

2nd INTERNATIONAL CONFERENCE On Recent Trends in Engineering & Management Science (ICRTEM - 2025)



SAI SPURTHI INSTITUTE OF TECHNOLOGY
on May 9th & 10th 2025.



Dr. V.S.R. Kumari
Dr. T. Veeranna
Dr. Kishor Kumar .G

PROCEEDINGS BOOK

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(ICRTEM-2025)

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PROCEEDINGS BOOK



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CHAIRMAN'S MESSAGE

Dear Participants,

It gives me immense pleasure to welcome all distinguished delegates, researchers, academicians, and industry professionals to the 2nd International Conference on Recent Trends in Engineering & Management Science (ICRTEM-25), hosted by SSIT.

In an era where technological advancements and management strategies evolve at an unprecedented pace, platforms like ICRTEM-25 serve as vital catalysts for collaboration, innovation, and knowledge exchange. This conference stands as a testimony to our commitment to academic excellence and our vision of fostering interdisciplinary dialogue to address complex global challenges.

ICRTEM-25 brings together bright minds from across the globe to share their cutting-edge research, insightful findings, and transformative ideas. I am confident that the deliberations and interactions during this event will pave the way for meaningful outcomes and set new benchmarks in the fields of engineering and management science.

I take this opportunity to extend my heartfelt gratitude to all the contributors, organizing team members, and participants for making this conference a grand academic gathering. Let us together embark on this journey of exploration, learning, and impactful innovation.

Wishing all the participants a successful and enriching experience at ICRTEM-25.

Dr. B. Pardha Saradhi Reddy

Sri D. Prabhakar Reddy

Secretary & Correspondent of SSIT

**SECRETARY MESSAGE**

Dear Participants,

It is a matter of great pride and satisfaction to witness the organization of the 2nd International Conference on Recent Trends in Engineering & Management Science (ICRTEM-25) at SSIT. This conference is not only a celebration of academic excellence but also a reflection of our institution's commitment to fostering a research-driven environment and encouraging interdisciplinary collaboration.

In today's dynamic and ever-evolving world, continuous learning and innovation are the keys to progress. ICRTEM-25 serves as a unique platform where scholars, practitioners, and young researchers converge to share their knowledge, experiences, and novel contributions to the fields of engineering and management. Such interactions play a pivotal role in shaping future-ready professionals and thought leaders.

I express my sincere appreciation to the organizing committee for their tireless efforts in making this event possible. I also extend a warm welcome to all participants and wish them a fruitful and enriching experience that inspires further exploration and innovation.

May this conference mark yet another milestone in our collective pursuit of academic and research excellence.

Sri D. Prabhakar Reddy

Smt. Bandi Anvida

Management Trustee



MANAGEMENT TRUSTEE MESSAGE

Dear Participants, Esteemed Guests, and Distinguished Colleagues,

It is with great honor and enthusiasm that I extend my warm greetings to all the participants of the 2nd International Conference on Recent Trends in Engineering & Management Science (ICRTEM-25). This event represents a significant stride in our ongoing mission to cultivate a culture of research, innovation, and academic excellence at SSIT.

At a time when global challenges demand interdisciplinary approaches and collaborative problem-solving, ICRTEM-25 offers a timely and vital platform for the exchange of groundbreaking ideas and novel research. Conferences like this not only inspire intellectual growth but also nurture a spirit of curiosity and lifelong learning among scholars and professionals.

I commend the organizing team for their dedication in bringing together such a diverse and talented group of contributors. To all the presenters, delegates, and attendees, I wish you a productive and enlightening experience that sparks new insights and opportunities for collaboration.

Let this conference be a beacon of knowledge, innovation, and progress.

Smt. Bandi Anvida

Prof. Dr. V.S.R. Kumari

PRINCIPAL, Program Chair & Convener



CONVENOR MESSAGE

Dear Participants,

It is a matter of great pride to host the 2nd International Conference on Recent Trends in Engineering & Management Science (ICRTEM-25) at SSIT. This academic congregation provides an excellent platform for researchers, academicians, industry experts, and students to engage in constructive dialogue and share cutting-edge developments in their respective domains.

At SSIT, we believe in nurturing a vibrant research culture that drives innovation and knowledge dissemination. ICRTEM-25 is a testament to this vision. The conference encompasses a broad spectrum of topics, reflecting the multidisciplinary nature of modern research and the need for holistic, forward-thinking solutions.

I express my sincere appreciation to all authors for their valuable contributions, to the reviewers for their insightful evaluations, and to the organizing committee for their meticulous planning. I also thank our esteemed keynote speakers and delegates whose presence elevates the academic value of this conference.

I am confident that ICRTEM-25 will spark new ideas, foster collaborations, and contribute meaningfully to the global research community.

Warm wishes for a successful and enriching conference experience.

Prof. Dr. V.S.R. Kumari

Dr. KISHOR KUMAR.G

Organizing Secretary of ICRTEM24

R&D Head at NEWZEN INFOTECH, HYD.



ORGANIZING SECRETARY MESSAGE

Dear Participants,

It is with immense pride and a deep sense of responsibility that I welcome you all to the **2nd International Conference on Recent Trends in Engineering & Management Science (ICRTEM-25)**.

The vision of ICRTEM-25 is to serve as a global platform that fosters collaboration, innovation, and the dissemination of high-quality research in engineering, technology, and management science. In today's rapidly evolving world, the fusion of these domains is essential to address the complex challenges of the future.

As the Organizing Secretary, it has been my privilege to witness the enthusiastic response from researchers and professionals across the globe. The rigorous review process and the breadth of topics covered reflect the commitment of the organizing team and contributors to academic excellence.

I extend my heartfelt thanks to the keynote speakers, authors, session chairs, reviewers, and delegates whose support and participation have been instrumental in shaping this event. I also take this opportunity to thank our academic and industry partners for their encouragement and collaboration.

I am confident that the knowledge shared and relationships built during ICRTEM-25 will have a lasting impact and pave the way for future innovation and research endeavors.

Wishing you a successful and intellectually stimulating conference.

Dr. KISHOR KUMAR.G

Dr. T. VEERANNA,
Co-Convenor of ICRTEM25



Dear Participants and Guests,

It is with great enthusiasm and a deep sense of academic responsibility that I extend my warm greetings to all participants of the **2nd International Conference on Recent Trends in Engineering & Management Science (ICRTEM-25)**.

Conferences like ICRTEM-25 are more than just gatherings of professionals—they are vibrant ecosystems where ideas flourish, interdisciplinary collaboration thrives, and a collective pursuit of knowledge takes center stage. In an age marked by rapid technological advancements and increasing complexity in global challenges, the role of research has never been more critical. This conference aims to bring together some of the finest minds from academia and industry to share, discuss, and deliberate on innovative research and emerging trends that have the potential to shape the future.

As Co-Convenor, I have had the privilege of working alongside an exceptional team of organizers, reviewers, and coordinators who have contributed tirelessly to ensure the quality and success of this event. The response to our call for papers was overwhelming, and the submissions we received reflected a remarkable diversity in topics, approaches, and perspectives. From artificial intelligence and sustainable engineering to strategic management and digital transformation, ICRTEM-25 has embraced the spirit of interdisciplinary scholarship.

I would like to extend my heartfelt thanks to all our keynote speakers, authors, reviewers, session chairs, and delegates for their valuable contributions. Your presence and participation are what make ICRTEM-25 a meaningful and impactful academic event.

Let us make the most of this opportunity—not only to share knowledge, but also to inspire each other toward excellence, innovation, and socially responsible research.

Wishing you all an intellectually enriching and professionally rewarding experience at ICRTEM-25.

Dr. T. VEERANNA

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Paper ID: **ICRTEM25_101**

ENERGY ECONOMY PREDICTION FOR ELECTRIC CITY BUSES USING MACHINE LEARNING: A DATA-DRIVEN METHODOLOGY

SK. YAKOOB¹,

CH. KAVYA², P. GOKUL³, A. RAVINDRA⁴, SK. ANSAR⁵, N. VINAY KUMAR⁶

¹Associate Professor, Dept. of CSE, Sai Spurthi Institute of Technology, Khammam,
Telangana, India

^{2,3,4,5,6}B.Tech Student, Dept. of CSE, Sai Spurthi Institute of Technology,
Khammam, Telangana, India

ABSTRACT: Electric city buses have several potential applications as one of several evolving forms of electric transportation. Automobile design and fleet management require an in-depth understanding of real transportation data. The effective functioning of alternative powertrains requires a thorough analysis of certain technological challenges. Designers tend to exercise prudence when the energy consumption is ambiguous, resulting in designs that are both expensive and insufficient. Organizations and scholars are incapable of formulating analytical answers to this problem owing to the intricacy and interrelation of the criteria. Optimizing processes and accurately estimating energy use can yield significant cost reductions. The main aim of the study is to provide an in-depth analysis of the energy usage of BEBs. To accomplish this, we utilize new explanatory components and advanced machine learning techniques to develop performance profiles. Five unique programs are developed to ensure their reliability, precision, and functionality in the realm of prediction generation. Our models exhibited outstanding performance due to the careful selection of characteristics, with an average accuracy above 94% in their predictions. The proposed concept might revolutionize transportation and create a basis for sustainable public transit if executed by manufacturers, fleet administrators, and governments.

Keywords: *Machine Learning, Energy Economy, Electric City Buses, Data Analytics, Smart Grid.*



Paper ID: **ICRTEM25_102**

ENHANCING SPAM COMMENT DETECTION ON SOCIAL MEDIA WITH EMOJI FEATURE AND POST-COMMENT PAIRS APPROACH USING ENSEMBLE METHODS OF MACHINE LEARNING

CH. BALAKRISHNA¹,

A. DURGA BHAVANI², G. PALLAVI³, I. GIRIDHAR⁴, SK. KHASIM⁵

¹Assistant Professor, Dept. of CSE, Sai Spurthi Institute of Technology, Khammam,
Telangana, India

^{2,3,4,5}B.Tech Student, Dept. of CSE, Sai Spurthi Institute of Technology,
Khammam, Telangana, India

ABSTRACT: This research improves the detection of social media abuse by assessing post-comment combinations and integrating emoji traits. Traditional approaches ignore the post-comment context and emoji semantics. We are able to detect subtle signs of spam that text-only methods miss because of these features. Combining various machine learning models, such as Support Vector Machines, Random Forest, and XGBoost, improves the classification accuracy. In order to examine actual conversations taking place on social media, this dataset makes use of spam labels. The engineering of features includes emoji sentiment, frequency, and context. Ensemble approaches seem to be superior to single-model baselines time and time again. Significant improvements in recall and precision were shown by the results. This system is capable of scaling content moderation. Future developments that require deep learning and multimodal data will likewise be made easier by this.

Index Terms: *Spam Detection, Social Media, Emoji Features, Post-Comment Pairs, Machine Learning, Ensemble Methods, Content Moderation, Natural Language Processing, Sentiment Analysis, Contextual Spam Filtering*



INVESTOR SENTIMENT-DRIVEN STOCK PRICE PREDICTION USING OPTIMIZED DEEP LEARNING MODELS

VV SIVA PRASAD¹,

P. ABHINAYA², K. NISSI MAHITHA³, T.ROHITH KUMAR⁴, M. SIVA KESAVA⁵

¹Assistant Professor, Dept. of CSE, Sai Spurthi Institute of Technology, Khammam,
Telangana, India

^{2,3,4,5}B.Tech Student, Dept. of CSE, Sai Spurthi Institute of Technology,
Khammam, Telangana, India

ABSTRACT: The technique of estimating the future value of a company's shares, or any other financial instrument listed on an exchange, is known as shares market prediction. Investors face a significant challenge when attempting to forecast future events in the stock market. Investors will aim to maximize their profits if they can accurately predict a company's future price. Social media users' opinions are having a greater impact on the performance of the stock market. To create a prediction model, this study examines a variety of prediction techniques. According to the approach, actions should be taken in two stages. Sentiment analysis and historical data are used in the first stage. The second stage places a strong emphasis on deep learning. A helpful technique for comprehending the tone of comments on social media platforms is sentiment analysis. Understanding how emotions impact stock prices is crucial. Using the Deep Learning module, we create a forecast model based on correlation. The outcomes demonstrated that the suggested method regularly produced more accurate forecasts.

Index Terms - Stock Market; Sentiment Analysis; Deep Learning; Artificial Neural Network (ANN)



A REVIEW OF EXPLAINABLE AI APPLICATIONS IN PHARMACOVIGILANCE FOR IMPROVED PATIENT SAFETY

J.RAJAKALA¹,

P. GAYATHRI PRIYA², G. GAYATHRI³, P. MANOHAR⁴, K. JAYANTH⁵

¹Assistant Professor, Dept. of CSE, Sai Spurthi Institute of Technology, Khammam,
Telangana, India

^{2,3,4,5}B.Tech Student, Dept. of CSE, Sai Spurthi Institute of Technology,
Khammam, Telangana, India

ABSTRACT: An alternative paradigm to classical AI's "black box" approach, explainable artificial intelligence (XAI) has recently garnered a lot of attention for its potential usefulness. This study aims to identify pharmacovigilance studies that have utilized XAI. By helping pharmacovigilance teams assess patient conditions like diabetic retinopathy and chronic diseases, as well as increase the speed and accuracy of signal detection, AI can solve major safety concerns. Therefore, experts and clinicians must continually evaluate the possible advantages and disadvantages of AI in pharmacovigilance as technology advances if it is to have the greatest possible effect on patient safety. Applying XAI in pharmacovigilance was incredibly challenging, as shown by the study's many obstacles. The fields of patient safety and pharmacovigilance make extensive use of AI for data collection on adverse pharmacological responses, analysis of medication interactions, and impact prediction; however, XAI is hardly employed in these fields.

Keywords: *Artificial Intelligence, Drugs, Predictive Models, Data Models, Safety, Machine Learning.*



Paper ID: **ICRTEM25_105**

REAL-TIME DETECTION OF WASTEWATER POLLUTION USING NATURAL LANGUAGE GENERATION AND COST-EFFECTIVE SENSORS

VSR KRISHNA¹, K. HEMANTH SINGH²,

S. SAI NIKHITHA³, K. KOWSALYA⁴, CH. MANIKANT SAI⁵

¹Assistant Professor, Dept. of CSE, Sai Spurthi Institute of Technology, Khammam,
Telangana, India

^{2,3,4,5}B.Tech Student, Dept. of CSE, Sai Spurthi Institute of Technology,
Khammam, Telangana, India

ABSTRACT: Recognizing pollutants in numerous surroundings, such as the air, water, and drainage systems, is critical for protecting people and avoiding potentially hazardous situations. The majority of investigations use traditional machine learning approaches to manipulate the measurement data that was collected. The primary goal of this research is to develop an efficient, low-cost infrastructure for collecting, cleaning, and transmitting data for wastewater toxin detection, as well as a novel deep learning-based classification system for transforming raw sensor data into plain language metadata. When compared to more recent methods, the proposed methodology clearly outperforms them in terms of effectiveness and efficiency. The main issue with the proposed strategy is that it requires accurate injection time, which is not always possible. This is the first time the contaminant has been added to the wastewater. The device also features a finite state machine tool for determining the precise timing of chemical distribution. A detailed description and analysis of the system are provided. We give different implementations of the proposed processing technique to assess the system's sensitivity to sample size, computational burden, and responsiveness. Our strategy outperforms the best baseline method, which has an accuracy of only 81.0%. Our methodology is at least 91.4% correct.

Keywords: Wastewater pollution detection, Automated reporting, Water quality analysis.



WATERNET: A CUTTING-EDGE NETWORK FOR MONITORING WATER QUALITY TO ENSURE SAFE DRINKING AND IRRIGATION PRACTICES

K RAGHUVARDHAN¹,

K. YUVARANJANI², M. CHARITHA SRI³, M. SHYAM NIKHIL⁴, K. JITENDRA⁵

¹Assistant Professor, Dept. of CSE, Sai Spurthi Institute of Technology, Khammam,
Telangana, India

^{2,3,4,5}B.Tech Student, Dept. of CSE, Sai Spurthi Institute of Technology,
Khammam, Telangana, India

ABSTRACT: Water is indispensable for the existence of all living organisms, including humans and vegetation. Despite its significance, high-quality water is not always suitable for industrial activities, domestic use, or human consumption. The water's viability for human or public consumption may be compromised by a variety of factors that alter or establish new standards. This category encompasses industrialization, mining, pollution, and natural disasters. The permissible quantities of specific contaminants in water samples intended for irrigation or ingestion are specified by the World Health Organization's regulations. The overall condition of water is evaluated using two metrics: the Water condition Index (WQI) and the Irrigation WQI. The quantity of a variety of substances in water is quantified by these indicators. The collection of water samples from a variety of locations, their evaluation for various properties, and the subsequent comparison of the results to the standards may prove to be a difficult task due to the necessity of utilizing distinct transportation and measurement methods.

Index terms: *Water quality monitoring, WaterNet, Irrigation water quality, Agricultural water quality*



KNOWLEDGE MANAGEMENT IMPROVES ORGANIZATIONAL LEARNING AND PERFORMANCE

#1Dr.D.N.V. KRISHNA REDDY, Associate Professor & HOD,

#2AAKOJU HEMA LATHA, #3KOLETI RAKESH,

#4VENKATESWARLU VAJJA, #5PATHEPARAPU MADHAVI,

Department of MBA,

**SAI SPURTHI INSTITUTE OF TECHNOLOGY(AUTONOMOUS),
SATHUPALLY, KHAMMAM.**

ABSTRACT: Philosophers, scientists, and educated people have long been fascinated by the idea of increasing knowledge formation, acquisition, transmission, and application. This alchemy may be ancient. The academic subject of "knowledge management" (KM) is just 15–20 years old. Most firms don't optimize data consumption for knowledge management (KM). This reveals human intelligence's limits. Knowledge management (KM) helps firms maximize resources by ensuring the right people get the correct knowledge at the right time. We all know that a company's bottom line will suffer if it can't leverage its data better. When implemented company-wide, OL and KM can enhance performance. In 1988, Levitt and March defined OL as "...encoding inferences from history into routines that guide behavior." Data added from the box will be impacted.

Keywords: *Knowledge Management (KM), Organizational Learning (OL), Performance Enhancement, Behavioral Routines, Information Flow, Knowledge Formation.*



Paper ID: **ICRTEM25_108**

INTERNAL COMMUNICATION AND ITS IMPORTANCE IN CORPORATE MANAGEMENT

#1Mr.V.RAMBABU, Assistant Professor,

#2BANKA MARESWARI, #3KAVISETTI SIVA NANDINI,

#4KORUKONDA MOUNIKA, #5NAGULAVANCHA DIVYA,

Department of MBA,

**SAI SPURTHI INSTITUTE OF TECHNOLOGY(AUTONOMOUS),
SATHUPALLY, KHAMMAM.**

ABSTRACT: The smooth flow of information throughout a company's many levels and departments is essential for effective corporate administration. Consequently, this calls for first-rate communication throughout the organization. Organizations utilize a range of strategies to enhance internal communication. There are more formal channels, such as meetings and email, and there are also more casual channels, such as conversations. Not including all of these different kinds of communication makes it insufficient. The ability of a corporation to make decisions and achieve its goals can be greatly improved with an honest, open, and impartial system of internal communication. Not only that, but it can help with change management, boost morale, and lessen misunderstandings and conflicts inside the firm. With the complexity of modern enterprises comes a greater awareness of the need of good internal communication in sustaining consistency and accomplishing goals.

Keywords: *Internal Communication, Corporate Management, Organizational Communication, Employee Engagement, Information Flow, Corporate Culture, Change Management, Communication Strategies, Organizational Effectiveness, Workplace Transparency.*



Paper ID: **ICRTEM25_109**

HUMAN RESOURCE MANAGEMENT PRACTICES AND THEIR IMPACT ON EMPLOYEE TURNOVER IN THE HOTEL INDUSTRY

#1 Mr. V. SURESH, Assistant Professor,

#2 CHUNCHU BHAVANA, #3 MACHARLA SPANDANA,

#4 NAGULAVANCHA SRAVANI SRI, #5 SHAIK MUNTAJ,

Department of MBA,

**SAI SPURTHI INSTITUTE OF TECHNOLOGY(AUTONOMOUS),
SATHUPALLY, KHAMMAM.**

ABSTRACT: Human resource management approaches have hurt hospitality, according to this additional study. Indian hotel HR administrators must reduce workforce turnover. Secondary sources are used in this study. The inquiry analyzed scholarly publications, online resources, and printed literature. HR requirements and employee unhappiness were handled. The study examined whether recent HR policy changes affect hotel workers' resignation plans. We are researching ways to keep low-income Indian hotel guests. Future HR experts and scholars may better understand HRM's state, limitations, and advancements. The HRM document covers training, competency, compensation, recognition, and performance reviews. To support their claims, writers contacted historians. The investigation's conclusions may inform employee retention efforts. Indian research has neglected this topic.

Keywords: *Human Resource Management (HRM), Hospitality Industry, Employee Turnover, Indian Hotels, HR Policies, Employee Retention, Workforce Management, Compensation, Training and Development.*



Paper ID: **ICRTEM25_110**

HUMAN RESOURCE MANAGEMENT'S CONTRIBUTION TO NGO DEVELOPMENT

**#1 Mr.G.NARENDRA BABU, Assistant Professor,
#2 DAKOJU SATYAVANI, #3 GADDAM MUTHYALARAO,
#4 KASAGANI SANDHYA, #5 MAREEDU DURGABHAVANI,**

**Department of MBA,
SAI SPURTHI INSTITUTE OF TECHNOLOGY(AUTONOMOUS), SATHUPALLY,
KHAMMAM.**

ABSTRACT: Non-governmental organizations are faced with the difficult task of providing high-quality services while adhering to budgetary constraints. Successful resource utilization is directly correlated with the capacity to manage resources proficiently. This investigation investigates the importance of HR practices in order to illustrate the correlation between HRM and organizational success. This investigation investigates the potential enhancements in organizational efficacy and productivity that HR policies and procedures may induce. This further enhances the motivation and abilities of employees by clarifying strategic orientations. These methods are considered essential for addressing complex issues, particularly those that are economically, politically, and socially challenging.

Keywords: *Volunteer Management, HR Policies in NGOs, Workforce Diversity, HRM in Nonprofit Sector, Conflict Resolution, Talent Acquisition, Training and Development, Employee Engagement, Performance Management*



Paper ID: **ICRTEM25_111**

A PORTAL FOR EMPLOYEE SELF-SERVICE

**#¹ Mr. G. NARENDRA BABU, Assistant Professor,
#² MARAKALA YASWANTH KUMAR, #³ PALLAPOTHU TEJASWI,
#⁴ SHAIK RIYAZ PASHA, #⁵ MOHAMMED FAZIL,
Department of MBA,
SAI SPURTHI INSTITUTE OF TECHNOLOGY(AUTONOMOUS), SATHUPALLY,
KHAMMAM.**

ABSTRACT: Organizations simplify operations to improve efficiency in a competitive market. A gateway for employee self-service is essential. This brief highlights the portal's main benefits. Employee Self-Service provides a simple, online platform to empower employees. Their own administrative tasks will be simplified. Due to strong security and user-friendly interfaces, employees can change their contact, tax, and direct deposit information. The site's simplified communication channels enable regulatory verification, worker self-evaluation, and vacation requests. By freeing HR of onerous administrative tasks, the ESS interface boosts operational efficiency and cuts expenses. Basic methods are simpler, more accurate, and less detailed. Continuous access to financial and personal data promotes accountability and openness. This abstract shows how employee self-service portals may affect organizational dynamics. Using technology to streamline administrative processes boosts morale, responsiveness, and production.

Keywords: *Employee Self-Service (ESS), Efficiency, Streamline, Processes, Centralized Digital Platform, Autonomy, Administrative Tasks*



Paper ID: **ICRTEM25_112**

FAST TEXT EMBEDDINGS AND DEEP LEARNING FOR ROBUST DETECTION OF DEEPPAKES IN SOCIAL MEDIA TWEETS

**Dr T.VEERANNA¹,
SD.ILIIYAZ ALI², CH. UDAY KOTESWARA RAO³, D.HARSHA VARDHAN
REDDY⁴, M. GAYATHRI⁵**

¹Associate Professor, Dept. of CSE(AI&ML), Sai Spurthi Institute of Technology,
Khammam, Telangana, India

^{2,3,4,5}B.Tech Students, Dept. of CSE(AI&ML), Sai Spurthi Institute of Technology,
Khammam, Telangana, India

ABSTRACT: The increasing prevalence of deep fake technology has prompted apprehension regarding the dissemination of inaccurate information on social media. This paper illustrates a deep learning-based approach to identifying deep fake tweets, particularly those generated by machines. This will mitigate the detrimental effects of false information on the internet. Our approach categorizes tweets into categories by employing Fast Text embeddings and deep learning models. We employ Fast Text embeddings to generate dense vector models after preprocessing the tweet text. The distinction between genuine and fraudulent tweets is determined by the semantic information regarding tweet topics that these embeddings accumulate. We incorporate these embeddings into a deep learning model, such as a CNN or a Long Short-Term Memory (LSTM) network, to determine whether the tweets are genuine or fabricated. Machine-generated tweets are generated using contemporary text generation algorithms that have been instructed on a collection of tagged tweets. Research conducted on a real-world tweet collection demonstrates that our methodology is effective in identifying tweets that were generated by algorithms. Our approach is significantly more precise than other methods for identifying social media deep fakes. In general, our proposed approach is a dependable and efficient approach to identify tweets that were generated by machines and to halt the dissemination of inaccurate information on social media.

Keywords: Deep fake detection, deep learning, Fast Text embeddings, machine-generated tweets.



Paper ID: **ICRTEM25_113**

A DATA-DRIVEN APPROACH TO CROP YIELD PREDICTION USING ADVANCED MACHINE LEARNING TECHNIQUES

Dr. T.VEERANNA¹, B. YASHWANTH²,

J. SIVANAGARAJU³, S. CHAITANYA REDDY⁴, D. RESHMA PRIYA⁵, J. PRAVEEN⁶

¹Associate Professor, Dept. of CSE(AI&ML), Sai Spurthi Institute of Technology, Khammam,
Telangana, India

^{2,3,4,5,6}B.Tech Student, Dept. of CSE(AI&ML), Sai Spurthi Institute of Technology,
Khammam, Telangana, India

ABSTRACT: Half or more of India's population relies on agriculture for their livelihood, making it an essential sector of the Indian economy. The future of agriculture is in jeopardy due to the growing threat posed by climate change and other environmental factors. Improving decision-making about agricultural cultivation and growing practices, machine learning (ML) offers a tool for crop yield prediction (CYP). Several approaches have been devised to analyze AI-based crop yield prediction algorithms; this study centers on a systematic review that extracts and synthesizes CYP features. Less relative inaccuracy and less capacity to predict crop yield are the primary drawbacks of neural networks. Supervised learning algorithms had a hard time selecting, sorting, or rating fruits due to the nonlinear connection between input and output variables. Many agricultural development research proposals sought to build an accurate and efficient model for crop classification, which would allow for the prediction of crop yields in response to weather and disease conditions, the categorization of crops according to their developmental stage, and so on. An extensive evaluation of the accuracy of various machine learning models used to estimate agricultural productivity is presented in this article.

Index terms: Crop yield prediction, ML.



Paper ID: **ICRTEM25_114**

MACHINE LEARNING-BASED FACE MASK DETECTION FOR PUBLIC HEALTH SAFETY

Mr. A. SRINIVAS RAO¹, D.AAKANKSHA², J.NAVYA³, K.KAVYA⁴, V.BHARATH⁵

¹Assistant Professor, Dept. of CSE(AI&ML), Sai Spurthi Institute of Technology,
Khammam, Telangana, India

^{2,3,4,5}B.Tech Students, Dept. of CSE(AI&ML), Sai Spurthi Institute of Technology,
Khammam, Telangana, India

ABSTRACT: It is advisable to utilize a face mask if you are concerned about your health and wish to prevent the transmission of respiratory diseases. One approach that may assist in guaranteeing that you are adhering to the appropriate safety protocols is the identification of face coverings. This technique can be employed to verify that the masks are being utilized accurately and to identify which ones are being used. The name of our initiative is "Face Mask Detection." The utilization of masks is a critical measure in the prevention of the COVID-19 virus; deep learning can be employed to ascertain whether an individual is donning one. Masks are an indispensable component of the daily lives of all individuals in this world. Wearing coverings enhances our ability to communicate and conduct business.

Keywords: COVID-19, Tensor flow, Open CV, Face Mask, Image Processing, Computer Vision.



Paper ID: **ICRTEM25_115**

HYBRID CNN-RF AND CNN-XGBOOST FRAMEWORK FOR REAL-TIME FOREST FIRE DETECTION

**N.SUDHA RANI¹, V.GAYATHRI², G.VARA PRASAD³, P.HEMA SRI⁴, D.
NARENDAR⁵**

¹Assistant Professor, Dept. Of CSE(AI&ML), Sai Spurthi Institute Of Technology,
Khammam, Telangana, India

^{2,3,4,5}B.Tech Student, Dept. Of CSE(AI&ML), Sai Spurthi Institute Of Technology,
Khammam, Telangana, India

ABSTRACT: The primary goal of this research is to detect forest fires as early as possible. It detects fires by analyzing camera images and movies. The work focuses mostly on picture recognition algorithms. Fire boundaries are constantly shifting, necessitating a series of steps beginning with background subtraction. The candidate regions are then identified using a color segmentation model. A Convolution Neural Network (CNN) is used to determine whether or not candidate areas have a fire. When an actual fire occurs, it rapidly labels it without using a sensor device and alerts the forest service.

Index terms: Forest fire detection, Camera analysis, Image recognition, Convolution Neural Network.



AI-DRIVEN INAPPROPRIATE CONTENT DETECTION AND CLASSIFICATION IN YOUTUBE VIDEOS USING DEEP LEARNING

B.SRINIVASA RAO¹, K.NAVYA²,

D.LAXMI NAGA SREYA³, B.SWATHI⁴, S.PREM KUMAR⁵

¹Assistant Professor, Dept. Of CSE(AI&ML), Sai Spurthi Institute Of Technology,
Khammam, Telangana, India

^{2,3,4,5}B.Tech Student, Dept. Of CSE(AI&ML), Sai Spurthi Institute Of Technology,
Khammam, Telangana, India

ABSTRACT: Video information is one of the most convenient and contemporary methods of staying informed about current events. The popularity of video content on the internet is on the rise, and it is having a significant impact on various aspects of our lives, such as education, entertainment, and communication. Video content is one of the most captivating forms of information, as it not only captivates viewers with its visuals but also facilitates the acquisition of knowledge and comprehension. The primary resource for the development and categorization of the text that we intend to use for the endeavor is YouTube. YouTube is considered to be one of the most pleasurable methods of acquiring global information. The primary objective of our endeavor is to generate and organize video content into distinct categories. We consider YouTube videos that include translations. The primary objective is to extract and categorize data from videos. The process involves the extraction of text that may contain undesirable letters or symbols through the use of natural language processing (NLP), which necessitates text cleaning. In essence, NLP is employed to evaluate pertinent data. Special text processing methods, such as tokenization and stemming, may be necessary to derive meaningful information from text. A replica of the YouTube URL has been incorporated into the front-end web page. The entire process commences upon the URL's upload. The Flask framework is employed to produce an interactive web-based output for the project.

Index terms: Deep Learning, Content Filtering, Neural Networks, Convolution Neural Networks (CNN).



Paper ID: **ICRTEM25_117**

EXPLORING THE ROLE OF BLOCKCHAIN TECHNOLOGY IN FARMER'S PORTALS FOR AGRICULTURAL INNOVATION

**MR.A.SRINIVAS RAO¹,B.VARSHITHA REDDY²,
B.BABY SHALINI³, SK.FARHANA⁴, R.VARSHITH⁵**

¹Assistant Professor, Dept. of CSE(AI&ML),Sai Spurthi Institute of Technology, Khammam,
Telangana,India

^{2,3,4,5}B.Tech Student,Dept. of CSE(AI&ML),Sai Sputhi Institute of Technology, Khammam,
Telangana, India

ABSTRACT: The block chain method allows you to record proof of a bitcoin transaction. A peer-to-peer network links numerous computers together so that records can be kept on both ends. Any of these words can be used to describe the economic system of a country. All of these things are written down in contracts, deals, and papers. At every step, they set limits and make sure the assets are safe. This study use a farmer's website that tracks crop sales and purchases to showcase the real-world uses of blockchain technology. Among the many benefits of blockchain technology that this show emphasizes is its immutability and security of financial transaction records. Python and blockchain technology are combined in this idea. Everyone involved stands to gain by keeping the trade arrangement in place. This includes dealers as well as farmers. An interface that incorporates blockchain technology was created for the farmers using the programming language Python. This system keeps tabs on the buyer, seller, item, and total amount of money that is traded.

Keywords: Blockchain Technology, Farmer's Portal, Supply Chain Transparency, Smart Contracts.



HEALTH PREDICTION SYSTEM POWERED BY MACHINE LEARNING AND IBM CLOUD PAAS

N. SUDHA RANI¹, B. KAVYA², K. HARIKA SATYA³, M. RAVI TEJA⁴

¹Assistant Professor, Dept. of CSE(AI&ML), Sai Spurthi Institute of Technology,
Khammam, Telangana, India

^{2,3,4} B. Tech Student, Dept. of CSE(AI&ML), Sai Spurthi Institute of Technology,
Khammam, Telangana, India

ABSTRACT: Create a system that can change and grow with the healthcare system to solve current problems. Superior treatment for critically ill patients will improve the quality of hospital care. Make regular use of PaaS and machine learning technology to keep an eye on important employees. Enhancing the healthcare industry's ability to be vigilant and make decisions is the primary objective. The IBM Cloud component is locally built in order to meet financial issues. Among the ensemble learning components used in this model are Naïve Bayes, Logistic Regression, and Decision Tree Classification. The plan's goal is to create a complex system that can foresee important health problems. Rapid remote patient condition evaluation is made possible by the "Critical Patient Management System" (CPMS) software. The program gives doctors access to healthcare management tools that allow them to remotely monitor patients who are in severe condition.

Index terms - Patient Care System, Naïve Bayes, Logistic Regression, Ensemble Methods, IBM Cloud.



Paper ID: ICRTEM25_119

DYNAMIC TRAFFIC FLOW MANAGEMENT SYSTEM

¹Mr B NARENDAR, Assistant Professor, b.narendar999@gmail.com

²K. CHANDRIKA, ³MD. JAVIYA, ⁴G. KARTHIKEYANI, ⁵N. MANIKANTA

**ECE Department, SAI SPURTHI INSTITUTE OF TECHNOLOGY,
B. Gangaram, Sathupalli mandal, Khammam District, Telangana.**

Abstract: This paper presents an efficient priority control for ambulance clearance. Each ambulance is equipped with radio frequency transmitter (RF Tx). We use RF receiver, PIC16F877A, liquid crystal display (LCD), piezo electric buzzer were attached to the traffic signals. It detects ambulance while arriving at 100 meters before reaching the signal. In addition, when an ambulance is approaching the junction it will communicate to the traffic signal in the junction to turn ON the green light. This module uses radio frequency (RF) transmitter, receiver and PIC16F877A for wireless communication between the ambulance and traffic signal.

Keywords-*RF Transmitter and Receiver, LCD, PIC16F877A, Piezoelectric buzzer, ambulance vehicle, traffic junction.*



Paper ID: **ICRTEM25_120**

INTELLIGENT MOTOR CYCLE SAFETY SYSTEM

¹Mrs. V RANI, Assistant Professor, raniveerla4@gmail.com

²G. SHIVANI, ³T. SAI GANESH, ⁴K. PUJITHA, ⁵P. SAI KOWSHIK
ECE Department, SAI SPURTHI INSTITUTE OF TECHNOLOGY,
B. Gangaram, Sathupalli mandal, Khammam District, Telangana.

Abstract: Motorcycle accidents are a major cause of fatalities worldwide, especially in countries where motorcycles are the dominant mode of transportation. Despite the availability of safety gear and precautions, many accidents still occur due to rider negligence, poor road conditions, or mechanical failure. The need for an intelligent system that integrates advanced sensors and technologies to enhance motorcycle safety has become critical. This paper introduces an Intelligent Motorcycle Safety System (IMSS) designed using Arduino, which incorporates a wide range of sensors and communication technologies aimed at reducing accidents and improving rider safety.

The proposed system integrates multiple sensors, such as a 2-level fuel sensor, alcohol sensor, helmet sensor, bike stand sensor, and GPS module to monitor critical parameters that affect the rider's safety. Additionally, the system uses GSM technology to send SMS alerts to predefined emergency contacts and 20x4 LCD display for real-time information on the bike's status, including fuel levels, location, and safety conditions. Moreover, the system is equipped with a voice IC with speaker to provide audio alerts to the rider in situations where visual inspection is not feasible, offering timely feedback such as low fuel warnings, helmet reminders, or alcohol detection.

The integration of Arduino as the central microcontroller provides an affordable, reliable, and easily customizable platform for this system. It allows for easy modification and scaling of the system according to specific needs. The relay with engine control ensures that the motorcycle only starts when all conditions are met, further promoting rider responsibility.



Paper ID: **ICRTEM25_121**

SOLAR POWERED E-UNIFORM FOR ENHANCED SOLDIER PERFORMANCE

¹Mr M RAMBABU, Associate Professor, ram5707.modugu@gmail.com

²G. SWATHI, ³K. PALLAVI, ⁴SK. BAJI BABA, ⁵CH. VENU BABU

ECE Department, SAI SPURTHI INSTITUTE OF TECHNOLOGY,

B. Gangaram, Sathupalli mandal, Khammam District, Telangana.

Abstract: The modern soldier operates in increasingly harsh and dynamic environments, where physical stress, environmental factors, and the risk of injury can significantly impact their performance and well-being. This paper proposes a solar-powered E-uniform system designed to monitor and enhance soldier performance through real-time tracking of physiological and environmental parameters. The system integrates various sensors, including a temperature sensor, heart rate sensor, tilt sensor for fall detection, and GPS for location tracking, all managed by an Arduino platform.

The uniform is powered by a solar panel that charges a 12V rechargeable battery, ensuring continuous operation in outdoor settings. The collected data is displayed on an LCD screen for the soldier's real-time monitoring and can be sent as alerts through a GSM module to medical teams or commanders in case of emergency, such as abnormal heart rate or body temperature readings.

The proposed system helps in the early detection of health risks such as heatstroke, fatigue, or dehydration, enhancing the soldier's safety during missions. Additionally, it improves situational awareness by providing real-time location data, enabling better mission coordination.

Keywords: Solar-powered E-uniform, Soldier performance, Health monitoring, Arduino, Temperature sensor, Heart rate sensor, Tilt sensor, Fall detection, GPS, GSM, LCD display, Renewable energy, Wearable technology.



Paper ID: **ICRTEM25_122**

SOLAR BASED MOBILE CHARGING ON COIN INSERTION

¹Mrs.G RANI, Assistant Professor,abhiknkm2017@gmail.com

²G. MOHNA SRI, ³J. MOUNIKA, ⁴G. GANESH KUMAR, ⁵N. AJAY

ECE Department, SAI SPURTHI INSTITUTE OF TECHNOLOGY,

B. Gangaram, Sathupalli mandal, Khammam District, Telangana.

Abstract: The growing reliance on mobile devices has created an increasing demand for public charging stations, especially in areas where access to conventional power grids is limited. Traditional charging stations often depend on grid electricity, which may not be sustainable or cost-effective in remote locations. To address this issue, this paper introduces a solar-based mobile charging station that operates on coin insertion using Arduino, a solar panel, a rechargeable battery, a relay, a multi-pin charger, a coin box, and a 20x4 LCD display.

The system is designed to be energy-efficient, cost-effective, and eco-friendly by harnessing solar power to charge mobile devices. The solar panel generates electricity during the day, which is stored in a rechargeable battery. When a user inserts a coin into the coin box, the system activates the charging circuit by controlling a relay via the Arduino microcontroller.

The Arduino also communicates with the LCD display, which provides real-time feedback to the user regarding the charging status, remaining time, and battery health. The system offers a solution that is not only self-sustaining but also promotes the use of renewable energy, reducing the need for grid electricity.

The coin mechanism ensures that the user pays for the service, making it suitable for deployment in public areas such as parks, bus stations, and shopping malls. The paper discusses the system's design, working principle, and advantages over traditional charging solutions.

Keywords: Solar Power, Mobile Charging, Arduino, Coin Insertion, Relay, Solar Panel, Rechargeable Battery, Multi-Pin Charger, LCD Display, Renewable Energy, Eco-friendly, Public Charging Stations, Coin Operated Mechanism, Charging Circuit, Sustainable Technology.



Paper ID: **ICRTEM25_123**

SMART VIDEO SURVEILLANCE WITH WIRELESS NOTICE ANNOUNCEMENT VEHICLE FOR COLLEGE

¹**Mr .P.NAGA SEKHAR, Assistant Professor, nagu.penumudi@gmail.com**

²**G. MANUSHA, ³D. ANIL KUMAR, ⁴S. SAILAJA, ⁵M. LINGASWAMI**

**ECE Department, SAI SPURTHI INSTITUTE OF TECHNOLOGY,
B. Gangaram, Sathupalli mandal, Khammam District, Telangana.**

Abstract: In this paper, we present the design and implementation of a Smart Video Surveillance System integrated with a Wireless Notice Announcement Vehicle specifically developed for a college campus environment. The system utilizes a low-cost, efficient approach leveraging Arduino microcontrollers, solar energy, and wireless communication technologies to enhance security and campus communication. The vehicle, powered by a solar panel and a 12V battery, is designed to move autonomously while providing live video surveillance via an onboard camera. Real-time video data can be transmitted to monitoring stations or stored for future reference. HC-05 Bluetooth module is used for wireless communication between the vehicle and a smartphone or PC, allowing users to control the vehicle remotely.

Additionally, the system features a Voice IC and speaker, enabling the vehicle to broadcast pre-recorded announcements to various parts of the campus. The L293D motor driver with a gear motor controls the movement of the vehicle, ensuring precise navigation and movement. The primary goal of this project is to create a self-sustaining, eco-friendly solution for continuous surveillance and communication that reduces reliance on traditional power sources. By combining these technologies, the system offers enhanced campus security while simultaneously serving as a tool for efficient notice dissemination. The results of this system can be scaled for large educational institutions, and with further enhancements, it could integrate more advanced technologies such as GPS, cloud storage, and AI-based object recognition for further automation.

Keywords: *Smart Video Surveillance, Wireless Notice Announcement, Arduino Controller, Solar Panel, 12V Battery, Camera, HC-05 Bluetooth Module, Voice IC, Speaker, L293D Motor Driver, Gear Motor, Autonomous Vehicle.*



Paper ID: **ICRTEM25_124**

BLOCK HUNTER: BLOCKCHAIN-BASED CYBER THREAT DETECTION USING POOLING LEARNING IN IIOT NETWORKS

#1Dr. K. CHANDRASENA CHARY, Associate Professor,

Department of CSE,

SREE CHAITANYA INSTITUTE OF TECHNOLOGICAL SCIENCES, KARIMNAGAR, TG.

#2Dr. V RAMAKRISHNA, Senior Lecturer in Computer Science and Engineering,

GOVT. POLYTECHNIC COLLEGE, SIDDIPET.

ABSTRACT: The Industrial Internet of Things (IIoT) is a powerful Internet of Things (IoT) application that transforms industry development by boosting open communication between different entities such as hubs, manufacturing facilities, and packaging facilities. The IIoT can more efficiently analyse obtained data by incorporating data science approaches, which current IIoT systems lack due to their distributed nature. Anomalies and assaults on networks pose a serious security risk for IIoT. In this study, a coordinator IoT device is chosen to calculate the trust of IoT devices in order to prevent fraudulent devices from joining the network. Furthermore, implementing a blockchain-based data paradigm promotes data transparency. The proposed system's effectiveness is completely and meticulously verified using MATLAB against a range of security parameters, including attack strength, message tampering, and false authentication likelihood. The simulation findings show that the proposed strategy increases IIoT network security by effectively identifying hostile network threats.

Keywords—*Industrial Internet-of-Things (IIoT), Blockchain, Security, Secure IoT Devices, Trust Management.*



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SELF-BALANCING ELECTRIC ONE-WHEELER

^{#1}Mrs.M.PRATHIMA, Assistant Professor,

^{#2}V.ANUSHA, ^{#3}T.GOWTHAMI,

^{#4}M.RUCHITHA, ^{#5}A.RAMA KRISHNA,

Department of EEE,

SAI SPURTHI INSTITUTE OF TECHNOLOGY(AUTONOMOUS),

SATHUPALLY, KHAMMAM.

ABSTRACT: The electric unicycle, which has one wheel and can balance itself, is efficient, green, and useful. The unicycle can keep itself balanced just by watching the rider and adjusting the speed and position of the motor accordingly. Thanks to its rechargeable lithium-ion batteries, it is perfect for usage in urban areas because it is silent and does not emit any emissions. User control, stability, and safety will be the primary concerns of this unicycle development and control project. Riders enjoy better mobility and smoother transitions thanks to fuzzy logic and PID controls. An attractive green urban transportation option, the electric unicycle has a minimal effect on the environment and a stylish design.

Keywords: *Self-balancing, One-wheel, Electric unicycle, Personal mobility, Gyroscopic sensors, Fuzzy logic, Accelerometers, Stability control, Electric transportation, Lithium-ion batteries.*



Paper ID: **ICRTEM25_126**

AN ELECTRIC VEHICLE THAT WORKS IN REAL TIME

#1Mr.V.SATHYA VARDHAN RAO, Assistant Professor,

#2P.KRISHNA REDDY, #3K.BHAVYA SRI,

#4P.SHANMUKHA KRISHNA, #5S.ANAND,

Department of EEE,

SAI SPURTHI INSTITUTE OF TECHNOLOGY(AUTONOMOUS),

SATHUPALLY, KHAMMAM.

ABSTRACT: Development of electric vehicles (EVs) in real time necessitates state-of-the-art methods and technologies that are quick, easy, and efficient. Improving the performance, energy efficiency, and user experience of electric cars through the use of real-time data processing is the goal of this research. The automobile is able to optimize its route, monitor battery life, and modify speed on the go thanks to a network of sensors, Internet of Things devices, and complex communication protocols. Driving pleasure, energy efficiency, and safety can all be enhanced using this method's real-time adjustments based on data from the vehicle and the surrounding environment. Navigation, user-friendly driver interfaces, and predictive maintenance are all made possible by real-time technology. If this vehicle's launch is a success, it will boost the electric car industry and open up more possibilities for smart, environmentally friendly transportation.

Keywords: *Electric Vehicle, Real-time Data Processing, IoT Devices, Energy Efficiency, Vehicle Performance, Predictive Maintenance, Smart Transportation, Real-time Navigation, Battery Management, Sustainable Transportation.*



Paper ID: **ICRTEM25_127**

DESIGN AN ELECTRIC VEHICLE THAT FUNCTIONS IN REAL TIME

^{#1}Mr.N.G.V.KRISHNA, Assistant Professor,

^{#2}R.SRINIVAS, ^{#3}M.SRAVANTHI,

^{#4}M.MASOOD, ^{#5}T.KIRAN KUMAR,

Department of EEE,

SAI SPURTHI INSTITUTE OF TECHNOLOGY(AUTONOMOUS), SATHUPALLY,
KHAMMAM.

ABSTRACT: Modern technology is integrated into the design of electric vehicles (EVs) in real-time to ensure optimal performance and trouble-free operation. The project's overarching goal is to construct, through the use of sensors, cloud computing, and the Internet of Things, an adaptive control and continuous monitoring system for electric vehicles that operates in real-time. To maximize efficiency and comfort, the car will analyze data in real-time to enhance battery life, driving patterns, and route planning. Increased efficiency, dependability, and security will result from combining adaptive navigation with predictive maintenance and dynamic performance adjustments. More efficient, intelligent, and real-time adaptable electric vehicles are possible thanks to this design approach, which promotes green transportation.

Keywords: *Electric Vehicle, Real-time Functionality, IoT Technologies, Real-time Data Analytics, Battery Optimization, Predictive Maintenance, Smart Navigation, Energy Efficiency, Adaptive Control, Sustainable Transportation.*



Paper ID: **ICRTEM25_128**

EMPLOYEE PERFORMANCE IS ENHANCED BY EFFECTIVE TRAINING

#1 Mrs.T.NAGALAKSHMI, Assistant Professor,

#2 MERUGU NAVEENA, #3 PARAMKUSHAM SRI VRUSHANK,

#4 SHAIK NAZMA, #5 SEEMAKURTHI SAI KUMAR,

Department of MBA,

**SAI SPURTHI INSTITUTE OF TECHNOLOGY(AUTONOMOUS),
SATHUPALLY, KHAMMAM.**

ABSTRACT: An organization's profitability depends on staff productivity. Organizational managers and administrators should study the relationship between performance evaluations and professional development. Training and development programs boost engagement, security, morale, and job performance for everyone. Company administrators should evaluate staff performance methodically. This assessment should examine employee intrinsic motivation, extrinsic rewards, learning skills, innate abilities, and job attitudes. Companies that want to succeed in the global economy provide their employees with professional development and fair and accurate evaluations.

Keywords: *Employee Performance, Performance Appraisal, Employee Productivity, Organization Goals, And Performance Measure.*



Paper ID: **ICRTEM25_129**

THE ROLE OF PROMOTIONAL ACTIVITIES IN COMMUNICATING MARKETING STRATEGIES

#1 Dr.D.N.V.KRISHNA REDDY, Associate Professor & HOD,

#2 MARVATHU SAI LIKHITH, #3 NANANKALA DHEERAJ,

#4 PERUKA SRINATH, #5 THATICHERLA SAIKIRAN,

Department of MBA,

**SAI SPURTHI INSTITUTE OF TECHNOLOGY(AUTONOMOUS),
SATHUPALLY, KHAMMAM.**

ABSTRACT: The availability of precise and timely information influences the thoughts and sentiments of customers regarding the acquisition of commodities, thereby fostering a more responsible spending culture and a greater demand for goods. The primary objective of the producer is to generate revenue; however, they may indirectly achieve this objective by augmenting the supply of their products. Business communication is a significant component of advertisements. Promotional sales, advertisements, public relations, and direct one-on-one interactions between consumers and businesses comprise the promotional blend. The strategy encompasses the following objectives: increasing revenue, educating consumers, and enhancing brand recognition.

Keywords: *Promotional Strategies, Business Communication, Consumer Behavior, Advertising, Public Relations, Promotional Mix, Brand Recognition.*



Paper ID: **ICRTEM25_130**

A SYSTEMATIC REVIEW OF LIFE INSURANCE PRODUCTS AND PERCEPTION

^{#1}Dr.D.N.V. KRISHNA REDDY, Associate Professor & HOD,

^{#2}ANUMOLU BANDHAVI, ^{#3}KOMARAVARAPU NAGARAJU,

^{#4}KALANGI CHENNA RAO, ^{#5}MUTHA LILLY PERCIS,

Department of MBA,

**SAI SPURTHI INSTITUTE OF TECHNOLOGY(AUTONOMOUS), SATHUPALLY,
KHAMMAM.**

ABSTRACT: This Research is based on life insurance policyholders' opinions. People are more cautious than during COVID-19. This catastrophe has considerably increased life insurance and insurance product demand. Competition among insurance firms implies more people are insured. Insurance products change quickly. Customers and the insurance industry are better informed about their options after this incident. By filling gaps in the literature, we want to better understand how policyholders view Life Insurance Corporation of India products. The inquiry used secondary sources. A comprehensive literature evaluation uncovers the policyholder opinion gap on LIC products.

Key Words: *Perception, Policyholders, Insurance products, Life Insurance Corporation of India (LICI), Post Covid Period, Life Insurance, Insurance Demand, Insurance Product Preferences*



Paper ID: **ICRTEM25_131**

ONLINE TRADING PLATFORMS ON INVESTMENT DECISIONS OF INDIVIDUAL INVESTORS

#1Mr.V.RAMBABU, Assistant Professor & HOD,

#2BANNE DEVI, #3MARAGANI AKHILA,

#4SHAIK BAJIBABA, #5VUKE VINAY BABU,

Department of MBA,

**SAI SPURTHI INSTITUTE OF TECHNOLOGY(AUTONOMOUS), SATHUPALLY,
KHAMMAM.**

ABSTRACT: The rise of online trading platforms has revolutionized the way individual investors make investment decisions. This study explores the impact of digital trading platforms on the behavior, preferences, and decision-making processes of retail investors. It examines how features such as real-time data access, user-friendly interfaces, low transaction costs, and mobile accessibility influence investment strategies and risk-taking tendencies. The research also investigates the role of platform-driven insights, social trading, and algorithmic recommendations in shaping investor choices. Findings suggest that while online platforms empower investors with greater autonomy and information, they also pose challenges related to impulsive trading and information overload. The study underscores the need for financial literacy and regulatory oversight to ensure informed and responsible investment decisions.

Keywords: *Online Trading Platforms, Investment Decisions, Individual Investors, Digital Trading, Financial Technology, Investor Behavior, Retail Investors, Algorithmic Recommendations, Risk-Taking, Financial Literacy.*



Paper ID: **ICRTEM25_132**

IMPROVING CROP YIELD FORECASTING WITH AGRICULTURAL ENVIRONMENT FEATURES: FEATURE SELECTION AND CLASSIFIER-BASED APPROACHES

B. VEERA PRATHAP¹,

R. KAVYA SRI², P. SNEHALATHA³, SK. DAVUD BABA⁴, B. SAI KIRAN⁵

¹Assistant Professor, Dept. of CSE, Sai Spurthi Institute of Technology, Khammam,
Telangana, India

^{2,3,4,5}B.Tech Student, Dept. of CSE, Sai Spurthi Institute of Technology,
Khammam, Telangana, India

ABSTRACT: The study of agriculture as an academic discipline is very recent. Soil and climatic variables, such as rainfall, temperature, and humidity, significantly impact crop yields, making crop yield prediction a crucial part of agriculture. Farmers used to have greater leeway in terms of when and what crops they could grow when I was a kid. The rate of global change is making it impossible for farmers to maintain their traditional methods. Since machine learning approaches can now estimate, this study used many sorts of these algorithms to predict the productivity of farms. If you want to be sure that a specific ML model is doing its job, you need to employ excellent feature selection methods to transform raw data into an ML dataset. It is critical to add only data points that are relevant to the model's output in order to maintain the accuracy of the machine learning model and prevent redundancy. Careful feature selection is required to ensure that the model contains just the most crucial attributes. An overly complex model would result from adding all raw data traits without first determining if they were beneficial for developing the model. The accuracy of the output would also be affected by adding qualities that simplify the ML model in terms of space and time. According to the research, the current classification system is not as effective as an ensemble strategy when it comes to producing predictions.

Keywords – Agriculture, classification, crop prediction, feature selection.



FORECASTING AIR POLLUTION LEVELS WITH MACHINE LEARNING TECHNIQUES

B. SANTHOSH KUMAR¹,

SK. ABDUL KHADEER², M. HEMANTH³, B. HARINI MEENAKSHI⁴, M. VISHNU⁵

¹Assistant Professor, Dept. of CSE, Sai Spurthi Institute of Technology, Khammam,
Telangana, India

^{2,3,4,5}B.Tech Student, Dept. of CSE, Sai Spurthi Institute of Technology,
Khammam, Telangana, India

ABSTRACT: The capacity to inhale unpolluted air is a fundamental aspect of citizenship; thus, it is the duty of every individual to implement all necessary measures to preserve it. The principal technique employed for early warning and pollution management is research centered on air quality forecasting. To assess air quality, we advise AS nursing students to predominantly utilize a machine learning framework grounded in the Sunshine GBM model. This model, a trained lightweight GBM classifier for victims, enhances the precision of air quality predictions by integrating meteorological data from several sources. It achieves this by utilizing all accessible abstracted data. Historical air quality data, current monitoring stations, and satellite meteorological information are integrated to predict future air pollution patterns. The approach predicted that the Associate in Nursing will achieve 92% accuracy.

Keywords: Air Pollution, Decision Tree, Linear Regression, Machine Learning, Random Forest.



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DRIVING SHOPPING MALL REVENUE GROWTH WITH PERSONALIZED REAL-TIME DIGITAL COUPON ISSUANCE

CH. SIVA PRAKASH¹,

P. MOHINI SATYA², V. NAVYA³, S. HARSHA VARDHAN⁴, S. VARA PRASAD⁵

¹Assistant Professor, Dept. of CSE, Sai Spurthi Institute of Technology, Khammam,
Telangana, India

^{2,3,4,5}B.Tech Student, Dept. of CSE, Sai Spurthi Institute of Technology,
Khammam, Telangana, India

ABSTRACT: The marketing department has long been seen as an outgrowth of the accounting department. The marketing industry shifted to make use of new technologies like big data and deep learning. Monitoring customer churn is an essential part of any marketing strategy. This research details a data-driven, real-time system that employs personalized discount coupons to increase spending and engagement from returning customers. In order to classify the customers, we employed two-dimensional segmentation. Live estimates of each group's attrition rate were obtained using click stream data. The next step was to provide each customer a unique voucher. Lastly, we examined the increase in sales and the rate of conversion. When combined with a two-dimensional cluster analysis churn rate estimate, a suggestion system outperformed the basic models by a significant margin. By adopting this method, online malls can automatically determine a customer's likelihood of leaving and the items they purchase, which can boost revenue.

Index terms: Shopping Mall Revenue, Digital Couponing, Real-Time Marketing, Customer Personalization.



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WOMEN'S SAFETY IN THE IOT ERA: A SYSTEMATIC REVIEW OF CURRENT SOLUTIONS AND CHALLENGES

M. ARUNA¹, B. SUPRIYA², M. KAVYA³, B. SAI SINDHU⁴, N. JAYA CHANDRA⁵

¹Assistant Professor, Dept. of CSE, Sai Spurthi Institute of Technology, Khammam,
Telangana, India

^{2,3,4,5}B.Tech Student, Dept. of CSE, Sai Spurthi Institute of Technology,
Khammam, Telangana, India

ABSTRACT: Women is an essential social and cultural value in any society. Sexual violence against women includes rape, molestation, harassment, and assault in the home. Many issues and people's lives could be made easier by the Internet of Things (IoT). The community has created solutions based on the Internet of Things to help women stay safe. This research delves further into the topic of machine learning, smart technologies, sensors, and Internet of Things (IoT) devices designed to keep women safe. The majority of these devices designed to keep women safe include pressure and pulse-rate sensors with an emphasis on safety, as shown in the research. To help women who are at risk avoid issues in the future, machine learning techniques including decision trees, hidden Markov models, and logistic regression are being used. Findings from in-depth research indicate that developing technology to streamline automatic alarm sending—while simultaneously increasing accuracy and decreasing the need for human intervention—is the best course of action. This study organizes the wearables, sensors, features, and technology of women's safety goods that are based on the Internet of Things. There are advantages to the Internet of Things (IoT) for women's safety, but there are also limitations and challenges. Additionally, this research suggests a building approach that zeroes in on critical features for women's Internet of Things safety devices.

Index terms: women's safety, women's safety using IoT, safety devices, human safety, machine learning.



USING MACHINE LEARNING TO ANALYZE AND PREDICT THE IMPACT OF EARTHQUAKES ON COMMUNITIES

M. MAHESH¹, B. LAVANYA²,

M. ARPITHA³, B. DIVYANJALI RATHOD⁴, M. SREENIVASA RAO⁵

¹Assistant Professor, Dept. of CSE, Sai Spurthi Institute of Technology, Khammam,
Telangana, India

^{2,3,4,5}B.Tech Student, Dept. of CSE, Sai Spurthi Institute of Technology,
Khammam, Telangana, India

ABSTRACT: Earthquakes are among the most severe natural disasters, causing enormous destruction. Despite geologists trying a variety of methodologies to predict the likelihood of an earthquake striking a specific location, studies have yielded no solid results. The capacity to anticipate the depth of an earthquake allows individuals to better prepare for and be aware of potential hazards. Several machine learning techniques can estimate the depth of an earthquake. To get the best results, you should consider multiple ways. The proposed technique employs seismic data to train a random forest regression model capable of predicting earthquake depths. Root mean square error (RMSE), root mean square error (MSE), and R2 score are some of the metrics used to assess the success of the proposed method. The approach accurately predicts the earthquake's depth at a range of future locations.

Keywords: Machine Learning, Linear Regression, Short term prediction, Support vector Regressor.

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BIG STEP CONVOLUTION AND ATTENTION MECHANISMS FOR EFFICIENT ABNORMAL TRAFFIC DETECTION

**V.NARESH¹, V.HARSHITHA²,
K.MOUNIKA³, P.VENKATESWARARAO⁴, CH.VENKATRAO⁵**

¹Assistant Professor , Dept. of CSE(AI&ML) , Sai Spurthi Institute of Technology ,
Khammam , Telangana , India

^{2,3,4,5} B.Tech Student , Dept. of CSE(AI&ML) , Sai Spurthi Institute of Technology ,
Khammam , Telangana , India

ABSTRACT: The quality of service and the security of the network are both determined by the identification of anomalous traffic. The primary challenges in aberrant traffic identification, which are caused by feature similarity and the singular dimension of the detection model, are resolved by a big-step convolution neural network traffic detection model that is based on attention. The network traffic properties are assessed, and the raw data is preprocessed and mapped into a two-dimensional grayscale image. Histogram equalization is employed to generate multi-channel grayscale images. An attention method is employed to improve local features by assigning varying weights to traffic characteristics. Ultimately, pooling-free convolution neural networks are employed to extract traffic characteristics at various depths, thereby addressing the deficiencies of convolution neural networks, such as overfitting and local feature omission. The simulation experiment employed both a balanced public data set and genuine data collection. In comparison to SVM, the proposed model is assessed against ANN, CNN, RF, Bayes, and the two most recent models. A 99.5% accuracy rate was achieved through the use of numerous classes in an experimental setting. The proposed model is exceptional in its ability to detect anomalies. The proposed method outperforms current methods in F1, recall, and accuracy. It has been demonstrated that the model is robust in the face of a variety of challenging conditions and is effective in the detection of items.

Keywords: Abnormal Traffic Detection, Attention Mechanism, Big Step Convolution, Time Series Data.



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A NOVEL APPROACH TO STUDENT PROFILE IDENTIFICATION IN ONLINE JUDGE SYSTEMS USING EXPLAINABLE AI

S. SUNEEL KUMAR¹, B. GAYATHRI²,

U. BHAVANA SADVIKA³, K. HEMA LIKHITHA⁴, A. SRIKANTH⁵

¹Assistant Professor, Dept. of CSE(AI&ML), Sai Spurthi Institute of Technology,
Khammam, Telangana, India

^{2,3,4,5}B. Tech Student, Dept. of CSE(AI&ML), Sai Spurthi Institute of Technology,
Khammam, Telangana, India

ABSTRACT: These technologies, which are frequently employed in computer classrooms, are referred to as Online Judge (OJ). They are capable of impartially and expeditiously evaluating pupil work. Typically, this evaluation system generates a single outcome when a rubric is employed to determine whether a submission satisfies the task's requirements. Professors and students would both benefit from a greater degree of control over the overall evaluation of the project, as the automatic assessment system may fail to recognize certain aspects of exceptional academic achievement. We will utilize OJ data to provide instructors and children with real-time feedback to assist them in overcoming this obstacle. Multi-Instance Learning and essential machine learning methods, which are learning-based techniques that replicate student behavior, may generate more precise assessments. The model supports the hypothesis by accurately predicting a student's outcome, which is either passing or failing an assignment, based solely on the patterns of behavior shown in OJ entries. Teachers and students equally can benefit from this method, as it simplifies the presentation of more pertinent information, including student profiles and at-risk groups.

Index Terms – Online Judge, Explainable AI, Assignment, Feedback.



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AI-ENHANCED THREAT IDENTIFICATION FOR CYBERSECURITY IN FINANCIAL INSTITUTIONS USING MACHINE LEARNING MODELS

V.LALITHA¹, B. SAHITHI², B.H.S NAGI REDDY³, J.SURESH⁴, A. DHANUSH⁵

¹Assistant Professor, Dept. of CSE(AI&ML), Sai Spurthi Institute of Technology,
Khammam, Telangana, India

^{2,3,4,5}B.Tech Students, Dept. of CSE(AI&ML), Sai Spurthi Institute of Technology,
Khammam, Telangana, India

ABSTRACT: As digital assets become more linked to each other, cyber risks get bigger and more complicated. To find and reduce these threats, financial institutions should spend money on AI-powered solutions. In this case, their money will be safe. Machine learning has become an important tool for looking into threats to financial security that are unpredictable, complicated, and always changing. Tools that use artificial intelligence (AI), like natural language processing, advanced algorithms, and automatic reasoning systems, can help banks find possible threats and make their data more secure. This paper suggests a way for financial companies to use AI and machine learning to find cyber security problems. Machine learning systems are always getting better at finding strange data that could mean there is a security problem. Using specialized models that give useful information about internal and external threats, this approach helps financial organizations find and stop bad behavior.

Keywords: insights, internal, external, malicious, advancements.

IMPROVED BRAIN PATHOLOGY CLASSIFICATION USING A HYBRID DEEP LEARNING ALGORITHM: A NOVEL APPROACH

G.RAJESWARI¹, V.KEERTHI², V.SUDHEER³, M.GAYATHRI⁴, CH.MOHAN⁵

¹Assistant Professor, Dept. of CSE(AI&DS), Sai Spurthi Institute of Technology,
Khammam, Telangana, India

^{2,3,4,5}B.Tech Student, Dept. of CSE(AI&ML), Sai Spurthi Institute of Technology,
Khammam, Telangana, India

ABSTRACT: The most significant obstacle to treatment in neurology is early tumor diagnosis. Because brain tumors are so frequent, there is a lot of research into ways to spot cancer early. Automating and diagnosing using traditional image processing methods is difficult. Radiologists and doctors now have a new tool at their disposal to help diagnose brain tumors more quickly and with more confidence. This technique makes use of CNNs. Research and synthesis are aided in distinguishing benign from malignant occurrences by the increased feature maps generated by the proposed deep learning architecture. Two DNNs are combined in the suggested H-DNN design. Two methods have been developed based on information extracted from magnetic resonance imaging (MRI) scans; one uses spatial texture data from cranial images, and the other uses frequency domain data. In the end, we combine the two neural networks to make prediction score-based classification even better. In contrast to DNN-1, which makes use of Local Binary Patterns for training, DNN-2 makes use of frequencies from Wavelet Transformation. Both the Real MRI dataset and the BraTS T2-weighted MRI dataset were used to test the proposed model. The model used in this investigation achieved the best classification accuracy, at 98.7 percent, according to related work. The reported model fared better than both the DNN-1 and DNN-2 designs when comparing the accuracy, sensitivity, and specificity of the proposed technique.

Index terms: Brain Pathology Classification, Neural Networks, Brain Imaging, Hybrid Deep Learning.



A DEEP LEARNING BASED EFFICIENT FIREARMS MONITORING TECHNIQUE

**R.ADHINARAYANA¹, M.KEERTHI PRIYA², S.KUNDAN SAI³, P.NAVYA⁴,
G.KUTUMBARAO⁵**

¹Assistant Professor, Dept. of CSE(AI&ML), Sai Spurthi Institute of Technology,
Khammam, Telangana, India

^{2,3,4,5}B.Tech Students, Dept. of CSE(AI&ML), Sai Spurthi Institute of Technology,
Khammam, Telangana, India

ABSTRACT: As the prevalence of firearms in both legal and illegal settings continues to increase, it is imperative that we implement more sophisticated monitoring systems to ensure the protection of all individuals. This article provides an overview of a deep learning system that employs sophisticated neural network topologies to enhance the monitoring of armaments. This system is capable of recognizing, monitoring, and evaluating gun-related behaviors in real time. In an effort to precisely identify firearms in surveillance footage or other data sources, the proposed methodology implements numerous procedures, including classification, feature extraction, and image processing. Recurrent neural networks (RNNs) are employed for temporal analysis, while convolutional neural networks (CNNs) are employed for feature extraction. Consequently, the method is highly accurate and successful, even in challenging circumstances. This deep learning approach has the potential to substantially enhance tracking capabilities, as evidenced by experimental results. This may be employed by security and law enforcement to prevent firearm-related offenses and incidents.

Keywords: Deep Learning, Firearms Monitoring, Convolutional Neural Networks (CNN), Recurrent Neural Networks (RNN) and Real-time Surveillance.



Paper ID: **ICRTEM25_142**

ENHANCING IN-HOSPITAL MORTALITY PREDICTION WITH PERSONALIZED FEDERATED LEARNING ACROSS MULTI- CENTER ICUS

JAYA KRISHNA¹, K.AKANKSHITHA², J.SASI KIRAN³, R.THANUJA⁴, D.PUJIN
SHANKAR⁵

¹Assistant Professor, Dept.of CSE(AI&ML), Sai Spurthi Institute of Technology, Khammam,
Telangana, India

^{2,3,4,5}B.Tech Student, Dept.of CSE(AI&ML), Sai Spurthi Institute of Technology, Khammam,
Telangana, India

ABSTRACT: In this study, we show that Personalized Federated Learning (PFL) provides an innovative way to forecast hospital mortality in a critical care unit that serves many centers. Traditional central solutions come with their fair share of problems, like data privacy and inter-center incompatibilities. PFL uses federated learning approaches to build prediction models jointly, protecting patient data. When it comes to in-hospital mortality calculations, the tailored method greatly increases accuracy and reliability by tailoring predictions to each patient's particular requirements. In addition to fixing existing problems, this fresh method establishes a foundation for a safer, more ethical healthcare analytics system.

Index terms: Personalized Federated Learning, Multi-Center ICU, ICU Patient Data



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IT PROFESSIONALS STRESS DETECTION BY IMAGE PROCESSING USING DEEP LEARNING

Mrs. P. PRASHANTHI, Assistant Professor

Department of Computer Applications -MCA

St. Ann's College for Women, Mehdiapatnam, Hyderabad, Telangana.

Abstract: Individuals who work in the IT sector might be exposed to crisis-oriented jobs that are prolonged by long shifts, limited timeframes, and persistent problem-solving. Stress increases in these environments. Due to the nature of their work, IT practitioners have to spend a lot of time focused on a computer, which has previously been said to increase their stress and mental fatigue. If not managed properly, the stress mentioned above can escalate into serious adverse health consequences such as burnout, anxiety, depression, and other illnesses that can negatively impact performance and wellbeing. This study uses image processing and deep learning to assess IT professionals' stress. Monitoring an individual's mental state during prolonged computer use can reveal and reduce tension, improving IT workers' working conditions. This strategy aims to maximize employee performance during approved work periods by reducing tension and creating a supportive, dynamic environment. The study aims to create a reliable, easy, and accurate detection method. Through monitoring symptoms, the study seeks to understand employee stress levels, provide appropriate data, and properly predict stress levels.

Keywords: *Deep Learning, Image processing, Convolutional Neural Network, Facial expression recognition, Softmax.*



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WIFI BASED LED DISPLAY FOR COLLEGE

1Dr. P. SEKHAR BABU, Associate Professor & HOD, drsekharbabup@gmail.com

2K. NAVYA, 3M.SIRISHA, 4I.NARESH, 5Sk.Karishma

ECE Department, SAI SPURTHI INSTITUTE OF TECHNOLOGY,

B. Gangaram, Sathupalli mandal, Khammam District, Telangana.

ABSTRACT: The display development is driven by the increasing need to present information and graphics to larger audiences in more temporary and flexible formats. The need for portability, fast setup, easy reconfiguration and multiple uses has driven the need for light, efficient, easily erected, high quality displays. Through collaboration with multiple industry representatives, the display was designed to meet expectations of visual quality, portability, and display management, influenced by the LED arrangement, power efficiency, thermal regulation and physical construction. Notice Board is primary thing in any institution organization or public utility places like bus stations, railway stations and parks. But sticking various notices day-to-day is a difficult process. A separate person is required to take care of this notice display.

This project deals about an advanced hi-tech wireless notice board. The overall software interface is simple, powerful, easy to learn and use. The project is built around the P6 LED module. This acts as a controller and Wi-Fi module provides all the functionality of the display. Display is obtained on LED Matrix Display Array on printed circuit board. The scrolling speed text can also be changed according to user requirement using a mobile. This can be done using Wi-Fi wireless communication. The key outcomes of this prototype include an operational, full scale prototype display, which implements large LED display colour aliasing, a purely passive thermal management solution, a rapid deployment system, and LED current control with two way display communication, auto-configuration and complete signal redundancy.



Paper ID: ICRTEM25_145

LEVERAGING KNOWLEDGE GRAPHS WITH MACHINE LEARNING FOR HEART DISEASE PREDICTION

¹Dr. V. S. R. KUMARI, Professor & PRINCIPAL, vsrk46@gmail.com

2D. MADHU SHALINI, 3N. SIRISHA, 4N. SAI KRISHNA, 5CH. V. S. KRISHNA

ECE DEPARTMENT, SAI SPURTHI INSTITUTE OF TECHNOLOGY,

B. Gangaram, Sathupalli mandal, Khammam District, Telangana.

Abstract: Heart disease remains a leading cause of morbidity and mortality worldwide, and early detection is crucial to reducing its impact on public health. Traditional methods of heart disease prediction rely on structured clinical data such as blood pressure, cholesterol levels, and patient demographics. While these methods offer valuable insights, they often fail to capture the complex relationships between various risk factors, genetic predispositions, lifestyle choices, and medical histories that contribute to heart disease. To address these limitations, this paper explores the integration of Knowledge Graphs (KGs) with machine learning (ML) techniques as a novel approach to heart disease prediction.

Knowledge graphs are a type of data representation that models' entities (e.g., diseases, patients, symptoms, treatments) as nodes and captures relationships between them through edges. These graphs can represent complex, multi-dimensional medical knowledge, which is particularly useful for understanding how various health conditions and risk factors interact. By leveraging the power of KGs, this paper demonstrates how a richer, more holistic understanding of patient data can be incorporated into predictive models for heart disease. The ability of KGs to integrate data from diverse sources such as electronic health records (EHR), clinical studies, medical literature, and genomic databases presents a unique opportunity to improve the predictive accuracy of heart disease models.

Machine learning algorithms, particularly those utilizing graph-based techniques like Graph Neural Networks (GNNs), have shown promise in learning from graph-structured data. These algorithms can capture complex dependencies and infer new relationships that traditional machine learning models may overlook.



Paper ID: **ICRTEM25_146**

IOT ENABLED SMART SHOES FOR BLIND PEOPLE

1Mr. M SUNDARARAO, Assistant Professor, sundar.marsakatla@gmail.com

2M. SAI ESWAR, 3CH. BAGYA LAKSHMI, 4CH. RASHMITHA, 5M. SRIHARI

ECE DEPARTMENT, SAI SPURTHI INSTITUTE OF TECHNOLOGY,

B. Gangaram, Sathupalli mandal, Khammam District, Telangana.

Abstract: The mobility of blind individuals is often limited due to the inability to detect obstacles in their path, particularly in unfamiliar environments. Traditional aids such as white canes, while helpful, only offer limited functionality, detecting objects at close range. To address these limitations, this paper presents an innovative solution in the form of IoT-enabled smart shoes. These smart shoes incorporate ultrasonic sensors, Arduino microcontroller, LCD, voice IC with speaker, and vibration motors to create a system that provides real-time feedback to the wearer. The ultrasonic sensors continuously measure the distance to nearby obstacles and transmit this data to the Arduino.

If an obstacle is detected within a set range, the system activates audio feedback through the voice IC and vibration feedback via motors integrated into the shoes. The LCD provides additional visual cues, helping to display information such as distance to obstacles or system status. The voice IC uses pre-recorded messages to offer guidance like "Obstacle ahead," "Clear path," or "Turn left," providing intuitive audio feedback.

The vibration motors offer haptic feedback, with stronger vibrations indicating closer obstacles. This combination of visual, auditory, and tactile feedback creates a multi-modal navigation system, significantly enhancing the safety and autonomy of blind individuals. The integration of IoT technology allows for seamless communication between the various components, making the system responsive to real-time environmental changes.

Keywords: *IoT, smart shoes, blind people, ultrasonic sensors, Arduino, obstacle detection, voice feedback, vibration motor, LCD display, real-time navigation, assistive technology, mobility aids, haptic feedback, visually impaired, wearable technology.*



Paper ID: ICRTEM25_147

SMART TIMETABLE DISPLAY FOR STUDENTS' SUBJECT ALLOCATION IN CLASSROOM USING IOT

¹Mr. V. B GOPALA KRISHNA, Assistant Professor, gkvb24@gmail.com

**²B. A. ANITHA PAVANI, ³J. GNYANA SANDHYA, ⁴V. SRINIVASA RAO,
⁵G. GOPI CHANDU**

**ECE DEPARTMENT, SAI SPURTHI INSTITUTE OF TECHNOLOGY,
B. Gangaram, Sathupalli mandal, Khammam District, Telangana.**

Abstract: This essay describes the development of School bells have played a major role in all of our childhoods. But even with the advent of technology, a lot of things have gone digital, and the school bell is still a manual, antiquated bell. The first break occurs after two periods, and the second break occurs after the next two periods. After the fifth period, school is out. You can select a topic and duration for each period from a list of options in the project. The six days of the week that the user can set the schedule for are Monday through Saturday. The user can also alter the duration of each period. Our college's bell is set to ring continuously for ten seconds at a time in each of its blocks. This is accomplished by using data transmitted via the Internet of Things to notify teachers and students about the concurrent conclusion of a particular session in each block. In addition, a voice module is utilized to read aloud the data shown on the LCD module while a buzzer beeps to indicate an alarm. Three main parts were used in this Arduino college bell circuit: an Arduino Uno board, an IC RTCDS1307, and 16x2 LCD modules. The Arduino is a reading device. To develop this system, an STM32 controller, a Bluetooth module, a school bell buzzer, a 16 x 32-inch LED display, buttons, basic electronics components, and a PCB board are used. The STM 32 controller communicates with the user via the display. Both running and settings modes are available. The user can set the system's current schedule with timings using the Android app.

Keywords: ESP32; Buzzer; LCD; Power Supply; Time Table



AUTONOMOUS FIRE EXTINGUISHING ROBOT USING ARDUINO

¹**Mr. M VARA PRASAD, Assistant Professor, prasad.vara57@gmail.com**

²**K. JYOTHSNA, ³R. SRAVANI, ⁴P. CHANDRA SEKHAR, ⁵G. LEELA SAI MUKESH**
ECE DEPARTMENT, SAI SPURTHI INSTITUTE OF TECHNOLOGY,
B. Gangaram, Sathupalli mandal, Khammam District, Telangana.

Abstract: Fire hazards pose significant threats to life and property, necessitating rapid and effective response mechanisms. Traditional firefighting methods often involve human intervention, which can be perilous and time-consuming. This paper presents the design and implementation of an autonomous fire extinguishing robot aimed at detecting and suppressing fires without human intervention.

The proposed system utilizes an Arduino microcontroller as the central processing unit, interfaced with flame sensors to detect the presence of fire. Upon detection, the robot activates its movement system, comprising DC motors controlled via an L293D motor driver IC, enabling the robot to navigate towards the fire source. Simultaneously, a fan motor is engaged to blow air towards the flames, assisting in extinguishing the fire by depriving it of oxygen.

The flame sensors employed are infrared-based modules capable of detecting the infrared radiation emitted by flames. These sensors provide real-time feedback to the Arduino, which processes the data and determines the appropriate course of action. The L293D motor driver IC facilitates bidirectional control of the DC motors, allowing the robot to move forward, backward, and turn as needed.

Power supply considerations are critical for the autonomous operation of the robot. A suitable power source is selected to ensure that the Arduino, sensors, motors, and other components receive adequate voltage and current for reliable performance.

The integration of these components results in a functional prototype capable of autonomously detecting and suppressing fires. The system's effectiveness is evaluated through a series of experiments, demonstrating its potential as a valuable tool in fire safety applications.



Paper ID: **ICRTEM25_149**

V2G/G2V AND V2V CAPABLE GRID-CONNECTED OFF-BOARD EV CHARGER

**#1Mr.SHAIK SAIDULU, Assistant Professor,
#2N.HEMA MALAVIKA, #3D.SRINIVASARAO,
#4E.CHAITANYA PRAKASH, #5K.VIJAY KUMAR,**

**Department of EEE,
SAI SPURTHI INSTITUTE OF TECHNOLOGY(AUTONOMOUS), SATHUPALLY,
KHAMMAM.**

ABSTRACT: The integration of Vehicle-to-Grid (V2G), Grid-to-Vehicle (G2V), and Vehicle-to-Vehicle (V2V) capabilities in off-board electric vehicle (EV) chargers represents a significant step towards optimizing the power distribution system and enhancing the efficiency of electric vehicle charging infrastructure. A state-of-the-art off-board grid-connected electric vehicle charger for V2G, G2V, and V2V connections is designed and developed in this research. Grid stability and energy storage are both enhanced by the energy that EVs return to the grid through V2G. During power outages, V2V enables EVs to directly exchange power, while G2V gets electricity from the grid for optimal charging. Energy management, carbon footprints, and transportation system sustainability are all enhanced by smart technology and communication protocols that allow for EV-grid connection. With the charger that is shown, this is possible.

Keywords: *Vehicle-to-Grid (V2G), Grid-to-Vehicle (G2V), Vehicle-to-Vehicle (V2V), Off-board EV Charger, Grid-connected Charger, Smart Charging, Energy Management, Sustainable Transportation, Power Exchange, Electric Vehicle Infrastructure.*



Paper ID: **ICRTEM25_150**

ELECTRIC VEHICLE CHARGING SYSTEM THAT COMBINES SOLAR AND WIND ENERGY

#1Mr.D.Naga seshu, Assistant Professor,

#2S.MAHATHI, #3B.SHIVANI,

#4N.SRIKANTH, #5S.ROHINI, #6G.SAI REVANTH

Department of EEE,

**SAI SPURTHI INSTITUTE OF TECHNOLOGY(AUTONOMOUS), SATHUPALLY,
KHAMMAM.**

ABSTRACT: A sustainable and environmentally friendly power source was created with the development of EV charging systems that use solar and wind energy. Electric vehicles can be consistently charged and grid power consumption can be reduced with this system's usage of wind and solar power synergy. Charging stations that use renewable energy sources, such as wind turbines and photovoltaic (solar) panels, can maximize efficiency and reduce operating costs. A smart grid controls the flow of electricity and facilitates efficient charging through renewable sources like wind and solar. By providing an environmentally friendly alternative to traditional charging infrastructure, this hybrid energy solution reduces carbon emissions, increases energy independence, and facilitates the shift to cleaner mobility.

Keywords: *Electric Vehicle Charging, Solar Energy, Wind Energy, Renewable Energy, Hybrid Charging System, Smart Grid, Sustainable Transportation, Clean Energy, Energy Efficiency, Carbon Emissions Reduction.*



A PRIVACY-PRESERVING MACHINE LEARNING FRAMEWORK FOR RELIABLE INDUSTRIAL IOT APPLICATIONS

**Dr. BURLA SRINIVAS, Associate Professor &HOD, Department of CSE,
MOTHER TERESSA COLLEGE OF ENGINEERING AND TECHNOLOGY,
PEDDAPALLI, TG.**

ABSTRACT: The Industrial Internet of Things (IIoT) is revolutionizing many vital industries, including electricity, transportation, energy, construction, and agriculture. Machine learning techniques are used to gain understanding of procedures within an IT architecture. In many cases, IIoT network unit centers gain an unusual advantage by decreasing their vulnerability to illegal access by hackers. IIoT models must incorporate a wide range of practical scenarios. One factor to examine is the adoption of security measures and their practical importance. The solution uses PriModChain, a combination of differential protection, the Ethereum blockchain, and uniform machine learning, to assure the safety and security of IIoT data. As a result, safety will be jeopardized. To solve the situation, we employ the PriMod chain, which ensures that everyone is safe and follows the rules. Python and connection programming are used in the design of this system on crucial personal computers.

Keywords: IIoT trustworthiness, blockchains, Ethereum, federated learning, differential privacy, IPFS.



BUILDING ROAD EVENT AWARENESS FOR AUTONOMOUS DRIVING: THE ROAD DATASET

**M. THIRUPATHAMMA¹, N. LEELAVATHI², V. DURGA JYOTHI³, V. SUREKHA⁴,
CH. MANIKANTA⁵**

¹Assistant Professor, Dept. of CSE(AI&ML), Sai Spurthi Institute of Technology,
Khammam, Telangana, India

^{2,3,4,5}B. Tech Student, Dept. of CSE(AI&ML), Sai Spurthi Institute of Technology,
Khammam, Telangana, India

ABSTRACT: Vehicle control is enhanced by comprehending the physics of dynamic road events. With these features, autonomous cars can be more conscientious of their surroundings and make better decisions. A more humane side will emerge in them. Autonomous Driving's inaugural Road Event Awareness Dataset (ROAD) is currently downloadable, lending a hand to this endeavor. In ROAD, we put an autonomous car through its paces by having it identify road events, such as actors, their behaviors, and where in a scene they appear. Border boxes in the film from the Oxford Robot Car Dataset show where road events took place. The problems with autonomous vehicles' situational awareness need to be highlighted. ROAD facilitates the investigation of intriguing challenges like as activity identification, continuous learning, and future prediction.

Keywords: - ROAD, Driving, Location, Anticipation, Autonomous Driving, Dataset, Traffic Events.



Paper ID: **ICRTEM25_153**

TWO-STAGE APPROACH TO JOB TITLE CLASSIFICATION IN ONLINE JOB ADVERTISEMENTS FOR ENHANCED ACCURACY

**DR. T .VEERANNA¹, SD.RUMANA TAHREEN², MD.SUMYKA³, M.VENU
SAKETH⁴, M.SAI KIRAN⁵**

¹Associate Professor,HOD, Dept. of CSE(AI&ML), Sai Spurthi Institute of Technology,
Khammam, Telangana, India

^{2,3,4,5}B.Tech Student, Dept. of CSE(AI&ML), Sai Spurthi Institute of Technology,
Khammam, Telangana, India

ABSTRACT: Advertising available positions online has grown ubiquitous in modern culture, largely because to the proliferation of social media and other kinds of online advertising. Because of this, many people will be worried about studies that try to predict how accurate fraudulent job ads would be. Like many other classification problems, predicting fake job postings is difficult for a variety of reasons. A number of data mining and classification methods were proposed in this paper as potential tools for detecting fraudulent job postings. These algorithms include KNN, decision trees, support vector machines, naive bayes, random forest, multilayer perceptrons, and deep neural networks. We used 18,000 records extracted from the Employment Scam Aegean Database (EMSCAD) for our investigation. For this type of categorization, deep neural networks work wonderfully as models. This deep neural network classifier features three substantial layers. With a DNN classification performance of around 98%, our trained classifier can identify the type of fraudulent job post.

Keywords: Job Title Identification, Online Job Advertisements, Two-Stage System, Text Classification.



Paper ID: **ICRTEM25_154**

INVESTIGATING CONCEPTUAL FRAMEWORKS FOR CAPITAL BUDGETING VALUATION

#1Mr.V.SURESH, Assistant Professor,

#2CHILAKA RAHUL, #3MARRI PUSHPA,

#4TANGELLAPALLI LAKSHMI NAGENDRA, #5VEMULA KUSUMA,

Department of MBA,

**SAI SPURTHI INSTITUTE OF TECHNOLOGY(AUTONOMOUS), SATHUPALLY,
KHAMMAM.**

ABSTRACT: A Budget for capital expenditures is a critical component of any financially sensible strategy. The internal rate of return, net present value, and payment duration may be taken into account in capital planning. Graham and Harvey recommend that due diligence be conducted solely on discount-free metrics, such as internal rate of return (IRR) and present value (PP). Techniques such as NPV and PP are frequently surveyed due to their widespread use. Complex strategies are frequently preferred by organizations with substantial financial resources. The expense of capital is a significant factor in the risk assessment of over 70% of organizations. This paper addresses critical issues, which may enable others to read it and make more informed decisions. The direction of future research will be determined by the results of this exploratory study.

Keywords: *Capital Expenditure Budgeting, Internal Rate of Return (IRR), Net Present Value (NPV), Payback Period (PP), Discount-Free Metrics, Investment Appraisal Techniques, Risk Assessment.*



Paper ID: **ICRTEM25_155**

A STUDY OF RETAIL BANKING'S CURRENT CHALLENGES AND OPPORTUNITIES IN INDIA

#1Mrs.D.NAGA TEJA, Assistant Professor,

#2 KAKKIRALA BHARADWAJA, #3NEELAPALA VENU,

#4NELAPATLA PAVANI, #5PAKANATI KIRAN KUMAR,

Department of MBA,

**SAI SPURTHI INSTITUTE OF TECHNOLOGY(AUTONOMOUS), SATHUPALLY,
KHAMMAM.**

ABSTRACT: India's finance sector is evolving. Remote places will benefit from anytime, anywhere banking with dedicated channels and advanced technology. Technology can lower last-mile expenses and improve non-banker services, increasing financial inclusion. New banks like microbanks help. The financial sector changes for several reasons. Technological, legal, demographic, economic, and customer expectations drive change. Successful banks must overcome these problems and restructure. Banks must adapt to survive. The Indian banking and finance sector is growing. The Indian banking sector is worth \$1.31 trillion (Rs. 81 trillion). Mobile phones and the internet speed up bank transactions and engage customers. India has 61 RRBs, 90,000 credit cooperatives, 20 commercial, public, and 43 international banks. Banking might rank third globally by 2025 and fifth by 2020. We evaluate Indian retail banking's opportunities and limitations.

Keywords: *Indian Finance Sector, Financial Inclusion, Remote Banking, Mobile Banking, Technological Advancements, Banking Restructuring, Customer Expectations, Retail Banking, Digital Banking,*



Paper ID: **ICRTEM25_156**

REVOLUTIONIZING MEDICAL CARE WITH MACHINE LEARNING: CURRENT APPLICATIONS AND FUTURE TRENDS

**M. THIRUPATHAMMA¹, A. PRANAY KUMAR², S. SAI SUJITHA³, D. MADHU
BABU⁴, B. VAMSI⁵**

¹Assistant Professor, Dept. of CSE, Sai Spurthi Institute of Technology, Khammam,
Telangana, India

^{2,3,4,5}B.Tech Student, Dept. of CSE, Sai Spurthi Institute of Technology,
Khammam, Telangana, India

ABSTRACT: Many new uses for AI and ML have surfaced in recent years, thanks to the increased interest in these fields. It is both an intellectual frontier and something that we deal with every day. This development involves bringing together AI and medical treatment. The main idea's proposition also greatly diminished the existing disparity in medical resource allocation and utilization. Machine learning and auxiliary tumor treatment have several uses in healthcare resource allocation, and this article summarizes them all. In addition, it presents innovative ways to make it more relevant to people's lives and investigates a potential win-win situation where the tech and healthcare sectors work together in the AI age.

Index terms: *Artificial Intelligence (AI), Predictive Analytics, Medical Diagnostics.*



APPLYING DEEP NEURAL NETWORKS FOR MULTI-CLASS DIAGNOSIS OF RETINAL DISEASES WITH EYE DEEP-NET

SK. YAKOOB¹,

M. MURALI KRISHNA², K. DEEPTHI³, S. PRASANTHI⁴, SK. AMAN⁵

¹Associate Professor, Dept. of CSE, Sai Spurthi Institute of Technology, Khammam,
Telangana, India

^{2,3,4,5}B.Tech Student, Dept. of CSE, Sai Spurthi Institute of Technology, Khammam,
Telangana, India

ABSTRACT: In order to diagnose a wide range of eye problems, ophthalmologists use retinal scans. Because microvascular anomalies in the retina can signal a number of retinal disorders and allow for the appropriate and timely delivery of treatment, early medical image recognition has been the subject of extensive research. This research presents a new method for automated deep learning that uses color fundus images to detect a variety of eye illnesses without invasive procedures. Several eye diseases and disorders. An efficient diagnostic approach was built upon the Remind dataset. After gathering multi-class fundus images from a multi-label dataset, a number of augmentation approaches were applied to the structure to make real-time improvements. The jobs with the least amount of image processing requirements were located by the network. The processing skills learned by the basic convolutional neural network (CNN) from the color fundus image input dataset allowed it to execute predictive diagnosis. An established multi-layer neural network for the detection of particular ocular illnesses Deep-Eye Net The suggested model outperforms several baseline state-of-the-art models by a considerable margin. Multiple statistical metrics are employed to ascertain the Eye Deep-Net's effectiveness. Through a thorough comparison using contemporary methodologies, the effectiveness of the suggested approach for illness classification and diagnosis based on digital fundus imaging is established.

Keywords: convolutional neural network (CNN), Eye Deep-Net, Fundus Image Processing.



TOURISM RECOMMENDATION SYSTEM USING DECISION TREES FOR PERSONALIZED TRAVEL SUGGESTIONS

**CH. BALAKRISHNA¹, Y. SAI PRIYA², CH. SANDHYA RANI³, CH. UMA
SHANKAR⁴, N. CHARAN TEJA⁵**

¹Assistant Professor, Dept. of CSE, Sai Spurthi Institute of Technology, Khammam,
Telangana, India

^{2,3,4,5}B.Tech Student, Dept. of CSE, Sai Spurthi Institute of Technology,
Khammam, Telangana, India

ABSTRACT: Travelers have the most difficult task before and during their trips: choosing a destination from all the available information, both online and otherwise. This issue was tried to be fixed in previous TRSs. Technical considerations, such as system accuracy, and practical considerations, such as usability and satisfaction, have, however, received little attention from us. The first step in fixing this problem is learning all we can about visitors' decision-making processes and creating new models for their information-seeking behaviors. We provide a new kind of human-centered TRS in this research, which could lead visitors to hidden gems in an unfamiliar city. Using a real-world dataset, it considers both theoretical and practical aspects. A two-step feature selection method was used to limit the system's input count during development, and suggestions were made using decision tree C4.5. According to the research, the proposed TR Scan can successfully suggest vacation spots to every user.

Keywords: Recommendation System; Tourist Destination, Feature Selection; Filtering methods.



THE ROLE OF AI IN ENHANCING E-GOVERNANCE AND CYBERSECURITY IN SMART CITIES: PERSPECTIVES FROM KEY STAKEHOLDERS

VV SIVAPRASAD¹, Y. YUVARAJ KALYAN², K. UHANJALI³, Y. SRI
MANJUNADHA⁴, G. PRAMOD⁵

¹Assistant Professor, Dept. of CSE, Sai Spurthi Institute of Technology, Khammam,
Telangana, India

^{2,3,4,5}B.Tech Student, Dept. of CSE, Sai Spurthi Institute of Technology,
Khammam, Telangana, India

ABSTRACT: Artificial intelligence (AI) is a fundamental technology of the Fourth Industrial Revolution (Industry 4.0). It safeguards computer network systems from viruses, phishing, cyberattacks, harm, and fraudulent access. Through e-government, artificial intelligence has the capacity to enhance the cyber capabilities and security of nations, local governments, and non-governmental organizations. Although this association is believed to be context-dependent, recent research suggests a muddled relationship between cybersecurity, e-government, and artificial intelligence. These topics are influenced by and affect a multitude of stakeholders with varying backgrounds and specializations in artificial intelligence, e-government, and cybersecurity. In order to address this context-specific lacuna, this article investigates the interconnections between cybersecurity, e-government, and artificial intelligence. Furthermore, this investigation investigates the impact of eGovernment on the relationship between cybersecurity and artificial intelligence, as well as the impact of stakeholder participation on that relationship.

Index terms: Artificial Intelligence (AI), E-Governance, Cybersecurity, Smart Cities, Data Privacy.



Paper ID: **ICRTEM25_160**

EARLY CARDIAC ARREST DETECTION FOR NEONATES IN THE ICU USING STATISTICAL AND MACHINE LEARNING MODELS

J. RAJAKALA¹, J. JAHNAVI², G. BHAVANA SRI³, K. RAVI KUMAR⁴, MV SAI
DURGA NITHIN⁵

¹Assistant Professor, Dept. of CSE, Sai Spurthi Institute of Technology, Khammam,
Telangana, India

^{2,3,4,5}B.Tech Student, Dept. of CSE, Sai Spurthi Institute of Technology,
Khammam, Telangana, India

ABSTRACT: Infant therapy relies on early detection of cardiac arrest. Potential indicators and symptoms of this illness are the focus of the current inquiry. This study aims to use statistical methods to train a cardiac machine learning model (CMLM) for use in the critical care unit (CICU) that can identify symptoms of infant cardiac arrest. Several neonatal physiological features allowed for the correct identification of cardiac arrest cases. Using state-of-the-art machine learning statistical modeling approaches, the models for cardiac arrest prediction were painstakingly developed. This method aims to quickly identify neonates in the NICU who are having a cardiac arrest. Several measures were outperformed by the proposed CMLA in training-based comparison trials. If carried out as intended, this strategy should drastically cut down on ICU cardiac arrest-related deaths and injuries. The neonatal cardiac arrest will be diagnosed as soon as possible by the CICU by following the prescribed protocol. The proposed CMLA acquired a CSI value of 0.842, a prevalence threshold of 0.859, a false omission rate (FOR) of 0.076, a false discovery rate (FDR) of 0.894, and a delta-p of 0.912 in a training (Tr) comparative zone. The suggested CMLA is 0.827 CSI, 0.878 FDR, 0.061 FOR, 0.844 prevalence threshold, and 0.896 delta-p values in a testing zone (Ts).

Keywords: Cardiac Machine Learning model (cmlm), logistic regression classifiers, Gradient Boosting.



Paper ID: **ICRTEM25_161**

IDENTIFYING PHISHING LOGIN URLS: A PRACTICAL APPROACH FOR PHISHING URL DETECTION

B.SRINIVASA RAO¹,

CH.DEEPTHI², V.ANIL KUMAR REDDY³, R.RAMARAO⁴, B.SIVATEJA⁵

¹Assistant Professor, Dept. Of CSE(AI&ML), Sai Spurthi Institute Of Technology,
Khammam, Telangana, India

^{2,3,4,5}B.Tech Student, Dept. Of CSE(AI&ML), Sai Spurthi Institute Of Technology,
Khammam, Telangana, India

ABSTRACT: Criminals trick users into giving over sensitive information by creating phony websites. This kind of attack is known as phishing. It has become a major threat to public security. Making fake signup pages that seem like real websites is a common way for hackers to get user credentials. By analyzing login URLs, this study aims to detect phishing URLs in real-life situations. The capacity of individuals to differentiate between legitimate and fraudulent websites has been made more difficult by the increasing complexity of phishing attempts. In order to trick people into giving up their login credentials, phishers often use legitimate service login screens, like those for social networking, email, and banking. In order to avoid financial loss, unauthorized access to personal information, and identity theft, people need to be able to recognize these phishing URLs. A technique for detecting phishing URLs, with a focus on logon URLs, is detailed in this study. This method incorporates analyzing site content, evaluating URL attributes, and applying machine learning algorithms. In order to determine if a URL is an effort at fraud, several criteria are used, including name similarity, SSL certificate authenticity, content analysis, and URL structure.

Keywords: URL, SSL, phishing attacks, SVM, dataset.



Paper ID: **ICRTEM25_162**

OPTIMIZED GRID INTEGRATION OF WIND-PV HYBRID SYSTEMS USING BACK-TO-BACK VOLTAGE SOURCE CONVERTERS

Dr. SRAVAN KUMAR PURELLA, Assoicate Professor & HOD,

Department of EEE,

SREE CHAITANYA INSTITUTE OF TECHNOLOGICAL SCIENCES,

KARIMNAGAR, TG.

Dr. K. CHANDRAMOULI, Professor & HOD in EEE Dept.

VAAGESWARI COLLEGE OF ENGINEERING, (S4), KARIMNAGAR.

ABSTRACT: The novel configuration for a grid-connected wind-solar cogeneration system is described in this study. The defining characteristics of the proposed topology are its simplicity and exceptional efficiency. The utility grid is connected to a wind turbine that is outfitted with permanent magnet synchronous generators and back-to-back voltage-source converters (VSCs). Using the dc-link capacitor, a photovoltaic solar generator was directly connected to the system. The simplification and effectiveness of the hybrid system are enhanced by the elimination of dc/dc conversion phases. The suggested configuration integrates a technological system that monitors the optimum power points of wind and solar generators in order to optimize the harvesting of sustainable energy. In the rotating reference frame, the VSCs are governed by vector control. Component-level small-signal model construction determines the system's overall stability. Additionally, the operational effects of utility grid disruptions on the proposed system are investigated in depth. Effectiveness of the proposed topology is demonstrated through the presentation of simulation outcomes in the nonlinear time domain for various operational scenarios.

KEYWORDS: VSC, VSI, PI controller, Power quality.



Paper ID: ICRTEM25_163

A HYBRID DEEP LEARNING APPROACH FOR GLAUCOMA DETECTION

Mrs. V. Divya Raj, P. Keerthy, L. Amrutha, T. Nishitha, V. Meghana

Department of Computer Science & Engineering, GNITS, Hyderabad, India.

ABSTRACT

Glaucoma is an eye disease that causes irreversible blindness. It often occurs due to increased intraocular pressure and damages the optic nerve. Symptoms are not recognizable during early stages, making it the most challenging aspect of glaucoma. In existing technologies, including fundus imaging, require examination by an ophthalmologist. This is a very time-consuming process and might be prone to subjective human errors. These existing models also suffer from noisy images and require very high computational power.

This project uses deep learning approaches to make glaucoma detection simpler and easier by making it automated. By using multiple CNN architectures like ResNet50 and AlexNet to compare and enhance the computational accuracy. The proposed system has been implemented on both a private dataset from LV Prasad Eye Institute and public datasets from Kaggle (ORIGA, ACRIMA, DRISHTI-GS). The quality of the retinal images has been improved by various preprocessing techniques such as noise deduction, contrast enhancement, and normalization. These techniques make CNN architecture extract features more effectively. Data augmentation and hyperparameter tuning are used for training the system to enhance generalizability.

The developed model is evaluated based on the achieved accuracy to determine its effectiveness in detecting glaucoma, in which ResNet50 has achieved 95% accuracy and AlexNet has achieved 66% accuracy. It is evident that ResNet50 has achieved greater results and is more effective and efficient in detecting the required results.



Paper ID: **ICRTEM25_164**

DESIGN OF A LOW-POWER WIRELESS SURFACE ELECTROMYOGRAPHY (SEMG) SYSTEM FOR VERSATILE BIOMEDICAL APPLICATIONS

**Dr. PRAVEEN KUMAR VOLADRI, Associate Professor & HOD,
Department of EEE,
SREE CHAITANYA INSTITUTE OF TECHNOLOGICAL SCIENCES,
KARIMAGAR, TG.**

ABSTRACT: Bioelectric signals from the body may now be collected and analyzed in real time because to advancements in electronics, technology, signal processing, and computing. Different challenges must be solved depending on the signal's frequency and qualities. Furthermore, data from numerous sources must be transmitted simultaneously, at a frequency of up to 1 kHz. Another problem is appropriately detecting the bioelectric signals that are being transmitted. These signals can have amplitudes of tens of microvolts, therefore they must be extremely sensitive with minimal noise interference. These characteristics contributed to the development of a low-power wireless Electromyography (EMG) data exchange system capable of meeting these stringent requirements. This effort included the development of a hardware system for processing EMG analog signals, as well as computer-based software to support it. Many large issues have been solved in the course of developing analog circuitry capable of processing EMG signals. One of the issues is bias DC current, which causes artifacts and noise. By plotting the gathered EMG data on graphs and using computer-based tools, the user may clearly see and judge it. The findings of this study indicate that a surface electromyography (EMG) device can be utilized to obtain EMG data. This information can then be applied to movement analysis, sports medicine, rehabilitation, and medical tests. The findings indicate that the proposed system delivers and receives signals appropriately, with no information loss.

Keywords: Electromyography, wireless, Biceps brachii muscle, surface electrodes.



Paper ID: ICRTEM25_165

DEVELOPMENT OF A HAND MOTION CONTROLLED 360° ROTATING PICK AND PLACE ROBOT

V.Venkatrami Reddy, Assistant Professor,

B.Naresh , Assistant Professor,

K.Polaiah, Assistant Professor,

Sai Spurthi Institute of Technology(Autonomous), Sathupally, Khammam.

ABSTRACT: The development of a pick-and-place robotic arm with 360-degree rotation, operated using hand gestures, is presented. Robotic arms are essential in industrial automation due to their ability to improve precision, efficiency, and safety, particularly in hazardous environments.

This system uses an Arduino Mega 2560 microcontroller to control the robotic arm and implements basic kinematic logic to achieve accurate positioning. Dc motors are used for the actuation of various joints and movements, offering precise control over angular displacement, which is essential for the pick-and-place task. Gesture control is implemented using sensors, allowing users to control the robot intuitively and without the need for traditional programming. The robot is suitable for applications such as sorting, basic assembly, material handling, and assistive technologies. Its gesture-based control enhances accessibility and ease of use, reducing operator effort and improving safety. This project demonstrates a practical and low-cost automation solution with future potential for enhancement using AI-based gesture recognition and advanced motion control systems.

Keywords: Robotic Arm, Pick and Place, 360-Degree Rotation, Hand Gesture Control, Automation, Kinematics, Arduino Mega 2560, Servo Motors.



LITERATURE AS A TOOL FOR IMPROVING COMMUNICATION SKILLS AMONG NATIVE AND NON-NATIVE LEARNERS

V.Venkateswarlu, Assistant professor, SSIT, B.Gangaram, venkatfame1@gmail.com

V.Suresh Kumar, Assistant Professor, SSIT, sureshsaiv@gmail.com

K.Krishna kumar, Assistant Professor, SSIT,

Abstract:

Many non-native and native speakers from throughout the world have demonstrated that English is a global language. It is also known as the global language because it is the primary means of communication across countries. In our country, the use of English as a common language is critical in education. English learners must place a major emphasis on communication skills. The ultimate purpose of language instruction is to increase communicative abilities. Pragmatics is the process of transferring meaning through communication, and language proficiency is viewed as a tool for communication. Through teaching literature there is a possibility of instilling communication skills among the learners. Pragmatic competence is the ability to perceive and transmit concepts that are more appropriate and acceptable for the cultural and social contexts in which communication occurs. Even though English is used at many levels of communication, speakers must be familiar with a wide range of pragmatic components in order to produce coherence and the ability to adapt to a number of contexts. As a result, one of the primary goals of school should be to improve pragmatic ability while simultaneously assisting with future comprehension.

Keywords: *English, communication, literature, activities, communication skills, day to day life.*



REWARD SYSTEM AS A STRATEGY TO ENHANCE EMPLOYEES PERFORMANCE INAN ORGANIZATION

**Dr. M. SWETHA, Associate Professor & HOD,
Department of MBA,
Jyothishmathi Institute of Technology and Science(Autonomous), Karimnagar.**

ABSTRACT: Employee performance is a crucial factor that has a direct impact on the success and viability of any organization. Of all the strategic tools employed by management, reward systems have always been effective in increasing employees' motivation levels, job satisfaction, and ultimately, their performance outcomes. This paper explores the function of reward systems—both intrinsic (recognition, career growth, flexible work arrangements) and extrinsic (bonuses, salary increases, incentives)—as a performance improvement tactic in organizational contexts. Using established motivational theories like Maslow's Hierarchy of Needs and Herzberg's Two-Factor Theory, the research analyzes the psychological and behavioral effects of rewards on employees. Applying a mixed-methods research strategy, data were gathered using structured questionnaires and performance records in various organizational industries. The findings reveal a significant positive relationship between well-designed reward systems and worker productivity, commitment, and retention. In addition, the study outlines best practices for designing fair and goal-focused reward systems that link employee ambitions with organizational goals. This study provides significant insights to human resource practitioners and organizational managers aiming to build a high-performance work culture using proper reward schemes.

Keywords: *Reward System, Employee Motivation, Organizational Performance, Human Resource Strategy, Job Satisfaction, Incentives, Productivity Improvement, Workforce Engagement.*



OPTIMIZING RSS THRESHOLDS USING COMPARATIVE FILTERING FOR BETTER NETWORK PERFORMANCE

#1BOORLA SANTHOSH, *Research Scholar,*

#2Dr. ANUPAM DESHPANDE, *Associate Professor & Guide,*

#3Dr. T. SRINIVAS, *Professor & Co-Guide,*

**Department of Electronics & Communication Engineering,
SHRI JAGDISHPRASAD JHABARMAL TIBREWALA UNIVERSITY,
RAJASTHAN.**

ABSTRACT: Received Signal Strength (RSS) is central to the performance and reliability of wireless communication systems. Nevertheless, the dynamic nature of signal propagation in real-world environments tends to create signal fluctuations affecting threshold-based decision-making mechanisms. A comparative method of optimizing RSS thresholds by employing different filtering techniques, i.e., Kalman Filter, Moving Average Filter, and Gaussian Filter, is proposed in this paper. The goal is to reduce signal noise, optimize threshold accuracy, and enhance overall network performance in connectivity, handover efficiency, and data transfer. The proposed framework, through simulation and empirical analysis, proves to be highly superior in terms of stability and responsiveness of RSS-based decisions for various wireless network conditions. The results justify incorporating adaptive filtering techniques to realize robust signal handling and optimal network resource utilization.

Index Terms: RSS Threshold, Wireless Networks, Filtering Techniques, Kalman Filter, Signal Optimization, Handover, Network Performance, Noise Reduction.



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STUDY OF REFLECTION COEFFICIENTS IN SELF –REINFORCED MEDIUM IN THE ABSENCE OF DISSIPATION

¹Dr.A.Sinduja, Asst.Prof. ²Mrs.D.Sridevi Assistant Prof.

³Mrs. Ch.Leelavathi, Asst.Prof ⁴Mrs. K.Vasavi, Asst.Prof

1,2,3,4 Sai Spurthi Institute of Technology B.Gangaram, Sathupally, Khammam TG-507303

ABSTRACT: The reflection coefficients of self-reinforced poroelastic medium in the absence of dissipation are calculated. In this the reflection coefficients of fast dilatational P-I wave , slow dilatational P-II wave and the shear SV wave are calculated. The results are depicted in the graphs which are in numerical session, for this MATLAB is used to get the numerical results.



Paper ID: **ICRTEM25_170**

PROPERTIES AND APPLICATIONS OF LASERS

¹Dr.Meera Saheb Professor, ²Y.Vijaya, Assistant Professor,

³P.Sailaja:Assistant Professor, ⁴M.Aishwarya(AIDS),

⁵N.Dakshayani(CSE), ⁶O.Sadvarshini(CSE)

^{1,2,3,4,5,6}Sai Spurthi Institute of Technology , B.Gangaram, Sathupally, Khamma, TG-507303

ABSTRACT: Laser is a special kind of electron magnetic radiation with exotic properties and valuable application. High directionality, High mono chromaticity, high coherence and high intensity are the features of laser. these characteristics of laser inspires as for inventing new laser device with novel application.

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