INTERNATIONAL CONFERENCE ON ADVANCE RESEARCH IN INFORMATION AND COMMUNICATION TECHNOLOGY

Proceedings

ICARICT - 2023

2nd March 2023

Organized By

CSI College of Engineering

Ketti Valley, Nilgiris, Ooty, Tamil Nadu - India

In Association with

Melange Academic Research Associates

Puducherry - India

PROCEEDINGS OF

INTERNATIONAL CONFERENCE ON

ADVANCE RESEARCH IN

INFORMATION AND COMMUNICATION TECHNOLOGY

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KETTI VALLEY, NILGIRIS, OOTY

TAMILNADU - INDIA

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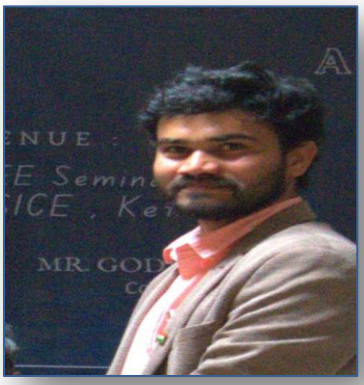
MELANGE ACADEMIC RESEARCH ASSOCIATES

PUDUCHERRY - INDIA

MESSAGE FROM CHIEF GUEST



It gives me immense pleasure to see that CSI College of Engineering, Ketti Valley – Ooty is organizing "International Conference on Advance Research in Information and Communication Technology ICARICT-2023. I am confident that this conference is going to provide a forum to students, academicians and researchers to interact and involve to better prepare for research and innovation. Such events benefit immensely and widen the horizons of their knowledge and experience in the field of Communication and Information Technology.

I sincerely appreciate the efforts of the Institute in providing a platform for students, and researcher's to share their ideas and research outcome.

I convey my wishes to all the participants, delegates and the organizing committee to make this event a grand success.

K. Ramesh
Scientific Officer and Officer-in-Charge of Cosmic Ray Laboratory (CRL) of Tata Institute of Fundamental Research (TIFR), Nilgiris - Ooty

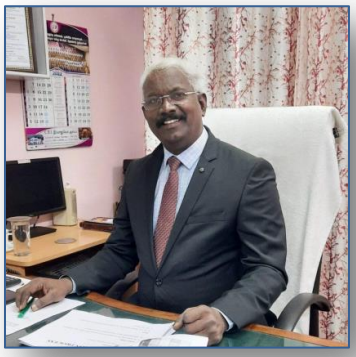
MESSAGE FROM KEYNOTE SPEAKER

Dr. Vishnu Kumar Kaliappan is working as Professor in the Computer Science and Engineering Department at KPR Institute of Engineering and Technology, Tamil Nadu, India. He received his Ph.D. in Computer and Information Communication Engineering from Konkuk University, Seoul, South Korea, in 2012 and his M. Tech in Communication Engineering from VIT University, Vellore, India. He worked as a Postdoctoral Researcher at Distributed Multimedia System Laboratory at Konkuk University and as Research Professor at Konkuk Aerospace Design Airworthiness Institute at Konkuk University, Seoul, South Korea. He worked on the project under KARI (Korean Aerospace Research Institute), Degu, South Korea, and at CABS (Centre for Air Born System), DRDO, Bangalore, India. He is an Editorial Manager at ISIUS (International Society of Intelligent Unmanned Systems), South Korea. He received one of the prestigious Korean Scholarship IITA (International Information Technology Admission) from the Ministry of Information Technology, Seoul, South Korea, from 2007-2012. He has published more than 80 peer-reviewed journals, conferences and patent. The focus of his research is on Reinforcement Learning, Bio mimetic algorithms, Cyber-Physical Systems, Cloud in the Loop Simulation (CILS), Hardware in the Loop Simulation (HILS), and Control algorithms for Urban Aerial Mobility. He has acted as a reviewer and editorial member for more than 60 international conferences and journals.

I wish the conference a great success!

Dr. Vishnu Kumar Kaliappan, M.Tech., PhD.,
Professor
Department of Computer Science and Engineering
KPR Institute of Engineering and Technology, Coimbatore - India

MESSAGE FROM CONVENOR



It is my pleasure to write a message to this international conference.

"The Engineer has been, and is, a maker of history." - James Kip Finch

The field of Electronics and Communication Engineering (ECE) is constantly evolving and presents exciting opportunities for research, development, and innovation. We are witnessing rapid progress in this field, from smart devices to robotics and from artificial intelligence to 5G communication networks. The 'International Conference on Advance Research in Information and Communication Technology (ICARICT '23) organized by the department of ECE in association with Melange Academic Research associates provides an excellent platform to share their knowledge /the researchers, exchange ideas, and collaborate with the industry to the advancement of Electronics and Communication Engineering. With participants from across the globe there are opportunities to learn from each other's experiences, perspectives, and expertise.

I encourage the authors to take full advantage of this conference by engaging in meaningful discussions, exchange of ideas, information to disseminate and to share the knowledge & technologies through research and mainly its applications.

I would like to appreciate the organizers of this conference for their unstinting efforts in making this event a success. I wish you all a productive, enjoyable and successful conference and look forward to the prolific discussions and collaborations that will emerge from our time together.

Dr. P.D. Arumairaj, M.E.,PhD
Principal
CSI College of Engineering
Ketti Valley, Nilgiris - Ooty

MESSAGE FROM ACADEMIC DEAN

Dear Colleagues and Participants,

"The best way to predict the future is to invent it." - Alan Kay

I am delighted and congratulate the Department of Electronics and Communication Engineering for hosting an 'International Conference on Advance Research in Information and Communication Technology (ICARICT '23) in association with Melange Academic Research Associates on March 2nd and 3rd, 2023 at our esteemed institution.

This conference aims to bring together the best and brightest minds in the field of engineering to share their knowledge and experiences. We hope that this conference will provide an opportunity for all participants to gain valuable insights into the latest advancements in engineering and related fields. I acknowledge the hard work and dedication of all the authors, our faculty members, researchers, and students who have involved in cutting edge research projects, to showcase their work at this conference. Your contributions are a testament to the department's commitment to advancing knowledge and making a positive impact on society. To all the participants, I urge you to take advantage of this opportunity to network with your peers, engage in lively discussions, and learn from each other's experiences. I would like to extend my appreciation to the organizing committee for their hard work and dedication in making this conference possible. Their efforts have been instrumental in ensuring that this event is a success.

In conclusion, I wish everyone a fruitful and enjoyable time at this conference, and I hope that it will be a memorable experience for all.

Dr. S. Rajesh Kana
Academic Dean, Professor & Head
Department of Mechanical Engineering, CSI College of Engineering
Ketti Valley, Nilgiris - Ooty

MESSAGE FROM VICE-PRINCIPAL

Engineers play a key role in the development of countries. They contribute to and enable initiatives that drive economic progress and inspire the changes that improve our quality of life. Currently, the manufacturing industry is facing unprecedented challenges due to globalization and as a result, the business environment is characterized by complexity and continuous change.

As such, this conference is timely and an excellent opportunity for stakeholders to establish meaningful collaborations around the world. I look forward to an excellent meeting with great engineering minds.

I take great pride in welcoming all participants of the conference and I am sure that each one of you will identify subjects of his/her interest and will benefit from many fruitful and enriching interactive discussions.

Let me thank the local organizing committee, participants, session chairs, keynote and plenary speakers for what promises to be an exciting conference program.

I wish for inspiring and successful ideas.

Dr. Joshua Gnana Sekaran
Vice-Principal/Professor
Department of Mechanical Engineering
CSI College of Engineering, Ketti Valley, Nilgiris - Ooty

MESSAGE FROM CO-CONVENOR

Dear Colleagues and Authors,

“Engineering is the art of directing the great sources of power in nature for the use and convenience of humankind." - Thomas Tredgold

On behalf of the Department of Electronics and Communication Engineering (ECE), I am pleased to offer our warmest congratulations to all the authors whose work is being presented in the ICARICT’23 proceedings. From the creation of the wheel to the development of the internet, engineering has been at the forefront of innovation and progress throughout history. As we gather to share our research and insights in this year's conference proceedings, let us continue to build on this legacy of innovation and make history with our contributions to the field of engineering. I would like to acknowledge the hard work and dedication of all the authors who contributed their work to this conference. As we move forward, let us embrace the spirit of collaboration, innovation, and excellence that defines technology. As the Head of the Department, I am proud to see the outstanding work presented by our faculty and students in this conference. My gratitude and overwhelming thanks to the Management and to the Principal for their continuous support and interest in organizing the international conference on 2nd and 3rd March 2023. I want to take this opportunity to express my gratitude to the Chief Guest, speakers, organizers, colleagues, and the Staff & Students’ fraternity of CSICEK who have contributed their time, expertise, and resources to make this event possible. I express my heartfelt appreciation to all my beloved staff and students of ECE department for their dedication and hard work that has ensured this conference is a success.

Finally, I would like to invite you to explore the beautiful Ketti Valley, known for its stunning natural lush greenery and pleasant climate where this conference is taking place.

I wish all of you a successful conference!!

K. Komathy Vanitha
Professor & Head
Department of Electronics and Communication Engineering
CSI College of Engineering
Ketti Valley, Nilgiris - Ooty

MESSAGE FROM CONFERENCE CO-ORDINATOR

This international conference has brought much joy into the spotlight and ensured that constructive collaborative efforts are fostered to create a better world for both the present and the future. The imagination, not the information, is where the greatness of the mind lies. With all of their coherence and culmination work, the aspiring engineers, accomplished researchers, illustrious academics, and jubilant faculty fraternity gather together to enjoy this extraordinarily great day. I'm thrilled to wish you the best of luck.

Dr. R. Chandra Sekaran
Assistant Professor
Department of Electronics and Communication Engineering
CSI College of Engineering
Ketti Valley, Nilgiris - Ooty

MESSAGE FROM MELANGE ACADEMIC RESEARCH ASSOCIATES

We feel happy and honored to welcome all the distinguished guests and participants for the International Conference on Advance Research in Information and Communication Technology, ICARICT - 2023 to be held on 2nd & 3rd March, 2023. This conference is hosted by Melange Academic Research Associates, Puducherry - India in association with CSI College of Engineering, Ketti Valley, Nilgiris – Ooty.

The aim of this conference is to provide an opportunity to the researchers by bringing academicians and eminent resource persons to a common platform to expose and share their experiences in the field of Information and Communication Technology.

Lastly, we thank all our submitting authors, Dignitaries who have toiled in the production of their work, and have chosen International Conference on Advance Research in Information and Communication Technology in support with Melange Academic Research Associates. The success and reputation of ICARICT- 2023 reflects the outstanding work by our reviewers and authors who are dedicated to publication of only the best quality papers.

ICARICT - 2023
Melange Academic Research Associates
Puducherry - India

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Application Reliable Traffic Control Method for Efficient Data Management in Wireless-aided Computer Applications

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Paper ID: ICARICT_ 037

Wireless Computer Applications enclose smart homes, automated industrial environment, e-commerce, and other real-time extensions of conventional Internet of Things applications. Data management is a crucial process due to fluctuating traffic patterns and infrastructure support. By considering the significance of data management in such applications, this article introduces Application Reliable Traffic Control (ARTC) method. The proposed method relies on the application requirement for minimum and maximum service data dissemination at the initial stage. Based on the application requirements, traffic forwarding and infrastructure allocation processes are performed for providing continuous data dissemination. The regressive learning model used in a linear dissemination analysis process helps to balance the application requirement. The performance of the proposed method is analyzed using the metrics backlogs, latency, and dissemination loss.

An Analysis of the Machine Learning Techniques used to Calculate the Water Quality Index

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Paper ID: ICARICT_ 001

The type and severity of groundwater pollution needs to be understood in order to protect future sources of drinking water. Accurate prediction of water quality is essential to improve water management and reduce water pollution. Water quality, which is affected by a wide range of factors such as pH, turbidity, electrical conductivity, dissolved oxygen (DO), total coliform bacteria, and biological oxygen demand (BOD), can be used to characterize water pollution. In this study, we investigate SVM, ANN, CNN, DL, and XGBOOST as machine learning techniques for water quality classification. The following factors are considered when evaluating water quality: DO, BOD and electrical conductivity. Data analysis revealed that the XGBOOST technique outperformed other categorization models with an accuracy rate of 98.50 percent.

Accurate and Efficient Brain Tumour Analysis by Deep Neural Network Architectures

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Paper ID: ICARICT_013

The classification of medical images is a very difficult and challenging problem as they have many textural patterns with them. It is a problem of assigning a particular pattern to a given image from different complex patterns. In this paper, a review of previous work on brain cancer diagnostic systems using Convolution Neural Networks (CNN) is attempted. Generally, a classification system or pattern recognition system comprises two modules; feature extraction and classification modules and their performances depend on the techniques used in these modules. A good feature from the former module may be wasted by a poor classifier design in the later module and vice-versa. To overcome this, CNN architectures are developed where both the modules are integrated into a convolution neural network. This paper discusses different CNN architectures for brain image analysis using MRI images, the commonly used brain imaging datasets and also describes the generally used methods to assess the systems' performance.

Face Recognition Based Attendance System

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Paper ID: ICARICT_ 021

This project aims to recognize faces in an image, video, or via live camera using a machine learning based face recognition model that is fast as well as accurate. Face recognition is a process of identifying faces in an image and has practical applications in a variety of domains, including information security, biometrics, access control, law enforcement, smart cards, and surveillance system.
The frames of video or streaming video contains the spatial features of the faces of persons and after inputting the frames it involves the following steps: Face detection, Feature extraction, Feature set. The face detection phase uses Histogram of Oriented Gradients for detecting the faces from the frames inputted. For feature extraction purpose, Face landmark estimation algorithm is used to extracting the important features from the faces. The feature set is made by collecting the encodings from the given face.
The dataset used consists of a single image per each person that containing their faces. The particular frame taken from the CCTV is given as input to the model. Then comparison of the test input with existing dataset are done. Using the prediction by SVM (Support Vector Machine) algorithm 100% accuracy was obtained by correctly predicting the students.

Design and Implementation of Power, Delay & Area Efficient Novel Comparator using MGDI

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Paper ID: ICARICT_ 029

MGDI – Modified Gate Diffusion Input – is a new technique for reducing digital circuit power, area, and delay. This paper thoroughly compares the existing Gate Diffusion Input (GDI) and the proposed Modified Gate Diffusion Input (MGDI), particularly in terms of effective power. Several logic digital circuits are implemented, and their properties and subsequent simulation results are discussed. We are using Tanner EDA for the purpose of simulation of circuits and to compare it's performance based on Power, Area and Delay.

A Novel Prediction-Dependent Service Discovery for Wireless End-User Applications

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Paper ID: ICARICT_ 038

Service-focused wireless computer applications rely on the connecting infrastructure for assisting different end-user applications. Seamless application support relies on the infrastructure availability and swift discovery of the services. In this article, service discovery based on predictive availability (SD-PA) is introduced. This proposed technique relies on the operating and available occurrences of the infrastructure for providing reliable service discovery. A predictive machine learning technique is used in this service discovery process for mitigating the failures in random infrastructures. The response and discovery of the applications and services in the IoT environment are balanced using the predictive discoveries of finite infrastructures. The performance of the proposed technique is assessed using the metrics discovery time, service availability, outage probability, and failures.

A Comprehensive Study on the Progression of Internet of Medical Things (IoMT), Security Issues and Attacks

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Paper ID: ICARICT_ 005

The rapid growth in Machine to Machine communication have facilitated advanced Internet of Things (IoT) based solutions to redefine several applications. Healthcare models have been modernized with IoT, termed as Internet of Medical Things (IoMT). The IoMT can be otherwise termed as healthcare IoT, which can be defined as collection of medical sensors and applications that are integrated via heterogeneous networks. Numerous healthcare providers employ IoMT solutions to enable the development of diseases and medications, enhance treatment procedures and the patient experience, and minimize costs and errors. IoMT systems permit remote monitoring of patients. Thus, it is able to deliver prompt diagnostics that can save a patient's life in the event of an emergency. Nevertheless, the security of these vital systems is a key obstacle to their widespread adoption. The first step in this direction is establishing an attack factor that an adversary or unauthorized person can use to get access to and manipulate medical data. This study provides state-of-the-art solutions for securing IoMT data acquisition, transmission, and storage. A comprehensive review of the potential physical and network attacks on IoMT systems is provided. The work reveals that the majority of security countermeasures are effective against a variety of assaults. Consequently, a security architecture that integrates many security methodologies is also be presented.

Skin Disease Detection Using Deep Learning

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Paper ID: ICARICT_ 022

Skin is the most powerful protection of important organs in the human body. It acts as a shield to protect our internal body to get damaged. But this important part of the human body can be affected by so serious infections caused by some fungus or viruses or even dust too. Around the world, millions of people suffer from various skin diseases. Sometimes a small boil on the skin can turn into a severe issue or even an infection that will cause a major health issue. Some skin issues are so contagious that one can be affected by another just with a handshake or using a handkerchief. A proper diagnosis can result in proper medication that can reduce the miseries of the people suffering. In this project, we have tried to develop a prototype to detect skin diseases using neural networks. In the choice of neural networks, we have chosen CNN which abbreviates as a convolutional neural network. Earlier detection works have been done using DNN which is a deep neural network. Our project is combination of both image processing and CNN. First, we took the picture of the skin and we include those pictures in the dataset. Then we process the image with the help of image processing technique and it will classify the type of the disease.

Design and Implementation Energy Efficient Approximate Arithmetic for DCT

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Paper ID: ICARICT_ 030

This study designs and implements an approximate arithmetic for the discrete cosine transform that is energy-efficient (DCT). The suggested method is based on a novel approximate multiplication algorithm using low-precision fixed-point arithmetic. On a Xilinx Zynq-7000 SoC platform, the suggested method is assessed and contrasted with the DCT implementations currently in use. The findings demonstrate that the suggested method can cut the DCT's energy usage by up to 50% while preserving a comparable degree of accuracy.

A Concurrent Computing Model for Fog Assisted Edge Network Applications

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Paper ID: ICARICT_ 039

The Fog Computing paradigm is designed to improve the feasibility of service provisioning in the local network applications. This paradigm is proficient in granting services, computations, storage, and communication features for heterogeneous devices. By this consideration, this paper discusses a novel proposal of proliferating computing model (PCM) for improving the robustness in storage level processing. The proposed model makes use of deep learning techniques for improving the concurrency in storage level processing for data storage and access. The learning classifies the functions of requesting and responding devices to improve the rate of data handling along with latency-less processing. This helps to improve the rate of processing by reducing the time along with response rate and less overhead.

Intrusion Detection System to Detect Anomalies Using Convolution Neural Network in IOT

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Paper ID: ICARICT_ 006

The Internet of Things (IoT) is a network for communication that is linked together by wired or wireless networks. It has progressed magnificently in today's world, whether in smart homes, where all electronics and gadgets, such as tube lights, are linked to the internet, or in the medical, educational, or government industries. As the use of the IoT is increasing rapidly, so are the security concerns. Security is the most crucial aspect to look after as the quantity of IoT devices spreads. Several attacks, such as replay, DoS, Distributed Denial of Service, and spoofing, will result in substantial data loss. To overcome these challenges, a very popular system, Intrusion Detection System (IDS) is being proposed. In this paper, deep learning Intrusion Detection System (DL-IDS) is used to check the accuracy, precision, and recall of the Convolutional Neural Network (CNN) algorithm to be detecting the attacks.

Plant Disease Identification Using a Novel Convolutional Neural Network

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Paper ID: ICARICT_ 023

In recently, so many plants are affected by insects, quality of soil, parasitic plants and pathogenic organisms such as fungi, bacteria, viruses. It is very difficult for famers to identify what type of disease is affected to their plants. In this work, we solve the plant disease identification problem. We using the most efficient Depth wise Separable Convolution and Residual network algorithms. This project aims to satisfy the need of disease identification in the agricultural environment. The method that is being used for plant disease identification is convolutional neural network with depth wise separable convolution and residual network with these algorithms we have achieved an Accuracy levels which are quite impressive Training time required for training the dataset have been significantly reduced number of Epochs also reduced. A web-based representation is implemented using html, css, javascript, initially input image is uploaded in the console and image get processed and result is displayed on the site's display. We are proposing a model with better improved Accuracy and lowered Validation losses and web-page based interaction for better user experience.

IOT Based Smart Patient Monitoring System

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Paper ID: ICARICT_ 031

This paper gives us the development of a microcontroller based system for wireless heartbeat and temperature monitoring using Wi-Fi module. By this we can easily provide real time information available for many users and can send them alert in critical conditions over internet. In India many patients are dying because of heart attacks and reason behind this factor is that they are not getting proper help during the period. To give them timely and proper help first we want to continuous monitoring of patient health. The fixed monitoring system can be used only when the patient is lying on bed and these systems are huge and only available in the hospitals in ICU. The system is developed for home use by patients that are not in a critical condition but need to be timely monitored by doctor or family. In any critical condition the SMS is send to the doctor or any family member. So that we can easily save many lives by providing them quick service.

A Novel Application Service Security using Peer-to-Peer Trust Slicing Trust Model

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Paper ID: ICARICT_ 040

Network applications provide services for different user categories in a distributed and shared scenario. The challenge in providing services is security due to the presence of common communication and sharing networks. In such cases, the presence of adversaries is tedious to be identified. In this article, Slicing-dependent Secure Distribution (SSD) of services is introduced. This method is designed to combat man-in-the-middle adversaries that are present in the commonly shared networks. The service network is partitioned into slices for identifying the distribution patterns and its security measures. The trust and its allied communication between the consecutive slices are verified in a peer-to-peer manner. The performance is verified using the metrics service latency, false rate, and service loss.

Impact of Mobile Smartphones on Rural Business

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Paper ID: ICARICT_ 007

In developing nations, the explosive growth of mobile communications technology is opening doors for economic development, social empowerment, and grassroots innovation. The contribution that mobile smartphones may make to agricultural and rural development (ARD) by giving millions of rural resident's access to information, markets, and services is one of the sectors with the highest potential influence. According to a recent study, about 69 percent of Indians live in their villages, which generate close to 50 percent of the country's GDP. Small towns in this agricultural area range from those with fewer than 500 inhabitants to smaller communities. The goal of this research is to find out if mobile smartphone software could be used as a smart user interface protocol to connect to the storage system network. One of the key takeaways is that the most crucial element in the creation of m-ARD apps is definitely an enabling platform (or platforms). Platforms can improve interactions between ecosystem participants, expand user access, offer technological standards, and include payment systems.

Secure Patient Data Using IOMT

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Paper ID: ICARICT_ 024

Due to insecure communication among the entities involved in IoMT, an attacker can tamper with the confidential and private health related information. For example an attacker can not only intercept the message, but also modify, delete or insert malicious messages during communication. It leads to the problem of data privacy and security. To deal this sensitive issue, we have designed a block chain and AI enabled technique where the legitimate users can access the health care data from the cloud servers in a secure way. In this project, blockchain provides a secure, decentralized way to store and transfer data, which ensures the privacy and security of medical data. The entire health care data is stored in a block chain maintained by the cloud servers.

Biomedical Applications Using Microstrip Antenna

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Paper ID: ICARICT_ 032

The field of developing effective medical gadgets for purposes of advanced healthcare is now advancing quickly. The planned construction has a small footprint, a pleasing geometric appearance, and enough bandwidth. With a fundamental frequency of 2.45 GHz, the proposed antenna operates between 2.41 and 2.44 GHz. In the ISM frequency region, it describes the design and development of a fractal antenna with a slot structure for biomedical applications. The antenna is created using inscribed square fractal geometry, which gives it wideband properties. This implanted antenna's flexibility and insulation are achieved by using thin, biocompatible substrate (cotton) layers. When compared to a normal wireless system, the human body reveals to be a hostile environment for radio wave propagation. The severe loss environment has an impact on the antenna characteristics, which reduces the gain of the implanted antenna. Techniques like Hilbert Curve are employed to reduce this impact.

and Analysis of Artificial Intelligence Interventions in Education System of India

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Paper ID: ICARICT_ 008

Artificial intelligence is one of the emerging technologies that has the ability to transform every aspect of our societal situations. In education, AI in education field has initiated to provide novel teaching and learning, which are presently being tested in many situations like pandemic. This article gives instances of the application of Application of artificial intelligence specifically in education sectors of economically developing countries like India, where One of the 2030 Agenda for sustainable development is universal education. This article offers the reader with an overview of AI. AI has progressed from simple knowledge based system to application based systems to context-driven systems with enhanced capabilities. Indeed, as a new technology, AI will revolutionise the 'learning experience' by creating an adaptable learning space that offers a 'custom learning experience.' Finally, this article provides some instances of how AI technology is being used in the education industry to improve the learning experience and quality of learning. This paper also aims to find out the relationship between gender, awareness, perception and AI interventions. The study has found there is significant relationship among gender, awareness, perception and AI interventions. This article will help the stakeholders of education sector to understand the intensity up to which AI can be implemented in the field of education and perception of doing so.

Analysis of Indoor Air Quality in SRM Campus Buildings in Different Ventilation during Pandemic Situation - Prevention and Control

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Paper ID: ICARICT_ 025

As modern society spend majority of their time in the indoor environment it is essential to maintain indoor air quality. The pre-existing infrastructures face difficulties such as building-occupants pattern and over comfort in outdated constructions. HVAC system plays a vital role in maintaining a proper air quality in the indoor environment (University campus). Several health issues and physical discomforts have been experienced by the occupants due to poor quality of indoor air which is labeled as sick building syndrome (SBS). The pollutant concentration level of indoor air is much severe than that of outdoor air. Previous thermal comfort studies have suggested that the amount of occupancy affects the indoor air quality as the concentration of CO2 becomes much higher. The productivity of the occupants is highly affected due to indoor air quality. Maintaining good indoor air quality in hospitals and vaccination centers are very important as the COVID-19 affected patients have high chance of getting air-borne diseases. This work has involved measuring the air quality in the study area followed by analyzing the data. Finally, solution is been proposed using the graphical representation of data for preventing SBS.

Plasma Donor Application

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Paper ID: ICARICT_ 033

During the COVID19 crisis, the requirement of plasma became a high priority and the donor count has become low. Saving the donor information and helping the needy by notifying the current donors list, would be a helping hand. In regard to the problem faced, an application is to be built which would take the donor details, store them and inform them upon a request.

Machine Learning Approach for Detection of Phishing URLs and Website Building Using Flask Framework

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Paper ID: ICARICT_ 018

Phishing is a type of social engineering attack in which an attacker creates a fraudulent link and sends it to a victim in order to obtain their personal information, such as login credentials and credit card numbers. Individuals with limited knowledge of such attacks are particularly vulnerable to become victims. To address this issue, an intelligent algorithm is needed. Machine learning, a branch of artificial intelligence, enables computer systems to learn from previous data make predictions in real time or for the future.

In this paper, we examine several machine learning classification algorithms and analyse performance metrics such as accuracy, precision and recall to identify the most efficient algorithm. Initially, we collect dataset and perform data preprocessing including under-sampling and over-sampling techniques, and extract features from the data. Finally, we feed the data into the machine learning algorithm to evaluate the performance of each algorithm. We then take the best-performing and save it in a pickle file. Using the flask framework, we create a sample website, and when a user enters the URL they received in the search bar, our model predicts whether the URL is legitimate or phishing attempt. If it is a phishing URL, a warning message is displayed to the user.

An Analysis of Service Quality measurement of Cashless Payment Service in India-A SERVQUAL Model

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Paper ID: ICARICT_ 009

The rapid growth in technological advancement and wider coverage of mobile networks have made cashless payment transactions a medium for outspreading banking services to customers. However, there is still a need to identify the areas where there is a need to further scope of improvement in cashless banking services. This study has been conducted with the objective to explore and analyse cashless banking service quality based on different constituents or components. The study is based on 173 respondents analysing the components through factor analysis and the impact of service quality components through regression analysis. The factor analysis recognized different service quality components having a significant impact on customer satisfaction. Further analysing through regression, has found that all the factors have a significant and positive impact on customer satisfaction. Besides that, the study has administrative implications as it can be utilised by banks to enhance service quality by focusing more on the significant criteria.

RPOM—Rational Process Offloading for Improving the Resource Utilization of the Internet of Things

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Paper ID: ICARICT_ 026

The Internet of Things (IoT) interconnects diverse objects and service platforms for providing ubiquitous application support through diverse communication technologies. Quality of service and experience required application support is ensured through precise resource allocation and request scheduling in this platform. Considering the densely populated user scenario and service demand, this article introduces a Rational Process Offloading Method (RPOM) for reducing the service backlogs in IoT. This method distinguishes the scheduled and offloading of required application requests for preventing additional service delays. The decisions for offloading and time-sensitive application responses are performed using the state learning process. In this learning, the offloading and scheduling states are validated using current and previous state analysis for independent and congestion-less responses. The state is trained using the time and offloading demand observed between the request and response. However, the varying state modeling is used for determining a forecast-based service allocation, improving the utilization. The RPOM's performance is validated using the metrics of resource utilization, offloading ratio, service delay, and backlogs.

Estimate the Crop Yield using Data Analytics

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Paper ID: ICARICT_ 034

Crop production in India is one of the most important sources of income and India is one of the top countries to produce crops. As per this project we will be analyzing some important visualization, creating a dash board and by going through these we will get most of the insights of Crop production in India.

Smart Fashion Recommendation System using Res-Net 50 CNN

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Paper ID: ICARICT_ 019

A Recommendation System is a methodology that is based on Artificial Intelligence usually associated with machine learning. A recommender is used to predict the preference and ratings of the user for an item based on the profile and the search history of the user. It is a powerful technique in terms of business because Google, Facebook, and e-commerce websites use recommender systems to expand their business. There are mainly two types of recommender system that exists. First, Content-based filtering is based on the profile of the user and the featurization of items, and Second, Collaborative filtering involves the user's past behavior and the user's previous utility with the different items. This project proposes a fashion recommender system that is programmed to recommend the predicted clothing images or items from a large set of collected images. This project is aimed to implement an online fashion recommender system to assist users by recommending preferred items. In this work, we use CNN for image processing CNN is a type of ANN, which is used for image classification and recognition. We have used the data set which is given for Res-Net 50 to load a pre-trained network trained on the dataset from the ImageNet database. In this proposed system, we have implemented the Res-Net 50 CNN which is 50 layers deep.

Role of Increase in Efficiency in Adoption of Robotic Process Automation by Accountants

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Paper ID: ICARICT_ 010

Robotic Process Automation is in its nascent stages, where it is still explored for various business purposes and the functions for which it can be utilised. With the same effect as that of technology on various processes, RPA tends to decrease the monotonous, repetitive work, time, cost and increase the efficiency by which an organisation can work. This study aims to explore the effect of RPA in accounting. The study uses technology adoption model to determine the various factors which play important role in adoption of robotic process automation in the field of accounting by professional accountants. The study also introduced one new dimension for adoption of TAM i.e., the increase in efficiency. The analysis of data was done through PLS SEM (structural equation modelling). The results show that all the hypotheses were supported. The study could be helpful for managers, organizations and individual for adoption of technologies in processes like accounting.

Design and Implementation of Traffic Management for Density and Emergency based System

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Paper ID: ICARICT_ 027

The design and implementation of traffic management for density and emergency-based system is aimed at designing a density based dynamic traffic signal system where the timing of signal will change automatically on sensing the traffic density at any junction. Traffic congestion is a severe problem in most cities across the world and therefore it is time to shift more manual mode or fixed timer mode to an automated system with decision making capabilities. Present day traffic signaling system is fixed time based which may render inefficient if one lane is operational than the others. To optimize this problem, we have made a framework for an intelligent traffic control system. Sometimes higher traffic density at one side of the junction demands longer green time as compared to standard allotted time We, therefore propose here a mechanism in which the time period of green light and red light is assigned on the basis of the density of the traffic present at that time. This is achieved by using PIR (proximity Infrared sensors). Once the density is calculated, the glowing time of green light is assigned by the help of the microcontroller (Arduino). The sensors which are present on sides of the road will detect the presence of the vehicles and sends the information to the microcontroller (Arduino) where it will decide how long a flank will be open or when to change over the signal lights. In subsequent sections, we have elaborated the procedure of this framework.

Personal Expense Tracker

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Paper ID: ICARICT_ 035

To keep track of income and expense of individual on monthly basis and to develop an application that can manage expenses which is automated and decide on budget more effectively.
To provide more efficiency in accuracy of calculations.

Real-Time River Water Quality Monitoring and Filtering System

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Paper ID: ICARICT_ 020

Water plays the major role in our everyday life and it is the main source for all living organisms on the earth. Water gets contaminated by improper disposal of sewages, harmful chemicals from industries and pesticides. This contaminated water is very dangerous to human beings and other species. There are different types of sensors which is used to collect data such as pH sensor, Temperature sensor, Turbidity sensor from water. Some of the parameters used to determine the quality of water are pH, Temperature, Turbidity. A threshold value is fixed for detecting the quality of the river water. When the river water is above the threshold value automatically the SMS sent to the authority. The data collected by the sensors is transmitted wirelessly to a central monitoring unit, which analyses the data and displays it in an easy-to-understand format.it is designed to reduce the capital cost and make it easy to set up in the remote areas. To assemble data from various sensors, we collect the data and send it to the base station. To simulate and evaluate quality parameter for quality control of the water. In this paper, we have achieved high frequency, high mobility and low powered.

Universally Automated Prediction Using Machine Learning

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Paper ID: ICARICT_011

Generally prediction is used almost everywhere in the field of Machine Learning such as Health Care, Education, Research and Industries. But everywhere they choose the datasets and they choose the appropriate algorithm by the datasets. Every algorithm depends upon a different datasets. So a constant algorithm can't be used in all kinds of datasets. And also doing all research for choosing the correct algorithm is somewhat hard. Therefore, we introduce our idea predicting all kinds of datasets in automation. Here we have all famous prediction algorithms in regression that are used. We preprocess the datasets in automation and then we feed the datasets to all those algorithms and take the accuracy score of each algorithm. Definitely the suitable algorithm for that datasets gives the most accuracy score. Then we select that algorithm trained model for predicting values for that datasets. Our idea is implemented in such a way that even an uneducated can easily work in it, since everything is done in automation.

Diagnosis of Uterus Cervical Cancer Using MRI Images with CNN Compared with ANFIS Approach

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Paper ID: ICARICT_ 028

Earlier detection of cancer is spotted using an MRI scan. The Magnetic Resonance Imaging technique is used to look at the structures and organs present inside the body. Health care professionals use MRI scans for diagnosing torn ligaments to tumors. MRI scans offer good soft tissue contrast than CT. Many types of cancer cell formation like bladder cancer, breast cancer, colorectal cancer, kidney cancer, oral and oropharyngeal cancer. CC considers as one of the most dreadful types of cancer. Abnormal vaginal discharge means heavy or with a foul odor, pain during intercourse, pelvic pain, lower back pain, swelling and pain in legs, weight loss, and decreased appetite. Most of the women have a risk of cervical cancer. It will happen for women over the age of 30. The primary intention of the proposed work is to predict the CC (Cervical cancer) in an earlier stage. MRI images are the input of the proposed system. It implements using the python programming language.

Unlocking the Potential of Machine Learning for Financial Forecasting: A Comparative Study of Deep Learning Models

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Paper ID: ICARICT_ 036

This paper presents a comparative study of deep learning models for financial forecasting, aiming to unlock the potential of machine learning for predicting financial market trends. The study focuses on the performance of long short-term memory (LSTM) and convolutional neural network (CNN) models in predicting stock prices, compared to traditional machine learning models such as random forest and support vector regression.

Sustainability Assessment of Green Intelligent Building based on Artificial Intelligence

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Paper ID: ICARICT_ 042

The efficiency and sustainability of the architecture, engineering and construction industry face severe issues. Artificial intelligence application in a green intelligent building is an efficient approach to improve the sustainability and efficiency of the industry. The living quality is improved by using environmentally friendly building materials. This work proposes the Artificial Intelligence-based Sustainable Energy Model (AI-SEM) in green buildings. As AI-SEM methods are essential for ensuring data accuracy and efficiency in order to support building energy management systems, they are reviewed and examined. With the help of this technology, convenience, security, and energy infrastructure may all be improved. Important constituents of the AI-SEM approach include an infrared communication scheme and associated components for intelligent user verification and screening of environment. A green intelligent building has features that improve the surrounding atmosphere. The AI-SEM experimental result shows greater performance, accuracy, energy management level, Prediction, and less energy consumption.

ECC Based Address Generators Designs and Implementations for Low Power Memory BIST Applications

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Paper ID: ICARICT_ 043

Nonlinearity of a digital-to-time converter (DTC) is pivotal to spur performance in DTC-based all-digital phase locked-loops (ADPLL). In this paper, we characterize and analyze the mismatch of cascaded-delay-unit DTCs. Through an improved built-in-self-test (BIST) time-to-digital converter (TDC) assisted with phase-to-frequency detector (PFD), a measurement system of sub-half accuracy is constructed to conduct the characterization. Fabricated in 28-nm CMOS, the DTC transfer functions are measured, and mismatches are compared against Monte-Carlo simulation results. The integral nonlinearity (INL) results are compared against each other and converted to the in-band fractional spur level when the DTC would be deployed in the ADPLL. The BIST-TDC system thus characterizes the on-chip delays without expensive equipment or complex setup. The effectiveness of adding a PFD into the loop is validated. The entire BIST system consumes 0.6mW with a system self-calibration algorithm to tackle the analog blocks' non-linearity. Index Terms—All-digital PLL(ADPLL), build-in self-test (BIST), digital-to-time converter (DTC), fractional spur, jitter, mismatch, noise shaping, phase/frequency detector (PFD), self-calibration, time-to-digital converter (TDC).

Performance Enhancement of Evaporative Cooler by Hybrid Method

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Paper ID: ICARICT_ 044

There is an increasing demand of refrigeration and air conditioning with increasing economic growth. Higher energy consumption and harmful refrigerant used in cooling accelerate the global warming. Evaporative cooling consumes very less energy and uses water to reduce the temperature of air thus no harmful refrigerant is used. It increases the humidity with in the living space and fails to work in hot and humid region. We aim to increases the performance of evaporative cooling by adding thermoelectric cooling to the system. The cooler was fabricated and test were conducted. The results show the new cooling system has higher cooling capacity and wet bulb efficiency but reduced COP due to high power consumption and low efficiency of Peltier module. The performance of this hybrid cooling system can be improved by using efficient heat exchange method to increase sensible cooling of air from thermoelectric cooling, and remove heat from the Peltier.

Design, Fabrication and Experimental Study on the Performance of Biomass based Micro-Gasifier Cooking Stove for Rural Application

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Paper ID: ICARICT_ 045

In this project, an attempt has been made to design a new top lit-updraft microgasifiercook stove (Eco-chulo). Some of the stoves based on the principle of micro gasification have improved thermal efficiencies with lower emissions, however, knowledge on the effect of different air flow rates on the performance; thermal efficiency, fire power, emissions, specific fuel consumption and burning rate is scarce. Also, the fuel feeding during the cooking activity is made easy in this project by using screw feeder. The newly developed Eco-chulo has been tested with venteak wood chips as fuel. The main objective of this project was to evaluate performance of a micro-gasifier cook stove. An experimental microgasifiercook stove was therefore developed using the available materials based on the design equation and household energy requirements. The water boiling test protocol version 4.2.3 was carried out at three different air flow rates of 0.012 m3/s, 0.018m3/s, and 0.024 m3/s, with three replications. The thermal efficiency and average boiling time were 35.5% for cold start and 36.40% for hot start, and 13.5 minutes, respectively. There was linear proportionality for variation of air flow rate with the fire power of the stove in both cold and hot phases. Burning rate and specific fuel consumption increased with increase in air flow rate in both cold hot phases. During the hot start specific fuel consumption and fire power at flow rate of 0.024 m3/s was 165.75 g/l and 9.657 kW respectively.

Wireless Charging Station for Electric Vehicle with Voltage Measurement

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Paper ID: ICARICT_ 046

The energy demand is increased day by day. To consume energy in an efficient way is very important. Increasing economic growth and consumption patterns are leading to ever growing demand for energy. The system aims to develop a System (EMS) based on the emerging technology, IOT. In this proposed system, here each electric appliance is connected to the centre server. The centre server controls all other nodes connected to it based on the current and voltage value measured.
The Real Time Clock is used to control the usage of energy in time based. Once the AC supply is failed automatically the DC supply is switched over to consume energy in renewable source.

Smart Power Distribution Using IoT

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Paper ID: ICARICT_ 047

Reliability of power supply is very important for critical loads like hospitals and banking sectors. The proposed system uses IOT based routers to manage and maintain continuity of power supply for the critical loads in the network during a fault. When a fault is identified the system receives a notification signal and the power supply network is re-routed within a few minutes of the fault. The faulty line is safely isolated from the network allowing the operator to arrange for a repair. The system using IOT enables the operator to direct the repair team to the specific area at which the fault has occurred. Once the fault is rectified the system tests the connection and restores the supply. By using this IoT based system, continuity of Power Supply is ensured. This can be implemented in smart city projects.

Women Safety Device Using Arduino and IoT

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Paper ID: ICARICT_ 048

Today in the current global scenario, women are facing many problems like women harassment. We propose to have a device which is the integration of multiple devices, hardware comprises of a wearable “Smart band” that endlessly communicates with sensible phone that has access to the web. In this project, when a woman senses danger she has to hold ON the trigger of the device. Once the device is activated, sends emergency message using GSM (Global System for Mobile communication) to the registered mobile number. A vibrating sensor will sense the rate of vibration the GSM sends the last location in case if the device gets defected to the corresponding registered mobile number.

Leaf Disease Detection Using CNN

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Paper ID: ICARICT_ 049

Crop cultivation plays an essential role in the agricultural field. Due to the factors like diseases, pest attack and sudden change in the weather condition, the productivity of the crop decreases. Traditional methods are reliable but require a human resource for visually observing the plant leaf patterns and it requires tremendous amount of work, expertise in plant disease, and also more time consuming. In big farm lands, early-stage detection of plant disease by using automated techniques will reduce the loss in productivity. Disease detection involves steps like image acquisition, image pre-processing, image segmentation, feature extraction, classifier and analysis.

Demand Response with Penetration of Renewable Energy

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Paper ID: ICARICT_ 051

In the modern world, for domestic as well as industrial purposes the consumption of electrical energy is very high. So, the consumers are not receiving the sinuous supply for their respective loads. One of the important reasons for the cause is Maximum Demand. In order to reduce the maximum demand, the respective applications may be affected for their time of operation, working period, etc. And also non-renewable energy is used as a primary supply in all over the world, The Non Nonrenewable sources will be extinct soon. So through this paper, the consumption of electricity due to Nonrenewable sources will be reduced and at the peak demand, it provides the continuity of electrical supply by Renewable energy. The Maximum Demand can also be reduced. It will be more effective and efficient.

Solar Wireless Electric Vehicle Charging System

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Paper ID: ICARICT_ 052

This is a project which focuses on the design of solar powered charging of electric vehicle describes design of solar powered charging station for charging of electric vehicle that solves the key downside of fuel and pollution. Electric vehicles have now hit the road worldwide and are slowly growing in numbers. Apart from environmental benefits electric vehicles have also proven helpful in reducing cost of travel by replacing fuel by electricity which is way cheaper. Well, here we develop an EV charging system that solves with a unique innovative solution. This EV charging of vehicles without any wires, no need of stop for charging, vehicle charges while moving, Solar power for keeping the charging system going, no external power supply needed. The system makes use of an Arduino board, solar panel, battery, regulator circuitry, copper coils, and LCD display to develop the system. The system demonstrates how electric vehicles can be charged while moving on the road, eliminating the need to stop for charging. Thus, the system demonstrates a solar powered wireless charging system for electric vehicles that can be integrated in the road.

ATM Secure Monitoring By Using GSM

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Paper ID: ICARICT_ 053

Automated Teller Machines (ATMs) security is the field of study that aims at solutions that provide multiple points of protection against physical and electronic theft from ATMs and protecting their installations. The implementation is achieved with the use of Machine-to machine (M2M) communications technology. M2M communications is a topic that has recently attracted much attention it provides realtime monitoring and control without the need for human intervention. anti-skimming defend system to silent indicate systems, integrated ATM video surveillance cameras and ATM monitoring options, security specialists are ready to help the people get more out of the ATM security and ATM loss prevention systems. Using internet of things to detect any unusual action like attacks, frauds and to act on situation in real time so that human and monetary losses are reduced. To sense the abnormalities in the ATM by using vibration sensors and flame sensors. Then with the help of GSM technology we are monitoring the ATM's.

Battery Temperature Management in EV

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Paper ID: ICARICT_ 054

This is a project which focuses on the Battery temperature management as they are very crucial in today's world. This project avoids the explosion of Batteries. The main component is the temperature sensor which is connected to a micro controller. This micro controller controls two processes to happen. If the temperature is greater than 303 kelvin then it activates the cooling system so that it maintains the battery at a sweet spot of temperature. During this process simultaneously current is produced by a thermoelectric generator which is connected to a two way cascaded booster which will boost the voltage given to them drastically. If the temperature is less than 283 kelvin then an external voltage is given to the same thermoelectric generator and a cold supply is taken from the outside environment so naturally it produces heat and that can be controlled by the input voltage given to them. This project is essential because it saves the lives of the people. This also increases the battery life because the cold environment causes the increase in internal resistance. This can be used in the electric vehicle for the pre heating of battery.

Underground Cable Fault Detection Locator

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Paper ID: ICARICT_ 055

The objective of this project is to find the detected faults appropriately. In the field of communication, the requirement of OFC cable is increasing exponentially day by day. There are many OFC cables installed earlier whose span is getting decreased and some of the cables are getting damaged due to temperature variations and various stresses been created. So, for the proper communication and internet it has become necessary to detect the faults and repair the OFC. For detecting there are machines which are highly expensive. This proposed project is built using Arduino UNO and it uses GSM and GPS modules for locating faults over the internet using latitude and longitude coordinates. It uses NEMA protocol to find out the coordinates of latitude and longitude.

Predicting Wind Power Output Using Machine Learning: A Study on Various Regression Models and Deep learning Networks

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Paper ID: ICARICT_ 056

The demand for energy has been steadily increasing, while fossil fuel resources are declining. Therefore, renewable energy sources have become a crucial aspect of sustainable development. Wind energy is a popular renewable energy resource, but its utilization is hindered by the unpredictability of wind power output. In this project, we present a machine learning approach to predict wind power output. We employed various machine learning models, including linear regression, support vector regression, decision tree regression, lasso regression, ridge regression, gradient boosting regression, random forest regression, and LSTM networks in our deep learning models. The results demonstrate that the ridge regression, linear regression, and random forest regression models have high R-squared scores, indicating strong prediction capabilities. We also forecasted the wind power output, which can aid in efficient planning and utilization of wind energy resources. This project offers valuable insights into the effective utilization of renewable energy resources and contributes to the promotion of sustainable development

Footstep Power Generation

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Paper ID: ICARICT_ 057

In today's world, it can be observed that large amount of electricity is needed for day to day basics. In order to increase the generation of electricity alternate technique/Methods are used. In this project, we use a new technique for generation of electricity from footstep of human. The basic idea of the project is to generate power by converting kinetic energy into electric energy. So, we will prepare a piezo electric device which will convert kinetic energy into electric energy and this further will lead to charging of device like mobile, E-vehicles, etc.

Sentimental Analysis of Tweets on Tourism Using Natural Language Processing

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Paper ID: ICARICT_ 058

Tourism is a crucial industry for many countries, and social media platforms have become a vital source of information for travelers. This study utilizes natural language processing (NLP) techniques to perform sentiment analysis on tweets related to tourism. The aim is to explore the sentiment expressed by users towards various tourism-related topics and destinations. A dataset of tweets collected using relevant hashtags and keywords is preprocessed and analyzed using NLP tools and techniques, including tokenization, stop-word removal, stemming, and sentiment analysis. The sentiment analysis involves classifying the tweets as positive, negative, or neutral based on the words and phrases used. The results of the study provide insights into the overall sentiment towards different tourist destinations, as well as specific aspects of tourism such as accommodation, transportation, and attractions. The findings could be useful for stakeholders in the tourism industry to identify areas of improvement and enhance their marketing strategies.

Smart Skin for Machine Handling

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Paper ID: ICARICT_ 059

Smart skin is a large-area, flexible array of sensors with data processing capabilities, which can be used to cover the entire surface of a machine or even a part of a human body. Depending on the skin electronics, it endows its carrier with an ability to sense its surroundings via the skin's proximity, touch, pressure, temperature, chemical/biological, or other sensors. Sensitive skin devices will make possible the use of unsupervised machines operating in unstructured, unpredictable surroundings among people, among many obstacles, outdoors on a crowded street, undersea, or on faraway planets. Sensitive skin will make machines "cautious" and thus friendly to their environment. New device concepts suitable for large area flexible semiconductor films will lead to new sensors that will find applications in space exploration and defense, specifically in mine detection and active camouflage. Availability of smart skin hardware is likely to spur theoretical and experimental work in many other disciplines that are far removed from robotics.

Modified Extended Meander J PIFA Antenna for Satellite Communication

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Paper ID: ICARICT_ 060

The PIFA antenna is planar inverter F antenna which is used in the mobile phones. The word meander means size reduction and it consists of different meander shapes. The shapes are used to design the mobile antenna. It is found that by increasing and decreasing the slots in it in various meander shapes there occurs a change in the bandwidth. So we prefer this modified PIFA in order to get the high bandwidth and best impendence matching and to achieve high gain. The main concept is to make a combination between the PIFA with the Historical art meander designed slots. And to verify how the size of the antenna can be reduced and achieve a high gain and radiation in the above design. As the satellite technology is developing fast and the applications for satellite technology are increasing all the time. The above designed antenna is applied in the 'L-band' and s-band and also for 'c-band' applications and the above design is implemented using the CADFEKO software.

Separation of Priceless Materials from Blister Waste

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Paper ID: ICARICT_ 061

Blister packs are a type of packaging for pharmaceutical tablets, capsules or lozenges. This packaging is often used because it is easy to take tablets, capsules or lozenges all at once. Blisters help keep food safe for longer periods of time by providing some resistance to spoilage. Materials: Blister packaging is made from a variety of polymers including PVC, PVDC, PCTFE and COP. Methods: Thermoforming is a process in which a plastic sheet or film is unrolled from a reel and passed through a blister line. The line heats up to soften the plastic and conform to the shape of the blisters. An aluminum-based film is placed into a mold using a stamp while it cools. Aluminum stretches and holds its carved shape. The product is first formed using a heat process known as thermoforming. Then, it is packaged using cold forming process. Different Types of Blister Packaging – There are lots of different types of traps and slides. Some are for beginners, while others are for experienced players. Some have different features, such as face stamps, that allow you to create a personalized trap for yourself. Uses: Blister packs are made from plastic sheets that are cut into small pieces and then pressed together. This creates a pocket or cavity in the plastic. These packaging machines use heat and pressure to create the package. Recycled: If you do not use or cannot use the medicine, it is better to return it to the pharmacy. The blister pack box and any paper inserts can be recycled. Chemical recycling processes use heat and chemicals to convert spent polymers into new raw materials needed to make new plastics, fuels, or other chemicals.

Extracting Potentially Profit Product Feature Group using Aspect based Sentiment Analysis

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Paper ID: ICARICT_ 062

Text may be analysed using a method known as aspect-based sentiment analysis, which entails the extraction of independent judgments for a number of different aspects of the scenario. The analysis of sentiment takes into account this component. It is possible to have a better grasp of the reviewer's opinion while reading a review of a product if the reader focuses on certain parts of the product rather than the product as a whole. After that, a numeric value called a sentiment score is assigned to each component of the product. This value reflects the extent to which the component contributes to the overall happiness of the consumer. Modelling review characteristics as transaction items may provide additional insight into how to advertise goods in a way that is more effective by analysing the attributes that are most likely to coexist in a product. This can be done by analysing the attributes that are most likely to coexist in a product. This may be achieved by concentrating on the qualities that are most likely to be present in conjunction with one another in a product. This knowledge may be gathered by modelling the characteristics of the product that consumers look for in their purchases. It is possible for decision makers to make more educated choices about marketing if they have a better understanding of the motives behind feature groups and give ratings to those groups. Recognizing these feature groups and ranking them according to relevance is necessary for the work that we do. In this study, we combine high utility pattern mining with aspect-based sentiment analysis in order to identify groupings of features that have the potential to maximise both financial gain and the level of satisfaction experienced by end users. Specifically, we are interested in identifying group of features that have the potential to maximise both financial gain and the level of satisfaction experienced by end users. The goal of this strategy is to identify areas where there is room for improvement in the hopes of boosting the level of customer satisfaction. Experiments the methods given that were done on patterns that were developed with it have shown that it is possible to get feature groups with a high profit potential.

Quantifying Power Consumption and Estimating Different Power Management Schemes for Visual Sensor Networks

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Paper ID: ICARICT_ 063

VSN (Visual Sensor Networks) intends to address the issues in a visual sensor networks related to network protocols, computer vision algorithms and their interaction. The main goal of this study and implementation is to understand the energy consumption trade-offs between computation and communication in sensor networks especially in visual sensor networks. In order to do so, we need to evaluate and model: energy spent to process data by sensors (e.g., how much energy vision algorithms require, etc.) as well as energy required for communications. The first step is to evaluate energy consumption due to communications and to obtain an accurate energy model. Such energy model must be as close to reality as possible, taking into account all radio states, i.e., energy spent not only while transmitting and receiving a packet, but also while in idle, overhearing, or sleep modes. The next step is to understand energy consumption due to sensing and processing. Our goal is to develop a model that captures the behavior of sensing and processing activities. More specifically, video processing should consider not only capturing, but also compression and computer vision algorithms that provide several different levels of data representation. In our paper we are going to present a novel simulation framework of Visual Sensor network for quantifying power consumption in a unified way that also reflects the node level performance to network-wide power estimation and illustrate the capabilities of our simulation framework to explore different power management schemes and interactions across the node level network layer.

Removal of Impulse Noise in Images by Denoising Architecture

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Paper ID: ICARICT_ 064

Images are often corrupted by impulse noise in the procedures of image acquisition and transmission. In this paper, we propose an efficient de noising scheme and its VLSI architecture for the removal of random-valued impulse noise. To achieve the goal of low cost, a low-complexity VLSI architecture is proposed. We employ a decision-tree-based impulse noise detector to detect the noisy pixels, and an edge-preserving filter to reconstruct the intensity values of noisy pixels. Furthermore, an adaptive technology is used to enhance the effects of removal of impulse noise. Our extensive experimental results demonstrate that the proposed technique can obtain better performances in terms of both quantitative evaluation and visual quality than the previous lower complexity methods. Moreover, the performance can be comparable to the higher complexity methods. Our main objective is removing the random valued impulse noise from the corrupted image.

Communication Between Vehicles (CBV)

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Paper ID: ICARICT_ 065

Vehicle-to-vehicle (V2V) communication's ability to wirelessly exchange information about the speed and position of surrounding vehicles shows great promise in helping to avoid crashes, ease traffic congestion, and improve the environment. But the greatest benefits can only be achieved when all vehicles can communicate with each other. That's why we have been working with the automotive industry and our institutions for communication's lifesaving potential into reality. For this we are planning to build a device which can controls the vehicle in a critical situation to avoid critical damages to the public.

If this device used by public generally we can reduce more number of road accident and casualties. This device will detect the vehicle nearby and give information to the driver about the percentage of collision chance with the other vehicles and try to avoid accident by controlling the vehicles which it's implanted, this device as access to the break and steering wheel of the vehicles, so that it can avoid collision, to link these devices there are towers so that the devices can work properly and simultaneously.

Design and Implementation of Weather Monitoring System

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Paper ID: ICARICT_ 066

A weather station can be described as an instrument or device, which provides us with the information of the weather in our neighbouring environment. For example it can provide us with details about the surrounding rainfall, pollution. This device basically senses the rain detection and pollution detection. There are various types of sensors present in the prototype, using which all the aforementioned parameters can be measured. It can be used to monitor the rain detection or pollution detection of a particular room/place. With the help of rain detection and pollution detection we can calculate other data parameters, such as the dew point. In addition to the above mentioned functionalities, we can monitor the rain intensity of the place as well. We can enable to monitor the rain value. The brain of the prototype is the ESP WROOM32 based Wi-Fi module Nodemcu (12E). Four sensors are connected to the NodeMCU namely rain sensing and smoke detection. Whenever these values exceed a chosen threshold limit for each an SMS, an E-mail and a Tweet post is published alerting the owner of the appliance to take necessary measures.

Advanced Earthquake Techniques

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Paper ID: ICARICT_ 067

A natural calamity known as earthquake has taken the toll of millions of lives through the ages in the unrecorded and recorded human history. A disturbance that causes shaking of the top surface of the earth that is caused due to seismic energy transformation. Over the years this problem has taken various forms and improvements both in its design philosophy and methods have continuously been researched, proposed and implemented. This paper demonstrates about the base isolation for earthquake resistant design of the structures is presented. Apparently as the name implies base isolation tries to decouple the structure from damaging effects of ground motion during earthquake. Base isolation is not about complete isolation of the structure from the ground it provides partial isolation which thereby makes flexibility of structure to resist the ground motion and damages caused due to earthquake.

Lora Based Wireless Sensor Network System for Forest Fire Detection and Warning

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Paper ID: ICARICT_ 068

Forest fires that take place in the warm season can be caused or started by natural events or human negligence. Natural events such as burning branches or dry leave appear due to the heat generated by the sun. An example of such event is the fire from Siberia in the summer of the year 2019, resulting in the destruction of millions of hectares of vegetation. The fires generated by human negligence can result from multiple factors, such as leaving unattended fires in the forest, throwing a burning cigar etc. Some methods for fire detection include monitoring from watch towers and the use of satellite images. Unfortunately, these are not efficient due to several reasons, such as high infrastructure costs (sophisticated equipment), the fact that they require a large number of trained personnel and that they make real-time monitoring difficult, since when the phenomenon is detected, its speed of propagation has produced uncontrollable levels of damage. This paper proposes a method for detecting forest fires, using a network of wireless sensors and information fusion methods.

Fast and effective detection is a key factor in forest fire fighting. To avoid uncontrollable wide spreading of forest fires it is necessary to detect fires in an early state and to prevent the propagation. It is important to move adequate fire equipment and qualified operational manpower as fast as possible to the source of the fire. Furthermore an adequate logistical infrastructure for sufficient supply with extinguishing devices and maintenance is necessary as well as continuous monitoring of fire spread. Moreover the training of personnel is an important component for successful combating of forest fires. An integrated approach for forest fire detection and suppression is based on a combination of different detection systems depending on wildfire risks, the size of the area and human presence, consisting of all necessary parts such as early detection, remote sensing techniques, logistics, and training by simulation, and fire-fighting vehicles. Different risk levels, the size of the area and human presence define the applied sensing techniques. Small high-risk areas can be observed by local staff. For very large and low risk areas satellite and aero monitoring is possible. Especially in the eastern part of Germany several hundred observation towers equipped with camera-based systems have been setup to observe forests. Recorded image sequences are transmitted to a control center and analyzed by appropriate software. If a fire is clearly identified, fire suppression is initialized by an alarm going directly to the fire brigade.

MPPT based Optimal Control of a SEPIC Converter Interface for Wind Power Generation System

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Paper ID: ICARICT_ 069

A wind energy conversion system employing dq control has been proposed for extracting maximum power from a wind-driven doubly fed induction generator (DFIG) and feeding it to a 3 ph load. The controller consists of a diode bridge rectifier, SEPIC converter and a voltage source inverter (VSI) The grid synchronization is achieved by controlling the VSI at the load side. Besides supplying power to the ac load, the proposed scheme also feeds a local dc load, as the dc link voltage is maintained constant. To evaluate the performance of proposed scheme, MATLAB/Stimulant based model is tested under varying wind speeds. A Fuzzy Logic Controller is used for varying the duty ratio of the SEPIC Converter to maintain the output voltage constant. Maximum Power Point Tracking (MPPT) control algorithm is applied to a DFIG whose stator and rotor are connected to the grid through a SEPIC converter. The Stator side Converter is controlled in such a way to extract the maximum power, for a wide range of wind speed. The load side converter is controlled in order to ensure a smooth DC link voltage between the two converters. For the load side converter, also the optimal control method is applied along with an active power Fuzzy Logic Controller, but a reactive power controller is not going to be implemented as the active power is going to be injected into the load with a unity power factor by using optimal predictive control.

Fake Job Post Prediction Using Machine Learning

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Paper ID: ICARICT_ 070

In these desperate times, when thousands and millions of people are on the lookout for a job, it provides a perfect opportunity for online scammers to take advantage of their desperation. We see a daily rise in these fake job postings where the posting seems pretty reasonable, often these companies will have a website as well, and they will have a recruitment process that is similar to other companies in the industry. If one looks hard enough, they can spot the differences between these fake postings and genuine ones. Most of the time these postings don't have a company logo on these postings, the initial response from the company is from an unofficial email account, or during an interview they might ask you for personal confidential information such as your credit card details by saying they need it for personnel verification. In normal economic conditions, all these are evident hints that there something suspicious about the company, but these are not normal economic conditions. These are the worst times we all have seen in our lifetimes, and at this time, desperate individuals just need a job, and by this, these individuals are directly playing into the hands of these scammers. To avoid fraudulent post for job in the internet, an automated tool using machine learning based classification techniques is proposed in the project. Different classifiers are used for checking fraudulent post in the web and the results of those classifiers are compared for identifying the best employment scam detection model. It helps in detecting fake job posts from an enormous number of posts.

Corrosion Control of Under-Water Piles

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Paper ID: ICARICT_ 071

Corrosion control of under-water piles, foundation piles is a structural element driven to deep and stable soil strata to hold the main structure, such as bridges or a building in place. Piles normally used in the underwater structure are subjected to corrosion. Corrosion reduces structural stability. Corrosion is the destruction of the metal and alloy by the chemical reaction with the environment. During corrosion the metal is converted to metallic compounds at the surface and these are connected to wear away as a corrosion product. Corrosion protection can be in a number of different forms with perhaps multiple methods applied in severe environments. Forms of corrosion protection inside the use of inhibitors, surface treatment, coating sealants, and cathodic & anodic protections. However, we cannot completely eliminate the corrosion, but we can reduce the effect of corrosion on the structure.

Portable BOT with Robotic ARM Using Arduino

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Paper ID: ICARICT_ 072

A remote controlled BOT is any mobile machine controlled by means that is physically not connected with origin external to the machine. There are many types in it, based on the controls – radio control device, Wi-Fi controlled and even Bluetooth controlled. These devices are always controlled by humans and take no action autonomously. The main target in such bots would be to safely reach a designated point, maneuver the area and reach back to the point of origin. In this project we make use of the Bluetooth technology to control our bot. Thereby, sensor less robots are machines. This machine can be controlled by any human using his android mobile phone, by downloading an app and connecting it with the Bluetooth module present inside our bot. User can perform actions like moving forward, backward, moving left and right, picking and dropping by the means of command using his-her mobile phone app. The task of controlling our Bot is taken by the Arduino UNO with micro controller ATMEGA32, 16 m Hz processor, 2 KB SRAM (Static Random Accessible Memory) and 32 KB flash memory. Arduino play a major role in the control section and had made it easier to convert digital signals and analogue signals into physical movements. The major reason for using a Bluetooth based tech is that we can change the remote anytime – mobiles phones, tablets and laptops and physical barriers like wall or doors do not affect the Bot controls.

Chatbots for Job Hunters

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Paper ID: ICARICT_ 073

One of the most essential things in landing the right job is ensuring that the candidate is rightly prepared for the interview. This papers focuses on how chatbots can assist job hunters in several ways including simulating a job interview scenario and providing feedback on the user's responses, asking users common interview questions and providing tips on how to answer them effectively, reviewing a user's resume and providing feedback on its content and format and finding job openings that match their skills and experience. These allow candidates in evaluating their current skill level and identifying their weaknesses. Not just that, by simulating an interview environment, they can test out their conversational abilities and understand how well they perform under pressure. The chatbot aims to provide aspiring candidates with a way to assess their condition which will determine how they perform in the actual interviews.

Energy Efficient FIR Filter Design Using Approximate Arithmetic

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Paper ID: ICARICT_ 074

Low power consumption is becoming increasingly important in VLSI (Very Large-Scale Integration), Artificial Intelligence, the Internet of Things, embedded systems, and mobile and portable devices that have limited battery life. Approximate computing is a promising technology that has gained significant attention in recent years. Approximate computing refers to the design of computer systems that can trade off accuracy for energy efficiency, performance, and other metrics. This approach can be particularly useful for implementing low-power FIR filters, which are widely used in modern portable devices that incorporate digital signal processing applications such as audio and video processing. Approximate adders AADs are proposed in this paper that rely on logic level reduction. 16-bit approximate adders are designed based on the proposed AADs. Low-power FIR filters are designed to leverage the benefits of proposed AAds. FIR filters are commonly used in digital signal processing applications such as audio processing, image processing, and communication systems. However, they can be power-hungry, especially when the filter coefficients have high precision. Approximate computing techniques can reduce the precision of the filter coefficients, limit the number of filter taps, or reduce the number of arithmetic operations required to compute the filter output. The proposed designs are implemented using Xilinx ISE to evaluate the design and accuracy metrics.

Discrete Cosine Transform using Approximate Computing Circuits

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Paper ID: ICARICT_ 075

This work discusses the use of approximate arithmetic techniques, such as approximate adders, subtractors, and multipliers, in the implementation of the Discrete Cosine Transform (DCT). The DCT is a widely used mathematical tool in signal processing and image compression, and the use of approximate arithmetic can help reduce the computational complexity of the algorithm and increase its speed. The key techniques used to implement DCT using approximate arithmetic and highlighting the trade-offs between accuracy and speed in such implementations are discussed. Approximate adder, and subtractor, are designed using logic level complexity reduction and are used in the implementation of the multiplier for DCT realization. The implementation of DCT using approximate arithmetic involves converting input data to fixed-point format and using low-precision arithmetic. The structure of DCT is implemented in Xilinx ISE tool to analyse the power, delay and area.

Empowering Paralysis Care with IoT and GSM Technology: A Remote Monitoring and Alert System

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Paper ID: ICARICT_ 076

Paralysis is a condition that affects millions of people worldwide, and the care of such patients requires constant attention and monitoring. With the rapid development of technology, the Internet of Things (IoT) has become a promising solution to many healthcare problems. In this paper, we propose an IoT-based automated healthcare system for paralysis patients using Arduino and GSM technology. The system is designed to monitor and control the health status of paralysis patients remotely, enabling caregivers to provide timely assistance and medical attention. The system consists of an Arduino board, a GSM module, and various sensors such as temperature, heart rate, and blood pressure sensors. The collected data is transmitted to a remote server via the GSM module, where it is processed and analyzed. The system can alert caregivers and medical professionals in case of any critical changes in the patient's health. The proposed system can significantly improve the quality of care for paralysis patients and reduce the burden on caregivers and medical professionals.

Smart Energy Meter with RTC and GSM Module System and the Graphical Representation based on Daily Power Analysis

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Paper ID: ICARICT_ 077

Electricity has become one of the basic requirements for human life as it is being widely used for domestic, industrial and agricultural purposes. Conserving energy is not just about saving up electricity costs, but also involves being eco-friendly, thereby, protecting the environment. Using a limited amount of electricity to fulfill one's needs is acceptable. However, it becomes a major issue when people start consuming excess electricity and start wasting it. Over the past years the consumption of electricity has increased massively, people may not notice the negative effects of high consumption of electricity at the moment, but it will have severe consequences later on. In this paper a smart energy meter is proposed with which the consumer will be notified the amount of power consumed by the end of the day such that he can plan the consumption of power. Also the power consumed by the consumer will be notified to the distributor as well as consumer such that no manpower is necessary for meter reading. This paper presents a smart energy meter for automatic metering and billing system. The integration of a microcontroller and GSM short message service (SMS) provides the meter reading system with automatic functions that are predefined. The GSM module requires a SIM (Subscriber Identity Module) card just like mobile phones to activate communication with the network. Direct current (DC) components are used to control alternating current (AC) loads. To isolate these components from each other, relays with a network of resistors and diodes are used. Users can recharge and control loads remotely. Utility companies also have remote access to the system such as fault diagnosis and communicating with clients. The proposed energy meter system (EMS) transmits data like consumed energy in kWh and generates a bill over a GSM mobile network. Other advantages include that the system provides domestic power consumption accurately, safely and with a relatively fast update rate.

IoT based Weather Monitoring Station

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Paper ID: ICARICT_ 078

A weather station can be described as an instrument or device, which provides us with the information of the weather in our neighbouring environment. For example it can provide us with details about the surrounding temperature, barometric pressure, humidity, etc. Hence, this device basically senses the temperature, pressure, humidity, light intensity, rain value. There are various types of sensors present in the prototype, using which all the aforementioned parameters can be measured. It can be used to monitor the temperature or humidity of a particular room/place. With the help of temperature and humidity we can calculate other data parameters, such as the dew point. In addition to the above mentioned functionalities, we can monitor the light intensity of the place as well. We have also enabled to monitor the atmospheric pressure of the room. We can also monitor the rain value. The brain of the prototype is the ESP8266 based Wi-Fi module Nodemcu (12E). Four sensors are connected to the NodeMCU namely temperature and humidity sensor (DHT11), pressure sensor (BMP180), raindrop module, and light dependent resistor (LDR). Whenever these values exceed a chosen threshold limit for each an SMS, an E-mail and a Tweet post is published alerting the owner of the appliance to take necessary measures.

Smart Home Automation Using IoT

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Paper ID: ICARICT_ 079

Smart home automation is an emerging technology that allows homeowners to control various electronic devices in their homes from a remote location using their smartphone or other internet-connected devices. In this project, we aim to develop a smart home automation system using IoT that enables homeowners to control their home appliances such as lights, fans, air conditioners, and other electrical devices from a remote location. Our system will be designed to provide a seamless and user-friendly experience for homeowners, making their lives easier and more convenient. The benefits of our system include energy savings, improved security, and enhanced convenience. By controlling appliances remotely, homeowners can reduce their energy consumption, thereby saving money on their utility bills. Additionally, the system can be programmed to turn on or off appliances based on the homeowner's preferences, making it easier to manage their daily routines. Finally, the system can also be integrated with smart security systems, allowing homeowners to monitor their homes remotely and receive alerts in case of any unauthorized access. Overall, our smart home automation system using IoT offers a unique and innovative solution to homeowners, providing them with greater control and convenience over their homes.

Review on Battery Management System

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Paper ID: ICARICT_ 080

The use of batteries has become increasingly important in various fields, including electric vehicles, renewable energy systems, and portable devices. However, batteries can be complex devices that require careful management to ensure their safe and efficient operation. The battery management system (BMS) is a critical component that monitors and controls the battery's state, performance, and health. In this paper, we review the current state of the art in battery management systems, including their components, functions, and design considerations. We also discuss the challenges and future directions in BMS research and development.

Robustness in Legged Locomotion is Traded off Via Hybrid Leg Compliance-based Tunable Damping

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Paper ID: ICARICT_ 081

Despite having large sensorimotor delays in their neural system, animals move robustly and quickly. Legged robots use substantially higher frequency range in the kilohertz variety—and sensing and actuation delays in the low milliseconds range to execute multisensory control. Animals appear to be unaffected by forceful impacts with unpredictable touch-down timing, however legged robots exhibit unpredictable controller behaviors. Our hybrid leg and positioning control system exhibit previously unheard-of endurance for a fall landings job from 2.3 leg lengths high and with a passively compliant ratio of 1.7, even in the face of perceptual latencies as high as 60 ms or regulating frequency as low as 300 Ghz. We present successful drop-landings of the hybrids sensitive leg from 3.8 leg lengths (2 feet) in computational methods using a 2.2 kg legged robot with a 100 Hz instruction speed and a 40 mms sensory delay. The results of our disclosed composite leg design and control provide yet another defense for the resilience of animal productivity and the performance measurement gap between living things and legged robotics.

Cardiac Image Analysis for Accurate Heart Disease Diagnosis using Deep Learning Techniques: A Comprehensive Review

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Paper ID: ICARICT_ 082

Coronary illness is one of the primary sources of death around the world. Early discovery and precise forecasts of coronary disease can help in forestalling and dealing with the sickness. Lately, profound learning strategies, for example, convolutional neural networks (CNN) have shown promising outcomes in different clinical imaging errands, including coronary illness expectation. This review proposes a CNN-based approach for coronary illness expectation utilizing cardiovascular pictures. The proposed model comprises numerous convolutional layers, pooling, and completely associated layers. The model is prepared on an enormous dataset of cardiovascular pictures and related marks for coronary illness presence or nonattendance. The prepared model is assessed on a different test dataset to evaluate its exactness, responsiveness, explicitness, and other execution measurements. Our outcomes show that the proposed CNN-based approach accomplishes high exactness and outflanks customary machine learning strategies for coronary illness expectation. The proposed model can be utilized as a device to help doctors in the early determination and treatment of coronary illness.

Efficiently Controlling and Monitoring Polluted Water with an IoT-based Applied Cloud Environment

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Paper ID: ICARICT_ 083

The number of IoT devices has increased 40% year-over-year to 9.3 billion in 2018 and it is estimated that there will be 30-40 billion devices by 2022. Water pollution is a major environmental problem in India. The largest source of water pollution in our country is raw sewage. Other sources of pollution include agricultural runoff and industrial 4.0 polluting most of the rivers, lakes, and surface water in our country. Our proposed methodology should allow for autonomous decision-making for controlling the water quality factors such as acidity, alkalinity, Temperature, and amount of total suspended solids expressed by cloudiness are haziness measured by various sensors within the acceptable limits and keeping records of the historical readings on a cloud-based platform.

Detection of Phishing Attacks in Cyber Security Using Hybrid ML-RF Approach

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Phishing attacks have become increasingly common and pose a significant risk to cybersecurity. Phishing attacks involve social engineering tactics to deceive individuals into providing sensitive information such as login credentials or financial data. As a result there is a growing demand to develop effective techniques to detect and prevent such attacks. We proposed a hybrid machine learning random forest (ML-RF) approach to detect phishing attacks. By combining the strengths of both techniques, the proposed approach improves detection accuracy. The ML-RF method extracts features from email content, website URLs and HTML tags and trains a random forest model to classify features as either phishing or legitimate. Experimental results shows that the approach is effective, achieving a 96% accuracy rate and a false-positive rate of 0.7% outperforming other state-of-art techniques. The hybrid ML-RF approach provides a promising solution to the challenge of detecting phishing attacks in cybersecurity.

Self-Sustainable Energy Independent House

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As concerns the fossil fuel prices rising, energy security, and climate change increase, renewable energy can play an important role in producing local, clean, and unlimited energy to supply the nation's increasing demand for electricity and heat. To provide sufficient commercial energy to the people of all continents is an enormous task. Our main purpose was the recycling of municipal solid waste to obtain pure, clean and low-cost energy. In this respect, an energy independent home prototype was built, that is using a hybrid solar system. In this system, the heat is obtained by solar conversion, and the electricity is produced by the photovoltaic effect. The electricity generated has been used for the operation of all electrical items and appliances in a house, respectively, the solar converter serves for heating and for domestic hot water production. The advantages of these systems are numerous: independence from the national electricity and gas supplier; immunity against the increasing price of these utilities; the installation of such systems do not require any authorization; long-term operation at low maintenance costs; protect the natural resources; reducing the CO2 emissions; recycling in exchange for their storage and reduce the energy costs used for recycling. The hybrid solar system proposed by us, satisfies consumer needs through: internal space heating at the desired temperatures, space lightning and household powering, so that processes that use various forms of energy to run properly. In our study we adopt an interdisciplinary approach between biology, ecology, physics and technology. The energy independent house, was mostly built from recycled materials. Two generators were built: one electricity generator (photovoltaic panel) and one heat generator (heat convertor) that were connected to the house model for the demonstration. The energy independent home prototype realized in this project is meant to promote the idea of approaching similar systems but at a larger scale that can serve for larger areas (e.g. private companies, institutions, holiday homes and surrounding rural areas where there is no access to national networks of electrification and natural gases, etc.). The hybrid solar system proposed by us, satisfies consumer needs through: internal space heating at the desired temperatures, space lightning and household powering, so that processes that use various forms of energy run properly.

AI-Based EV Battery Management System

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In recent years, there is a switchover from gasoline-powered to electric automobiles. These vehicles don’t have gears, which ensures an excellent driving experience with no complicated controls, facilitates convenient charging, and reduces carbon-di-oxide to a great degree. Despite of this, there is a threat of combustible explosion from the vehicle. The major reason for this detonation is destruction of vehicle battery as a result of short circuits leading to uncontrolled current. To get rid of this, It is necessary to identify unusual alterations in the cells as well as the variables producing short circuits. By comparing the battery's output with a threshold or expected value using a mathematical model, the internal short circuit can be found. The mean-difference model and the recursive least square algorithm under machine learning are incorporated. The AI in this system sends an alarm notification to the user app when the data analysed using the results of two algorithms reaches half chance probability. The potential decrease in the polymer during a battery short-circuit might be so great that it restricts the short-circuit current. It can be used as a promising short-circuit protective layer material for lithium-ion phosphate batteries. Thus AI system lowers the chances of explosion and enhances wellness.

Antimatter in Rocket Propulsion System

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Antimatter is a term in particle physics, antimatter is a material composed of antiparticles. These have the same mass as particles of ordinary matter but have opposite charge and properties. Encounter between a particle and an antiparticle led to both of them being destroyed, which give rise to high energy photons ”Gamma Rays”. The reason to understand antimatter is because that each particle of matter, when it touches its antiparticle , both change over into pure energy, or annihilate each other. Because antimatter can make so much energy, it can be used in many applications, one such big application is used as fuel in space craft such as rockets. Using antimatter as rocket fuel is, by far, the best alternative to the type of chemical fuel used in space trips. An antimatter rocket could hit the speed of “72 million mph”. The following researches conludes that using antimatter as fuel for rockets is still in practice to make it feasible.