompt replenishment, the system uses an infrared sensor to measure food levels. It also has an anti-stuck mechanism to prevent dispensing errors. Two-way audio allows pets and owners to communicate, and a wide-angle camera with night vision allows for remote pet surveillance. By guaranteeing customized feeding regimens for households with many pets, the AI-powered pet recognition system increases the precision of nutrition management. The feeder's Internet of Things connectivity offers improved convenience with real-time warnings and control via a mobile app.

This study highlights the benefits and drawbacks of pet feeders that are conventional, automated, and AI-powered. Through behavioural change detection, data-driven insights for pet health, and adaptation to a pet's feeding habits, the AI-Pet Nourish outperforms traditional approaches. Future developments like voice-command integration, predictive health analytics, and AI emotion detection could improve its capabilities even more. By guaranteeing that pets receive the best nourishment possible and minimizing manual intervention for owners, this study highlights the significance of artificial intelligence and automation in pet care.

Keywords: Pet feeder, Smart Care, AI driven, Model training

ICRIT383

OPTIMIZING FOOD WASTE MANAGEMENT: A PRE-BOOKING APPLICATION FOR HOSTEL FOOD EFFICIENCY

Tamilvanan K, Saravana Kumaran V, Selva Raja T, Srinithi M, Surya V
Assistant Professor, Dept of Information Technology, Erode Sengunthar Engineering College, Erode, India.
vanan.tamil1983@gmail.com

ABSTRACT

This project presents the development of a web-based Mess Management System intended for educational institutions and hostels to streamline the management of daily mess operations. The platform digitizes key processes such as student registration, menu planning, and request approvals. The back-end logic is driven by PHP and MySQL, ensuring robust data handling and server-side operations, while front-end design is implemented using HTML and CSS to create a basic yet functional user interface for administrators. The system eliminates manual record-keeping, significantly reduces the administrative workload associated with managing a large mess, and provides a scalable foundation for future automation and integration of more advanced features. This report meticulously documents every phase of the project, from the initial requirement analysis and system design to the practical implementation, thorough testing procedures, and insightful considerations for future scalability and enhancements.
Keywords - Mess Management System, web-based, educational institutions, hostels, student registration, menu planning, request approvals, PHP, MySQL, administrative workload, scalability.

ICRIT384

ONLINE CHAT CHILD GROOMING AND EXPLOITATION DETECTION USING MACHINE LEARNING

Sathish Kumar Pandian Anbalagan
AP, Department of Artificial Intelligence and Data Science
Grace College of Engineering
Thoothukudi, India
sathishpask@gmail.com

ABSTRACT

The fast development of online communication channels has brought connectivity and convenience as well as fresh opportunities for manipulative actions aimed at young people. Among these, online grooming—where a person progressively develops emotional trust with a child for inappropriate intentions—has become increasingly difficult to identify because of its subtle and synthetic character. Especially in the early phases, when the tone seems friendly or supportive, traditional content moderation tools and keyword-based filters sometimes miss the changing background of such interactions. This work presents a context-aware, machine learning-driven detection framework designed especially to detect grooming behavior in text-based chat systems. Grooming detection demands capturing long-range dependencies, behavioral progression, and temporal changes in conversational tone unlike approaches used for hate speech or toxic comment classification, which often rely on sentence-level cues. To achieve this aim, our proposed system models sequence transitions using Conditional Random Fields (CRF) and a Transformer Encoder with Attention Flow to find important context across many message turns. By means of sentiment drift, repeated reassurance language, personal disclosure requests, and rising response latency, an anomaly detection layer driven by Isolation Forest highlights deviations from normal peer-to-peer dialogue patterns. Together with a carefully selected collection of synthetic dialogues mimicking different grooming techniques, training and evaluation are done using the PAN12 dataset. Using domain-specific traits like trust-inducing phrases, age probing patterns, and conversation pacing metrics, the framework divides chat into interaction phases. With an average precision of 90.2% and recall of 93.5%, our experiments show the system's capacity to attain high detection performance, so separating grooming paths from harmless chats. We also investigate the system's feasibility for practical moderation tools and possible integration into child safety systems. The model guarantees ethical deployment by means of privacy-aware mechanisms including anonymized logging, minimal data retention, and built-in thresholds for human review. Important issues including false positives, overfitting cultural settings, and platform-specific language variants are also covered, so ensuring the responsible and flexible solution. This work provides timely detection and early intervention against manipulative conversational behaviors that endanger child well-being, so contributing a thorough and ethically grounded approach for protecting online environments.

Keywords— Online safety, machine learning, conditional random fields (CRF), transformer encoder, attention flow, anomaly detection, isolation forest, behavioral analysis, chat moderation, temporal context modeling, Ethical AI Distribution: Privacy-Aware AI

ICRIT385

USING MACHINE LEARNING TO IDENTIFY PRESCRIPTION ABUSE AND OVERMEDICATION

Sathish Kumar Pandian Anbalagan
AP, Department of Artificial Intelligence and Data Science
Grace College of Engineering
Thoothukudi, India
sathishpask@gmail.com

ABSTRACT

Prescription abuse and medication overuse have emerged as major problems in healthcare systems around the world, disproportionately affecting low-income groups who frequently do not have regular access to coordinated health care. Undiscovered prescription abuse or overmedication is caused by several factors, including dispersed healthcare visits, low health literacy, uncontrolled over-the-counter access, and numerous provider interactions without centralized record-keeping. Adverse drug events (ADEs), subpar treatment outcomes, and needless financial strain on patients and public health infrastructure are the results of these problems. Using both relational and temporal health data, this study suggests a novel unsupervised machine learning framework to identify prescription abuse and over-medication trends. Our system models inter-patient and inter-provider prescription relationships using a Graph Neural Network (GNN), which captures patterns of overlapping medication classes, shared provider networks, and correlated treatment behaviors, in contrast to traditional supervised approaches that rely on labeled outcomes or simple dosage thresholds. Prescription events and refill timelines are represented by the edges of a temporal graph that contains each patient's prescription history. To detect departures from the usual medication usage profiles, we additionally incorporate an anomaly detection layer that is based on Autoencoders. This includes characteristics like refill clustering, high-risk polypharmacy, frequent cross-provider overlaps, and unusual dosage escalation. The model identifies outliers that may indicate abuse or clinical oversight by learning condensed representations of typical patient behavior. De-identified subsets of the MIMIC-IV dataset, supplemented with synthetic data that mimics prescription access through public and private clinics, are used to train and validate the framework. Medication classes (ATC codes), refill gaps, provider IDs, regional socioeconomic indicators, and known interaction risks are examples of feature sets. With an AUC-ROC of 0.95 and Precision Top 10 of 91%, the GNN model performs better than baseline temporal models (such as LSTM and Random Forest), demonstrating a strong ability to surface high-risk patient profiles even in the absence of labeled outcomes. The system is also designed with privacy in mind, with features like differential privacy in model training, synthetic data generation, and a policy audit layer to guarantee moral implementation in underprivileged healthcare environments. Attention-based node importance scoring is used to provide explainability, which aids providers in comprehending and addressing the identified risk factors. To help health systems and government organizations proactively identify prescription risks, ensure safer medication practices, and lessen preventable harm in vulnerable patient populations, this work provides a scalable, label-free, and ethically sound solution.

Keywords— Graph Neural Networks (GNN), Autoencoder, Prescription Abuse Detection, Overmedication, Anomaly Detection, Unsupervised Learning, Medication Safety, Polypharmacy, Electronic Health Records (EHR), MIMIC-IV, Healthcare Analytics, Low-Income Patients, Differential privacy, ethical AI, and temporal graph modelling.

ICRIT386

BRAIN TUMOUR DETECTION USING DEEP LEARNING

Kanishka A[1], Kalaiarasi P[2], Kalaivani M[3], Adharsh H[4], Reni Hena Helan[5]
Computer Science and Engineering, Dhanalakshmi College of Engineering, India
E-mail: kanishka0000012@gmail.com

ABSTRACT

Brain tumour detection plays a vital role in the early diagnosis and treatment of brain abnormalities. In this project, we propose an automated brain tumour detection system using Vision Transformers (ViT), a novel deep learning architecture that utilizes self-attention mechanisms for image analysis. The ViT model processes MRI images by dividing them into fixed-size patches, enabling the capture of global contextual information and long-range dependencies often overlooked by traditional convolutional networks. Our approach is trained and validated on publicly available brain MRI datasets, employing data augmentation techniques to enhance model generalization. The experimental results demonstrate that the ViT-based method achieves high accuracy, sensitivity, and specificity in tumour classification, outperforming several conventional CNN-based models. This work highlights the potential of transformer-based architectures in improving automated brain tumour detection and advancing AI-driven medical image analysis.

Keywords – Brain Tumour Detection, Deep Learning, Vision Transformers, Medical Imaging, CT-Scan.

ICRIT387

REAL-TIME DRIVER DROWSINESS DETECTION USING DEEP LEARNING

Kota Ugra Narasimha Reddy, Maddineedi Veera Brahmaiah, Goroji Ramanjaneyulu,
Mrs. M. JayaSri
Dhanalakshmi Srinivasan University, Trichy, India.
narasimhareddykota1@gmail.com, brahmimaddineedi123@gmail.com, anjigoroji@gmail.com,
jayasrim.set@dsuniversity.ac.in

ABSTRACT

The system is real time and is aimed at detecting driver drowsiness using the computer vision technology and facial landmark tracking. Using a webcam located near the driver, the system uses MediaPipe's Face Mesh for the video feed to detect and track key landmarks on the face in real time. Calculating the Eye Aspect Ratio (EAR), the system can find out if the driver's eyes are open or closed. When the closed-eye duration detected is approximately 3 seconds, the system will alarm the driver and email such a designated person. Using Python and OpenCV and NumPy, Pygame and smtplib, the system is designed to include threading so that alerts can be given without interfering with the video stream. Using real-time detection and alerting, this system contributes to the preservation of road safety by ensuring efforts to avert crashes due to driver exhaustion.

Keywords-Drowsiness detection, eye aspect ratio (EAR), deep learning, MediaPipe, real-time monitoring, OpenCV.

ICRIT388

DEEP LEARNING FOR SPEECH DENOISING: A CNN-BASED METHOD

Dr. M. Parameswari – Professor and Head, Department of Computer Science and Engineering, Kings Engineering College,
csehod24@kingsedu.ac.in
Mrs. Kanimozhi K – M.E Scholar, Department of Computer Science and Engineering, Kings Engineering College,
kanimozhik231@gmail.com

ABSTRACT

In speech systems for communicating, environmental noise is frequently a major problem, especially in practical applications like voice-activated interfaces, hearing aids, and mobile communications[3]. In order to tackle this problem, this study suggests a Convolutional Neural Network (CNN)-based voice augmentation architecture. Using time-frequency representations like spectrograms, the model is intended to learn the mapping between clean and noisy speech frequencies. A collection of matched noisy clean and noisy speech samples is used for training, which is carried out using a method of supervised learning. The suggested method's performance is assessed using objective measures for speech quality and intelligibility, such as STOI and PESQ.

Keywords— Speech processing, audio signal processing, PESQ, STOI, spectrogram, noise reduction, convolutional neural networks (CNN), deep learning, speech enhancement, and speech denoising

ICRIT389

PNEUMONIA DETECTION FROM CHEST X-RAYS USING CNN, RESNET, AND DENSENET

Mr.Mohammed Nizarudeen[1], P.Brahmaiah[2] ,B.MukeshKumar[3]
[1] Assistant Professor ,[2,3] Student at Dhanalakshmi Srinivasan Univesity
mohammednizarudeen.set@dsuniversity.in[1] , potubrahmaiah@gmail.com[2], mukeshkumar@gmail.com

ABSTRACT

Pneumonia is a widespread respiratory infection posing a significant threat to public health. Timely and accurate diagnosis is critical for effective treatment and patient management. This study proposes a methodology involving the training of Convolutional Neural Networks (CNN), ResNet-50, and DenseNet-121 models on a large dataset of chest X-ray images. CNNs facilitate feature extraction by automatically learning essential visual characteristics from input images. ResNet-50 and DenseNet-121, meanwhile, effectively address challenges such as training deep architectures and the vanishing gradient problem. Our approach is compared against existing methods to evaluate quality and accuracy. Experimental results, obtained from extensive training and testing on the Kermany chest X-ray dataset, demonstrate high accuracy in pneumonia detection. The proposed framework offers a promising tool for assisting healthcare professionals, improving patient outcomes, and reducing healthcare costs.

Keywords: Chest X-ray, Pneumonia Detection, Convolutional Neural Networks (CNN), Residual Networks (ResNet-50), Dense Convolutional Networks (DenseNet-121).

ICRIT390

DEEP LEARNING-BASED TEXT RECOGNITION FROM IMAGES USING A TKINTER-INTEGRATED OCR SYSTEM

Dr. M. Parameswari – Professor and Head, Department of Computer Science and Engineering, Kings Engineering College, csehod24@kingsedu.ac.in
Mrs. A. Ranjini – M.E Scholar, Department of Computer Science and Engineering, Kings Engineering College.ranjinia2@gmail.com

ABSTRACT

In today's digital landscape, extracting textual data from images plays a crucial role across various domains, including document processing, automated information retrieval, vehicle license identification, and assistive technologies. This paper introduces a desktop-based application that performs text recognition from images by utilizing deep learning techniques integrated with Optical Character Recognition (OCR). The system incorporates the Tesseract OCR engine alongside an intuitive user interface developed using Python's Tkinter library, allowing users to seamlessly upload and process images. To improve recognition accuracy, the images undergo a series of preprocessing steps such as grayscale conversion and noise reduction before being analyzed. The proposed solution demonstrates the practical integration of deep learning and GUI development for effective image-to-text conversion. Potential future enhancements include recognition of handwritten scripts, support for multiple languages, and deployment across various operating systems.

Keywords— Optical Character Recognition (OCR), Deep Learning, Image Processing, Tesseract OCR, Text Extraction, Tkinter GUI, Computer Vision, Document Digitization.

ICRIT391

SECURE AND SMART CRISIS MANAGEMENT SYSTEM

Vidhya TC, Arun D, Jerome X, Abinash S
Department of Computer Science
Kings Engineering College (Autonomus), Chennai, India
vidhyatc@kingsedu.ac.in

ABSTRACT

In critical medical emergencies, fast and coordinated response systems are essential for saving lives. This paper presents a real-time web-based emergency healthcare management system that integrates four major modules: Admin, User, Ambulance Service, and Hospital. The proposed system enables users to request ambulance services using GPS-based location data, allowing for swift dispatch and immediate care. First aid doctors can provide initial treatment and update patient details en route, which are securely shared with hospitals to prepare for incoming patients. The system ensures data security using AES encryption and improves response efficiency through Modified Adaptive Fuzzy Reinforcement Learning (MAFRL) and cache mapping. Additionally, patients can access their treatment records post-recovery, ensuring transparency and continuity of care. The integrated platform improves emergency communication, reduces delay in treatment, and enhances healthcare outcomes during critical situations.

Keywords-Emergency Medical Services, Web Application, Real-Time GPS Tracking, Ambulance Dispatch, Healthcare Management System, AES Encryption, MAFRL, Patient-Centered Care, Crisis Response, Secure Health Data

ICRIT392

IOT BASED POWER SHARING AND OVERLOAD INDICATION

Hari Ganesh M, Sudharshan S, Thirumoorthy R
Electronics & Communication, PSNA college of engineering & Technology, Dindigul, India

ABSTRACT

The project Title “IOT Based power Sharing and Overload Indication” leveraging IOT technologies to enhance the Monitoring and controlling of electrical power distribution. Traditional power distribution is predominantly manual and lack the intelligence to make real-time decision. The Integration of Internet of Things with electrical system is to Enable Smart energy Management. The IOT with power Sharing Capabilities to enhance energy efficiency, promote the Sustainability, and optimize Resource Utilization in interconnected Smart system. The primary goal of the project is to enables devices and sensors within the IOT system to dynamically share and distribute the power resources based on real-time demand and availability. This involves creating a. sophisticated communication, where IOT devices can seamlessly exchange information about the power needs, status and priorities. Today scenarios, the wastage of energy cause a very serious concern. The IOT has a great use in the modern world the Industrialist and Researchers are tryingto develop various project to conserve the energy. The system comprises the connecting essential Requirements of hardware and software components like power supply, microcontrollers of Arduino with node, current voltage sensors, optocoupler, internal external loads, WIFI module of ESP8266 and IOT cloud Platforms. It allows the users to handles monitoring and controlling of the system remotely through a web interface or MobileApplication. This technology finds application across diverse sectors including smart cities, industrial automation, rural and residential areas to efficient use of powe management is crucial for promote sustainability. An IOT based power sharing system is a sustainable and cost-effective solution.

ICRIT393

DESIGN AND EVALUATION OF DEEP LEARNING ALGORITHM FOR EMOTION RECOGNITION

Maddinedi Venkateswarlu, Maguluri Venkata Gopi, katamreddy Nagireddy,
Mrs. M Sheeba
Dhanalakshmi Srinivasan University,
Trichy, India.
Maddinenivenkateswarlu42@gmail.com,

ABSTRACT

Artificial intelligence is developing research on emotion recognition due to its major role in areas like human-machine communication, mental health assessment, behavioural analysis, and flexible technologies. Automation in detecting and responding to emotions humans feel improves the total user experience and provides room for developing adaptive systems for timely decision and empathetic assistance .Before the advent of machine learning, the majority of emotion recognition was based on engineered features and hand-crafted rules, producing indierent results and poor transferal ability. As deep learning, specifically CNNs and RNNs have been brought into view, there has been a great shift towards applying data-driven techniques able to explore detailed patterns in huge amounts of information. The CNNs' capacity to analyse and extract spatial features from visual inputs, including those of facial expressions, is in direct opposition to the effectiveness of RNNs, especially LSTMs, in grasping temporal dynamics in information sequences, such as spoken voices and physiological datelines. This work presents a novel hybrid model of CNN/RNN as a deep learning model to identify emotions in input of different types. The developed model is tested and tuned on available data sets such as FER2013 with thousands of facial expression images and labels and RAVDESS that provides full recordings of emotional speech and face movements.

Keywords: Emotion Recognition, Deep learning, Convolutional Neural network(CNN), Recurrence Neural Network (RNN), Facial Expression Analysis, Performance analysis

ICRIT394

A STUDY ON JOB SATISFACTION LEVEL OF EMPLOYEES OF KARAIKAL COOPERATIVE MILK PRODUCERS UNION LTD AT KARAIKAL.

Dr.karthi R, Ayesha Tasneem H
, Department of management studies
E.G.S Pillay Engineering college, Nagapattinam, Tamil nadu,India.

ABSTRACT

This project entitles a study on job satisfaction level of employees of karaikal cooperative milk producers union ltd at karaikal. A key player in the region's dairy industry. This projects aims to analyzes and understand the various factors that influencing the employees job satisfaction within the organization. The study investigates key elements contributing to job satisfaction , including working conditions, salary and benefits , interpersonal relationship , job security, career growth and development and organizational support. A structured questionnaire was employed to gather primary data from a representative sample of 120 employees across various departments. The research applies both quantitative and qualitative analysis methods to interpret employees responses, identify the job satisfaction of employees. The data was analyzed using statistical tests such as percentage analysis, chi-square test, correlation, and ANOVA. The results reveal that while employees generally express moderate satisfaction with their security such as the job security and roles. Based on finding project provides practical recommendations to enhance job satisfaction ,including improved communication strategies, regular feedback and structured employees development programs. This research contributes valuable insight to the management and helps to strength the foundation aimed at a fostering a productivity and enhances the job satisfaction among the employees.

key words: working condition, communication with management, job security, salary and benefits, training and development, career growth and advancement, welfare facilities,organizational goal and productivity, work life balance.

ICRIT395

THE MYSTERIES OF FUNDAMENTAL PARTICLES AND FORCES IN THE UNIVERSE

R.Vel Selvam[1],G.Victor Emmanuel[2] , R.Raman[3], S.Selva Premkumar[4], G.Somasundari[5]
[1]Department of Computer Science Engineering, Grace College of Engineering, Thoothukudi,
[2]Assoc. Professor,Department of Mathematics, Grace College of Engineering, Thoothukudi,
[3]Asst. Professor,Department of Mathematics, Grace College of Engineering, Thoothukudi.[4]Asst. [4]Professor,Department of Physics, Grace College of Engineering, Thoothukudi,
[5]Asst. Professor,Department of Chemistry, Grace College of Engineering, Thoothukudi Tamilnadu -628005, India
victoremmanuel@grace.edu.in

ABSTRACT

For ages, scientists have pondered over universal mysteries because of the known particles that current science can explain and the yet more unknown components out there. The word ordinary is used because it includes so many different structures made up of smaller subdivisions called atoms and even what is known as smaller subatomic antimatter, whose particles have opposite charges which when combined with ordinary matter in essence explode, releasing energy. The classic and arguably most useless discoveries, like how the particles are given weight by the "God particle", are often called the Higgs boson. Also part of this theme is ghost particles, known as neutrinos, who so easy to find but never seem to interact with matter, adding complexity. Despite those findings, there still looms the question of logically where a staggering 27 percent of the universe's mass and energy lies waiting to be uncovered.

Keywords: Higgs boson; neutrinos; antimatter;

ICRIT397

Generalised Girth Domination Number and its Connectivity of Connected Graphs

G.Victor Emmanuel[1], J.Antony Rex[2], R.Raman[3], G.Arockia Shiney[4], G.Jeyantha[5,]
[2]Assoc. Professor,Department of Mathematics, Grace College of Engineering, Thoothukudi, Tamilnadu -628005, India
[2]Professor,Department of Mathematics, Grace College of Engineering, Thoothukudi,
[3,4,5]Asst. Professor,Department of Mathematics, Grace College of Engineering, Thoothukudi, Tamilnadu -628005, India
victoremmanuel@grace.edu.in

Abstract

A set S ⊂ V (G) is called a girth dominating set of G if every vertex in V − S is adjacent to at least one vertex in the girth(cycle) graph of G. The minimum cardinality of a girth dominating set of G is called girth domination number of G denoted by γg(G).The connectivity κ(G) of a connected graph G is the minimum number of vertices whose removal results in a disconnected or trivial graph and its minimum cardinality is γg(G) + κ(G).

Keywords : domination, domination number, connected graphs, girth domination, girth domination number.

ICRIT398

DATA DRIVEN ANALYSIS OF DRUG SIDE EFFECTS USING LSTM AND RNN

Dr.S.Geetha[1], P.Renuka[2], M.Abishree[3], P.S.Gopika[4],
K.N.Krishnadharshini[5], S.Kanishka[6]
Information Technology, M.Kumarasamy College of Engineering, Karur
Geethas.it@mkce.ac.in,

ABSTRACT

Predictive modeling of drug-induced side effects is a significant advancement in pharmaceutical informatics and clinical decision support. Deep learning models like Long Short-Term Memory (LSTM) and Recurrent Neural Networks (RNN) analyze structured drug datasets encompassing chemical properties, therapeutic classes, and known side effects to uncover complex, non-linear associations. LSTM networks, with gated memory units, effectively address vanishing gradient issues, capturing long-range dependencies in sequences. These models are trained on curated data to recognize latent patterns and predict adverse effects with high accuracy. Evaluation metrics such as accuracy, confusion matrix, and loss functions measure model performance. Integrating these models into healthcare systems supports early detection of side effects, reducing dependence on post-marketing surveillance and enabling data-driven risk mitigation in drug development.

Keywords-Drug side effect prediction, LSTM, Deep learning, Pharmaceutical informatics

ICRIT399

HETEROGENEOUS HEALTH DATA MULTI-CANCER PREDICTION WITH HYBRID MACHINE LEARNING MODELS

Kiruba Sherlin . A, Blinda Domnic Golda . I, Pandi Lakshmi . S, Niranjana . S, Rama Thulasi . P
Artificial intelligence and Data Science
Grace College of Engineering
Thoothukudi, India
kirubasherlin198@gmail.com

ABSTRACT

Preventive oncology and individualized medicine have a transforming potential when one can forecast several kinds of cancer from clinical and diagnostic data. Many times, limited to single-type classification, lacking generalizability across populations, and depending on isolated data sources, traditional cancer detection systems This work integrates heterogeneous health data—from blood biomarkers and demographics to imaging summaries and genetic indicators—into a single predictive model, so suggesting a strong and scalable machine learning framework for multi-cancer prediction. Our method uses a multi-task deep learning architecture whereby every cancer type—e.g., lung, breast, prostate, colorectal, ovarian, pancreatic—is handled as a separate but connected task. While maintaining task-specific learning for maximum accuracy, this architecture captures common risk features among cancers. Graph-based patient similarity modeling is also applied to enhance training by means of patient records linked by clinical and genetic proximity. We apply gradient boosting techniques for structured inputs (e.g., blood markers such as PSA, CA-125, CEA) and a custom lightweight transformer extracts semantic features with task-aligned attention mechanisms for unstructured clinical texts (e.g., diagnostic notes). Supported with region-specific cancer registries, the system is trained on large-scale datasets including The Cancer Genome Atlas (TCGA) and UK Biobank. Advanced preprocessing consists in encoding family history, temporal trend analysis of biomarkers, and noise filtering in genetic sequences. Outperformance of the model over one-vs-rest classifiers and traditional neural networks comes from a macro-average AUC-ROC of 0.94 and an F1-score of 0.89 across six main cancer types. The system's interpretable risk scoring interface with SHAP-based explanations and visual risk attribution guarantees clinical usability. Along with safe deployment paths for hospital EHR systems, ethical protections include stratified fairness testing across age, gender, and ethnicity. Empowering early intervention and population-scale screening initiatives, the proposed framework provides a consistent, data-efficient, fair solution for multi-cancer prediction.

ICRIT400

AUTOMATIC GEAR SHIFTING SYSTEM FOR ELECTRICVEHICLES

Newton Raja K, Nithish Kumar S, Surya V, Ramya M,
Electrical and Electronics Engineering, KCG College of Technology, Chennai, India.
knewtonraja@gmail.com, nithishkumar7218@gmail.com, suryavenkat949@gmail.com

ABSTRACT

Although electric vehicles (EVs) are becoming more and more popular as environmentally friendly modes of transportation, their performance and efficiency are constrained by conventional fixed-gear gearboxes. The Automatic Gear Shifting System for EVs presented in this study is powered by real-time motor RPM monitoring and managed by an ATmega328P microprocessor. An L298N motor driver are incorporated into the system to optimize torque distribution and energy consumption while achieving smooth gear changes. Analysis using the Finite Element Method (FEM) was done to evaluate the durability of the gears. In comparison to traditional systems, a prototype that was created and tested demonstrated increased battery life, smoother acceleration, lower noise levels, and higher energy efficiency. The findings confirm the viability and benefits of clever, adaptive transmission systems for contemporary EVs.

Keywords - Automatic Gear Shifting, Electric Vehicles (EVs), Motor RPM Control, ATmega328 Microcontroller, L298N Motor Driver

ICRIT401

A LOW- POWER SCHMITT TRIGER 10T SRAM CELL WITH IMPROVED READ AND WRITE STABILITY FOR HIGH- SPEED APPLICATIONS

Hemalatha S, Mokshini Bhagya
Department of Electronics and Communication Engineering, SRM TRP Engineerincollege-621105,Trichy,Tamil Nadu
hemalathajagan2004@gmail.com

ABSTRACT

The proposed single-sided Schmitt trigger driven 10-transistor (ST 10T) static random access memory (SRAM) call offers significant Improvements in power efficiency, access time, and stability. By Incorporating a Schmitt-trigger inverter and a power gating approach, the design enhances both read and write operations while ensuring better stability under different operating conditions. The single-hitline structure, combined with the stacking effect. effectively reduces leakage power, making the cell more energy-efficient. Compared conventional SRAM designs, the proposed ST 10T cell demonstrates substantial enhancements in write ability and hold stability. Additionally, it achieves reduced read and write access times, ensuring faster and more officient memory operations. The robustness the design is validated through Monte-Carlo simulations, showcasing its rellability across varying conditions. The Implementation is carried using advanced CMOS technology. demonstrating its feasibility for modern low-power and high-performance memory applications.

KEYWORDS: 10 transister, high speed, high performance, improved read write ability, CMOS technology

ICRIT402

A STUDY ON COST ANALYSIS AT SR FIRE SAFETY EQUIPMENT AND SYSTEMS AT CHENNAI.

Mr. Sathish kumar S[1], Aravinth A[2]
Department of management studies.
E.G.S Pillay Engineering College, Nagapattinam, Tamil nadu, India

ABSTRACT

This project focuses on a comprehensive cost and financial performance analysis of SR Fire Safety Equipment and Systems Pvt. Ltd., a Chennai-based provider of fire protection products and services. The core objective is to evaluate the company's cost management efficiency, financial health, and resource allocation strategies from 2019 to 2023.The study emphasizes cost classification (fixed, variable, direct, indirect, and contingency costs) and applies key financial tools such as comparative balance sheet analysis, ratio analysis (liquidity, solvency, and profitability ratios), and trend evaluation. These tools were instrumental in identifying performance patterns and financial risks. Findings indicate persistent liquidity issues, with an average current ratio of 0.83, suggesting difficulty in meeting short-term obligations. The debt-equity ratio exhibited notable fluctuations, reflecting inconsistent reliance on external funding. The proprietary ratio also varied, pointing to a need for stronger internal financing. Cost analysis revealed increasing losses over the years, hinting at inefficiencies in operational cost control and resource utilization, despite asset expansion Based on these insights, the project proposes actionable recommendations including enhanced preventive maintenance planning, improved intra-organizational communication, and regular employee training. These initiatives aim to reduce equipment failure, optimize costs, and strengthen long-term financial sustainability. Overall, this analysis underscores the importance of integrating cost analysis with strategic decision-making to enhance operational efficiency and profitability.

Keywords: Cost analysis, financial performance, ratio analysis, liquidity, solvency, profitability, fixed and variable costs, resource allocation, cost control, financial risk management, asset utilization, SR Fire Safety Equipment and Systems Pvt. Ltd.

ICRIT403

ENHANCEMENT TECHNIQUES OF ELECTRIC VEHICLE PERFORMANCE

P.Gayathri [a], Dr.A.Ravi [b], Mrs.A.Samsu Nighar [c]
Electrical and Electronics Engineering
[a] Assistant Professor / EEE, Grace College of Engineering, Tamilnadu, India - 628005
[b] Professor / EEE, Francis Xavier Engineering College, Tamilnadu, India - 627003
[a] Assistant Professor / ECE, Grace College of Engineering, Tamilnadu, India - 628005
[a] gayathriwesleyeee@gmail.com, [b] raviarmugam@gmail.com, [c] samsunighar@grace.edu.in

ABSTRACT

Electric Vehicle usage is improved now-a-days. This paper proposes some performance improvement techniques by increasing the efficiency by reducing the weight of battery and motor, range improvement and optimizing overall behavior of electric vehicles. Therefore, Battery Management System is optimized using energy management techniques and advanced algorithms. Streamline Design and Drag reduction can be used in aerodynamic design. Several types of hybrid techniques were compared using simulations and the results were discussed.

Keywords: Electric vehicle, Optimization, Performance analysis

ICRIT404

AUTOMATED DRIVER DROWSINESS DETECTION USING EYE ASPECT RATIO (EAR) WITH INTEGRATED ALERT AND PENALTY MANAGEMENT

N.Yuvaraj, Alakunta Shiva Kumar, Karanam Sai Dheeraj, Akula Ganesh Reddy
Dept of Computer Science, Dhanalakshmi College Of
Engineering (Anna University), Chennai, Tamil Nadu, India

ABSTRACT

Driver fatigue is a major issue that leads to accidents around the world, causing serious injuries and even deaths. In this project, we introduce a real-time system that monitors drivers and enforces safety measures. This system detects drowsiness by analysing the Eye Aspect Ratio (AER) and includes an automated alert and fine management system, inspired by the Auto Bazaar enforcement model. Our technology uses computer vision to track the driver's eye movements with a regular camera. We extract facial landmarks around the eyes using advanced deep learning tools like D-lib and OpenCV. The AER is calculated in real time to keep an eye on eye closure and blinking. If the AER drops below a certain level for too long, indicating that the driver is getting sleepy, the system sends out an audio alert to help the driver stay focused. To ensure safety, we also have a backend module that keeps track of repeated drowsiness incidents. If a driver ignores multiple alerts, the system creates a digital record and can issue a fine or warning, mimicking an automatic enforcement process. This module allows for real-time payments, penalty tracking, and syncing data with a central traffic database, so authorities can act without needing physical checkpoints. Additionally, the system features a “smart alert” module that adjusts the sound and message based on how the driver responds, making sure alerts are effective but not too annoying. Our approach combines simple geometric analysis (AER) with smart enforcement methods, offering a cost-effective, camera-based solution that requires minimal hardware and can be used in both personal and commercial vehicles.

Keywords— Driver Drowsiness Detection, Eye Aspect Ratio (AER), Real-Time Vision, Automated Alert System, Fine Payment Integration

ICRIT405

AI-DRIVEN HONEYPOT SYSTEM FOR PROACTIVE DETECTION AND DEFENSE AGAINST CRYPTOGRAPHIC RANSOMWARE

Parthiban B, Lavanya J, Naumaan Faaize M,
Mohamed Sameer M, Abdulsha Ashik F
Computer Science and Engineering,
Aalim Muhammed Salegh College of Engineering, Chennai.

ABSTRACT

The proliferation of cryptographic ransomware poses a severe threat to organizational data security, encrypting critical assets and demanding payments with no assurance of recovery. Conventional defenses, reliant on signature- based detection, falter against rapidly evolving ransomware variants, necessitating innovative solutions. This paper presents an AI- driven honeypot system integrated with a Bidirectional Long Short-Term Memory (BiLSTM) model and Format Preserving Encryption (FPE) to proactively detect and defend against ransomware. The system employs dynamic honeypots to lure ransomware, capturing attack patterns to enhance the BiLSTM model’s real- time detection capabilities. FPE ensures data protection by camouflaging files, maintaining accessibility for legitimate users while thwarting unauthorized encryption.To address this issue, this paper introduces an advanced, AI-driven cybersecurity framework that combines a Bidirectional Long Short-Term Memory (BiLSTM) neural network with dynamic honeypots and Format Preserving Encryption (FPE). The goal of this system is to enable proactive detection, analysis, and mitigation of ransomware threats in real time, even for previously unseen variants.

ICRIT406

AI – DRIVEN CROP DISEASE PREDICTION AND MANAGEMENT

Hanushika Shri K
Erode Sengunthar Engineering College

ABSTRACT

Crop diseases significantly impact agricultural productivity and hence result in economic losses and food insecurity. Disease detection and management often use traditional approaches that are time-consuming, manually intensive, and not error-free. A machine learning and computer vision-enabled IoT-based sensor network for early detection and intervention of crop diseases. AI models can predict potential disease outbreaks with high accuracy by analyzing images of crops, environmental conditions, and real-time sensor data. Cloud computing is used to save all data and mobile applications for farmers, as well as timely alerts and recommendations of what actions to take. Additionally, decision support systems based on AI help in the optimization of pesticide application, recommending disease-resistant crop types, and also in developing sustainable farming practices. Big data analytics allow for accurate identification of disease patterns, aiding long-term agricultural planning for hypothesizes and policymakers. Additionally, blockchain technology could promote both transparency and traceability across disease management and supply chains. Overall, AI based disease management is likely to reduce crop losses significantly, and it can help improve our food security on the global level. As a result, the accuracy of these intelligent agricultural systems will increase, along with efficiency, scalability, and many other new features that come with future advancements in AI like deep learning.

ICRIT407

A STUDY ON EMPLOYEE MOTIVATION OF KARAIKAL CO-OPERATIVE MILK PRODUCERS UNION LTD AT KARAIKAL

Ms.R.Sangeetha[1], Hemalatha P[2]
Assistant professor, Department of management studies
PG Student, Department of management studies
E.G.S Pillay Engineering college, Nagapattinam Tamil nadu

ABSTRACT

The research entitles, “This study investigates the factors influencing employee’Motivation within the context of karaikal Cooperative Milk Producers Union Ltd. Motivated employees are crucial for organizational success, particularly in the dairly industry where productivity and quality are paramount. The study adopts a mixed-methods research design, integrating quantitative surveys and qualitative interviews to comprehensively explore the multifaceted nature of motivation. The quantitative phase involves administering a structured questionnaire to a representative sample of employees to assess various motivational factors, including intrinsic and extrinsic rewards, job satisfication, organizational culture, and leadership effectiveness. Statistical analyses such as chi square and correlation techniques will be employed to identify significant predictors of motivation. By triangulating findings from both quantitative and qualitative data, this study aims to offer a comprehensive understanding of employees motivation at karaikal cooperative milk producers union ltd and provide actionable recommendations for fostering a more motivated workforce and enhancing organizational performance.

Key words: Employee motivation, organizational success, job satisfaction, organizational culture, motivation factors, leadership motivation, Employee engagement, workplace productivity, performance enchancement, research methodology, Work life balance.

ICRIT408

BOOK REVIEW AND PERSONALIZED RECOMMENDATION SYSTEM IN DOMAIN OF WEB DEVELOPMENT

Abinash.P, Gunal.S, Dinesh.K
Department of Computer Science and Engineering ,
kings Engineering College, Irungattukottai,
Chennai
abinash19102003@gmail.com

ABSTRACT

This project explores the development of a personalized recommendation system for digital libraries, aiming to enhance user experience and engagement. By leveraging machine learning algorithms and user interaction data, the system aims to deliver tailored book recommendations. This review examines existing literature and recent advancements in the field, particularly from 2022-2024. To solve these problems, this study first proposes an improved itembased collaborative filtering recommendation algorithm based on the mean model representation. Then, combining this algorithm with user-based collaborative filtering recommendation algorithm, an improved item-based collaborative filtering algorithm is designed. the personalized intelligent book recommendation system for university library proposed in the study has the advantages of high coverage, low resource consumption, high accuracy and so on, which can provide readers with more accurate and personalized recommendation services.

Keywords—SIBCF algorithm, UBCF, collaborative filtering, book recommendations, mean model vector representation.

ICRIT409

DATAMED: ENHANCING POST-SURGERY CARE WITH REAL-TIME MONITORING AND INTELLIGENT INTERVENTION

Mohamed Harris J, Nishanthi M, Riyas Ahamed M, Sai Kishore M V, Syed Nihaal Ahamed T
Computer Science and Engineering,
Aalim Muhammed Salegh College of Engineering, Chennai.

ABSTRACT

The increasing frequency of hospital readmissions following surgical interventions presents a pressing issue for healthcare systems worldwide. These readmissions not only jeopardize patient health outcomes by exposing individuals to further complications, but they also exert significant financial and operational pressures on healthcare institutions. The underlying causes of these readmissions are often multifactorial, ranging from inadequate post-discharge care and poor medication adherence to socioeconomic and demographic disparities. Recognizing this complexity, the present research seeks to dissect comprehensive healthcare datasets to pinpoint the most influential factors contributing to readmissions, with a focused analysis on gaps in follow-up care and specific demographic patterns.To address these challenges proactively, this study introduces DataMed, a novel, integrative digital healthcare platform designed to support post-operative patients and reduce readmission rates. DataMed is envisioned as a bridge between patients, healthcare providers, and data analysts, facilitating continuous communication and real-time decision-making. At its foundation, the platform incorporates secure user authentication protocols, ensuring that sensitive patient data is accessible only to authorized personnel, thereby maintaining compliance with healthcare privacy standards such as HIPAA and GDPR.

ICRIT410

INTEGRITYBOT: INTELLIGENT MULTI-MODAL CHATBOT FOR ENHANCED INTERACTION

Ragul Vishnu.R, Jayaprabha.D, Thangamani.A, Logesh.S, Lavanya
Computer Science and Engineering, Sri Venkateshwaraa College of Engineering and Technology, Ariyur, Puducherry-605102
ragulvishnu.r@gmail.com, jayaprabha.d28@gmail.com, thangamani21td0651@svcet.ac.in, logesh21td0626@svcet.ac.in. lavanyacse@svcet.ac.in.

ABSTRACT

Chatbot is an advanced AI language model designed to assist users with a wide range of queries and tasks through interactive and intelligent text-based responses. It supports multiple languages and is continuously improved to enhance user experience with accurate and context-aware interactions. However, current limitations include the lack of functional audio and video support, which restricts the delivery of interactive multimedia responses, and the absence of customization options for font size, style, and themes, limiting user interface personalization and accessibility. To address these challenges, we propose integrating audio and video functionalities into Chatbot, enabling it to provide multimedia responses such as playing audio clips and displaying videos. The advanced chatbot leverages cutting-edge technologies such as Natural Language Processing (NLP), Text-to-Speech (TTS), Speech-to-Text (STT), deep learning models, and multimedia retrieval frameworks to seamlessly integrate audio, video, and personalization features, ensuring an engaging, accessible, and multilingual user experience.Additionally, we present options that can be adapted to font adjustments and topic changes to improve the user int erface and general accessibility.

KEYWORDS: Chatbots, Artificial Intelligence (AI), Natural Language Processing (NLP),Machine Learning (ML), Text-to-Speech (TTS), Speech-to-Text (STT), Deep Learning, Multimedia Retrieval Frameworks, Customization Features, Accessibility, Inclusivity, User Engagement, Neural Machine Translation (NMT), Dynamic CSS.

ICRIT411

INVESTIGATION OF MECHANICAL PROPERTIES FOR THE ADDITIVELY PRINTED SAMPLES BY FDM AND DLP FOR PROTOTYPE PURPOSE.

L.Daniel Devaraj[1], P. Jeril[2], V. Naveen[3], G. Anantha kumar[4],A. Muthu selvan[5]
Department of Mechaical Engineering, Grace College of Engineering.
danieldevament96@gmail.com

ABSTRACT

A comparative investigation into the mechanical performance of prototypes fabricated using two widely adopted additive manufacturing technologies: Digital Light Processing (DLP) and Fused Deposition Modeling (FDM). The study evaluates the structural behavior of 3D printed components through a series of standardized mechanical tests, including flexural strength analysis, tensile testing, impact toughness evaluation, compressive strength assessment, and elongation durability. Samples were produced using technology-specific materials photopolymer resin for DLP and thermoplastics such as PLA/ABS for FDM under consistent design parameters and environmental conditions to ensure reliable comparison. Each sample was subjected to controlled mechanical loading to determine resistance to deformation, fracture, and fatigue under different stress modes. The compressive strength test quantified the material's resistance to compression-induced failure, while the tensile test revealed elongation capacity and ultimate tensile strength, indicating the durability of each prototype under axial load. The results highlight key distinctions in mechanical behavior between DLP and FDM prints. DLP-printed parts exhibited high dimensional accuracy and surface quality but demonstrated brittle failure under tensile and impact loads. In contrast, FDM-printed samples showed superior ductility, energy absorption, and resilience in flexural and impact scenarios, though with comparatively lower surface resolution and inter-layer bonding strength. This study offers meaningful insights for engineers, designers, and manufacturers in selecting the optimal 3D printing process for applications where specific mechanical properties such as stiffness, strength, and durability are critical.

Keyword: Additive Manufacturing, 3D printing, Mechanical Characterization, Polymer-Based printing, Layer Adhesion

ICRIT412

BREAST CANCER DETECTION USING STREAMLIT FRAMEWORK

Chitra S, Mrs. R. Jeyamalar
Department Of Cse, Kings Engineering College, Irungattukottai, Chennai
chitrasabha25@gmail.com

ABSTRACT

Breast cancer is one of the leading causes for the death of women.In women Breast cancer is treated as the most significant issue. According to statistics released by the International Agency for Research on Cancer (IARC) in December 2020, Breast cancer has now overtaken lung cancer as the most commonly diagnosed cancer in women worldwide. Early diagnosis of this helps to prevent the cancer. If breast cancer is detected in early stage, then Survival rate is very high. Sreamlit framework methods are effective ways to classify data. Especially in the medical field, where those methods are widely used in diagnosis and analysis for decision making. In this paper, Data Visualization and performance comparisons between different streamlit. The main objective is to evaluate the accuracy in the classification of data in terms of efficiency and effectiveness of each algorithm in terms of accuracy, precision, sensitivity and specificity. Our aim is to review various Techniques To detect early, efficiently and accurately Using Streamlit framework.

Keywords: Medical Decision-Making, Interactive Web Application, Artificial Intelligence, Tumor Classification, Predictive Analytics, Precision, Sensitivity, Specificity, Accuracy, Early Diagnosis, Machine Learning, Streamlit Framework, Breast Cancer Detection, and Classification Algorithms.

ICRIT413

IOT-BASED RAIL FASTENER INSPECTION, CRACK DETECTION AND MONITORING USING EMBEDDED SENSORS AND IMAGE PROCESSING

Jeeva B, Khausheck N, Muthukumar K, Narayanan G
Department of Electronics and Communication Engineering, PSNA College of Engineering and Technology (Autonomous), Dindigul, India
Emails: jeevabalu34@gmail.com, khausheckn ba7@gmail.com, muthukumar16122002@gmail.com, ajayhbajayhb01@gmail.com

ABSTRACT

Railway infrastructure maintenance is essential for ensuring safe and efficient transport operations. This project introduces a dual-pathway railway fault detection system consisting of two independent modules: a sensor-based system and an image-based deep learning model. The sensor module uses ultrasonic, sound, and infrared sensors to monitor physical anomalies such as surface cracks, vibrations, and obstructions. When abnormal readings meet predefined threshold conditions, the system triggers alerts through a buzzer and LCD display, and sends GPS-tagged data to a cloud platform for remote monitoring. This real-time detection ensures fast response and continuous track condition awareness. Separately, the image-based module analyzes pre-captured rail images using a ResNet-based Convolutional Neural Network (CNN) to detect visual defects like cracks, corrosion, and misaligned fasteners. Images undergo preprocessing, segmentation, and grayscale conversion before classification, with results displayed locally on a PC. The two systems operate independently, without integrating or combining their outputs, offering complementary insights for fault detection. The design is energy-efficient and suitable for deployment in real-world rail monitoring environments.

Keywords -*Rail Fastener Inspection, IoT Sensors, Deep Learning, CNN, Crack Detection, Railway Monitoring, ResNet, Embedded System.*

ICRIT414

A STUDY ON COST OF CAPITAL AT SR FIRE SAFETY EQUIPMENT AND SYSTEMS AT CHENNAI.

Mr.Kanagarathinam SN[1], HasimAli H[2]
Department of management studies.
E.G.S Pillay Engineering college, Nagapattinam, Tamil nadu, India

ABSTRACT

This paper investigates the Cost of Capital, a vital concept in financial decision-making, with a focused study on SR Fire Safety Equipment and Systems Pvt. Ltd., a Chennai-based provider of fire protection solutions. The objective is to assess how efficiently the company has been utilizing its capital and whether its investment decisions align with its financial goals. The study analyzes financial data over a five-year period (2019 to 2023), used tools such as Net Present Value, Weighted Average Cost of Capital, Return on Assets and cash flow analysis. The company's WACC was calculated at 14.32 percentage, which acts as a benchmark to evaluate the profitability of future projects. However, a downward trend in NPV over the years indicates a potential decline in investment effectiveness and inconsistency in returns. Key findings, while company maintains operational strength in certain areas, it struggles with accurately forecasting cash inflows and setting reliable discount rates common challenges in real-world finance. The paper recommends improvements such as strengthening forecasting models, revisiting capital budgeting practices, and conducting regular financial reviews adapt to market dynamics. Enhancing the precision of WACC and NPV calculations can provide better strategic direction. The study highlights that managing the cost of capital is not merely a financial task but a necessity. When effectively applied, it helps businesses like SR Fire Safety make smarter investment choices, optimize fund usage, and secure sustainable growth.

Key words: cost of capital, weighted average cost of capital, net present value, investment decision making, financial performance analysis, capital budgeting, return on asset, discount rate challenges.

ICRIT415

SHAPING THE FUTURE WITH 3D PRINTING

R.Hari Haran[1] Hiralal Besra[2] A.R.Jesu Aathis[3] A.Joeswa[4] M.Mari Deepan[5]
MECH, Grace College of Engineering, Thoothukudi, Tamil Nadu
E-mail: jesuaathisar@gmail.com

ABSTRACT

3D printing is a modern technology that builds objects layer by layer from digital designs. It is already used in many fields like healthcare, manufacturing, and education. This paper looks at how 3D printing works today and what exciting things it might be used for in the future—like printing organs, houses, and even tools in space. It also talks about the benefits of 3D printing, such as saving money, reducing waste, and making products faster and more personal.

Keywords -3D Printing, Additive Manufacturing ,Future Application ,Bioprinting ,Medical Technology, Construction Printing, Space Exploration, Rapid Prototyping, Customized Manufacturing ,Education and Innovation ,Sustainable Manufacturing

ICRIT416

DESIGN AND IMPLEMENTATION OF A SELF-HEALING LIQUID METAL ANTENNA FOR ENHANCED RELIABILITY IN MEDICAL WEARABLE DEVICES

Nancy Mariya A[1] and Krishna Kumar M[2]
[1]Pre-Final Year, Department of ECE, Grace College of Engineering, Thoothukudi, Tamil Nadu, India
E-mail: nancymariyaa83@gmail.com
[2]Assistant Professor, Department of ECE, Grace College of Engineering, Thoothukudi, Tamil Nadu, India
E-mail: krishna18innet@gmail.com

ABSTRACT

The growing demand for resilient and flexible wireless communication systems in medical wearable devices necessitates the development of antennas that can maintain performance under mechanical deformation and accidental damage. This paper presents the design, fabrication, and characterization of a novel self-healing antenna employing eutectic gallium-indium (EGaIn) liquid metal encapsulated within a stretchable polydimethylsiloxane (PDMS) substrate. The proposed antenna operates within the Industrial, Scientific, and Medical (ISM) band (2.4–2.5 GHz), specifically targeting applications in emergency medical wearables for elderly care and first responders. The antenna structure is designed using a meandered monopole configuration to enhance compactness and flexibility. A microfluidic channel embedded within the PDMS substrate houses the liquid metal, allowing the antenna to self-repair after experiencing mechanical cuts or stress-induced fractures. Upon damage, the high surface tension of EGaIn enables rapid reformation of the conductive path, restoring antenna functionality without external intervention. Extensive simulations and experimental validations were conducted to evaluate the antenna's return loss (S11), radiation pattern, gain, and specific absorption rate (SAR) performance under various deformation scenarios, including stretching and bending. Results indicate stable performance with a return loss below –10 dB and negligible degradation in radiation efficiency post self-healing. This work demonstrates a promising approach towards robust, flexible, and self-sustaining antenna systems for next-generation medical wearable devices, enhancing reliability in critical healthcare environments.

Keywords: Self-Healing Antenna, Liquid Metal, EGaIn, PDMS, Medical Wearables

ICRIT417

A STUDY ON ORGANIZATIONAL DEVELOPMENT IN THE KARAIKAL COOPERATIVE MILK PRODUCERS UNION LIMITED AT KARAIKAL

Ms.Priyanka R[1], Buvaneswari B[2]
Department of management studies.
E.G.S Pillay Engineering College, Nagapattinam, Tamil nadu, India.

ABSTRACT

This study investigates the role and impact of Organizational Development (OD) practices at the Karaikal Co-operative Milk Producers' Union Ltd. It aims to assess the effectiveness of internal communication, organizational structure, employee development programs, and commitment to organizational goals. OD is understood as a systematic, planned effort to enhance an organization's effectiveness and health through interventions in culture, processes, and structures. Drawing on theories by scholars like Warren Bennis, Kurt Lewin, and Cummings & Worley, the research highlights how OD integrates behavioral science to facilitate organizational change. The research evaluates the current OD strategies implemented in the Union, assesses their effectiveness, and identifies areas needing improvement. Data were collected through structured questionnaires, interviews, and document analysis. Data were collected from a sample of 120 employees, selected via simple random sampling. The study applied percentage analysis, correlation tests, and chi-square tests to interpret employee perceptions of communication, leadership, feedback mechanisms, learning opportunities, and professional development. A positive correlation was observed between role clarity and skill provision, while feedback showed no significant impact on motivation. The findings offer valuable insights and practical recommendations for enhancing organizational effectiveness and sustaining cooperative growth.The study concludes that effective OD interventions must align feedback with recognition, integrate continuous skill development, and clearly define career paths. Recommendations include enhancing feedback systems, addressing neutral employee sentiment, and implementing regular engagement surveys to drive long-term commitment and performance.

Keywords: Organizational Development, employee engagement, role clarity, skill development, communication, leadership, motivation, feedback mechanisms, milk Union, organizational culture.

ICRIT418

SMART PLANT DISEASE IDENTIFICATION & PESTICIDES SUGGESTING USING CNN

Vusa ganesh babu, Vadlamudi venkata Sandeep , Sirivella ranga prasanth reddy, M Sheeba
Dhanalakshmi Srinivasan University, Trichy, India.
vusaganeshababu@gmail.com, vadlamudisandeep56@gmail.com, sirivellaprashant@gmail.com,
sheebam.set@dsuniversity.ac.in

ABSTRACT

Agriculture plays a crucial role in sustaining human life, and plant health directly impacts food security and economic stability. However, plant diseases remain a persistent challenge, leading to significant crop losses and reduced yields. Traditional methods of disease detection, which rely heavily on visual inspection by experts, are often time-consuming, subjective, and inaccessible to many farmers. To address this challenge, this project presents an intelligent, automated system for plant disease identification and pesticide recommendation using **Convolutional Neural Networks (CNNs)**.The proposed system leverages a deep learning-based CNN model trained on a comprehensive dataset of plant leaf images to accurately classify various plant diseases. Upon identification, the system provides targeted recommendations for **organic pesticides** to manage and mitigate the diagnosed disease effectively. The application is deployed as a **user-friendly web platform**, enabling users to upload plant images, receive instant diagnosis, and access curated pesticide suggestions.Through extensive testing, the CNN model achieved **95% accuracy**, demonstrating its effectiveness in recognizing diverse plant diseases. The integration of **organic pesticide data** supports environmentally sustainable farming practices. Usability tests with real users, including farmers and agricultural students, validated the system's ease of use and practical value in real-world scenarios.This project not only empowers farmers with accessible disease diagnosis tools but also promotes sustainable agriculture through data-driven decision-making and eco-friendly pesticide use. Future enhancements include expanding the dataset, developing a mobile application, and incorporating real-time environmental data for context-aware recommendations.

Keywords: Plant Disease Detection, Convolutional Neural Networks (CNN), Deep Learning, Smart Agriculture, Automated Diagnosis, Organic Pesticide Recommendation, Sustainable Farming, Image Classification, Precision Agriculture, Web-based Application, Agricultural Technology, Crop Health Monitoring, Plant Pathology, AI in Agriculture, Mobile Agriculture App, Real-time Disease Identification, Eco-friendly Pest Control, Farmer Empowerment, Smart Farming Tools, AgriTech Innovation

ICRIT419

THE SMART COMPETENCY DIAGNOSTIC AND CANDIDATE PROFILE SCORE CALCULATOR

Ms Amutha S, Monish B, Nithyananthan G, Praveen S
CSE, Erode Sengunthar Engineering College, Erode, India,
samutha1999@gmail.com

ABSTRACT

The dynamic nature of the job market demands intelligent, adaptive platforms that not only match candidates to employment opportunities but also actively assist in bridging their skill gaps. This paper presents *The Smart Competency Diagnostic and Candidate Profile Score Calculator*, a comprehensive employment and training platform designed to personalize the job-seeking journey through AI-powered analysis and recommendations. The system begins by administering a diagnostic assessment that evaluates candidates' academic, technical, and soft skills. Based on the results, it computes a competency score and provides personalized job and training course recommendations tailored to each candidate's profile. Furthermore, the platform includes an AI-based recommendation engine that identifies skill gaps relative to desired job roles and suggests targeted upskilling resources, such as micro-courses, webinars, and hands-on projects. Real-time job market analytics are provided via an interactive dashboard that displays trending skills, in-demand roles, and salary insights. Additional features include a resume builder, certification and badge generation through verified assessments, and a supportive community forum with virtual career events. this project aims to transform traditional employment portals into proactive career enhancement tools. The outcome is a smarter, more inclusive system that empowers job seekers to make data- driven decisions, enhance , and become highly competitive in the evolving job landscape.

.KEYWORDS -Competency Evaluation, Candidate Profiling, Smart Score Calculator, Java Project, Automated Assessment, Hiring Tool

ICRIT420

SURFACE TENSION MODULATION OF L-GLUTAMIC ACID, L-ASPARTIC ACID AND L-GLYCINE IN MIXED SOLVENT SYSTEMS: A COMPARATIVE STUDY

[1]Jinikamal Eastro J, [2]John Prince Soundranayagam
[1]Research Scholar, Department of Physics, V.O.Chidambaram College, Thoothukudi-628008
[2]Associate Professor, Department of Physics, V.O.Chidambaram College, Thoothukudi-628008. (Affiliated to Manonmaniam Sundaranar University, Abishekapatti, Tirunelveli-627012, TamilNadu, India)

ABSTRACT

The study investigates the modulation of surface tension in amino acid solutions, specifically L-Aspartic Acid, L-Glutamic Acid and L-Glycine in mixed solvent systems comprising ethanol, methanol, acetone, chloroform, propanol and DMSO, each with 50% water content. Surface tension plays a crucial role in understanding molecular interactions, solute-solvent affinity, and physicochemical behavior in diverse environments. The experimental approach involved measuring the density of solutions using a specific gravity bottle and velocity using an ultrasonic interferometer, enabling the evaluation of intermolecular interactions. Variations in amino acid concentrations (1 wt%, 3 wt%, and 5 wt%) provided insight into concentration-dependent effects on surface tension behavior. Results revealed distinct trends governed by hydrogen bonding, dipole interactions, and solvent polarity, highlighting the differential influence of aliphatic and aromatic amino acids. The findings contribute to a deeper understanding of solvation dynamics, molecular interactions in biocompatible media, and their potential implications in pharmaceutical and biochemical applications.

Keywords: Surface tension, amino acids, L-Aspartic Acid, L-Glutamic Acid, L-Glycine, solvent systems

ICRIT421

CONVOLUTIONAL NEURAL NETWORK (CNN) WITH YOLO FOR ANIMAL INTRUSION DETECTION

Mrs.P.Joy Suganthy Bai[1], Dr.S.Sumathi[2]
[1]Assistant Professor, Department of CSE, Grace College of Engineering, Thoothukudi, Tamil Nadu, India
[2]Assistant Professor, Department of CSE, University VOC College of Engineering, Thoothukudi, Tamil Nadu, India
joysbai@gmail.com, sumock@yahoo.com

ABSTRACT

In computer vision, animal intrusion detection is a key use meant to avoid wildlife-vehicle accidents and improve perimeter security in sensitive areas including highways, agricultural grounds, and forest frontiers. Because they can analyze intricate visual patterns and work in real-time, artificial intelligence (AI) models have shown to be useful for animal identification. Detecting and categorizing animal intrusions, this study offers a software tool combining the YOLO algorithm with a Convolutional Neural Network (CNN). Based on a bespoke annotated dataset including images of typical intruding animal species in rural and woodland-adjacent regions, the YOLO network is trained. Once identified, the invading species are more categorized using a CNN trained on a curated dataset spanning many animal kinds. Achieving good precision and response, the real-time detection and classification of animal intrusions by the system helps significantly to road safety and wildlife preservation projects.

Keywords: AI, artificial intelligence; CNN, convolutional neural network; YOLO, you only look once; wildlife monitoring; animal intrusion

ICRIT422

SMART FACE RECOGNITION ATTENDANCE SYSTEM WITH GUI

M. Rosa Mystica, M. Santhiya , J. Snowfa P Rayar
Grace College of Engineering. Thoothukudi. India.

ABSTRACT

This project presents a Face Recognition Attendance System enhanced with a graphical user interface (GUI) for a smoother and more user-friendly experience. The system automates attendance marking by using a webcam to detect and recognize faces in real time. It reduces manual effort, prevents proxy attendance, and increases accuracy. The application begins with a welcome screen, followed by options to register a new user or take attendance. During registration, the system captures a user's face along with their details and stores them securely. During attendance, the system compares live faces with registered ones and marks attendance if a match is found, displaying success messages accordingly. This project uses Python with libraries such as OpenCV for image processing, Tkinter for the interface, and optionally MySQL or Excel for data storage. It is an efficient and cost-free solution suitable for small organizations or educational institutes aiming to modernize their attendance process using AI-based face recognition.

ICRIT425

WIRELESS ELECTRIC VEHICLE CHARGING SYSTEM

M.Vignesh, D.Hariharan, M. Tamilselvan and A.Hariprasath

ECE, Anna University, India

vignesh6826@gmail.com

ABSTRACT

Electric vehicles (EVs) need fast, cost-effective, and reliable charging solutions to maintain optimal performance. Wireless charging technology offers a more convenient alternative to traditional wired systems by eliminating the need for physical connectors and cables. It is also considered eco-friendly and user-friendly, reducing the need for extensive mechanical infrastructure. This paper examines the structure, working principles, and unique features of wireless EV charging. It begins by introducing general wireless power transfer (WPT) techniques, which enable the transmission of energy without physical connections. The study then classifies wireless charging systems into two main categories: stationary and dynamic. Stationary charging takes place while the EV is parked, whereas dynamic wireless charging (DWC) enables charging while the vehicle is in motion. A key focus of the paper is on Dynamic Wireless Charging Systems, which represent an innovative and efficient method for powering EVs. These systems use magnetically coupled resonant power transfer. The transmitting coil embedded in the road is only activated when aligned with the vehicle’s receiver coil, reducing energy loss and increasing efficiency. Magnetic flux between the aligned coils induces voltage in the receiver coil, allowing the vehicle to charge while driving. In addition, the paper discusses the control systems that manage wireless charging operations. These systems are crucial for aligning coils, regulating power flow, and ensuring safe, efficient charging. The study concludes by presenting key findings and offering recommendations for future research to improve the scalability, efficiency, and integration of wireless EV charging technologies.

Keywords: Electric vehicle, Wireless power transfer, Dynamic charging, Arduino UNO, IR Sensor.

ICRIT426

AI CHATBOT FOR CUSTOMER SUPPORT

[1] Praveen. M, [2] Murugesan. S, [3] Stanly Geno. S, [4] Ranish. T, [5] Joy Suganthi Bai. P
Department of Computer Science and Engineering, Grace College of Engineering, Tuticorin, India.
950322104301@gracecoe.org

ABSTRACT

This project presents an AI-powered chatbot capable of providing customer support for any website by dynamically learning its content in real-time. Unlike traditional chatbots that rely on predefined datasets or manual training, this system scrapes live content from a user-provided website URL and uses a large language model (LLM) to answer queries based on that content.The system comprises a React frontend where users enter a website URL and ask their question, and a Node.js Express backend that uses Puppeteer to scrape textual content from the website and its internal pages. The extracted data is then sent to the Groq API, which hosts the LLaMA 4 model. The chatbot responds with contextually accurate answers based solely on the scraped information.This method allows instant chatbot setup for any domain without custom training or data preparation. It supports a variety of applications, including dynamic customer support, live FAQ generation, and intelligent documentation assistants.The system demonstrates a scalable and general-purpose solution for automated customer interaction, showcasing how real-time web scraping and LLMs can be integrated to create adaptive, intelligent support bots for any website.

Keywords - AI Chatbot, Customer Support, LLM, Puppeteer, Web Scraping, React, Node.js

ICRIT427

AI BASED CAREER COUNSELLING FOR SECONDARY LEVEL STUDENTS

Ithisha Banu.R, Kiruthika.S, Divya.T, J. Mary Angeline
Department of Computer science and Engineering
Kings Engineering College (Autonomus), Chennai, India
Ithishariaz786@gmail.com

ABSTRACT

This paper presents an AI-powered career guidance platform aimed at assisting students in making informed career decisions by analyzing their academic records, interests, and skills. The system integrates machine learning models to evaluate user profiles and recommend career paths based on their strengths and preferences. Leveraging Google Gemini AI for personalized career suggestions, the platform guides students through a dynamic process of self-assessment, career exploration, and goal setting. The frontend is built using React, styled with Tailwind CSS for an intuitive user interface, while the backend utilizes Node.js, Express, and PostgreSQL to securely store and manage user data. User authentication is secured via JWT to ensure data privacy and system integrity. Deployed on Vercel, the platform ensures scalable and real-time recommendations, with future plans to integrate AI-driven career coaching through voice or chat-based interfaces. This paper explores the system's architecture, AI integration, user experience, and potential future advancements in enhancing career guidance accessibility.

Keywords: AI Career Guidance, Personalized Career Recommendations, Student Profiling, Google Gemini AI, Career Exploration, JWT Authentication, Next.js, Career Coaching, Tailwind CSS.

ICRIT428

MEDCARD: ENHANCING OCCUPATIONAL HEALTH POLICIES FOR MARGINALIZED WORKERS THROUGH DECISION SUPPORT SYSTEMS

Dr.S.Lavanya[1], S.T.Anesh Ram[2], M.Dheepanraj [3], D.Jagadeesh[4], M.Nandhakumar[5]
Information Technology, M.Kumarasamy College of Engineering, Karur
[1]lavanyas.it@mkce.ac.in, [2]aneshram274@gmail.com, [3]dheepanraj225@gmail.com,
[4]jagadeeshduraisamy06@gmail.com, [5]nandhamsk2005@gmail.com

ABSTRACT

Marginalized workers including migrants, informal sector employees, and those in precarious employment often face disproportionate occupational health risks due to systemic inequities, limited access to resources, and inadequate policy enforcement. Traditional health policy frameworks frequently overlook the complex, context-specific needs of these vulnerable populations. This paper explores the potential of Decision Support Systems (DSS) to transform occupational health policy development and implementation for marginalized workers. By integrating data from diverse sources—such as environmental sensors, health records, and labor statistics DSS can provide real-time, evidence-based insights that inform more inclusive and responsive policy interventions. The study outlines a conceptual framework for a DSS tailored to occupational health and evaluates case studies where such systems have successfully improved worker safety and well-being. Key findings emphasize the importance of participatory design, data transparency, and cross-sector collaboration to ensure equitable outcomes. The paper concludes with policy recommendations and a roadmap for integrating DSS into national occupational health strategies, particularly in low-resource and high-risk labor contex

KEYWORDS - Marginalized workers, Occupational health, DSS, Real-time data, Policy interventions.

ICRIT429

SMART CITIES AND IOT

A.Muthu Mathan[1] A.Sanjeev[2] M.Saravana Perumal [3] K.K.Senthil Kumar[4] S.Praveen Raj[5]
Grace College of Engineering, Thoothukudi, Tamil Nadu
E-mail: shanthakumaresan916@gmail.com

ABSTRACT

Smart cities leverage the Internet of Things (IoT) to enhance the quality, performance, and interactivity of urban services while reducing costs and resource consumption. IoT enables real-time data collection and communication between interconnected devices, which supports intelligent decision-making in areas such as transportation, energy, waste management, and public safety. This integration fosters sustainable urban development by improving infrastructure efficiency and enhancing the quality of life for citizens. This paper explores the key technologies, applications, and challenges associated with IoT in smart cities, emphasizing the role of data-driven solutions in shaping the cities of the future.

ICRIT430

DIABETIC RETINOPATHY DETECTION USING TRANSFER LEARNING AND DEEP LEARNING

Pandreti Manoj, Nandala Vamsi, Pulasa Jithendra, Mrs. B.Renuga Devi
Dept. AI&DS, Dhanalakshmi Srinivasan University, Trichy, India.
pandretimanoj451@gmail.com, nandalavamsi6@gmail.com, pusalajithendra@gmail.com, b.renugadevi89@gmail.com

ABSTRACT

Diabetic retinopathy (DR) is a leading cause of preventable blindness among working-age adults worldwide. As the global diabetic population grows, so does the demand for early and accurate DR screening—yet a shortage of trained ophthalmologists hinders timely diagnosis. In this work, we propose a deep learning-based hybrid model that leverages transfer learning with Inception-ResNet-v2, enhanced by a custom convolutional neural network (CNN) block to improve the automated detection of DR from fundus images. Our method combines the robust feature extraction capabilities of a pre-trained Inception-ResNet-v2 with the flexibility of an ensemble-inspired CNN architecture. This custom module integrates multiple convolutional filters of varying sizes, enabling the network to capture diverse spatial features without manual tuning. To prepare the model for real-world variability, we apply comprehensive image preprocessing and data augmentation strategies, ensuring resilience to changes in image size, illumination, and orientation. We evaluated our model using two benchmark datasets: Messidor-1 and the APTOS 2019 Kaggle dataset. The hybrid model achieved classification accuracies of 72.33% and 82.18% on these datasets respectively—surpassing previously reported models like GoogleNet. These improvements highlight the effectiveness of combining transfer learning with carefully designed CNN architectures in DR classification tasks. Our approach not only advances state-of-the-art performance but also underscores the potential of AI-assisted DR screening in resource-limited settings. Future work will explore using generative adversarial networks (GANs) for synthetic data generation to further mitigate data imbalance, and ensembling different deep learning models to boost accuracy.

Keywords: Deep Learning,Transfer Learning, Inception-ResNet-v2,Convolutional Neural Networks (CNN), Medical Image Analysis, Data Augmentation, Hybrid Architecture

ICRIT431

EXPERIMENTAL STUDY ON CONCRETE WITH PARTIAL REPLACEMENT OF COARSE AGGREGATE BY USING WASTE CERAMIC TILES WITH AND WITHOUT USING RECRON FIBER

Dhana Lakshmi S [1]
[1] *Assistant Professor, Civil Engineering, Grace College of Engineering, Thoothukudi.*
dhanalakshmi@grace.edu.in

ABSTRACT:

Concrete is an engineering composite material made with cement, aggregates , water and admixtures in some cases. Now a day production of solid wastes from the demolition and manufacturing units are very high. Ceramic waste tile material is an excellent option for use as coarse aggregate. Because, of their high durability, high strength, dirt resistance, scratch resistance, color permeable, light weight, acoustic, friendly environment option, fire, slip and heat resistance. The objective of the study to establish that the waste broken ceramic tiles can be used as an alternative of coarse aggregate. The study has been conducted in the mix grade M30. The project is to be various tests are conducted in fresh and hardened conducted. The fresh concrete tests are slump cone test and compaction factor test. The hardened concrete tests are compression test and split tensile strength test. The cube sample dimension is 15x15cm and cylinder sample dimension is 15cm diameter and 30cm height. The conventional concrete mix and replaced by ceramic tiles in 13% and 18% with and without admixture. The mix design calculation is referred to IS10262:2009. The strength is tested for 7 and 28 days.

Keywords: Ceramic tiles, coarse aggregate, fine aggregate, water, compressive strength and tensile strength.

ICRIT432

ADAPTIVE CONTROL APPROACHES FOR ENHANCING MICRO GRID STABILITY UNDER RENEWABLE PENETRATION AND LOAD FLUCTUATIONS

Bala.R, Sanjai.A, Parasaran.N
Electrical and electronics Engineering, Krishnasamy college of Engineering, Cuddalore-687 109, Tamilnadu.
balajirtf@gmail.com

ABSTRACT

In Next-Generation power systems, the increasing integration of renewable energy sources has made the stability of microgrids and alternator-based generation systems a critical concern. This paper proposes an intelligent control framework that enhances the dynamic and steady-state performance of alternators operating within microgrids. By integrating artificial intelligence (AI)-based control strategies with advanced optimization algorithms, the proposed method aims to improve power quality, voltage and frequency regulation, and system reliability, thereby supporting the transition to smart grid infrastructures. Small-signal stability is assessed under varying conditions such as load uncertainty, limited generation capacity, and delayed control feedback. Transient stability is examined by simulating critical events, including alternator disconnection, islanding, and fault scenarios. Voltage and frequency deviations are analyzed with respect to load characteristics, power imbalance, and system disturbances. Comparative evaluation of conventional and intelligent controllers is performed using performance metrics such as steady-state error, response time, and control robustness. Hierarchical and distributed control schemes are investigated for managing active/reactive power flow and maintaining synchronization. The proposed AI-enhanced control system predicts optimal set points for the alternator's inner current control loop and outer power loop under dynamic operating conditions. MATLAB/Simulink-based simulations validate the effectiveness of the proposed approach, and adaptive control mechanisms are explored to further strengthen system resilience and stability

KEYWORDS :Artificial Neural Network (ANN), Distributed Generators, Micro-Grid, Particle Swarm Optimization, Small-signal stability, Intelligent Control, Renewable Energy, Adaptive Control, Power Quality.

ICRIT433

SENTIMENT-BASED MENTAL HEALTH CHATBOT SYSTEM USING RASA FRAMEWORK

Mr.N.Valarmathi[1], M.Dhakshana[2], K.S Gopika[3], Harshinika S[5], Latchiya Keerthi S[5]
, Information Technology, M.Kumarasamy College of Engineering, Karur
[1]valarmathin.it@mkce.ac.in, , [2]dhakshana2103@gmail.com, [3]agopikasenthilkumar@gmail.com,
[4]harshinika549@gmail.com, [5]latchiyakeerthis6979@gmail.com

ABSTRACT

Mental health is an increasingly critical global issue, with many individuals lacking access to timely psychological support. This paper presents a sentiment-aware chatbot system built using the RASA framework to provide immediate, empathetic emotional assistance through natural language conversation. The system integrates sentiment analysis and intent classification to recognize users' emotional states and deliver appropriate, supportive responses. By leveraging Natural Language Processing (NLP) techniques such as pre-trained sentiment classifiers and custom intent recognition models, the chatbot identifies distress signals and adapts its dialogue to maintain user engagement. Real-time context tracking ensures coherence in conversations, enabling users to feel heard and emotionally supported. Designed with ethical considerations, the system prioritizes user privacy, data security, and responsible AI deployment in sensitive mental health contexts. Although not a substitute for professional therapy, the chatbot serves as a supplementary tool to help users manage emotional distress and encourage well-being. Experimental results show its effectiveness in detecting emotional tone and tailoring responses, while the architecture allows future expansion with multilingual support and mental health resource integration. This work highlights the role of AI-driven, context-aware chatbots in enhancing mental health support and promoting responsible innovation in healthcare technology.

ICRIT434

THE EMERGING HYBRID DRONE TECHNOLOGY AND THE IMPACT OF DRONES ON MODERN WARFARE AND SURVEILLANCE

[1]Jerusha sherlin. V, [2]Elakkya. M, [3]Bavanika. K, [4]Naresh. B, [5]Dinesh. M. K

[1,2,3,4,5]Saranathan College of Engineering, , Panjappur, Thiruchirappalli,Tamil Nadu,India - 620012.

ece262040@saranathan.ac.in, ece262025@saranathan.ac.in, ece262060@saranathan.ac.in, ece262024@saranathan.ac.in

ABSTRACT

The modern advanced iteration of drones and its major proliferation to civilian users is a recent phenomenon. A comprehensive overview of the research and development process undertaken to create a hybrid drone platform that combines the agility and speed of RC racing drones with the surveillance capabilities of larger drones. Drones or UAVs are aircraft systems that are operated without an on-board pilot, relying instead on control by an operator elsewhere or executing preprogrammed flights. Armed UAVs are part of a class of weapon system not considered munitions per se; rather, the missiles and bombs loaded onto drones are conventionally recognized as weapons. The research aimed to develop a versatile aerial platform suitable for a wide range of applications, including UAVs were developed, procured, and deployed ranging from 5000m scanning radiuses to all-altitudes scanning with the usage of LTV (long time vision) cameras, infrared, radars.

Keywords: missiles, cameras, infrared, radars.

ICRIT435

SMART PARKING RESERVATION SYSTEM

Sanjay Raj P, Vishwanath RR, Vijay Kumar S, Prakash G

Dept. of Computer Science and Engineering, Jeppiaar Engineering College (Anna University, Chennai), Chennai, India

sanjayrajpalaniraj@gmail.com, prakash7358889097@gmail.com, vijayselva1407@gmail.com, kingsvishwa100@gmail.com

ABSTRACT

Urbanization has significantly exacerbated parking challenges in cities, with increasing vehicle ownership placing immense pressure on limited urban infrastructure. Inefficient space allocation, lack of real-time updates, and reliance on manual reservation systems often lead to congestion, wasted fuel, and user frustration. To address these issues, this paper presents an AI-enhanced Smart Parking Reservation System that leverages advanced technologies to optimize parking management and improve user experience. At the core of the system is Artificial Intelligence Markup Language (AIML), which enables intelligent automation through chatbot interfaces capable of natural language interactions. Users can easily inquire about available slots, make reservations, and receive guidance, all through conversational AI. Furthermore, machine learning algorithms such as Random Forest and Logistic Regression are employed to predict parking demand patterns based on historical and contextual data, allowing for proactive slot allocation. The integration of Internet of Things (IoT) devices facilitates real-time tracking of parking space availability, ensuring accurate status updates and efficient space utilization. The proposed system is developed using PHP, MySQL, and modern front-end web technologies, offering a user-friendly interface and robust backend support. It is further enhanced with AI algorithms including Greedy, Graph-based search, and Multi-Agent systems to enable dynamic slot assignment and adaptive decision-making. By combining predictive analytics, real-time monitoring, and intelligent automation, the system reduces congestion, improves accessibility, and streamlines the overall parking experience. The modular architecture ensures easy scalability and adaptability to various urban contexts, whether in commercial zones, residential areas, or public facilities. This AI-enabled Vehicle Parking Space Reservation System represents a comprehensive solution to contemporary urban mobility challenges, contributing to smarter, more sustainable cities. It not only enhances operational efficiency but also empowers users through intuitive interaction and real-time data, aligning with the broader goals of smart city development and intelligent transportation systems.

Keywords - Smart Parking System, Machine Learning, IoT (Internet of Things), Real-time Tracking, Dynamic Slot Allocation, Greedy Algorithms

ICRIT436

AI-POWERED VIRTUAL MOUSE WITH GESTURE RECOGNITION

Nithisa Begam. S, Durgabhavani. Y, Mr. A. Kovalan
Dept. Artificial Intelligence and Data Science, Dhanalakshmi Srinivasan University, Tiruchirappalli, India
nithisabegam2004@gmail.com, yerriboinadurgabhavani144@gmail.com

ABSTRACT

The Virtual Mouse is an innovative approach to human-computer interaction that replaces conventional input devices with intelligent hand gesture recognition. Utilizing computer vision and image processing, the system interprets real-time hand and finger movements captured via a webcam to perform tasks such as cursor movement, clicking, and scrolling. This hands-free interface enhances accessibility, ergonomics, and user convenience, especially for individuals with physical disabilities. The system requires no specialized hardware, making it a cost-effective and scalable solution. Beyond traditional computing, it extends to smart home automation, enabling gesture-based control of appliances and entertainment systems. As advancements in AI and deep learning continue, gesture-based technologies like the Virtual Mouse promise to transform digital interaction, offering a more natural, immersive, and intuitive user experience. This project showcases the potential of gesture control to redefine human-computer interaction and contribute to the development of a smarter, more responsive digital world.

Keywords: Virtual Mouse, Hand Gestures, Human – computer interaction, OpenCV and MediaPipe

ICRIT437

DIET AND WORKOUT RECOMMENDATION

Thirumurugan V, Vishal Kumar Yadav, Prakash Kumar, Niraj Kumar
Assistant Professor, Department of CSE, Erode Sengunthar Engineering College, Perundurai, Erode.
shanmuganthiru@gmail.com

ABSTRACT

In today's fast-paced lifestyle, individuals often struggle to maintain consistent health and wellness routines due to a lack of personalized, culturally relevant guidance. Existing digital fitness solutions frequently overlook the diverse dietary patterns, traditional exercises, and holistic wellness practices followed in Indian households. To address this real-time issue, we propose a comprehensive digital platform that provides personalized diet and workout recommendations rooted in Indian culture. The proposed system includes key modules such as User Profile Creation, a Diet Recommendation Engine, a Workout Recommendation Engine, Progress Tracking and Feedback, and Integration with Wearable Devices to ensure a holistic health experience. It generates daily personalized plans featuring Indian workouts like Surya Namaskar and Dand-Baithak, yoga routines with mudras, and meal suggestions aligned with traditional Indian diets such as poha, dal, roti, and khichdi. Users also receive.

ICRIT438

PRINTEASE: AN ON-DEMAND WEB APP FOR SEAMLESS PRINTING AND XEROX SERVICES

Dr.S.Parvathi[1]ASP/CSE, M.Santhakumar[2], S.Samyuktha[3], T.Suvedha[4]
Computer Science and Engineering, Erode Sengunthar Engineering College, Erode, Tamilnadu, India
5680sparvathi@gmail.com

ABSTRACT

In academic institutions, students often face challenges in accessing timely and efficient printing and Xerox services due to manual processes, long queues, and lack of digital integration. This paper presents Printease, a web-based printing solution created for college students to make document printing easier and faster. The platform allows users to upload files, choose print settings, and pay online through a simple and user-friendly web interface built using standard frontend technologies. The backend is developed using PHP, and MySQL is used to store user details, order history, and payment information. Files are stored safely on a local server, and related information is saved in the database. An admin panel helps shop owners manage orders, change prices, and track progress. Printease reduces the need for physical contact, speeds up the printing process, and supports the digital growth of college services.

Keywords: Web-based printing, Document upload, Online payment system, College automation, PHP & MySQL, Admin panel

ICRIT439

ARTIFICIAL INTELLIGENCE: TRANSFORMING THE FUTURE OF EDUCATION

A.Kavitha
Head and Assistant Professor of Computer Science, Aditanar College of Arts and Science, Tiruchendur, Tamilnadu, India
kavithaaditanarcollege@gmail.com

ABSTRACT

Machines having Artificial Intelligence can do all the work faster and better than human being. Nowadays Artificial intelligence has played a major role in education field. In recent years the significant advances of AI technology introduce many AI tools for education. AI supported educational platforms helps to teachers to create lessons, activities, assessments, presentations effective and easily. Moreover AI technologies can motivate student's creativity and critical thinking. In addition, it provides opportunities to explore new ideas and find innovative solutions to complex problems. This article will help to understand the emerging development of Artificial intelligence in education and how to transform the education in future.

Keywords - Artificial intelligence, AI, education, teaching, learning

ICRIT440

AS ANIMAL DETECTION AND MONITORING ON RAILWAY TRACK USING DEEP LEARNING

Harshil Jijoe R[1], Jagadeesh S[2], Harish Raj K[3], Muklian S[4], Dr.A.Sriram
SRM TRP Engineering College, Trichy, TamilNadu, India

ABSTRACT

One of the biggest rail networks in the world, the Indian Railways spans more than 1,15,000 kilometers throughout the whole nation. Recently, there has been a lot of interest in deep neural networks and other machine learning approaches when applied to train transportation data. YOLO are used to detect animals in the railway tracks. They are most commonly used in pattern and picture identification tasks because they offer numerous advantages over alternative methods. In order to immediately identify the presence of critters and take the appropriate precautions to avoid accidents, this system regularly uses a camera to watch the railway lines. The system has an alarm app, a camera, and a train status system. At regular intervals, the camera takes pictures of the track, which are subsequently processed to identify the acquired image. The loco-pilot and the adjacent control room will receive a warning message as soon as an object is detected on the track. Society will benefit from this technology by avoiding mishaps caused by animals on railroad rails.

Keywords— Animal detection, YOLO, deep neural Network

ICRIT441

AI-POWERED ELEPHANT INTRUSION DETECTION SYSTEM WITH REAL-TIME ALERTS

[1]Dr.Chellasamy C, [2]Dhilip Kumar R, [3]Dinesh T, [4]Hariharan S.
Department of ECE, SRM TRP Engineering College, Trichy.TamilNadu, India
dilipravi2004@gmail.com

ABSTRACT

The Wildlife Intrusion Detection and Alert System offers a smart solution to these challenges by integrating motion sensing, AI-powered animal recognition, and real-time location-based alerts. The system uses a Passive Infrared (PIR) sensor to detect motion around homes or residential areas. When the PIR sensor is triggered—indicating possible movement from a large animal such as an elephant—it activates further steps in the detection process. A laptop camera is then used to capture live images or video of the intruding animal. These visuals are ana by an AI-based model, which determines whether the detected animal is an elephant or not. This intelligent classification ensures that only genuine threats are processed, reducing false alerts.

Keywords—AI-based Wildlife Monitoring, Real-time monitoring, Location based Alerts, Arduino.

ICRIT442

THE FUTURE OF SMART HOME

T.sivalinga, S.kosal Raman, K.Ashwanth, D.Immanuel pravin, P.partheban
Grace College Of Engineering, Thoothukudi

ABSTRACT

The future of smart homes is rapidly evolving, driven by advancements in artificial intelligence (AI), the Internet of Things (IoT), and sustainable technologies. These intelligent living spaces are transforming how individuals interact with their environment, offering enhanced convenience, energy efficiency, security, and personalization. Future smart homes will integrate more seamlessly with everyday life, featuring predictive automation, voice and gesture control, and adaptive systems that learn from user behavior. Interoperability among devices, data privacy, and ethical AI usage will be key focus areas. As connectivity becomes ubiquitous and 5G/6G networks mature, smart homes will shift from isolated systems to integrated, responsive ecosystems that support healthier, more efficient, and connected lifestyles.

ICRIT443

A STUDY OF OVERALL FINANCIAL PERFORMANCE ANALYSIS OF RWD PVT LTD. AT CHENNAI

Mr. Asha Daisy B[1], Ashokkumar G[2]
Department of management studies.
E.G.S Pillay Engineering College, Nagapattinam, Tamil nadu, India

ABSTRACT

This study takes a close look at the financial health of Ramky Wavoo Developers (RWD) in Chennai, analyzing its performance over the past five years. The main aim is to understand how well the company is managing its finances by looking at important financial documents like balance sheets and profit and loss statements. Key areas of focus include profitability, liquidity, solvency, and asset management. We used methods like ratio analysis, trend analysis, and cash flow analysis to get a clear picture of RWD's financial stability.The research is primarily focused on evaluating RWD's financial strength over the years. It also aims to understand how well the company handles liquidity, profitability, and solvency through different financial ratios. Additionally, we looked at revenue growth, cash flow management, and potential financial risks. Key metrics like Current Ratio, Quick Ratio, Debt-to-Equity Ratio, Operating Cash Flow, and Gross Profit Margin were used to gauge RWD's financial strategies and efficiency.Our findings reveal that RWD has shown strength in revenue growth and asset management. However, there are some risks linked to debt and cash flow issues. To address these, we recommend that RWD improves its financial management practices, cuts down on unnecessary costs, boosts liquidity, and strengthens its cash flow monitoring to support sustainable growth.Overall, this study offers practical insights into RWD's financial structure, helping guide strategic decisions and long-term planning for better financial health.

Keywords: Performance analysis, ratio analysis, liquidity, solvency, profitability, Trend analysis, operating cash flow, sustainable growth, asset utilisation, financial risk management, RWD PVT LTD.

ICRIT444

AI HEART DISEASE PREDICTION

R.Deva Dharshini, M.Divya, G.Nirachana Devi, A.Santhiya mary, G.Jeyashri
Grace College Of Engineering, Thoothukudi

ABSTRACT

Heart disease remains one of the leading causes of mortality worldwide, making early detection critical for effective treatment and prevention. Recent advancements in artificial intelligence (AI) and machine learning (ML) have shown great promise in improving the accuracy and efficiency of heart disease prediction. This study explores the development and evaluation of AI models trained on clinical datasets, such as patient demographics, vital signs, laboratory results, and medical histories, to predict the likelihood of heart disease. Techniques including decision trees, support vector machines, random forests, and neural networks were implemented and compared for performance using metrics like accuracy, precision, recall, and F1-score. The results demonstrate that AI-based models can significantly enhance diagnostic support systems, offering high predictive accuracy and aiding healthcare professionals in making informed decisions. This research highlights the potential of AI in transforming cardiovascular care and contributing to early intervention strategies.

ICRIT446

SMART OTP BASED LOCKER SYSTEM USING ESP32 AND TELEGRAM BOT

Authors: Balaji P, Hari Haran R , Sathyaraj N
ECE, AAA College of Engineering and Technology, Sivakasi, India
Email: balajikp2004@gmail.com

ABSTRACT

In this paper, we propose a Smart OTP-based locker system that leverages the ESP32 microcontroller and Telegram bot integration for secure access control. The system is designed to generate a One-Time Password (OTP) which is sent via Telegram to the authorized user. Upon receiving and entering the correct OTP, the locker opens, ensuring security and preventing unauthorized access. This approach offers a reliable and cost-effective solution for modern security requirements.

Keywords -ESP32, Telegram Bot, Smart Locker, IoT, OTP, Access Control, Microcontroller.

ICRIT448

INTELLIGENT AGE AND GENDER RECOGNITION SYSTEM USING IMAGE PROCESSING

Krishna Kumar M1,Amira Mabel Samathanam A2,Godjin Damy S3,Antony Selva JebanshaA4,Shunmuga Sundari M5
[1]Head of the Department, ECE,Grace College Of Engineering,Thoothukudi,Tamilnadu,India
Email Id-krishna18innet@gmail.com
[2,3,4]Final year,Department of ECE,Grace College Of Engineering,Thoothukudi,Tamilnadu,India.
Email Id- amiramabel166@gmail.com, godjindamy2003@gmail.com,
shunmu.murugan31@gmail.com, antonyjebansha@gmail.com

ABSTRACT

The identification of gender and age from facial images is a crucial component of modern intelligent systems, offering transformative potential across industries such as security, surveillance, customer analytics, and human-computer interaction. This project introduces an intelligent image processing-based system designed to detect and classify human gender and estimate age in real time using OpenCV and Python. The system integrates deep learning models and advanced machine learning algorithms to enhance the accuracy, reliability, and speed of detection.Unlike conventional facial recognition methods that are limited to identity verification, this system expands the functionality to include demographic recognition. Facial features are extracted using robust techniques, and age and gender classification is achieved through the application of pre-trained convolutional neural networks and other classification models. The project addresses the limitations of earlier systems—such as low adaptability, slower processing speeds, and limited scope—by offering a more comprehensive, scalable, and real- time solution.Practical applications of this system span multiple domains, including automated access control, targeted marketing, demographic profiling, emotion-aware systems, and smart surveillance. Furthermore, the system is designed to be adaptive, with learning capabilities that improve with continued use and exposure to diverse datasets.In conclusion, the project successfully demonstrates a real-time, efficient, and reliable gender and age detection framework, paving the way for future enhancements such as emotion recognition, multimodal biometric systems, and deployment on mobile and web platforms for wider accessibility.

Keywords : Facial Recognition, Age Estimation, Gender Detection, Deep Learning, Real-time System

ICRIT449

REAL TIME FACE RECOGNITION SECURITY SYSTEM

Antony Benifert Ditto A, Antony Vasanth A, Lakshmi Narayana Guru M, Rajan K, Vishnu Ram CK, T.Premalatha
Department of CSE, V V College of Engineering
dittojsv@gmail.com

ABSTRACT

This paper presents an advanced facial recognition security system that addresses critical challenges in biometric identification systems: image quality, detection accuracy, and unauthorized person identification. Our approach combines quality-controlled data collection with a sophisticated face recognition algorithm that incorporates temporal consistency and confidence metrics. The system features automatic face quality assessment during the data collection phase, outlier detection during encoding preparation, and an enhanced unauthorized person detection mechanism with adjustable strictness thresholds. Experimental results show an accuracy rate of 94% in correctly identifying authorized personnel while maintaining a low false positive rate of 3% when detecting unauthorized individuals. This system provides a robust solution for high-security environments requiring reliable biometric access control.

ICRIT450

EMOTION-ENHANCED AUDIOBOOK GENERATION FROM PDF DOCUMENTS USING DIFFUSION-BASED SPEECH SYNTHESIS

Elamaran E [1], Kalaiyarasan R [2], Mukilan S [3], Ms. M. Mathumitha [4]
Department of Information Technology, M.A.M College of Engineering and Technology, Tiruchirappalli, India.
elamaran.it21@mamcet.com, kalaiyarasan.it21@mamcet.com, mukilan.it21@mamcet.com, mathumitha.it@mamcet.com

ABSTRACT

This paper presents a fully automated and robust pipeline for transforming textual content from PDF documents into expressive and high-quality audiobooks using deep learning techniques. The proposed system integrates StyleTTS2, a state-of-the-art diffusion-based text-to-speech (TTS) model, to generate natural-sounding speech enriched with emotional and prosodic variations, thereby improving the listening experience and engagement. The backend infrastructure is built with FastAPI, enabling seamless handling of PDF file uploads, dynamic chapter-wise segmentation, and real-time audio synthesis. Advanced preprocessing modules extract and analyze the structural and contextual components of the input text, allowing for accurate emotional cue tagging and semantic alignment. The pipeline is fully modular and scalable, supporting various user requirements such as customizable speech parameters, emotion labels, and chapter-level navigation. This system has broad applications in education, accessibility, entertainment, and assistive technologies, providing an inclusive solution for users with reading difficulties and for audiobook production at scale.

Keywords - Text-to-Speech (TTS), StyleTTS2, Diffusion Models, Emotional Speech Synthesis, Audiobook Generation, PDF to Audio, FastAPI, Chapter Segmentation, Natural Language Processing (NLP), Assistive Technology, Real-Time Audio Synthesis, Human-Centric AI, Deep Learning

ICRIT451

IMPLEMENTATION OF NUTRIVORA APPLICATION

Nandhini M, Malathi P
Psna College of Engineering And Technology
Dindigul
nandhinisa2021@gmail.com

ABSTRACT

The Nutrivora app is a comprehensive tool for creating personalized meal plans and tracking nutrition for people with food restrictions to promote a healthier lifestyle. It covers various aspects of software development, including data structure design, user interface, and coding. The project starts with creating an Entity- Relationship Diagram (ERD) to efficiently manage data. An Activity Diagram shows how the app's activities flow and a Use Case Diagram outlines user interactions and key features. Detailed Use Case Specifications describe system functions. Interface Designs focus on user experience, and sample code explanations help understand the logic. With User Acceptance Testing and UnitTesting, the app empowers users to plan meals, track nutrition, and make informed dietary choices for a healthier lifestyle.
Keywords— meal planner, nutrition, healthy, mobile application

ICRIT452

BLOCKCHAIN-BASED MULTI-ATTRIBUTE AUTHORITIES FOR SECURE DATA SHARING

Ms.Divya, Mohamed Kaif, Sayed Alnaash, Shariq Akthar, Mohamed Ismail

ABSTRACT

As data sharing becomes increasingly common across industries like healthcare, finance, and education, ensuring that sensitive information is shared securely—and only with the right people—is more critical than ever. This project presents a secure and decentralized system that uses **blockchain technology** along with **multiple attribute-based authorities** to manage data access in a more flexible and trustworthy way.Rather than relying on a single central authority, the system distributes trust across several verified entities, each responsible for issuing specific access rights. This not only improves security but also prevents any single point of failure or abuse of power. Users are granted access based on attributes—such as role, department, or clearance level—rather than static credentials, allowing for more dynamic and fine-grained control.The blockchain serves as a transparent and tamper-proof ledger that records all access transactions, policy updates, and attribute assignments. This ensures that data access is both verifiable and auditable, building trust among users and organizations. **Smart contracts** are used to automate the enforcement of access policies, minimizing human intervention and reducing the risk of errors or manipulation.A key strength of this system is its **scalability and adaptability**. It supports cross-organizational data sharing without requiring a centralized gatekeeper, making it especially useful in collaborative environments like inter-hospital networks or joint government projects. Moreover, by decentralizing the issuance and verification of attributes, it enhances user privacy and reduces reliance on any single institution.In summary, this blockchain-based multi-authority model provides a secure, transparent, and privacy-preserving framework for data sharing. It not only addresses existing challenges in centralized access control systems but also lays the foundation for more resilient and trustworthy digital collaboration.

ICRIT453

IOT BASED SMART BIKE SYSTEM: ENHANCING RIDER SAFETY AND SECURITY

Anitha P, Satheesh A, Sakthivel V, Anandha Raj.R
Department of Electrical and Electronics Engineering, University VOC College of Engineering, Thoothukudi

ABSTRACT

This paper introduces a Smart Bike System integrating IoT and embedded technologies to enhance rider safety and prevent theft. It mainly focuses on developing an integrated safety and security system for two-wheelers to prevent accidents and theft. The system incorporates advanced features including: Mandatory helmet detection to enable ignition, Alcohol detection to prevent drunk driving and Automatic accident detection with emergency alerts. It also includes **Security Measures like** Theft detection through motion sensors, Password-based ignition system and RFID-based license verification. The system automatically sends GPS coordinates and alert messages to registered contacts (family members and local authorities) when accidents or theft attempts are detected. By combining these features, the work aims to create a comprehensive protection system that promotes traffic rule compliance while safeguarding both riders and vehicles.

keywords: Helmet Protection,Alcohol detection, RFID-based license verification, Theft Prevention,GSM/GPS Based Alert

About Us

Since 2015

we support

Open access

International Journal of Current Science Research (IJCSR)
e-ISSN: 2454-5422

International Journal of Business and Economics Research (IJBER)
e-ISSN: 2455-3921

indexed by

Dr.BGR Publications