

SOUVENIR
3rd INTERNATIONAL CONFERENCE
ON
IOT, ROBOTICS AND
AUTOMATION

IIIRA-2023

Organized by



In Pursuit of Excellence

MORADABAD INSTITUTE OF TECHNOLOGY
Ram Ganga Vihar Phase-2, Moradabad (UP) 244001
Phone – 0591-2452412

Souvenir
International Conference
on
IoT, Robotics and
Automation
IIRA – 2023

(26th-27th, July 2023)

Edited by

Mr. Manas Singhal
Mr. Abhinav Gupta
Mr. Akash Gautam

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Preface

We take this opportunity to welcome you all to the Souvenir of the third Online International Conference on Innovation in IoT, Robotics and Automation (IIRA-3.0).

The objective was to bring the eminent academicians, scientists, researchers, industrialists, technocrats, government representatives, social visionaries and experts from all strata of society, under one roof, to explore the new horizons, of innovative technology to identify opportunities and defining the path forward. This new path should eliminate isolation, discourage redundant efforts and promote scientific progress aimed to accelerate India's overall growth to prominence on the international front and contribute effectively to realize and achieve the India 2023 mission of being a Development Nation. The conference will feature online paper presentation sessions, online invited talks, online keynote addresses and online panel discussions. Conference has attracted researchers and practitioners from academia, industry and government agencies, in order to exchange ideas and share their valuable experiences.

We are grateful to a number of people without which we would not have been able to successfully organize this mega event, in such a short period of record time. On behalf of the Organizing Committee, we thank all esteemed authors for having shown confidence in us and considered IIRA-3.0 an online platform to share their work. We wish to express our gratitude to our focused and dedicated team of Convener, Co-conveners, members of the Advisory Committee, Organizing Committee, Technical Committee and Local Organizing Committee and finally our students for being a great source of strength to us in making this event successful.

We consider ourselves fortunate to get such a dedicated and ever supporting team.

We are personally thankful to our Director, Prof. (Dr.) Rohit Garg, who was always a constant source of technical guidance, as and when we needed.

We also take this opportunity to thank various organizations which have sponsored and collaborated with us in organizing this conference and meeting the financial constraints.

Finally, we are thankful to one and all, who have contributed directly or indirectly in making this conference successful.

Last but not the least, we take this opportunity to give the credit of successfully bringing out this Souvenir to our team, one and all, and personally own the responsibility of all the errors, deficiency and shortcomings.

In the last, we are thankful to Almighty God for giving us strength in successful organization of this conference.

Dr. Amit Saxena
Organizing Secretary
IIRA-3.0

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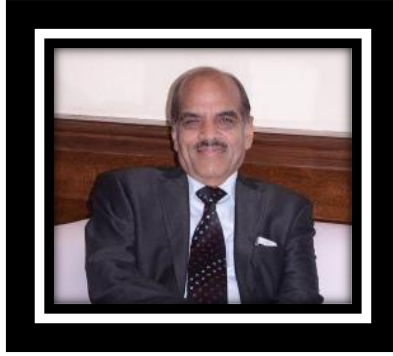
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WELCOME MESSAGES FROM ORGANIZERS



Message

It is a matter of great pride that Moradabad Institute of Technology is organizing an Online International Conference on Innovation in IoT, Robotics and Automation (IIRA-3.0) on 26-27, July 2023 at MIT, Moradabad.

In recent years, the students and faculty have done lots of efforts in research and development in various engineering streams which is highly appreciated in all the press widely.

I am sure that the conference would provide the participants a unique opportunity to present ideas, R&D innovations & exchange technical knowledge to identify solutions to global engineering challenges and this exposure would enable the young generations to explore emerging directions for healthy discussions among practitioners of the field.

I appreciate the efforts put in by the organizing committee and wish the conference to be successful and helpful in enriching the knowledge of all, this innovative activity of MIT, Moradabad will reach to different institutes of AKTU and even beyond.

Ar. Y.P. Gupta
Chairman
MITGI, Moradabad



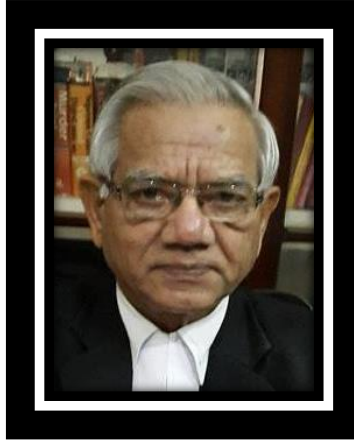
Message

I am delighted to know that the Moradabad Institute of Technology is organizing an Online International Conference on Innovation in IoT, Robotics and Automation (IIRA-3.0) on 26-27, July 2023 at MIT, Moradabad.

The theme of the conference is very appropriate and it signifies the importance of engineering and technology in our day to day life. I understand that renowned Engineers, Academicians and Students will be participating in this conference. I trust that the conference will prove to be an effective instrument to present the vision of the subject and will be successful in achieving its objective.

On this happy occasion, I extend my best wishes and greetings to the organizers and wish the conference all success.

Sri. Adarsh Kumar Agarwal
Secretary
MITGI, Moradabad



Message

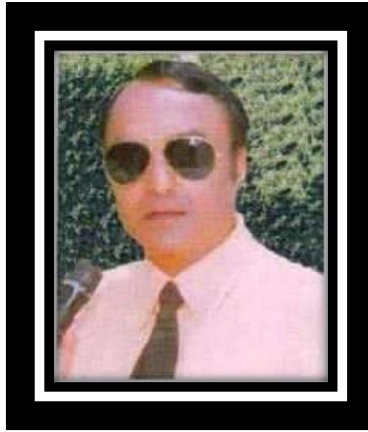
It gives me immense pleasure to know that the Moradabad Institute of Technology is organizing an Online International Conference on Innovation in IoT, Robotics and Automation (IIRA-3.0) on 26-27, July 2023 at MIT, Moradabad.

I am sure through this conference, we shall take another leap forward in the research and development process. This conference will provide us an opportunity to share the latest advancements in the field of Engineering & Technology not only nationally but globally also.

This conference will be beneficial to the faculty as well as the students of our Institute by improving their skills and making them aware of how to manage and utilize available resources in a better way.

I take this opportunity to cordially felicitate the chairman and the organizing committee of the conference for having taken all the pains to make arrangements for this conference. I am sure the conference will be able to achieve the designed purpose and will be a grand success.

Sri. Sudhir Gupta
Founder Chairman
MITGI, Moradabad



It gives me immense pleasure to extend my greetings to the organizing committee for organizing an Online International Conference on Innovation in IoT, Robotics and Automation (IIRA-3.0) on 26-27, July 2023 at MIT, Moradabad.

The main objective of the conference is to bring together academicians, technocrats and researchers to discuss recent advances and futuristic trends in Engineering and Technology. I am sure that the conference will ignite intellectual minds, enrich the experienced and benefit the industries with new emerging possibilities and myriads of opportunities.

I wish to convey my greetings to the participants and organizing committee and pray for the successful completion of the conference. All the success, all the participants as well as to the organizing committee.

Sri. Arvind Kumar Goel

Vice Chairman

MITGI, Moradabad



Message

I am glad to know that the Moradabad Institute of Technology is organizing an Online International Conference on Innovation in IoT, Robotics and Automation (IIRA-3.0) on 26-27, July 2023 at MIT, Moradabad.

The success, progress and prosperity of a nation depend upon the quality and type of education imparted to its younger generation. The greatest emphasis is to be given towards character formation, innovative thinking and personality development.

On this occasion, I wish the conference grand success.

Sri. Neeraj Kumar Agarwal
Treasurer
MITGI



Message

I feel extremely happy and delighted to know that the Moradabad Institute of Technology is organizing an Online International Conference on Innovation in IoT, Robotics and Automation (IIRA-3.0) on 26-27, July 2023 at MIT, Moradabad.

Engineering and Technology are key sectors for the industrial development of the nation. The exponential growth in population has resulted in heavy pressure on the resources. There is an increasing need for more efficient use of resources by means of better planning and management.

On this occasion I extend my best wishes for the success of the conference. It is equally important to create awareness about the theme among the concerned people. Such conferences should be held from time to time.

Sri. Anil Kumar Agarwal
Joint Secretary
MITGI, Moradabad



Message

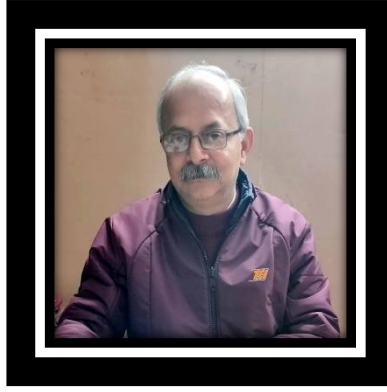
I feel extremely happy and delighted to know that the Moradabad Institute of Technology is organizing third International Conference on Innovation in IoT, Robotics and Automation (IIRA-3.0) on 26-27, July 2023 at MIT, Moradabad.

It is a leap forward to put MIT on the national map where scientists, engineers and researchers from all over the country will converge and exchange their ideas for the growth of knowledge. This conference will provide an opportunity to the students and faculties alike to excel in Education, Knowledge, Research, Innovation, Skill and Patent (EKRISP), which are the main tools in nation building.

I hope that participants will immensely benefit from the academic exchange of views & thoughts.

I wish this conference a great success.

Prof. (Dr.) Rohit Garg
Director
MIT, Moradabad



Message

It is a matter of great pleasure that Moradabad Institute of Technology, Moradabad is going to organize an Online International Conference on Innovation in IoT, Robotics and Automation (IIRA-2023) on 26-27, July 2023 at MIT, Moradabad.

There has been tremendous development in Engineering & Technology during the last two decades. It is very essential for researchers and professionals to remain in touch with fast changing developments in Science & Technology, such types of conferences bring together concerned professionals to exchange their ideas, views and thoughts to implement such recommendations.

On this happy occasion, I send my compliment and best wishes to the organizing committee and wish the conference a great success.

Dr. Manish Saxena
Chairman
IIRA-2023

ABSTRACTS

Low Leakage Adaptive Biasing Scheme for SRAM

Manas Singhal¹

¹Assistant Professor, Department of ECE, Moradabad Institute of Technology, Moradabad,
UP, India

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ABSTRACT

In this paper a technique that consumes low power for SRAM is proposed. It is achieved by reducing the leakage current in SRAM, this is achieved by using optimum level of source voltage of each individual fine-tuned memory block, while achieving the lower power levels the data is also securely stored during standby stage in each individual memory block. In traditional methods a uniform source voltage was applied to each block of memory but here the available memory is divided into different blocks and the different supply voltage is provided to an individual block after fine tuning. By determining and providing optimum voltage the leakage current is minimized.

Leveraging React Native to Building High-Performing Mobile Application

Sherin Zafar¹, Imran Hussain², Richa Gupta³

^{1,2,3}Department of CSE, SEST, Jamia Hamdard New Delhi, India

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ABSTRACT

Victory is the whole of little endeavors, rehashed day in and day out. One of the foremost pined for and respectable employments in India are of the Indian Guard Administrations. The career in Indian Outfitted Powers is highly honored by everybody within the nation. Millions of candidates show up for Resistance Exams each year to fulfill their dream of being portion of this prestigious benefit either as an officer or as a soldier. Each year distinctive exams are conducted to assist candidates accomplish their dreams of joining powers as an officer or officer. In this research paper a portable application which is executed utilizing Respond Local system and is accessible for both Android OS and iOS clients. The application appears all the ways in which you'll be able connect the resistance powers, gives the subtle elements of all the protection entrance exams such as NDA, CDS, AFCAT and INET etc., data such as conditional notice dates, past year cutoffs, qualification criteria, opening and capability, list of different best YouTube channels which can be utilized as a study material for different examinations and a notice page where different current upgrades with respect to the protection exams and the method overhauls are appeared. React Native platform is utilized to build this powerful application.

Malware Detection in Android Mobile Platform Using Machine Learning Algorithms

Richa Gupta¹, Sherin Zafar², Imran Hussain³

^{1,2,3}Department of CSE, SEST, Jamia Hamdard New Delhi, India

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ABSTRACT

Android is the foremost prevalent portable working framework and with more than 3 billion dynamic clients. Android has ended up one of the hot targets for malware in later a long time. This malware incorporates spyware, adware, keeping money malware etc. The number of malware assaults and the complexity of assaults is expanding day by day. In this extend, we attempt to come up with a quick and dependable way to identify the malware by analyzing the malware statically and powerfully. We change over the malware tests into grayscale pictures and extricate highlights from these pictures for the inactive examination. Energetic investigation is done by extricating highlights based on the applications framework calls done amid its run time. Authors in this research study utilize diverse machine learning calculations which take these highlights as an input to recognize the malware tests from the generous tests. Utilizing both inactive and energetic investigation authors perform a crossover analysis to grant an improved exactness at identifying the malware.

The Impact of Artificial Intelligence on Society: A Detailed Study

Smrita Jain¹, Himani Grewal², Aditi Vishnoi³

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ABSTRACT

Artificial intelligence (AI) is a rapidly developing field with the potential to revolutionize many aspects of society. AI systems are already being used in a wide variety of applications, from healthcare to transportation to customer service. The impact of AI on society is likely to be profound. AI has the potential to improve our lives in many ways, but it also raises a number of ethical and social concerns. This study aims to provide a comprehensive analysis of the impact of AI on society. By examining its influence across different domains, including economy, healthcare, education, ethics, and employment, we gain a deeper understanding of the opportunities and challenges presented by AI. Additionally, this study explores the ethical considerations associated with AI development and deployment, and the potential risks it poses to privacy, security, and human autonomy. By examining both the positive and negative consequences, this study aims to inform policymakers, researchers, and the general public about the implications of AI on society.

A study of AI & 3S2T Marketing and its Impact on Consumer Buying Decision Making with Special Reference to Fashion Industry at Moradabad

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ABSTRACT

The objective of this research paper is to examine the impact of Artificial Intelligence and 3S2T Marketing i.e. Sight, Sound, Smell, Touch and Taste on consumer buying decision with special reference to fashion industry. Last three years has been a boon for marketing and artificial intelligence as all the major companies are using artificial intelligence to allure their customer and enhancing their sales. There is a cut throat competition in the market and companies leave no stone unturned to capture market share. Fashion industry has already been a silver spoon child in the market where elite category customer attracted more towards it. Companies are pondering how to motivate these HNI customers so that they can buy more products and company get more profit. The paper will be exploratory in nature SPSS software will be used for statistical analysis and this paper will also help all the leaders of fashion industry that how AI and sensory marketing is important for them.

Designing Traffic Management Simulator Using Artificial Intelligence Algorithm

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ABSTRACT

Traffic congestion is a major problem in urban areas and has become a significant challenge for the transportation industry. The increase in the number of vehicles on the road has led to longer travel times, fuel consumption, and air pollution. The traditional traffic management systems have become outdated and are not efficient in managing the traffic flow. There is a need for an intelligent traffic management system that can adapt to changing traffic conditions in real-time. The work shown here aims to develop an AI-based traffic management system that can detect vehicles and manage traffic flow in realtime. Techniques related to image processing are used to detect and count the number of vehicles in a given area and then uses AI algorithms to manage the traffic flow. The system also includes a user interface that displays the current traffic status and allows the user to control the traffic signals.

Cognitive Insights into Customer Behavior: Analyzing International Bank Customers using Artificial Neural Networks

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ABSTRACT

This research paper aims to address the problem of customer attrition in an international bank and propose a solution using artificial neural networks. The problem statement revolves around predicting whether a customer will leave the bank after one year of using its services. The study focuses on a sample of 10,000 customers, employing demographic segmentation to analyze factors such as age, salary, gender, and the type of account (loan, saving, fixed deposit, or random). By utilizing an artificial neural network, the proposed solution aims to predict customer churn within a six-month timeframe. The main objective is to create a demographic segmentation model that can identify customers at the highest risk of leaving the bank. The outcome of this research will provide valuable insights for the bank to develop effective customer retention strategies.

A Systematic Review of Neural Networks Based Sound Source Localization

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ABSTRACT

Neural Network based sound source localization has rapidly evolved over the last few years. However, there is a continuous rise in demand for more accurate, reliable, and computationally efficient methods that can be effectively implemented in harsh acoustic conditions. This article aims to collectively examine the existing source localization techniques implemented with neural networks. It provides discussions on the architectures, learning strategy, features extracted, number of sources, dataset, and the performance of these methods. A table summarizing the literature review is supplied at the end to enable a quick search of approaches with a specific set of goal features.

Clustering in Data Mining: Techniques, Advantages, Applications, and Challenges

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ABSTRACT

Clustering is a technique that groups similar data points together for analysis and pattern discovery across various fields like machine learning, data mining, and image analysis. Its main purpose is to group similar objects together based on a defined distance measure. Essentially, clustering involves partitioning a data set into subsets, with each subset containing data points that are similar to each other. This research paper aims to provide a comprehensive understanding of clustering in data mining. It discusses the concept of clustering, its advantages and disadvantages, applications, various types of clustering techniques, different algorithms, challenges involved, and methods for obtaining the optimal number of clusters.

Intelligent Traffic Light Color based Speed Suggestion system for vehicles through OBD tracker

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ABSTRACT

ESP32, GSM808 for GPS, RTC Module DS3231 for current time, and HTTP Methods are used in this project to create a Traffic Light Color Based Speed Suggestion System. Based on the car's location and the current time, the system uses a pre-made CSV file that is stored on a server and queried via HTTP protocols to determine the color of the traffic light. When a traffic signal is green, the ESP32 microcontroller analyses this data and recommends the fastest possible speed for a vehicle to arrive, enhancing traffic flow and lowering fuel usage.

Multi-Disease Detection with Neural Network Fusion

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ABSTRACT

In this study, we address the challenge of analyzing imbalanced medical data for accurate disease prediction. Specifically, we focus on developing a supervised model that utilizes machine learning and deep learning techniques to detect multiple diseases. In our approach, we focus on chronic kidney disease, malaria, and pneumonia as the specific diseases of interest. Chronic kidney disease is marked by a gradual decline in kidney function, leading to the accumulation of waste products in the blood and the onset of related health complications. On the other hand, malaria is a severe illness caused by Plasmodium parasites, which are transmitted through mosquito bites and can pose a significant threat to human life. Pneumonia, on the other hand, is an infection that inflames the air sacs in the lungs, often resulting in fever, fluid accumulation, and breathing difficulties. To facilitate rapid detection by lab assistants, our model leverages accurate disease prediction based on provided data. We fine-tune the neural network for chronic kidney disease prediction, while adopting convolutional neural networks (CNNs) for analyzing parasiteinfected cells and chest X-rays in malaria and pneumonia detection, respectively. Additionally, we outline the potential expansion of this project to include other diseases in the future.

Wireless Electricity: An Innovative Idea

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ABSTRACT

Wardenclyffe Tower was an early experimental wireless transmission station that Nikola Tesla developed and constructed on Long Island in the years 1901–1902 in the community of Shoreham, New York. Wireless power transfer (WPT) has caught the attention of researchers from different fields because it has the potential to bring advanced technology to our everyday lives. This research examines the various wireless energy transmission approaches since wireless power transmission incorporates numerous theories and is explicated by numerous techniques. Because of the technology's ability to send electrical energy across an air gap without utilizing wires to connect them, a power source can now transmit electrical energy to an electrical load., it will soon be required to employ wireless power transmission. We conduct pilot research in this paper to describe the current wireless power transmission technologies, their latest technology, and their anticipated future developments. We also go into great detail about other wireless transmission applications.

An Automatic Speech Recognition Approach Using Modified Voice Activity Detection Mechanism

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ABSTRACT

The effectiveness of Automatic Speech Recognition (ASR), which can be employed in loud circumstances, is being researched. The effectiveness of common parameterization methods was evaluated in relation to lustiness and compared to the background signal. By merging the essential components of PLP and MFCC, a hybrid feature extractor is created for Mel frequency cepstral coefficients (MFCC), Perceptual linear predictive (PLP) coefficients, and their modified forms. Only the ASR method's training phase was used to apply the VAD-based frame dropping calculation. This technique has the benefit of eliminating pauses and speech segments that may be considerably distorted, It helps with more accurate phone modelling. The examination and contribution of the improved vocal activity detection approach are the main topics of the second section.

A Comparative Study of Deep Reinforcement Learning Algorithms in Robotics

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ABSTRACT

Deep Reinforcement Learning (DRL) is a promising field within Artificial Intelligence that combines deep learning, a subfield of Machine Learning, with Reinforcement Learning (RL) techniques. DRL allows deep neural networks to represent and comprehend the world, enabling agents to acquire proficiency in intricate tasks and make decisions in high-dimensional environments. In this paper, we explore different types of RL approaches, including Model-based, Value-based, and Policy-based methods and combinations of deep neural networks with RL techniques, allowing for effective representation learning from high-dimensional inputs. Deep QLearning is a popular algorithm that combines deep neural networks with Q-learning, enabling agents to learn optimal actions. The paper discusses various deep reinforcement learning algorithms that are commonly used in robotics and other domains. These algorithms include Proximal Policy Optimization (PPO), Advantage Actor-Critic (A2C), Trust Region Policy Optimization (TRPO), Asynchronous Advantage Actor-Critic (A3C), and Deep Deterministic Policy Gradient (DDPG). DRL offers a powerful approach to solving complex tasks in various domains. Factors such as the complexity of the problem, the availability of a suitable environment for training, and the nature of the desired decision-making process influence the choice of reinforcement learning (RL) approach. By leveraging the capabilities of deep neural networks, DRL algorithms can learn from raw sensory inputs and achieve high-performance control in real-world environments. Finally, we conclude by discussing the future challenges and opportunities for deep learning in autonomous robotics.

Smart Chatbot Using NLP

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ABSTRACT

Chatbot is an application made to interact just like humans .As sometimes due to lack of human resource human interaction is not possible thus chatbot is made just for that.as it can be available anytime and anywhere a use wants. As it is an AI-powered machine it can perform multiple task together. The aim of the chatbot is to make is as human like interaction as possible. using NLP or Natural language Processing is a tool that is responsible of to interpret and answers in human language .The ultimate goal of this project is to develop a chatbot that will tell you about the working and history of the program itself thus interacting and teaching about the chatbot to the user at the same time using various machine learning techniques and algorithms.

Recognition and Detection of Objects in Video Using OpenCV

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ABSTRACT

Object detection is the process of identifying, locating, and detecting different objects. It can be done in a video or in an image. A large number of tools and technologies are used in detecting different objects. Tools like OpenCV, TensorFlow, YOLO[1] SSD, etc. It displays the number of different objects present in the image or video. We use python as the programming language as it has a large library that supports all the operations required for object detection. Here we have used coco dataset which consist of 80, distinct objects like person, chair, car, mobile, etc. it is a labelled dataset.

Processing Resource Description Framework using Jena ARQ and Virtuoso

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ABSTRACT

Semantic Web technologies have led to the development of RDF (Resource Description Framework) and OWL (Web Ontology Language) for the representation of data on the web. With the growing amount of RDF data, efficient processing and retrieval of information has become a major challenge. SPARQL (SPARQL Protocol and RDF Query Language) is the standard query language for RDF data, which has been widely used for querying RDF data. However, the performance of SPARQL queries can be significantly affected by the size of the RDF data and the complexity of the queries. In this paper, a set of SPARQL rewriting rules is proposed to improve the efficiency of SPARQL queries for processing RDF data.

STATCOM's Ideal Placement and Size in the IEEE 30 Bus System Utilizing PSO

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ABSTRACT

To reduce the amount of voltage deviation, we determine in this work where STATCOM should be placed in the IEEE 30 bus. Particle swarm optimization (PSO) is an evolutionary computational method that we utilize to determine where STATCOM should be placed. To determine the voltage value at each and every bus, we employ the Newton –Raphson approach. The objective function used to calculate voltage deviation is minimized to determine the voltage deviation's lowest possible value. The best placement of one STATCOM in the IEEE 30 bus is initially determined by simply minimizing the value of the objective function, and the best placement of two STATCOM in the same bus is then determined by employing the particle swarm optimization technique.

Hand Gesture Vehicle - A Small Prototype

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ABSTRACT

In this modern era where everything is technical, human efforts are being reduced with machines. Every small work is tried to be done with the modern system, so is our project. Moving from one place to another can be done by using our model and does not need much man power. Moving up to some distance manually needs human efforts but this project is made keeping in mind of people who aren't able to do so. A person can move just by tiny movement of hands making it easy and convenient for a disabled person. The model can be use daily for day to day purpose making life much comfortable also providing easy sense of living. We developed an IOT based gesture control wheel chair which takes reading with the help of the accelerometer equipped by a human hand. The wheel chair can move in a desired direction by moving the hand in that specific direction, each gesture generates the values in its corresponding alliance. Accelerometer generates the values and send it to Arduino UNO, encoder joined to Arduino, it encodes the values and send to recipient through nrf24101 transmitter. Decoder position on the wheel chair will decrypt the merit and give it to the L298 motor driver, which will command the motors to proceed the vehicle accordingly. An ultrasonic sensor helps the model to detect an obstacle that comes on its way and find an alternate path to move. Rather than moving the model from hand signal a person can also control it with entreaty programming interface (API) by connecting it to model with the help of Bluetooth module. This project can also been enhanced by adding Line follow mode and voice control mode [1].

Ape Hand-A Gesture-Based Control System

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ABSTRACT

The project is a prototype from an Arduino and a pair of ultrasonic sensors, through this we can make gestures in mid- air. The gestures are then sent to the system which then performs the desired task. We will train the software to recognize the gestures that made by a human hand. The ultrasonic sensors will provide input to Arduino about the hand's 3D coordinates. Arduino then sends the data to a python script via attached microUSB cable, together with a python library OpenCV, the system captures motion and transforms them into data which performs the required task. Once we train the system with a gesture numerous times, it will accumulate data to have an estimation of what the gesture is & how it performs. This gesture can then be assigned to perform a particular task on the computer.

Sky Cloud: A Comparative Survey on Emerging Cloud Computing Techniques with AI and ML

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ABSTRACT

Beginning with an overview of cloud computing, this paper explains its fundamental ideas and discuss some of its most important characteristics, including scalability, flexibility, and demand. It describes the advantages and uses of cloud computing's resources, such as Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS), comparison of cloud -based AI and ML framework their many responsibilities. The advantages and drawbacks of cloud computing are also covered in this study. Benefits including reduced investment costs, increased production, and improved teamwork are evident. Additionally, it discusses risk-mitigation strategies such data encryption, authentication procedures, and compliance standards as well as security and privacy concerns related to cloud computing. It demonstrates how cloud computing may assist innovation and enhance performance by examining the effects of these firms on efficiency, effectiveness, and cost effectiveness. Finally, the study paper discusses upcoming technologies including serverless computing, edge computing, and packaging to show future trends and advancements in cloud computing. In a nutshell, by using AI and ML this research study offers a thorough analysis by looking at the cloud computing structure, deployment approach, benefits, difficulties, and real-world applications. It gives enterprises, decision-makers, and researchers insight on how to fully utilize cloud computing in an increasingly digital world.

SANKAT: A comprehensive Disaster Response Platform for Governments, Volunteers, and Various Stakeholders

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ABSTRACT

Disasters pose significant challenges to communities worldwide, requiring effective and timely response strategies. In this research paper, we present SANKAT, a comprehensive disaster management web application that aims to enhance disaster preparedness, response, and recovery efforts. The application provides functionalities such as disaster awareness, live updates, shelter location, donation system, and rehabilitation activity tracking. SANKAT is built using HTML, CSS, PHP, and MySQL, offering a user-friendly interface and leveraging technology to empower individuals and organizations in disaster-prone areas.

Achieving a Sustainable Environment using Green Cloud Computing

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ABSTRACT

With the rising use of IT infrastructure around the world, the rise in energy consumption and carbon emissions is a reason of concern for everyone because of the direct impact on the environment. The growing usage of information technology infrastructure and its waste is endangering the environment. To meet the ever-increasing enterprise data storage and processing needs, cloud service providers are developing cutting-edge technologies such as Green Cloud Computing in cloud architecture design to reduce massive power consumption, water consumption and harmful carbon emissions, among other things. To preserve our environment from the harmful effects of cloud computing, service providers must embrace and update their cloud architecture to support green computing. By detecting energy emission reductions, CO₂ removal, assisting in the development of greener transportation networks, monitoring deforestation, and anticipating extreme weather events, green cloud computing has the ability to expedite global efforts to safeguard the environment and conserve resources. As part of our study on green clouds, this article provides a full analytical report on green cloud computing and its properties.

A Comprehensive Study of Network on Chip and System on Chip in perspective of Internet of Things

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ABSTRACT

Network on Chip (NoC) and System on Chip (SoC) are both important technologies used in various fields, including embedded systems, high-performance computing, and Internet of Things (IoT). NoC is used to provide a communication infrastructure for systems that integrate multiple components, such as processing units, memory, and peripherals, onto a single chip or across multiple chips. NoC can improve the scalability, performance, and energy efficiency of such systems by providing a highbandwidth, low-latency communication channel between the components. SoC is used to integrate multiple components, such as processing units, memory, and peripherals, onto a single chip. SoC can be used in a wide range of applications, including smartphones, IoT devices, automotive systems, and aerospace systems. SoC can improve the performance, power efficiency, and cost of such systems by providing a compact and integrated solution. Some examples of the use of NoC and SoC are-Highperformance computing: NoC can be used to provide a communication infrastructure for large-scale parallel computing systems, such as clusters and supercomputers. SoC can be used to integrate multiple processing units and memory modules onto a single chip, providing a high-performance computing platform. IoT devices: NoC can be used to provide a communication infrastructure for IoT devices, allowing them to communicate with each other and with the cloud. SoC can be used to integrate multiple components, such as sensors, processing units, and wireless communication interfaces, onto a single chip, providing a compact and energy-efficient solution for IoT devices. Automotive systems: NoC can be used to provide a communication infrastructure for automotive systems, allowing different components, such as engine control units, infotainment systems, and safety systems, to communicate with each other. SoC can be used to integrate multiple components, such as processing units, memory, and communication interfaces, onto a single chip, providing a compact and integrated solution for automotive systems. Overall, NoC and SoC are both important technologies that can be used to improve the performance, power

efficiency, and cost of various systems in different fields. The choice of which technology to use depends on the specific requirements of the system and the application.

Intelligent Agriculture Accoutrement

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ABSTRACT

At present more than 75% population of India live in rural areas. As India is the largest producer of pulses and second largest producer of rice in the world. But the condition of farmers in our country is not so good. They are still struggling for their livelihood. They still prefer conventional methods of farming like the use of bullock carts, handmade tools, and labor work. Because machinery which was invented for the agriculture sector is too expensive for small scale farmers. Observing this condition, the concept of multipurpose agriculture machine arises. An accoutrement that can be attached easily to tractors, engines etc. which can perform three different agricultural process simultaneously Like cultivation of land, sowing of seeds, irrigation and spraying of pesticides on the field. It requires motor and battery for operating the vehicle, the battery can be recharged through renewable energy sources like solar panel and this accoutrement can be remotely controlled. This accoutrement will save the time and energy of our farmers and enhance the productivity of crops. It will reduce the labor work and the overall cost of farming. This accoutrement will be helpful for small scale farmers for improving the crop yield. An innovative intelligent agriculture accoutrement that will enhance the productivity of crops, reduces the efforts of farmers, and minimizes the load on less financially stable farmers.

A Review on Counting-Based-Secret-Sharing Schemes And It's Application

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ABSTRACT

Counting-based secret sharing is a simple, flexible, and secure technique that can be used to protect sensitive data. The main problem with known countingbased-secret-sharing schemes is the large share size: it is exponential in the number of parties. By dividing a secret into multiple parts and distributing them among different parties, counting-based secret sharing ensures that no single party has access to the secret and that the secret can only be reconstructed if a certain number of parties collaborate. As such, counting-based secret sharing has become an important tool for individuals, organizations, and governments that need to protect sensitive information. This survey aims precisely to provide a comprehensive overview of the existing methods for secret sharing schemes. It is a general and structured review of existing algorithms, comparisons, and categorizing them on a set of key features.

A Review of Induction Generator Based Microgrid Active and Reactive power Control

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ABSTRACT

As a result of development and population growth, there is an increase in the need for electricity. The majority of electricity produced today comes from non-renewable energy sources, which are expensive to use and have negative environmental effects. Because of this, the world is looking for renewable energy sources, such as wind and small hydro, that are both sustainable and environmentally friendly. These forms of energy are affordable and environmentally benign. Induction generators are currently employed extensively in place of synchronous generators in the majority of wind energy or small hydro projects. A cheap, low-maintenance, and effective solution for using renewable energy is provided by induction generators. The induction generator's link to the grid causes it to operate concurrently with the synchronous generators, which presents difficulties for the grid operators. Therefore, the review of many elements of induction and synchronous generator operating under diverse circumstances is the main topic of this study. The dynamics of both generator types are impacted by changes in load. By adjusting their active and reactive power, voltage and frequency changes can be managed. The major goals are to increase the system's stability and dependability against changes in load and faults while maintaining constant voltage and frequency.

A Review of Automation Technology

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ABSTRACT

Automation is the method by which tasks are completed considerably more rapidly, without bother, and with more accuracy and precision by using less labor and staff. These autonomous technologies make it exceedingly simple and easy to complete important tasks that people cannot perform. This paper discusses recent innovations in automation technology applications, as well as the state of the market today and its potential in the future. This document aids in the knowledge of automation technology by researchers, business professionals, and academics.

Designing of a Resilient Watermarking Scheme Utilizing Lifting Wavelet Transform and SIFT for Videos

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ABSTRACT

With the advent of advanced software tools for editing of videos, it is possible to manipulate digital content, leading to substantial financial losses for content creators. Various industries, including entertainment, suffer greatly from the detrimental effects of digital piracy. Platforms such as WhatsApp, Facebook, Instagram, and Twitter have an immense user base, with millions of individuals actively utilizing these platforms. Unfortunately, many users share digital content without appropriately acknowledging or crediting the original creators. To safeguard the rights and lawful reparation of data owners, the implementation of digital watermarking emerges as a highly effective technique. However, existing watermarking methods often fail to adequately preserve the intrinsic relationships within the host data due to the suboptimal selection of locations to embed the watermark. As a result, they prove to be ineffective in combating digital piracy. In light of these challenges, this research paper presents a digital video watermarking technique that leverages the 2D-Lifting Wavelet Transform (2D-LWT) and Scale Invariant Feature Transform (SIFT) to analyze, extract, and process essential patterns or features. Specifically, the SIFT method is employed to extract ten invariant key points from the approximation part of 2D-LWT, exploiting the luminance part of every video frame. The proposed technique is rigorously evaluated through popular objective metrics, considering various attacks such as geometrical distortions, temporal desynchronization, video compression, and the insertion of noise. The evaluation results

demonstrate a significantly strong correlation value, close to one, and excellent imperceptibility, establishing the superiority and practical viability of the proposed scheme.

Experimental Investigation of IOT Based Thermal Driven Multiple Effect Distillation System (MED) For Brackish Water Treatment

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ABSTRACT

In today's scenario, food security and economic prosperity are severely impacted by freshwater scarcity. It is a major need of humanity as it is the most vital resource on the planet. Our dependency will increase in the future so, it becomes necessary to take some measures to reduce water scarcity. Therefore, more attention is being paid to the thermal distillation process of wastewater or brackish water distillation to remove all kinds of micro-pollutants present in water. Distillation is a phase transition method that utilizes steam as a heat source to vaporize feed water. The concept of multiple effect distillation enhances the economic feasibility of the process by recycling the latent heat of vaporization. In this paper, we have the designing and fabrication of the vertical tube evaporator and model MED for estimating the total balance, energy balance, flow rate, etc, and by using the methods of El-Dessouky, Ettouney, and El-Hadik. We have also estimated the heat transfer area for the present MED unit and compared it with previous work in the literature. The results have shown good feedback. This developed model works well and can be used to work more number of effects.

The IoT Farming Revolution: Enhancing Efficiency and Sustainability in Agriculture

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ABSTRACT

In recent years, several applications in current technologies such as Innovations in IoT, Big Data, the Cloud, and Mobile Computing. Smart cities, home automation, and smartphones are just a few examples of the smart world ideas that are now gaining traction. The agricultural sector is crucial to India's economy. For the most part, rural India still operates this way. Because of improper maintenance, the crop is lost, resulting in a large loss for the farmer, which is why the smart Agriculture concept was established. Smart farming is the practice of using cutting-edge technology to maximize crop yields. It helps with system monitoring and provides information on a wide range of environmental factors. Monitoring environmental conditions is not a complete or adequate strategy for enhancing agricultural yield. There are other more factors that have a significant impact on productivity. One of these issues is an infestation of insects and other vermin, which may be remedied by applying the appropriate chemical pesticides to the crop in question. During the time it takes to harvest the crops, birds and other types of living things end up destroying them. As a direct consequence of this, there are many obstacles that farmers must overcome between planting and picking their crops. In today's world, the Internet is extremely important in all spheres of human endeavor. This research places a strong emphasis on the function that IoT plays in smart farming, which refers to the monitoring and improvement of agricultural areas that are accomplished with the assistance of IoT.

An Approach to Secure IoT Applications of Smart City Using Blockchain Technology

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ABSTRACT

The objective of a smart city is to solve the problem that is accruing due to population growth in urban areas such as physical security, residual management, transportation systems, etc. The backbone of a smart city is technology, and citizens of a smart city are connected with the government and other organizations through interconnected systems. Internet of Things (IoT) technology refers to the effective solution for the development of a smart city at a low cost with its high applicability in an uncountable number of scenarios. Intelligent devices (IoT devices) are continuously collaborating in various areas of the smart city to exchange a continuous flow of information and provide high-quality services to citizens as the ultimate goal. Urbanization is continues growing and due to urbanization, integrated policies are required to improve the lifestyle of the urban citizen through the implementation of integrated, interoperable, and secure electronic services. A secure IoT application should ensure that the flow of data shouldn't tampered with, and private information shouldn't be leaked. Blockchain is a distributed tamper-resistant and privacy protection ledge that provides a promising solution for decentralized secure IoT applications. However, due to the large number of IoT systems and the contradiction between traceability and data privacy, blockchain faces big data and privacy challenges. Blockchain can solve problems in local communities, according to government officials. Blockchain is initially considered through collaboration with cryptocurrency i.e. Bitcoin, and it provides an innovative perspective on how smart cities can be organized and a more transparent economic model for resource management. The current era is technology-oriented, and everyone is seeing the innovation of the smart city. Modern technologies are playing an important role in the development of the smart city and creating new opportunities in terms of social and economic. Technology has its advantages and there are also some disadvantages. In a smart city, The IoT is increasingly connecting homes, cars, public places, and other social systems. IoT devices are increasing

day by day while IoT services are expanding. As IoT devices are increasing, the number of attacks and threats on IoT devices are also increasing which fades the success of IoT. In the current era, cyber-attacks are not new, but IoT will be deeply woven into human life and societies hence it becoming a big issue so cyber defense takes it seriously. The IoT-based applications can be accessed through smartphones that take input from the user, the input of the user can include some personal, professional, and sensor data, and the application provides different kinds of information. The major issues of IoT application development are the security and privacy of user data, which is a challenging task from a different perspective. In this study, discussed some privacy and security issues of IoT-based smart city applications, and proposed a blockchain-based framework for IoT-based applications for a smart city that can overcome the challenges of user data security and privacy.

IoT: An Introduction to Networking

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ABSTRACT

IoT (Internet of Things) is closely related to networking as it involves connecting physical devices or "things" to the internet to enable communication and data exchange. Networking is the underlying infrastructure that allows IoT devices to communicate with each other and with cloud-based platforms or other services. IoT devices require network connectivity to transmit and receive data. This can be achieved through various networking technologies such as Wi-Fi, cellular networks, Bluetooth, Zigbee, or Ethernet. Networking provides the means to establish connections between IoT devices, enabling them to communicate and share information. Networking infrastructure supports the connectivity and data transfer of IoT devices. This includes routers, switches, gateways, access points, and other network components that form the backbone of IoT networks. These devices enable reliable and secure communication between IoT devices and enable the connection to cloud-based services or data centers.

Medical Imaging Using Machine Learning, Computer Vision and Applications

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ABSTRACT

Machine learning (ML), which has become a formidable tool in the fields of medical imaging (MI) and computer vision (CV), may now be used to study large and complex medical datasets. This has made it possible to significantly improve illness detection, segmentation, diagnosis, and prognosis, among other things. The quantity and quality of medical data, interpretability, legal and ethical issues, and interactions with clinical procedures are only a few of the issues that still need to be solved. Collaboration between researchers, physicians, governmental policy decision-makers, and industry members will be necessary for the successful use of ML in MI and CV. ML has the power to change MI and CV despite the difficulties, resulting in better patient outcomes, diagnoses, and more effective medical care.

Internet of Things (IoT) Applications and Challenges: A Review

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ABSTRACT

The idea behind the Internet of Things (IoT) is to connect various gadgets to the internet and one another to communicate several bits of information and data. The Internet of Things is revolutionizing many aspects of life, including how we drive, shop, and even acquire electricity for our houses. All around us, there are sophisticated electronics and sensors embedded. How we use these tools and how they exchange data and knowledge. An overview of various platforms, architectures, applications, and problems is provided in this study.

Effect of Extended Geometries on Charging and Discharging Behavior of PCM using Flat Plate Collector for Various Renewable Energy Applications

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ABSTRACT

The objective of this study is to investigate the charging and discharging characteristics of phase change materials (PCM) utilizing solar energy, with the intention of assessing their suitability for diverse renewable energy applications. Two distinct geometrically similar models of flat plate collectors were utilized to evaluate the characteristics of PCM. Experimental investigations were conducted during the high-temperature summer season in Moradabad City, situated in India. In order to assess the impact of a fin on the charging and discharging characteristics of phase change material (PCM), two solar flat plate collectors were constructed and tested. The collectors were identical, with the only difference being the absorber plate used. Both collectors were filled with the same volume of PCM beneath the absorber plate. The study's findings indicate that the utilization of fins results in a reduction of approximately 1.5 – 2 hours in the charging and discharging time of phase change material (PCM) compared to scenarios where fins are not employed. An increase in the quantity of fins positioned beneath the absorber plate leads to a reduction in the time required for the phase change material (PCM) to charge. The developed system is well-suited for applications that necessitate moderate temperatures outside of daylight hours. These applications encompass agricultural drying, space heating, and water heating, among others.

Virtual Mouse with Gesture Control

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ABSTRACT

Many technologies are changing daily in today's technological age. Human-system interface is one such exciting idea. For instance, there is no option to tighten restrictions in a stressed-out mouse. Wi-Fi mice require Bluetooth hardware to be installed on the laptop and a Bluetooth dongle to be connected. There will not be any such limitations in the envisioned period, which may instead rely on gesture recognition. In this paper, the usage of various gestures of hand is shown to depict activities such as dragging out of things, clicking and others. Only a webcam will be required for the suggested device's input. OpenCV and Python are the two software programs that will be needed to implement the suggested machine. The turnout from the digicam can be seen on any machine's screen so that the user can calibrate it in addition. Numpy, Math, WX, and Mouse are the Python requirements that will be utilized to implement this machine. In this paper, we offer up a refreshing way for HCI or Human Computer Interaction which allows the apparent motion of the cursor to be managed by a live camera.

A technique for directing the cursor's position without a computer or other digital device by just using your hands. While specific hand motions might be used to perform actions like clicking and moving of items. Our projected device will require only one input device which is webcam. OpenCV and Python are the two pieces of software that are need to implement the suggested machine. The system's display screen may display the camera's output so that the user can calibrate it in a similar manner. Numpy, Math, wx, and Mouse are the Python requirements that will be utilized to implement this gadget.

A Survey on Image Retrieval System for Identification and Classification of Lung Diseases Using Artificial Neural Network.

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ABSTRACT

The prompt diagnosis and treatment of patients depend heavily on the precise identification and classification of lung illnesses. The development of computer-aided diagnosis systems has drawn more attention as a result of improvements in medical imaging technology. The goal of this review paper is to give a general overview of the architecture of an image retrieval system that uses Artificial Neural Networks (ANNs) to identify and categorize lung illnesses. This Paper examines the various system design elements, such as preprocessing approaches, feature extraction techniques, ANN structures, and assessment measures. The potential to increase the precision and effectiveness of lung disease diagnosis is highlighted as it also explores the difficulties and future directions in this area.

A survey of ECG and Lesion-Based Segmentation and Detection of Cardiovascular Diseases Using Deep Learning

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ABSTRACT

In the entire world, cardiovascular diseases (CVDs) are the main cause of death. In order to improve patient outcomes, early and precise diagnosis of CVDs is essential. A non-invasive and frequently used diagnostic method for finding different cardiovascular problems is electrocardiogram-ECG analysis. The interest in creating automated systems for ECG-based segmentation and identification of cardiovascular disorders has increased as deep learning methods have advanced. This study examines current developments in deep learning-based techniques for ECG segmentation and cardiovascular disease detection, highlighting both their advantages and disadvantages.

Detection and Classification of Brain Tumor in MRI Images using Particle Swarm Optimization And Machine Learning Algorithm

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ABSTRACT

Today, people of all ages suffer from headaches and pain in the internal areas of the brain caused by a tumor. Radiologists face a difficult problem when it comes to the detection and categorization of tumors from magnetic resonance image modalities because this organ is critical to the decision-making process regarding the operation of the entire human body system, and any incorrect identification could seriously harm someone's health. Therefore, a multilevel thresholdingbased particle swarm optimization and support vector machine classifier are presented here to decrease the false-finding rate by accurately detecting and separating brain tissues. The proposed method comprises of four phases: image enhancement, image segmentation, feature extraction, and classification. The resulting image is updated by a median filter using Otsu's entropy-based multilevel thresholding particle swarm optimization to improve visual quality and make it easier to detect the presence of tumors. A grey-level co-occurrence matrix and a linear binary pattern are utilized to extract and choose the segmented feature, and a support vector machine is employed to categorize it. When textural aspects, statistical characteristics, and performance metrics from the brain dataset are seen at various thresholding levels and compared to other optimization strategies and single thresholding approaches, multilayer thresholding is found to be more accurate.

Enhancing The Engineering Properties of Alluvial Soil using Egg Shell Powder

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ABSTRACT

Chemical admixtures like lime, cement, and bitumen for stabilization of soil is costly. As a result, therefore a cheapest alternative used to minimise the cost. This study assesses the laboratory investigation into the possibility of using ESG powder to enhance the engg. properties of alluvial soil. 3 different amounts of eggshell powder (2, 4, and 6% by wt. of dry soil) used in the examination. So, experimental tests such as Atterberg's limit, specific gravity by density bottle, particle size distribution ,standard proctor test were conducted. Results showed that increasing the ESg powder quantity improved the atterberg limits, specific gravity by density bottle , proctor test up to a point, while reducing the swelling property and plasticity of alluvial soils generously.

Instant Donation

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ABSTRACT

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A Review on Some Applications of Lie Symmetry Groups in Nonlinear PDEs

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ABSTRACT

A useful tool for studying partial differential equations (PDEs) is Lie symmetry groups. They can identify group-invariant solutions, conservation principles, and PDE linearizations. This article examines a few Lie symmetry group applications to non-linear PDEs. First, the authors define Lie symmetry groups and explain how to identify group-invariant solutions, conservation laws, and linearizations of PDEs using them. The Korteweg-de Vries equation, the Navier-Stokes equations, and the non-linear Schrödinger equation are a few instances of how Lie symmetry groups are used in non-linear PDEs after that. In their conclusion, the authors examine the benefits and drawbacks of studying non-linear PDEs using Lie symmetry groups. We suggest that Lie, symmetry groups, are an effective tool for understanding non-linear PDEs' behaviour. However, their application may sometimes not always be suitable and limited. The article is informative and well-written. The authors give a simple and understandable introduction to Lie symmetry groups and non-linear PDEs. We also give several remarkable situations of applying Lie symmetry groups in various branches of mathematics and physics. This work is a great starting point for anyone interested in learning more about Lie symmetry groups and their applications to non-linear PDEs.

Designing and Implementation of Forest Fire Prediction Model Using Deep Learning

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ABSTRACT

Every year, forest fires ravage a huge region of forest cover, having a devastating impact on the surrounding flora and fauna. Each year, forest fires play a significant part in the extinction of hundreds of species of wildlife. Machine learning can be used to accurately predict forest fires and save species since it helps us predict the future. The FPMC, DMC, DC, ISI, Temp, RH, Wind, Area, Rain are the main determinants of any fire. This study seeks to forecast the likelihood of a forest fire occurring given the levels of factors at a certain location. In this suggested effort investigates the use of machine learning techniques to forecast forest fires and to find out which algorithms are best for prediction. The dataset has 518 records with 13 attributes. Therefore, various techniques of machine learning like Logistic Regression, Linear Regression, Artificial Neural Network (ANN), and Support Vector Machine (SVM) are investigated to make a comparative analysis of these with respect to their accuracies. ANN's model outperforms other algorithms and achieved the highest accuracy. Additionally, a single page website that would use user input to forecast the likelihood of forest fires in real time is displayed.

An Analysis of Crime Prediction using Machine Learning and Deep Neural Networks

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ABSTRACT

Loss of life and property damage can be prevented by preventing crimes. Using machine learning to prevent crime is receiving a lot of research. This article reviews the most advanced crime prediction techniques that have become available in recent years 10 years, discuss possible challenges and propose possible future trends. Many articles have tried to predict crimes, but datasets and methods used in different applications.

Using the Systematic Literature Review (SLR) technique, we aim to collect and synthesize the necessary knowledge on machine learning based crime prediction to help both law enforcement agencies and investigators reduce and prevent future crimes. Our main focus is on 68 selected machine learning studies that predict crime. We select eight research areas and find that despite the fact that labeled data may not always exist in real situations, most papers used supervised machine learning techniques assuming that labeled data existed in the past.

We have also looked at the main issues that the researchers faced during the course of some of these studies. We believe that this research opens up new avenues of research to help countries reduce crime rates for improved safety and security.

Awareness and Satisfaction Regarding Banking Virtual Assistants (Chatbots) - A study of Generation Z Customers

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ABSTRACT

Chatbots are considered now a days a more useful technique to have a better customer relationship. In the present paper the awareness, usability, friendliness and satisfaction of customers regarding the conversation with online chatbots of Indian banking industry has been focused. In today's digital era banking institution are also providing, whether private or public, chatbots facility in the form of virtual assistants on their respective websites for example; PNB is having "PNB-PIHU", AXIS bank is having "AHA", SBI is having "SIA" and so on. As banking sector has moved towards digitalization and with the help of smart phone and other devices customers now a days become more tech savvy, with these two conditions the present study is focused towards identifying the awareness and satisfaction level of the customers from the banking chatbots. Generation Z is the target population in the present research. The study concludes that gender has no impact in the awareness and satisfaction of customer regarding banking chatbots services.

Sentiment Analysis on IMDB Dataset Using ML

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ABSTRACT

Analyzing the sentiments out of the text is one of the current emerging area of research which analyzes a large amount of data to provide insights on specific problem statement. Extracting emotion out of the text is the main work in this framework. Many of the NLP & ML techniques are able to perform this work with promising accuracy results. This paper presents three classifiers approaches namely Logistic regression, SVM and Naïve Bayes that are used to classify the emotion of IMDB movie reviews. Classification accuracy is used as the performance measure where the test accuracy of the best classification model turns out to be 89.2%. Along with this, a comparative analysis is carried out among the implemented approaches based on the other performance parameter matrices.

Generation and Analysis of Filterless Quadruple RoF Upconversion System based on Cascaded MZM Configuration

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ABSTRACT

In this paper, Cascaded MZM configuration(CMC) based quadruple RoF upconversion system has been analyzed. Both MZMs operate at Minimum Transmission Bias point (MITB) for upconversion of 10 GHz RF local oscillator (LO) signal into 40 GHz electrical signal. The performance of system has been evaluated in terms of optical sideband suppression ratio (OSSR) and RF spurious sideband suppression ratio (RFSSR). The effect of MZM extinction ratio and LO signal frequency on OSSR and RFSSR is evaluated. LO signal is varied from 1 GHz to 10 GHz to investigate tunability of quadruple Mm-wave signal. No optical filter is needed to obtain high frequency signal with spectral purity.

Smart Helmet

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ABSTRACT

The Internet of Things (IoT) has found applications in various fields such as wearables, home automation, smart appliances, and smart agriculture. One area where IoT can significantly improve safety is in motorbike riding. With the increasing number of motorbike accidents and associated loss of lives, the use of Smart Helmets can play a crucial role in enhancing safety.

A Smart Helmet is a specialized headgear designed to provide enhanced safety for riders. It leverages advanced technologies and features such as alcohol detection, GPS, a helmet key, IR sensors, and over-speeding detection, effectively transforming it into a smart accessory for bikes. Wearing the helmet becomes mandatory, as the ignition switch will not activate without it. An RF module enables wireless communication between the helmet's transmitter and receiver.

The Smart Helmet incorporates an alcohol detection system, capable of determining if the rider is intoxicated. If alcohol is detected, the helmet automatically locks the ignition and sends a message to a registered mobile number, providing the current location. In the event of an accident, the helmet utilizes GSM technology to transmit an alert message along with the precise location. Additionally, if the rider falls from the bike, a message is sent to the registered mobile number, notifying them of the incident.

By combining IoT technologies with helmet safety, these intelligent features can contribute significantly to reducing motorbike accidents and their associated risks.

Novel Surveillance System Using Wireless Sensor Network

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ABSTRACT

In this paper, an ultrasonic detection based mobile surveillance device, capable of detecting any intrusion within a programmable range of 4 meters has been presented. This device located at the remote areas is connected with the Android phone through Bluetooth. The Android application has been used for providing a good graphic user interface along with the easy handling of the device. The communication between the remote device and the server is provided with GSM module built in the android phone which ensures the long distance communication. The designed device is configured in two modes manual and automatic which are configured and optimized with an algorithmic approach based on an operation and synchronization between the devices and the android application.

AI Supporting Finding Missing Person

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ABSTRACT

Even while social media keeps us all informed, it is now exceedingly difficult to locate a missing person since it involves a lot of paperwork, takes a lot of time, and offers few guarantees that the search will be successful. In recent years, computing technology has developed to include a variety of flavors that may be used to almost every industry.

For the advantage of the general public and the police department, this initiative offers a system that speeds facial recognition searches. The guardian of the missing person must upload their image for the system to work; this image will then be saved in the database. The face recognition model of the system will then check the database for a match of that person. If a match is discovered, the police and that person's guardian will be alerted. Current world scenarios and technology make substantial use of facial feature detection and recognition. On the other side, artificial intelligence has provided answers to the problems facing the modern world.

Comparative analysis of CP-based Dielectric-Modulated Hetero-junction and Vertical Dielectric-Modulated TFET as a Biosensor

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ABSTRACT

In this work, a comprehensive study between charge-plasma based dielectric modulated heterojunction (CP DMH) and vertically modulated (VM) tunnel field effect transistor (TFET) based biosensor for label free detections, is presented. Dielectric constant k and charge density ND are regarded as sensing parameters in both structures for sensing charged and non-charged biomolecules, respectively. In CP-based biosensors, gate oxide material is etched out to reveal a nanogap cavity beneath the source electrode. The biomolecules immobilized in the nanogap cavity are investigated using the Dielectric Modulation technique and the Charge-Plasma concept. The vertical biosensor (VB), adds a gate-to-source overlap and a strongly doped front gate n^+ -pocket. In VB, the combined impact of vertical and lateral tunnelling increases ON-state current while reducing sub threshold swing. Charged and charged neutral bio molecules are individually immobilized in nanogap cavities to test these devices' sensing capabilities. A thorough investigation was conducted to demonstrate the impact of variations in the dielectric constant (k), charge density (ND), and band energy and sensitivity. According to the study, DMH-CP-TFET achieves a comparatively higher sensitivity and is a good choice for label-free biosensing applications.

Deep Learning Model of Image Classification for Traffic Signs

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ABSTRACT

The primary objective of this research work is to create a system capable of assisting authorities in maintaining and updating road and traffic signs by automatically detecting and classifying them from captured camera images. The system aims to identify the right combination of colors and shapes in a scene to accurately detect and classify the signs by understanding the properties and complications of road traffic signs and their implications for image processing in the recognition task. The research study will also explore color theory, color spaces, and color space conversion techniques. Also, robust deep learning color segmentation algorithms that can handle diverse environmental conditions will be explored. Designing a recognizer that is invariant to in-plane transformations such as translation, rotation, and scaling, using shape-based measures, identifying suitable approaches for feature extraction from road signs, creating an effective road sign classification algorithm, evaluating the performance of the developed methods in terms of robustness under different weather conditions, lighting scenarios, and sign variations are the major objectives of the research study. By accomplishing these objectives, the system aims to contribute to the efficient and accurate inventory management of road and traffic signs.

Utilizing Tableau for Visualization Analysis and Decision Making

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ABSTRACT

This study question focuses on the benefits of the analysis of information by means of the use using knowledge visualization software to teach you concerning knowledge and the manner in which it can be turned into data which can enhance the procedure for making decisions. The creators of the information visualization computer program Scene used data from Coursera for research and decision-making. After familiarizing yourself with the data as well as the information's visualization software, that you will be required to carry out an exploratory investigation for the purpose to locate particular trends throughout the data, put together and release the the information, and improve the business' decisions-making procedure. This example is meant to be used as an essential introduction to an informational visualizations software program in a program that focuses on collegiate accounting database frameworks, an early administrative unquestionably, or a program focused on statistical analysis of data.

Data Science Exploring COVID 19 Global Health Tracker

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ABSTRACT

This research study emphasizes the importance of data analysis through the usage of data visualization software to help you gain an understanding of data and how it can be transformed into information that can enhance the decision-making process. The appliance requires being in running mode in the slightest degree times to continue tracing individuals actively. The API of the appliance are often employed in such some ways that it enables your smartphone to exchange the tracing keys periodically. This may help to locally store the unique ID of the people that have get contact with the user.

Active Power Factor Corrector Circuit Using Average Current Control

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ABSTRACT

A basic electric vehicle charger consist mainly two stages. Stage one is AC to DC conversion and second stage is step up or step down the DC voltage. First stage is the AC to DC conversion stage, in this stage we use rectifier to convert AC supply in to DC supply. Output of full wave rectifier is pulsating DC voltage. This is not desirable for battery charging. To make this constant we required a filter circuit. Filter circuit make the output voltage constant but it reduces the input power factor. This low power factor is not good for grid. We can improve this power factor by using inductive filter. This inductive filter will improve the power factor considerably. Although PF is increased compare to without filter circuit, but still it is poor power factor. For a good power factor size of inductor will be large. Sizes of inductor filter also a major concern. It also increases the cost of the system. Due to these problems we move towards the active filters. Active power factor corrector circuit is the combination of bridge rectifier and the DC-DC converter. AC to DC conversion stage is replaced by the active power factor corrector (APFC) circuit in modern chargers. APFC circuit improves the input power factor and reduced harmonics in line current. It reduced the THD and increased the power factor. Boost circuit based power factor corrector circuit has designed average current control strategy. This circuit is operating in continuous conduction mode (CCM).

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About The Conference

Advancements in computing technologies and automation have achieved remarkable growth in the last few decades. These advancements improve not only very common areas of our daily life but also areas of education, health, production industries, etc. Internet of Things (IoT), Robotics, and Automation are the recent advancements in technology gaining huge research attention due to the requirement of different types of integration and automation. The objective of IoT is to connect the wide range of devices and services that share data and information with each other. On the other hand, the main aim of Robotics is to design and develop an intelligent machine that works like a human. However, the objective of Automation is automatic control of different systems for operating various machines to reduce human efforts and time to increase accuracy. Now a days, each person is connected with Internet by using different types of communication devices. IoT covers various scenarios such as smart grid, smart city, environment monitoring, and healthcare monitoring systems, etc. Robotics also play an important role in reducing the human effort and implementing the concept of smart grid, smart city, etc. Therefore, IoT, Robotics, and Automation are interrelated to each other to reduce human efforts. Lots of research works have been done in each domain but various problems are still available to improve the quality of services in every domain. The objective of this conference is to present a collection of articles that cover recent research results and comprehensive reviews in the field of IoT, Robotics, and Automation. In particular, this Third International Conference on “Innovation in IoT, Robotics and Automation 2023 (IIRA-2023)” will be a platform to bring together professionals, academic researchers and scientists interested in techniques inspired by engineering, technological and scientific advancement in the field of IoT, Robotics and Automation.

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