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ACADEMIC YEAR	NO OF RESEARCH PAPERS PUBLISHED IN JOURNALS
2023-2024	28
2022-2023	08
2021-2022	05
2020-2021	01
2019-2020	14
2018-2019	13

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Academic Year 2023-2024

Number of papers published per teacher in the Journals notified on website during the year

S.NO	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number
1	Computer vision for unmanned aerial vehicles in agriculture: applications, challenges, and opportunities	Dr.M.SATHYA PRIYA	ECE	The Scientific Temper (2023)	2023-2024	0976-8653
2	Cloud – Driven Collaborative Filtering and Waiter Robots Transforming Customer Experiences in restaurants	Dr.S.Velmurugan	ECE	IEEE	2023-2024	DOI:10.1109/AMATHE61652.2024.10582214
3	Factory floor transformation for achieving operational excellence wish IOT and machine learning	Dr.S.Velmurugan	ECE	IEEE	2023-2024	DOI:10.1109/AMATHE61652.2024.10582075
4	Healthcare Bots for Elderly Assistance using cloud – driven gradients boosting machines.	Dr.S.Velmurugan	ECE	IEEE	2023-2024	DOI:10.1109/ICIPTM59628.2024.1056323
5	Optical Character recognition (OCR) in handwritten	Dr.S.Velmurugan	ECE	IEEE	2023-2024	DOI:10.1109/InCACCT61598.2024.10551027

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	characters using convolutiona l neutral networks to assist in exam reader system					
6	Cloud – integrated clean fuel generation for solar – hydrogen production with wireless sensor networks	Dr.S.Velmuru gan	ECE	IEEE	2023-2024	DOI:10.1109/ICICT60155.2024.10544659
7	A Distributed data mining and cloud analysis for predictive gas level ,dynamics booking ,and smart enery optimization	Dr.S.Velmuru gan	ECE	IEEE	2023-2024	DOI:10.1109/ADICS58448.2024.10533470
8	Secure data transmission using steganograph y by AES Algorithm	Dr.S.Velmuru gan	ECE	IEEE	2023-2024	DOI:10.1109/ADICS58448.2024.10533531
9	Cloud – Based passenger experience management in bus fare ticketing systems using random forest algorithm	Dr.S.Velmuru gan	ECE	IEEE	2023-2024	DOI:10.1109/ICRITO61523.2024.10522226
10	Intelligent campus safety management	Dr.S.Velmuru gan	ECE	IEEE	2023-2024	DOI:10.1109/INOCON60754.2024.10512335

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	using Iot and CNNSs for surveillance ,access ,and emergency response					
11	Enhancing fruit and vegetable preservation with support vector machine and Iot connectivity	Dr.S.Velmurugan	ECE	IEEE	2023-2024	DOI:10.1109/AUTOCOM60220.2024.10486142
12	Cloud computing based POC Diagnostic device :Rapid infectious disease testing by data analytics	Dr.S.Velmurugan	ECE	IEEE	2023-2024	DOI:10.1109/ICAIIHI57871.2023.10488938
13	IOT – Enabled sleep Monitoring wearables : Advancements in tracking and analysis	Dr.S.Velmurugan	ECE	IEEE	2023-2024	DOI:10.1109/IC457434.2024.10486753
14	Speed and Torque Optimization of motor drive through intelligent control approaches.	Dr.S.Velmurugan	ECE	IEEE	2023-2024	DOI:10.1109/AUTOCOM60220.2024.10486185
15	Smart Ergonomics practices with Iot and cloud computing for injury prevention	Dr.S.Velmurugan	ECE	IEEE	2023-2024	DOI:10.1109/ICAIIHI57871.2023.10489748

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	and human motion analysis					
16	Cloud - Enhanced tele- ENT: A Scalable and secure AI-Driven diagnostic for remote ear, Nose ,and Throat consultations .	Dr.S.Velmurugan	ECE	IEEE	2023-2024	DOI:10.1109/ICAIIHI57871.2023.10489636
17	Iot Enabled microgrid system for enhancing power quality using adative neuro- fuzzy control algorithm.	Dr.S.Velmurugan	ECE	IEEE	2023-2024	DOI:10.1109/PEEIC59336.2023.10451678
18	Novel and robust energy efficient protocol for authenticatio n purpose in IIOT	Dr.S.Velmurugan	ECE	IEEE	2023-2024	DOI:10.1109/RMKMATE59243.2023.10368763
19	Integrating Neuro-Fuzzy Systems For Enhanced Cancer Data Analysis And Prediction	Dr.M.SATHYA PRIYA	ECE	ICTACT JOURNAL ON SOFT COMPUTING	2023-2024	2229-6956
20	Study on Simulators of Vehicular Ad-hoc Networks for Evaluating the	Dr.M.SATHYA PRIYA	ECE	International Journal of Vehicle Structures & Systems	2023-2024	ISSN: 0975-3060

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	Performance in Certain Traffic					
21	Implementation of Enhanced Chimp Optimization Algorithm in Cognitive Radio Networks for Vehicular Mobile Communication	Dr.M.SATHYA PRIYA	ECE	International Journal of Vehicle Structures & Systems		ISSN: 0975-3060
22	An improved spectrum sharing strategy evaluation over wireless network framework to perform error free communications	Dr.M.SATHYA PRIYA	ECE	The Scientific Temper (2023)	2023-2024	ISSN: 0976-8653
23	Advanced hybrid attention-based deep learning network with heuristic algorithm for adaptive CT and PET image fusion in lung cancer detection	C. Shalini	ECE	Medical Engineering and Physics	2023-2024	1350-4533
24	Epilepsy Disease Detection Using the Proposed CNN-FCM Approach	C. Shalini	ECE	ICIDA	2023-2024	ISSN 2367-3389

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25	Optical and piezoelectric studies of an efficient frequency doubler: Imidazolium L-Tartrate (IMLT).	Dr.S.Arjunan, HOD/S&H	S&H	ECB	2023-2024	*2023,12(5), 5265-5270*
26	Retrieving Images and Its Classificatio n by Acumen Mechanism Using Texture Features	Dr.S.Satheesh, ASSO PROF/MATH S	S&H	JFANS	2023-2024	ISSN 2320 –7876
27	Experimental investigation of ternary blends on performance, and emission behaviors of a modified low-heat rejection CI engine	Dr.Siva kumar	Mech	Case Studies in Thermal Engineerin g	2023-2024	2214-157X
28	Waste Garbage Disposal By Using Smart Trash Can Sensor	B.M.Yuvamali nga	ECE	JCST	2023-2024	ISSN: 1004-9037

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Doi: 10.58414/SCIENTIFICTEMPER.2023.14.3.61
E-ISSN: 2231-6396, ISSN: 0976-8653
https://scientifictemper.com/
REVIEW ARTICLE

Computer vision for unmanned aerial vehicles in agriculture: applications, challenges, and opportunities

P. Gomathi[1*], D. Deena Rose[2], R Sampath Kumar[3], M. Sathya Priya[4], S. Dinesh[5], M. Ramarao[6]

Abstract

Unmanned Aerial Vehicles (UAVs), commonly called drones, have gained significant attention in agriculture due to their potential to revolutionize traditional farming practices. This paper explores the integration of computer vision techniques with UAV technology to enhance agricultural processes. The fusion of these two domains has the potential to provide farmers and agronomists with valuable insights for optimized decision-making. The primary focus of this research is to showcase the various applications of computer vision for UAVs in agriculture. The paper begins by presenting an overview of the challenges faced by modern agriculture, such as resource optimization, crop monitoring, disease detection, and yield prediction. It then delves into the technological advancements in UAVs and their suitability for addressing these challenges.

Keywords: Unmanned aerial vehicles, Drones, Computer vision, Agriculture, Crop monitoring, Object detection.

Introduction

Unmanned aerial vehicle (UAV) and Internet of Things (IoT) technology have emerged as a powerful combination in recent years, offering numerous benefits and applications across various industries. Unmanned Arial Vehicles (UAV) are mobile structures that incorporate sensors and control systems, considered as embedded systems with the ability to incorporate a variety of programmable algorithms that allow adaptation to various process automation techniques, control and instrumentation. They are considered machines that carry out complex transport operations, detection of physical and environmental variables, routing, monitoring and logistics, to name just a few. These vehicles in the literature are also named as mobile robots, autonomous unmanned vehicles (Nithin *et al.*, 2017; Vaeljaots *et al.*, 2018; Cao *et al.*, 2003).

UAVs began to be developed in the 1990s, reporting a growing interest and acceptance in different research areas. At the beginning of the 21st century, they began to be implemented in sectors such as: cartography, in which there are a variety of methods for their application, some examples of this are (Fentanes *et al.*, 2018), which uses the ICP scan coincidence method with odometry extrapolation to solve the problem. Simultaneous location and mapping problem and (Hutangkabodee *et al.*, 2005) that uses the binary thresholding segmentation technique to orient and locate the UAV. Another sector is agriculture, in which (Pierzchała *et al.*, 2018) uses a system of sensors integrated into a UAV with the aim of measuring humidity and temperature in a greenhouse; militia (Tanaka *et al.*, 2017), where it implements an automation kit in a military vehicle to fulfill surveillance and navigation missions by teleoperation. In the forestry

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Cloud-Driven Collaborative Filtering and Waiter Robots Transforming Customer Experiences in Restaurants

Publisher: IEEE Cite This PDF

V. Prasanna Srinivasan ; N. Mohankumar ; T. Prabakaran ; A. Sairam ; K. Elangovan ; S. Velmurugan **All Authors**

Abstract:
To improve customer relations, this research investigates the possibility of using cloud-enabled collaborative filtering with robot waiters in restaurant environments. With the use of innovation, to revolutionize the way people eat out. It suggests using smart robots that can interact with customers and help the wait staff out. Customer preferences are analyzed, order suggestions are streamlined, and service is personalized using cloud-based collaborative filtering algorithms. Test this novel approach in a real-world restaurant setting to view how it changes things for the better in terms of customer happiness, service efficiency, and employee output. It seems that the combination of autonomous waiters and collaborative filtering on the cloud might completely change the way people dine out by making everything more streamlined and personalized to each individual's preferences. To the existing conversation about how robots, cloud computing, and customer service intersect in the restaurant industry, which is important since technology is still playing a major influence on how businesses engage with their customers.

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Publisher: IEEE
▸ **ISBN Information:**
Conference Location: Shivamogga, India

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Factory Floor Transformation for Achieving Operational Excellence with IoT and Machine Learning

Publisher: IEEE Cite This PDF

T. J. Nagalakshmi ; P. Santhuja ; J. Rangarajan ; S. Muthukumarasamy ; N. Mohankumar ; S. Velmurugan All Authors

Abstract:
In today's competitive industry, manufacturers seek novel approaches to improve operations and enhance efficiency. To achieve Operational Excellence, this abstract provides a Factory Floor Transformation plan that uses the Internet of Things (IoT), Machine Learning, and the Random Forest algorithm. The Factory Floor Transformation employs IoT sensors and devices throughout production. These sensors monitor machine operation, product quality, and energy usage in real-time. Using data preprocessing, feature engineering, and predictive modeling, a strong Machine learning framework is created. The Random Forest algorithm, which handles complicated, multi-dimensional data, powers Machine Learning. Random Forest is appropriate for manufacturing complex problems because its ensemble learning technique yields reliable and accurate forecasts. Predictive maintenance, quality control, and resource optimization are enabled by the model's previous training and real-time updates. Factory Floor Transformation provides enterprises with a complete Operational Excellence solution. Companies may minimize production bottlenecks, downtime, defects, and resource allocation by using IoT data and Machine Learning. This abstract illustrates how this method may transform production and make it more efficient and competitive.

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Healthcare Bots for Elderly Assistance Using Cloud-Driven Gradient Boosting Machines

Publisher: IEEE Cite This PDF

P. Sudha Juliet ; S. Sivakumar ; K. Thinakaran ; Porandla Srinivas ; R. Thamizhamuthu ; S. Velmurugan All Authors

Abstract:
As the world's population ages, there will be a greater need for creative methods to help the elderly maintain their independence and quality of life at home. This study investigates the feasibility of using healthcare bots powered by cloud-based Gradient Boosting Machines (GBM) to provide elderly people with individualized and timely support. The proposed system learns from each user's interactions and improves over time to better meet their specific requirements. Also, the cloud-based design ensures real-time updates and smooth interaction with different devices. Results show that the system is effective in improving the quality of geriatric support, promoting aging in place, and contributing to the creation of patient-centric healthcare solutions via a thorough review that includes user input and performance indicators. The results point to a potential direction for integrating Artificial Intelligence (AI), cloud computing, and healthcare to meet the issues of an aging population.

Published in: 2024 4th International Conference on Innovative Practices in Technology and Management (ICIPTM)

Date of Conference: 21-23 February 2024

DOI: 10.1109/ICIPTM59628.2024.10563237

Date Added to IEEE *Xplore*: 24 June 2024

Publisher: IEEE

ISBN Information:

Conference Location: Noida, India

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Optical Character Recognition (OCR) in Handwritten Characters Using Convolutional Neural Networks to Assist in Exam Reader System

Publisher: IEEE Cite This PDF

P L Lekshmy ; S. Velmurugan ; Indra Kumari ; S. Kayalvili ; B. Teja Sree ; P. Karthik Kumar **All Authors**

Abstract:
This work aimed to develop a character recognition method to facilitate the correction of answer cards in the Multiprova software through the development of a response card analysis flow that would culminate in the recognition of letters written by students and automatic correction of the tests. To isolate and identify the answers written on the answer cards, image segmentation techniques were used based on fixed marks printed on the cards. To recognize the letters and numbers written on the cards, trained three convolutional neural networks (for digits, letters and true or false). The results achieved (98.84% accuracy for digit CNN, 98.38% accuracy for letter CNN and 99.89% accuracy for true or false CNN) point out a great average success rate.

Published in: 2024 2nd International Conference on Advancement in Computation & Computer Technologies (InCACCT)

Date of Conference: 02-03 May 2024
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ISBN Information:
Conference Location: Gharuan, India

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Proceedings of the 7th International Conference on Inventive Computation Technologies (ICICT 2024)
Xplore Part Number : CFP24F70-ART ; ISBN : 979-8-3503-5929-9

Cloud-Integrated Clean Fuel Generation for Solar-Hydrogen Production with Wireless Sensor Networks

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***Abstract*— This research study proposes a novel system that integrates Wireless Sensor Networks (WSNs) with cloud-based platforms to efficiently generate renewable energy and produce clean fuel. By enhancing the safety, efficiency, and reliability of solar power and hydrogen generation, the system integrates optimization strategies, data analysis, and real-time monitoring. Critical parameters such as temperature, sun irradiance, electrolysis efficiency, and hydrogen purity are monitored using WSNs, with data transmitted and processed via cloud techniques to identify patterns, outliers, and areas for improvement. Proactive decision-making and rapid adjustments are facilitated through remote monitoring and control capabilities, leading to maximized energy production and clean fuel output. Security measures including encryption, access controls, and regular audits safeguard data privacy and integrity, while multiple sensor deployments, robust communication protocols, and a resilient cloud infrastructure ensure system reliability. This integrated approach offers an effective solution for advancing renewable energy generation and clean fuel production, contributing to environmental sustainability and a greener future.**

Keywords*— *Environmental Monitoring, Energy Efficiency, Remote Control, Cloud Analytics, Energy Management, Sensor Deployment, Data Aggregation, Real-time Analysis

I. Introduction

In the event of an emergency or equipment failure, many solar energy plant monitoring systems are ill-equipped to react swiftly [1]. The production of electricity and benefits calculations are often the systems' exclusive capabilities. The power supply develops unstable and downtime rises in bigger industrial operations if problematic devices are not replaced immediately. Future situations will not be appropriately addressed by this expensive approach to equipment difficulties.

Smart cities, smart farms, and online industrial monitoring apps all make use of WSNs as a means to put the Internet of Things (IoT) into practice. Nodes in a conventional WSN typically run on non-rechargeable batteries with a limited amount of energy [2]. What determines the WSN lifespan in days is the duty cycle, the kind of application being deployed, and the amount of the battery's state of charge. To the design challenge of restricted energy availability is to charge the batteries of WSN nodes using ambient solar energy harvesting. A number of obstacles, such as power outages, thermal concerns, inefficiency in solar panel conversion, and other environmental concerns, make solar energy harvesting a complex and difficult process.

For solar and hydrogen production recent advances in wireless technology need gadgets with separate power sources [3]. The WSNs illustrates this. Ecological energy sources like solar, wind and others may be used for this. These energy harvesters may power wireless sensor nodes directly or using batteries. This work develops a photovoltaic (PV) cell array-based Wireless HART sensor node sun energy collecting technique. Testing on Wireless HART nodes showed that the harvester can power them.

An energy harvesting device to replenish the battery of the sensor nodes are discussed in [4]. Current energy harvesting WSNs have a smart plan for efficiently managing and collecting energy. Energy management and methods for collecting renewable energy are the main categories under which our evaluation work falls. It performs over a number of ways to reduce the energy usage of EHSNs in the techniques section of energy management.

Hydrogen energy has the advantages of being a long-distance transportable, clean, and flexible secondary energy source with zero carbon emissions [5]. It may utilize it as a transport to stabilize renewable energy fluctuations and improve power system performance, contributing to the nations clean and green energy transition, as the share of renewable energy installed capacity continues to grow in the future. Green hydrogen could emerge as a development trend in the future as the cost of producing it continues to fall thanks to the ongoing large-scale growth of renewable energy.

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2024 International Conference on Advances in Data Engineering and Intelligent Computing Systems (ADICS)

A Distributed Data Mining and Cloud Analysis for Predictive Gas Level, Dynamic Booking, and Smart Energy Optimization

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***Abstract*— The state-of-the-art Internet of Things (IoT) innovation known as the Autonomous Gas Reservoir Management System (AGaRMS) totally changes the most common way of overseeing gas supplies. AGaRMS uses sensors that monitor gas levels and a distributed architecture that forecasts patterns in gas use to ensure that gas refills occur at the right time. Complex AI calculations examine verifiable information, current weather patterns, and usage patterns to estimate when gas will run out. This, then, prompts robotized booking sales to be transported off the supplier. Likewise, AGaRMS appeals to the savvy progression of energy, which empowers strong gas usage. The framework's flexibility and versatility make it reasonable for use in private and business settings, further developing production network productivity, reducing working expenses, and improving the client experience. The AGaRMS system offers a smart method for managing gas leaders that work with gathering effective power energy practices and streamlining gas provisioning processes. AGaRMS optimizes the gas supply chain and improves the user experience by catering to a wide range of residential and industrial applications with its flexible and scalable design.**

Keywords—Gas Level Monitoring, Automatic Booking, Dynamic Booking Mechanisms, IoT Devices, Real-time Monitoring.

I. INTRODUCTION

The need for efficient and trustworthy gas supply management is growing in the commercial and residential sectors. The current gas supply system can't keep up with expanding demand or adjust how people use gas. As a result, we urgently want new ideas that might improve energy efficiency and reliability in the gas supply system. To address these issues, we have developed the AGaRMS, an IoT platform that uses predictive gas level monitoring, dynamic booking, and smart energy optimization [1]. Gas management was done manually via regular checks and requests for more gas for a long time. This method often causes supply chain inefficiencies and improper allocation of resources. When it comes to managing gas reservoirs, however, AGaRMS is ahead of the curve because of its proactive and self-sufficient approach that takes advantage of the opportunities presented by the Internet of Things. AGaRMS enables continuous data collection of real-time data on gas levels and consumption patterns via the deployment of gas level monitoring sensors on gas cylinders and tanks. After being collected, this information is sent to a centralized gateway, where it is subjected to complex machine-learning algorithms for processing and analysis [2].

The predictive analytics module of AGaRMS takes into account previous data on gas use, as well as current weather conditions, home occupancy patterns, and usage trends, to provide an accurate projection of future gas demand. The AGaRMS proactively starts automated booking requests with the gas provider by forecasting when gas levels will approach critical limits. This ensures that consumers will never experience unexpected disruptions in their gas supply. This dynamic booking function substantially contributes to improving the effectiveness of the gas supply chain by improving the accuracy of delivery schedules in relation to real patterns of demand and lowering the operating expenses incurred by gas providers [3]. The AGaRMS also has an innovative smart energy optimization feature, expanding the scope of its use beyond that of conventional gas level monitoring and booking systems. AGaRMS offers user-specific suggestions for more energy-efficient gas use via continuously monitoring gas consumption patterns and in-depth data analysis relevant to individual users. These guidelines give consumers the knowledge and skills to maximize their gas use, contributing to more environmentally friendly energy habits and financial savings [4].

Because of its scalability and versatility, AGaRMS is well-suited for various residential and industrial applications. AGaRMS can adapt dynamically to varied conditions, delivering a gas management experience that is consistent and dependable. This capability allows it to be implemented

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2024 International Conference on Advances in Data Engineering and Intelligent Computing Systems (ADICS)

Secure Data Transmission Using Steganography by AES Algorithm

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***Abstract*— With the rapid advancement of data transmission and communication technology, there has been a parallel increase in concerns surrounding privacy and security. Many encryption techniques were introduced to reduce the risk of data loss and malicious attacks. Steganography is also one of those techniques that cover up the existence of certain data in a cover document or media ensuring its safety. This paper presents an image steganography technique that allows the secure transmission of data using the AES algorithm. This advanced encryption-based image steganographic mechanism ensures data encryption with the help of the segmentation key or the steganographic key. The masked-up data is extracted using the same segmentation key from the receiver end to view the data. This technique helps in transmitting confidential data without being accessed by unintended recipients, thereby preserving information secrecy.**

Keywords*— *Data transmission, Steganography, Encryption, Image, AES algorithm, Segmentation, Steganographic key, Security.

I. INTRODUCTION

The growing surge in population bought a tremendous change in this world. With an increase in population, there is an increase in the data, too. Data transmission has always been the most important factor in the history of mankind. It shaped the eras that passed, molds the present, and decides the future. Time and again, having the possibility of communication and data transmission is always proven to be one of the many greatest achievements in human history.

There are many ways for one to communicate and transmit data, security, and privacy of the transmitted data along with the individuals communicating turned out to be the biggest concern. Data transmission is facilitated in many ways, but the safety of the data transmitted still remains a question. In order to avoid all the security and privacy-related concerns and prevent inappropriate data usage, secure data transmission techniques like cryptography and steganography were introduced, which also provide communication security. [1] Cryptography focuses on encrypting or masking up the data into an unrecognizable cacographic form, for all others except the sender and the receiver, whereas steganography completely covers up its presence.

Steganography is the practice of hiding a secret message within a seemingly innocent carrier medium, such as an image, audio, or video file. The goal of steganography is to ensure that the existence of the message remains undetected by anyone who is not the intended recipient. This technique has been used for centuries, dating back to ancient times when messages were hidden within the wax of a tablet or the invisible ink on parchment. With the increasing use of digital communication, steganography has become an increasingly important tool for those seeking to communicate covertly. As technology has advanced, so too has the sophistication of steganographic methods. Today, steganography can be used to hide messages within complex digital media, making them virtually impossible to detect without the proper tools and techniques.

Steganography is the practice of hiding secret messages or information within non-secret data or information in a way that is not easily detectable by others. The word steganography comes from the Greek words "steganos," meaning "covered," and "graphia," meaning "writing" which literally means covered or hidden writing. This method involves embedding information in any type of document or media to evade being noticed. Steganography techniques can involve hiding information within images, audio files, video files, or even text files [2].

Steganography can be broadly classified into five types, image, text, audio, video, and network or protocol steganography. Text steganography involves storing information in a text file, and image steganography ensures covering up the data using an image and this can be achieved by changing pixels. Audio steganography is hiding data in a sound and helps in preventing the production of pirated copies. Video steganography is concealing data through a video file, while network or protocol steganography involves the usage of certain protocols like TCP, UDP, etc for wrapping up the data. The secret data can be hidden in various ways, such as using subtle changes in color or pixel values in an

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Cloud-Based Passenger Experience Management in Bus Fare Ticketing Systems using Random Forest Algorithm

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***Abstract*— Sustainable urban mobility requires optimizing public transit passenger experiences. This system integrates cloud technologies and the Random Forest algorithm with bus fare ticketing systems to improve efficiency and customer pleasure. Cloud systems provide real-time data processing for price structure and route optimization in research. Cloud computing lets transportation providers quickly adjust to shifting demand, enhancing service dependability and responsiveness. The Random Forest algorithm is integrated into ticketing procedures to estimate passenger demand and optimize prices. Historical ridership data, weather, and special events are used to provide reliable fare estimates and suggestions using machine learning. This case study shows that the suggested approach improves passenger experience, waiting times, and system efficiency in a metropolitan transport network. Scalable, cloud-based infrastructure adapts to different transportation system sizes and configurations. Findings show that cloud computing and machine learning algorithms may make public transportation systems more responsive and passenger-centric. As cities seek smarter, more environmentally friendly transportation solutions, such breakthrough technology offers potential for public transit.**

Keywords*— *Passenger experiences, Bus fare ticketing systems, Route optimization, Resource allocation, intelligent transportation

I. INTRODUCTION

With the global population constantly rising, transportation services are in more demand than ever. With regard to India, over 67 million of the country's people are considered to be of low socioeconomic status, whereas over 40 million are considered to be middle class [1]. Meanwhile, these communities overwhelmingly support public transit rather than purchasing or operating a personal vehicle. People have always preferred public transportation since it is the most cost-effective option for them. Everyday living has been made more accessible by the constant development of new transportation methods. It recognizes the importance of transportation to people's daily lives and has developed an Android app to streamline the process. The Android app has a QR scanner for the bus ticket system [2]. The Android smartphone plays a vital role in human existence by allowing individuals to maintain constant online connectivity. It proposed implementation of a QR scanner into the bus ticketing system.

The smart application will automatically assign seats to passengers, allow digital ticket bookings, and accept cashless payments, encouraging digitalization and smart cities. The user's source will be updated automatically when connected to the bus stop device [3]. The user can check seat availability, order tickets, obtain a seat instantly, and see the displayed waiting time. The system will assign the seat that will be unoccupied in the shortest time if seats are not available. When the user connects to the device at a bus stop and pays digitally via the site, buy a ticket and enjoy an innovative and pleasant bus service. The bus conductor will verify the ticket booking acknowledgment, an e-Ticket. RFID-based ticketing systems are superior. Passengers will have RFID tags with unique IDs and data [4]. Passengers enter the bus and strike the RFID reader. Thus, database data is retrieved to build E-Ticket. The Computing Device receives RFID tag data from the RFID Reader. This computer device's GPS module tracks position, and the GSM module accesses the database. The computer equipment calculates the fee based on the passenger's distance and deducts it from the account of the vehicle.

Smart Bus System offers electronic ticket booking. The bus's entrance and exit gates have two components. Each device scans the entry and departure of people using RFID tags [5]. Each device features a GPS module that updates the bus's position at brief intervals, helping to track passengers at both times. The technology calculates the fee based on distance and subtracts it from the passenger's E-wallet, which can be handled through the S-Bus mobile app. The suggested system would include two Android apps for passengers and bus conductors and one website for admin, and a GPS module on the bus. The bus's current position with time and

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Intelligent Campus Safety Management using IoT and CNNs for Surveillance, Access, and Emergency Response

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***Abstract*— This paper introduces a novel strategy for improving campus security by combining Convolutional Neural Networks (CNNs) with Internet of Things (IoT) technology. For a smart campus safety management system, the suggested solution integrates advanced monitoring with access control and emergency response methods. IoT devices are placed in key locations across the campus to gather data in real-time. This data is then analyzed using CNNs to ensure strong monitoring and the identification of anomalies. Implementing CNNs allows for the detection of possible dangers, while access control measures guarantee protected entry points. The system makes use of AI-powered intelligent emergency response methods to optimize and speed up crisis management. Through the implementation of this all-encompassing strategy, want to build a safer and smarter educational ecosystem by guaranteeing the safety of campus settings. The research showcases the possibility for scalable deployment in varied campus contexts by demonstrating the usefulness of the proposed system via simulations and real-world deployments.**

Keywords*— *Campus Security, Real-time Data, Emergency Response, Anomaly Detection, Smart Campus

I. INTRODUCTION

Educational institutions place importance on ensuring the safety of their campus community members, including students, teachers, and staff [1]. With an increasing concern for student safety, universities are looking for cutting-edge methods to track and address potential dangers. The development of self-monitoring technology has opened the door to an entirely novel approach to campus security.

The campus's access and security systems are innovative in an advanced educational facility [2]. Universities often spend millions on expensive, specialized equipment, but keeping track of it may not be easy. Smart locks, smart ID, and It can assist facility managers with issues like managing campus access, monitoring, and defining zones, as well as how security staff can monitor the locations of valuable items by placing IoT on them.

The system emphasizes a modern campus with one Wi-Fi hub for managing connectivity everywhere on campus and smart buildings, lighting surveillance, and electric car infrastructure [3]. It employs an IoT platform, microcontroller, wireless sensor network, sensors, and actuators. A computerized cognitive modeling technique creates a mobile crowd-sourced campus safety and monitoring system. An IoT platform processes data from smart campus sensors. Buildings, labs, common spaces, and lights can all be tracked through the Smart campus's infrastructure.

Combining IoT devices with OpenCV for real-time image analysis is suggested to improve campus traffic flow [4]. The suggested system can be utilized primarily for accident detection and traffic violation detection (such as excessive vehicle speeding or honking) and reporting to the appropriate authorities for effective action. To analyze the current campus security infrastructure's weaknesses and create a solution based on the IoT that uses embedded tiny working units to address security concerns [5]. The following aims and objectives are provided using a case study of a university catering only to women. It also aspires to explain technologies like IP cameras and an alert system utilizing short message service and RFID technology for identifying registered vehicle number plates.

Intelligent campus technology can radically alter the current educational system by increasing operational efficiency and providing superior services to students, faculty, and staff [6]. It's a perfect environment for teachers and students to collaborate and develop new ideas. The benefits of smart campuses over digital and analog campuses are as follows. The key obstacles to the widespread adoption of IoT to offer smart campuses are interoperability, information processing, system integration, and efficient/reliable/high-speed connection.

The smart campus is a relatively novel idea that has the potential to significantly improve the educational experience for today's college students [7]. This highlights the

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Enhancing Fruit and Vegetable Preservation with Support Vector Machine and IoT Connectivity

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***Abstract*— This paper presents a new method for extending the shelf life of perishable food items by combining the use of Support Vector Machine (SVM) algorithms with Internet of Things (IoT) connection. Problems with early spoiling detection and inefficient storage condition control plague conventional approaches to fruit and vegetable preservation. Using SVM it analyze environmental variables including humidity, temperature, and gas concentrations that impact commodities with a near-term expiration date in real time via this research. Sensors, actuators, and a command centre can all communicate to one other without a hitch thanks to the IoT. With this integration, storage conditions may be dynamically adjusted according to SVM predictions, guaranteeing the best possible preservation. In light of the ever-changing nature of farming, the suggested system provides an adaptable and scalable answer to the growing need for effective and environmentally friendly food storage solutions. The experimental findings show that the suggested method may prolong the freshness and quality of produce while reducing the amount of resources wasted. The findings of this study will help bring data-driven technology into the food business more widely and improve smart agriculture practices. It highlights the efficacy of combining IoT connection with SVM algorithms for vegetables and fruits storage. Agricultural operations and customers may both profit from the results, which show a considerable decrease in waste, an increase in freshness, and better quality control.**

Keywords*— *Storage Conditions, Adaptive Control, Spoilage Detection, Predictive Analytics, Remote Monitoring

I. Introduction

The internet-connected IoT connects devices fast growth of the IoT inspires us to apply for food preservation, such as maintaining fruit and vegetable quality. This study proposes an ambient food storage analysis system. Since environmental temperature, moisture, and light impact food's nutritional value, the suggested solution detects them. In this work, Raspberry Pi serves as a sensor node for the fruit and vegetable storage house, and the central base station is linked to the cloud where MySQL open source database server stores data. Connecting to the database through the IP address sends sensor readings to the base station. Next, a data fusion model is tested that accepts numerous sensed data as input and outputs a single action or information. Thus, combined temperature and humidity and averaged to give a single consolidated result for future choices [1]. An innovative and cost-effective IoT-based methodology for identifying fruit and vegetable quality during transportation in India is proposed in this research. The framework monitors perishable produce's quality throughout transit using intelligent IoT technology. The system monitors temperature, humidity, and spoilage using sensors and data analytics. This allows fast interventions and keeps products fresh and high-quality throughout transportation. This framework's potential to improve fruit and vegetable transportation in India, minimizing post-harvest losses and guaranteeing a higher-quality product that reaches customers [2].

The study discusses machine vision applications for fruit and vegetable quality inspection and inspection. The study explores automating agricultural product inspection using machine vision. These systems use artificial intelligence and image processing algorithms to examine fruits and vegetables' size, shape, color, flaws, and freshness. Machine vision technology improves quality assessment efficiency, accuracy, and consistency compared to manual inspection techniques. This research uses automated quality rating systems to enhance food industry efficiency and waste [3]. Sensor-Based quality evaluation systems for fruits and vegetables discuss quality evaluation utilizing sensing methods. The chapter addresses quality assessment using spectroscopy, imaging, and electronic nose. These sensing methods quickly and non-destructively measure firmness, sugar content, acidity, color, and scent. The chapter discusses each sensing approach, its benefits, and drawbacks in fruit and vegetable quality evaluation. Sensors and data analysis methods like chemometrics and machine learning create accurate real-time quality evaluation systems [4].

This article covers ambient parameter monitoring in fresh fruits and vegetable supply chains utilizing IoT-enabled sensors and communication technologies. To ensure perishable produce's quality and freshness, the research emphasizes maintaining ideal environmental conditions throughout the supply chain, including temperature, humidity, and gas composition. The authors propose real-time IoT-based sensor devices to monitor various environmental factors. Stakeholders may monitor and assess

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Cloud Computing Based POC Diagnostic Device: Rapid Infectious Disease Testing by Data Analytics

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***Abstract*—To meet the growing need for affordable, efficient, and accurate diagnostic tools, the system has developed a Raspberry Pi-based Point-of-Care (POC) gadget for speedy and reliable detection of infectious illnesses. This groundbreaking gadget, built on the flexible and powerful Raspberry Pi computer, ushers in a new era of state-of-the-art POC diagnostics by combining molecular and image analysis methods. Complex testing for pathogens like COVID-19 and malaria may be carried out using this state-of-the-art system, which integrates a camera module and custom biosensors. The device's software parses sensor data, improves diagnostic precision using machine learning techniques, and presents a straightforward interface for clinicians and patients alike. This study takes a holistic approach by considering all relevant factors, including adherence to regulations, user education, upkeep, and data management. Our POC diagnostic gadget driven by a Raspberry Pi provides a low-cost, high-throughput method for diagnosing illness, which may have far-reaching implications for the future of healthcare delivery in both under-resourced and well-endowed regions.**

***Keywords*—Point-of-Care Diagnostics, Infectious Disease, Internet of Things ,Cloud Computing, Healthcare.**

I. Introduction

The global healthcare environment has undergone enormous developments in recent years, notably in the domain of diagnostics. Emerging infectious illnesses like COVID-19 and malaria highlight the urgent need for easy access to accurate diagnostics. POC diagnostic devices have gained popularity for their promise to shorten the time it takes to provide patients the treatment need by eliminating the need to send samples to a laboratory beforehand. The use of such tools has great potential for enhancing healthcare via earlier diagnosis, sooner intervention, and better results [1].

In the midst of this seismic upheaval in healthcare, the system propose a game-changing innovation: a point-of-care diagnostic gadget based on the Raspberry Pi that has the potential to reimagine the detection of infectious illnesses. Our new solution is based on the Raspberry Pi which is renowned for its adaptability, computing power, and extensive software ecosystem. Next-generation solution for infectious illness diagnostics, this gadget combines molecular and image analytic methods. Our goal is to completely revamp the method in which diseases are detected and monitored by integrating cutting-edge technology, complex software algorithms, and an intuitive user interface [2].

In the face of pandemics and endemic illnesses, the need of easily available diagnostic solutions has become very evident. The COVID-19 pandemic served as a particularly glaring example of the tremendous stress placed on conventional laboratory testing facilities in the midst of a worldwide health disaster. Difficulties in disease control and treatment arose as a consequence of overburdened healthcare systems and delays in test findings. POC diagnostics are becoming a major focus in the fight against these crises because of the obvious need for portable, effective, and cheap diagnostic instruments. Our Raspberry Pi-based gadget, with its strong capabilities, offers the potential to solve these essential healthcare concerns and establish a new standard for speedy, accessible diagnostics [3].

The Raspberry Pi serves as the device's brain, and it is surrounded by a variety of sensors, a microfluidics system, and disposable test cartridges that are designed to detect various ailments. Because of its computing capabilities, the Raspberry Pi makes it possible to process and analyze data in real time. A camera module and specialized biosensors for detecting disease-specific indicators are also a part of the device's array of built-in sensors. With the use of these sensors, the gadget may be used to test for a wide variety of infectious illnesses [4]. In terms of software, it makes use of cutting-edge and machine learning methods. The program analyzes sensor readings and returns precise diagnostic information. A user-friendly interface, often a touch screen display linked to the Raspberry Pi, simplifies user interaction. The device's accessibility and usefulness are improved because of this, benefiting both medical professionals and patients [5].

Our point-of-care diagnostic equipment stands out because it may be used for a wide range of infectious disorders. Specific diagnostic procedures for a certain infection may be accommodated. When looking for SARS-CoV-2, for instance, the device may use molecular methods like Polymerase Chain Reaction (PCR) or isothermal amplification. It may also be set up to detect particular viral proteins using antigen testing. Microscopy, genetic techniques, and rapid diagnostic tests (RDTs) that identify malaria-specific antigens in blood samples may all be used with the device to diagnose the illness. Because of its

IoT-Enabled Sleep Monitoring Wearables: Advancements in Tracking and Analysis

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***Abstract*— The importance of sleep to a person's health and well-being cannot be overstated. Sleep monitoring and analysis control has been transformed by the combination of Internet of Things (IoT) technologies and wearable devices in recent years. This system analyzes the improvements achieved in sleep monitoring wearable enabled by IoT, providing a thorough and discreet method of evaluating sleep activities. Accelerometers and heart rate monitors are at the heart of these wearables, which also have complex processing units and connectivity modules. Insightful sleep quality analysis, precise sleep stage separation, and real-time data collecting are all made possible by this complementary relationship. Wearables may track sleep patterns, interruptions, and effectiveness by recording motion, heart rate variability, and brain activity through various sensors. Smart cloud interfaces that provide sleep metrics and trends improve the user experience and allow a deeper analysis of a person's sleeping habits. In addition, these wearables may easily connect to smart home systems, enhancing sleep quality by modifying the house's lighting and audio settings depending on the individual's sleeping habits. The data gathered by these wearables has wider uses beyond personal sleep monitoring, such as helping the system better understand and treat sleep conditions.**

Keywords—IoT, Wearable device, Sleep monitoring, Cloud, Sleep stages

I. INTRODUCTION

Insomnia and sleep disruption are widespread among seniors. Contact perception monitoring and machine vision perception is popular nowadays [1]. Commercial WiFi was used to monitor vital signs at home. Motion detection techniques measure sleep time using commercial WiFi. The segments are filtered into small-amplitude states. For immediate respiratory rate estimate, the CSI ratio model is applied. The CSI ratio model is more accurate than the maximum ratio combining technology and offers superior real-time sleep safety monitoring.

The prevalence of sleep apnea in the general population has risen dramatically in recent years. Although polysomnography in a hospital or clinic is still the gold standard for diagnosing sleep apnea, home sleep test devices are quickly gaining popularity [2]. Because of their complexity and the fact that data is gathered offline, both systems are usually only useful for a short period of time, say, one or two nights.

A sleep-tracking device based on the Internet of Things that includes features like a quick WiFi module and local storage. The heart data is gathered using accelerometers and electro-resistive sensors [3]. To address these issues, we developed a single-lead ECG and accelerometer recording device that is IoT ready. This device also employs a novel method of capturing cardiac and respiratory data based on polymer-based innovation. The NODEMCU enables wireless internet-based data transmission in real-time, according to established norms in this field.

Sleep apnea, which causes recurrent breathing pauses, may be dangerous [4]. Sleep apnea identification and monitoring enhance health and reduce death. Polysomnography (PSG), a difficult and intrusive test conducted in a specialist laboratory with several sensors and cables, is the current approach for diagnosing OSA. Thus, each patient must remain in the same posture for one night, limiting their movements and disrupting sleep habits. It presents an IoT-based OSA monitoring method that is simple, inexpensive, and portable.

Sleep deprivation is an important medical concern. Traditional methods like polysomnography and medical counseling are costly and require overnight clinic stays; thus, an affordable sleep monitoring device is needed [5]. Therefore, a low-cost, home-use sleep monitoring device is required. A low-cost multimodality sensor-based system is suggested using an accelerometer and gyroscope to monitor heart rate, body temperature, and sleeping body position. These sensors will be interfaced with ESP32 microcontrollers, gather data all night, and transfer it to the cloud, which will be viewable on the base station. The patient might notice sleep quality abnormalities in the morning and visit the doctor.

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Speed and Torque Optimization of Motor Drive Through Intelligent Control Approaches

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***Abstract*—The need for better control approaches in Permanent Magnet Synchronous Motors (PMSMs) has increased due to the increased usage of electric motors in many different areas. The unique characteristics of PMSM motors make it difficult to use conventional control techniques to dynamically adjust speed and torque. This research proposes a novel approach to real-time speed and torque optimization of PMSM motor drives by integrating Sliding Mode Control (SMC) in Reinforcement Learning (RL). This could alleviate these issues. This study introduces a dual-mode control approach for permanent magnet synchronous motors (PMSM) that leverages the robustness of SMC and the flexibility of RL. In order to improve the PMSM motor drive's overall efficiency, a synergistic effect is achieved by creating an RL-based Maximum Torque and Speed Tracking (MTST) algorithm. Incorporating SMC ensures precise and stable control of speed and torque. Results from both theoretical and practical investigations using a PMSM motor operating system model in Matlab/Simulink validate the proposed method. The results reveal improved control over speed and torque, proving the efficacy and adaptability of the proposed method for PMSM actuators to function in different environments.**

***Keywords*—Intelligent control, Motor drive, Reinforcement learning, Photovoltaic system, Torque and Speed**

I. INTRODUCTION

Electric motors, specifically PMSMs, are becoming more complex and demanding, prompting researchers to focus on creating more sophisticated control methods. The need for control techniques capable of optimizing speed and torque dynamically has grown in importance due to the increasing integration of electric motors into several industrial applications. Even while traditional control techniques work in certain cases, they have a hard time adjusting to the ever-changing operating circumstances of PMSMs, which leads to poor performance. The variable nature of solar PV systems, such as variations in sun insolation and temperature, makes it difficult to harvest the full power output from these systems before linking them to the utility grid. A wide variety of maximum power point tracking (MPPT) algorithms have been developed for use with photovoltaic (PV) systems in an effort to maximize power output.

Indirect approaches for maximizing power extraction involve databases including information such as parameters and PV array characteristic curves at various temperatures and insolation levels. Curve fitting, look-up tables, open circuit voltage, and short circuit current are all examples of indirect methods. When the weather is unpredictable, indirect tactics aren't the way to go. Among the direct techniques are those that measure the voltage and current of the PV panel. The effectiveness, high power factor, quick reaction, and long-lasting design of PMSMs have led to their extensive use in electric traction, robotics, automobiles, and servomechanisms, among other industrial and everyday applications. Many applications prefer PMSM drives. The most difficult aspects of PMSM are controlling the speed and position tracking, as well as a number of electromechanical factors. Recently, several new control approaches have been introduced with the aim of addressing these issues.

SMC is one of the well-known strategies that have been proposed in the literature and has been effectively used for PMSM control. When the system is exposed to external forces or parameter changes, SMC is an efficient controller model that guarantees optimum tracking. In addition, SMC stands out because of its remarkable precision and ease of use. But the most difficult parts of SMC are reducing chattering when sliding, shortening the reaching period to make sure the control goal is met on the sliding surface, and making sure the suggested system state converges to the sliding surface for sure.

By combining SMC with RL, the dynamic behavior of PMSM motors can be regulated with stability and accuracy, improving their performance with adaptability and learning capabilities. The main objective is to create an RL-based MTST algorithm that is designed to work with PMSM motors and their unique dynamic properties. In order to guarantee the optimal functioning of PMSM motor drives in various applications, this study aims to accomplish real-time adaptive optimization via a dual-mode technique. To address the

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Smart Ergonomic Practices with IoT and Cloud Computing for Injury Prevention and Human Motion Analysis

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***Abstract*— Technology promotes workplace safety and employee well-being in today's digital and linked environment. Internet of Things (IoT) and cloud computing are used in this work to provide a complete system for injury prevention and human motion analysis in diverse professional environments. The system uses smart ergonomic methods to prevent work-related injuries and musculoskeletal problems. Real-time data from IoT sensors on human mobility, posture, and ambient circumstances allows ergonomic factor analysis. These sensors help avoid injuries by revealing workplace ergonomics and worker behavior. It evaluates how cloud computing stores, processes, and analyzes IoT sensor data. Cloud-based solutions provide real-time data access, remote monitoring, and data-driven decision-making, improving injury prevention and worker well-being. This system shows that smart ergonomics, IoT, and cloud computing may improve workplace safety and productivity. Real-time motion monitoring and analysis help firms decrease accidents, increase worker performance, and improve workplace ergonomics. This comprehensive injury prevention and human motion analysis technique advances worker health and safety in varied sectors.**

Keywords*— *Human Motion Analysis, Workplace Safety, Remote Monitoring, Productivity Enhancement, Injury Prevention

I. INTRODUCTION

Since most individuals spend so much time seated at their desks, office syndrome has emerged as a major issue. Propose an IoT chair that can identify several types of sitting positions. To categorize seated positions, this study used AI methods. Initial testing of our smart IoT chair and smartphone application demonstrated detection accuracy for different sitting positions. In addition, a mobile app was developed to alert users of their unsteady stance so that they may fix it.

For its implementation in industrial settings, user interfaces must adhere to design and ergonomics criteria, as well as take into account users' actual needs and preferences [2]. As part of the Industry 4.0 framework, this article explains how a metal stamping factory uses user-friendly and ergonomic interfaces to better integrate humans at the operational and strategic levels.

Creating sophisticated criteria for evaluating the comfort level of sitting with one's feet planted on the stool. Human posture violations are highlighted, along with the underlying causes [3]. The problem of uncomfortable seating and the unique benefits of unsecured seats and their disadvantages are picked out. The effects of prolonged sitting are examined from the perspective of ergonomics research. It is established what factors should be considered when evaluating a person's comfort level when seated on a chair. Considering both the distribution of contact pressures and the placement of the body on contact site, new integral criteria for a comprehensive assessment of seat ergonomics are developed.

The conventional approaches to creating ergonomics for cars that do not fall into the standard categories of vehicles do not provide satisfactory outcomes when used in specialized electric vehicles [4]. It is necessary to conduct ergonomics research and the novel approaches outlined in this system. It presents a study on ergonomics in monitoring spinal body positions among students in classroom environments.

An integrated device that detects and measures the student's back position while sitting, sends out alerts to get them to straighten up, and then stores all of that data in a database, building a record of how each student's back has behaved over time thanks to smart algorithms [5]. This system is great for long-term student health because it helps students avoid the aches and pains that can be caused by bad posture. In the future, will analyze how the ergonomic posture affects student performance; this is a work in progress.

Arduino-based seat corrects bad seating position. Use the ultrasonic sensor group on the seat back to detect the distance the body and the seat back and the pressure sensor array on the seat surface to measure force distribution [6].

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Cloud-Enhanced Tele-ENT: A Scalable and Secure AI-Driven Diagnosticsfor Remote Ear, Nose, and Throat Consultations

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***Abstract*—The proposed cutting-edge telemedicine system is a game-changing alternative for patients seeking Ear, Nose, and Throat (ENT) consultations from a distant location. Utilizing the capabilities of Raspberry Pi devices, powerful artificial intelligence, and cloud computing, the system allows otoscopic tests to be performed without interruption while securely transmitting data to the cloud. On a web-based platform, interactive patient-professional consultations are made possible via the use of real-time communication, which is made possible by WebRTC. Cloud services are very important because of its ability to provide scalable storage as well as AI-driven diagnostics for accurate evaluations. The system complies with the requirements for healthcare compliance, has an emphasis on security and privacy, and features encryption from beginning to finish. This integrated approach promises scalability, reliability, and advanced diagnostic capabilities, and it reshapes the landscape of remote ENT care with accessible and technologically advanced healthcare solutions. With a user-friendly interface for patients and a cloud-hosted application for healthcare professionals, this integrated approach provides patients with advanced healthcare solutions.**

***Keywords*—Tele-ENT, Cloud Computing, Artificial Intelligence, Remote Healthcare, Otoscopic Examinations**

I. Introduction

The term "telemedicine" refers to the practice of transmitting medical treatment across long distances via the use of telecommunications technology. It refers to the practice of providing consultations via the internet for problems that are associated with the ear, nose, and throat. The use of artificial intelligence is an essential component in the process of improving diagnostic skills. Artificial intelligence algorithms are able to examine medical data, photos, and symptoms in order to provide assistance to medical personnel in producing diagnosis that are more accurate and fast.

The presence of cloud computing technology gives the impression that the system makes use of cloud infrastructure and services in order to store, process, and manage the data as well as the artificial intelligence algorithms. The cloud computing model provides scalability, flexibility, and accessibility, all of which are especially advantageous for healthcare services that are provided remotely.

Innovative technologies have converged to bring in a new age of healthcare that is characterized by greater convenience and lower costs for patients. A cutting-edge telemedicine work, using Raspberry Pi gadgets, cloud computing, and cutting-edge AI systems, is at the front of this change. This innovative initiative targets a vital part of healthcare delivery: remote consultations for ENT disorders, an area where the combination of state-of-the-art technology and cloud-based systems has the potential to radically alter the standard of treatment provided to patients [1].

The basis of this endeavor is the Raspberry Pi, a credit-card-sized computer that has shown to be a flexible and cost-effective tool. The work's computing skills will be used to develop a complete system for remote ENT consultations, allowing patients and doctors to interact without being in close proximity to one another. A sophisticated camera module and otoscopic attachment are included inside the Raspberry Pi and play a crucial role in this setup. This system enables for extensive exams of the ear, nose, and throat, generating high-resolution photos and films that constitute the core of the remote diagnosis process [2].The collected information is the entry point to a cloud-based ecosystem, where the revolutionary potential of cloud computing may be fully realized. The acquired data is sent to the cloud via the Raspberry Pi over encrypted channels, where medical experts may easily access and manage it. This method of dispersing diagnostic information guarantees scalability and lays the groundwork for instantaneous two-way contact between patients and doctors [3].

The Web Real-Time Communication (WebRTC) framework enables real-time communication, which is an essential part of the system. Patients utilizing Raspberry Pi devices may communicate with doctors and nurses via a web or mobile app, with the cloud-based platform serving as an intermediary. This real-time interaction not only eliminates

IoT Enabled Microgrid System for Enhancing Power Quality Using Adaptive Neuro-Fuzzy Control Algorithm

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M. Venkatesh ; V. G. Sivakumar ; C. Gangaiah Yadav ; B. Gopi ; N. Malathi ; S. Velmurugan All Authors

Abstract:
Microgrid systems have emerged because of the rising need for efficient and dependable power supply, as well as the widespread use of internet of things (IoT) technologies. However, nonlinear loads, fluctuations in voltage, and harmonics are often present in these systems, resulting in poor power quality. This research proposes a Unified Power Quality Conditioner (UPQC) system to overcome these obstacles. The adaptive neuro-fuzzy inference system is employed with IoT connection that allows the UPQC to dynamically adapt in real-time to power quality issues, keeping important loads supplied with clean, uninterrupted power. The suggested system is shown to be beneficial in preventing power outages by providing continuous monitoring, control, and problem diagnostics. The results set the way for future power supply solutions that are more efficient and dependable by adding to a set of information regarding methods to improve power quality in microgrid systems.

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Novel and Robust Energy Efficient Protocol for Authentication Purpose in IIoT

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***Abstract*— An developing technology called the Internet of Things (IoT) is anticipated to offer answers for several industrial industries. Wireless sensor networks (WSNs), a foundational IoT technology, may be utilized to gather the necessary environmental characteristics for certain applications. Security in WSN has grown to be a huge concern as a result of the sensor node's resource limitations and the wireless channel's open nature. To ensure the legitimacy of data access in WSN, authentication may be utilized as a fundamental security function. For various security needs, Chang and Le have presented two authentication techniques for WSN. However, their protocol has significant security and functionality flaws and is unable to provide appropriate mutual authentication. To address the shortcomings of earlier methods, we introduce a three-factor user authentication scheme for WSN. The proposed protocol's security is examined, and its performance, functionality, and security are contrasted with those of other relevant protocols. The comparison and simulation findings by NS-3 demonstrate how reliable and resource-efficient the suggested protocol is for IoT applications.**

Keywords: Internet of Things, Public Key Infrastructure, energy efficient, Packet Delivery Ratio, Wireless Sensor Networks

I. INTRODUCTION

The rapid advancement of microelectronics and communication technologies has made it feasible for humans to create a world that is more intelligent if they accept the emerging paradigm of the growing Internet of Things (IoT). This is only achievable if they establish a world that is interconnected and interdependent on one another. It is projected that the Internet of Things will play a significant role in a range of different industrial domains and deliver the most efficient solutions possible [1]. Consider the idea of "smart healthcare," which describes the use of various wearable gadgets and medical sensors that are either attached to or integrated into the bodies of patients in order to gather essential data such as electrocardiogram (ECG) and blood pressure [2]. After being sent to a gateway that is managed by a hospital or some other kind of medical institution, the data on the vital signs may later be made available to appropriately trained medical professionals who may then use it as the foundation for making a medical diagnosis. The wireless sensor network (WSN) is an integral part of the Internet of Things that is used for data collecting on the environment that it is located in. Users, gateways, and sensor nodes are the three main types of participants that may be distinguished inside a wireless sensor network (WSN) [3]. It has been shown that the communication distance has a direct bearing on the amount of energy that a sensor node would use. Processing, storage, and power resources that are commonly available to sensor nodes often come with a degree of restriction.

Because it was sent via the gateway, the message will eventually be sent to the user. It is feasible that this strategy will lengthen the lifespan of WSN while at the same time lowering the amount of power that is used by sensor nodes. Because of its high degree of heterogeneity, the open nature of wireless channels, and the limited resources of its individual components, the Internet of Things poses significant challenges with regard to issues of privacy and security [4]. Authentication is one of these techniques, and it is a vital one for safeguarding the confidentiality of sensitive data [5]. Authentication ensures that only authorized users may access sensitive information.

Because they provide users the ability to acquire information or situations about an object that is positioned within the detecting zone in real time, wireless sensor networks are a key component of the notion of the Internet of Things [4]. Therefore, the distance that exists between the sensor node that it monitors and the communication partner

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INTEGRATING NEURO-FUZZY SYSTEMS FOR ENHANCED CANCER DATA ANALYSIS AND PREDICTION

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Abstract

The abstract for Integrating Neuro-Fuzzy structures for more significant most cancers statistics analysis and Prediction describes research carried out to examine using a sort of artificial intelligence, known as a Neuro-Fuzzy device, to analyze and expect facts from most cancer sufferers. by leveraging the strengths of both Neural Networks and Fuzzy common sense structures, Neuro-Fuzzy systems provide a powerful answer for complicated statistics analysis. This research examines and tests the overall performance of Neuro-Fuzzy systems on hard and fast benchmark datasets from most cancers Toolbox Markup Language (TMX). Consequences showed that Neuro-Fuzzy yielded a higher accuracy charge when compared to different device learning algorithms in studying information from a diverse set of patients. Furthermore, the researchers also stated that Neural-Fuzzy systems were able to discern subtypes of cancer in an affected person population, which had not been formerly feasible with different techniques. The work defined in the abstract could have a long way to attaining implications for the remedy and prognosis of most cancer patients. With the promising results of this, have a look at showing that Neuro-Fuzzy structures are able to distinguish between particular forms of cancer correctly; a more precise treatment plan might be created for people living with cancer. Additionally, with the improved accuracy of Neuro-Fuzzy structures, more excellent dependable predictions will be made about the progression of most cancers in a selected patient, helping doctors to plan treatments. Ordinary, the findings of the research summarized in this summary are especially significant as the advanced accuracy and capacity to figure out subtle differences in most cancer types keep the promise of improved remedies and prognoses for people living with cancer.

Keywords:

Neuro-Fuzzy Systems, Cancer Data Analysis, Cancer Data Prediction, Machine Learning, Artificial Intelligence

1. INTRODUCTION

Most cancers are a prime worldwide fitness challenge and an urgent research topic for many scientific specialists. Correct most cancer records evaluation and Prediction are critical for the success analysis and remedy of cancer. As such, there's a want for advanced information analysis strategies that can resource within the detection and prognosis of cancer instances. Integrating Neuro-Fuzzy structures (INFS) for more advantageous cancer data evaluation and Prediction is a promising technique that mixes the strengths of each fuzzy good decision and neural network to correctly examine most cancer records and improve the accuracy of most cancer diagnoses and Predictions [1]. In INFS, fuzzy common sense is used to expand rules and actual numerical models to represent complicated medical ideas effectively. Neural networks are hired to carry out more excellent and efficient sample reputation and detection of medical activities. Furthermore, INFS packages are able to research from the information amassed in one-of-a-kind clinical environments mechanically [2]. This capability allows for lessening the manual effort required for fact analysis and Prediction. INFS has been used in lots of studies and scientific trials to aid decision-making in fitness care settings. Particularly, INFS has been applied to predict the final results of cancer cases and has proven promising outcomes in phrases of accuracy and velocity. Moreover, INFS has continuously advanced over the years to beautify its prediction competencies [3]. It is expected that with further advancements, INFS will become one of the most promising and practical solutions in cancer data analysis and prediction. In conclusion, Integrating Neuro-Fuzzy Systems is a powerful analytical technique for cancer data analysis and prediction, which has proven to be reliable and efficient. It combines the strengths of both fuzzy logic and neural networks to improve the accuracy of cancer diagnosis and prediction. Therefore, INFS could be a promising and viable solution to the challenges posed by cancer data analysis and prediction [4]-[7].

Most cancer records analysis and prediction is a challenging field of research that requires the synthesis of multiple techniques so as to obtain accurate consequences. Integrating neuro-fuzzy systems for boosting cancer data analysis and prediction is a place of research that is unexpectedly developing in reputation due to the fact that it generates enormously accurate consequences with minimum computational complexity [8]-[9]. The primary foremost technique in integrating neuro-fuzzy systems for cancer statistics evaluation and prediction is the use of the fuzzy set principle. The fuzzy set concept consists of mathematical gear that permits information to be classified into clusters, primarily based on the degrees of the club of various homes in those clusters [10]. The fuzzy set concept has been used to perceive affected people with most cancers' genetic markers and is expecting the response to specific healing procedures. One example of associated work is a have a look at which used fuzzy set principle to broaden a machine that would appropriately predict the patient's survival price for bladder cancer patients primarily based on their characteristics.

2. RELATED WORKS

Modern advances in the field of medical imaging technologies have allowed for the monitoring of tumors in unprecedented detail, by providing high-quality, multi-dimensional datasets of

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Study on Simulators of Vehicular Ad-hoc Networks for Evaluating the Performance in Certain Traffic

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ABSTRACT:

Recently, the use of traffic monitoring applications is very common. Many of these, for example, have algorithms that seek the fastest way for the driver to complete the journey. Vehicular networks can be used to collect information in real time, such as traffic flow, accidents and congestion, helping to decongest the already chaotic traffic in cities. Thus, the use of vehicular ad-hoc networks (VANETs) in this case adds greater reliability, robustness and automation to traffic control systems. Practical experiments using VANETs are scarce; therefore, it is of great importance to validate simulations and ensure that they are explored and studied by researchers in this area. According to our surveys, works that address real measurements are fewer in number compared to software simulations. One of these factors, for example, is the development of drivers and software for the equipment and the high complexity of making such experiments available. Another point that also justifies the low number of actual measurements is the high cost of the equipment that supports the IEEE 802.11p standard, as it is still not widespread in the market. The main objective of this work is to carry out a study on vehicle ad-hoc network simulators and identify the advantages and disadvantages of each simulator covered. Particularly, a VANET network capable of operating in the IEEE 802.11p standard is simulated, evaluating performance in certain traffic characteristics.

KEYWORDS:

Vehicular ad-hoc networks; VANETSim; Veins; NS-3; Simulators

CITATION:

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1. Introduction

Approximately, 1.35 million people die every year because of vehicle accidents, and between 20 and 50 million are injured in accidents around the world. Ahead of this entire problem, studies of ad-hoc vehicular networks could reduce this number and promote more safety in traffic. In the current scenario, much has been done to reduce these numbers with devices developed to provide more safety, such as ABS brakes, seat belts and airbags. Vehicular ad-hoc networks (VANETs) are not yet applied in order to allow exchanges of messages about vehicle traffic conditions, such as alerts of possible accidents and any other type of message such as entertainment applications. They must meet certain characteristics, such as the mobility of vehicles on streets, roads and avenues, changes in trajectory, speed and, mainly, the short contact time between the nodes in the communication. In order for most of these characteristics to be met, the network must have a high level of trust, ensuring communication between vehicles and thus avoiding possible collisions. Among the main characteristics of this type of network are latency and coverage area. The first is particularly important because vehicles need to send data and establish connections in a very short time, about 100 ms. The latter is self-explanatory as it concerns the maximum distance over which vehicles can communicate [1-2]. Applications that provide traffic safety seek to communicate accidents and other events that may affect drivers and passengers. The analysis of these networks is of paramount importance so that it is possible to understand the characteristics, behaviours and problems of the network. Thus, by optimizing applications and improving the performance of these communications, fatalities can be reduced.

Many studies and research are being carried out to ensure safety with the use of VANETs, which is the main motivation for research, development and implementation of vehicular networks [3]. Wireless Access in Vehicular Environments (WAVE) networks aim to improve safety and traffic on highways and streets. With the collection of information generated by the cars themselves, it is possible to set speed limits that

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Implementation of Enhanced Chimp Optimization Algorithm in Cognitive Radio Networks for Vehicular Mobile Communication

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ABSTRACT:

In recent years, 6G technology has been extended to many different applications, especially mobile communications. As a result, the volume of mobile data increases, which poses a problem with the load on the plane of control (IoE, IoT). This problem is solved by efficient use of resources and reduced power consumption in cognitive radio networks (CRNs). In the literature, many methods have been developed by researchers to control spectrum sensing as well as energy -efficient operation, but they still need to be improved to improve system efficiency and processing power. Therefore, in this paper, an energy efficient method for Opposition Function -based Chimpanzee Optimization Algorithm (OFCOA) is developed in CRN for energy management as well as resource allocation. The proposed method is a combination of Opposition Function (OF) and Chimpanzee Optimization Algorithm (COA). In COAs, the optimal decision process is enhanced by the use of OF. The proposed method provides energy efficient operation in CRN through energy management taking into account spectrum measurements. The proposed method was tested under four Primary User (PU) and Secondary User (SU) conditions with channel occupation and CRN findings. The proposed methodology is implemented in MATLAB and performance is measured based on performance metrics such as processing power, network life, transmission rate, delay, flush, power consumption and overhead. The performance of the proposed methodology is compared with traditional methods such as Chimpanzee Optimization Algorithm (COA), Whale Optimization Algorithm (WOA) and Particle Swarm Optimization (PSO).

KEYWORDS:

Cognitive radio networks; Spectrum sensing; Resources; Energy efficient; Energy utilization and average energy

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1. Introduction

Since the launch of mobile networks many years later and the development of small correspondence, research has focused on improving resilient networks, less complexity and less fatigue while increasing the speed of corporate governance. The main boundary rules of the project, spectral characteristic features (SE) [1]; Energy Efficiency (EE) [2] and Energy Harvest (EH) seems to have a huge interest in future telecommunications systems for 5G Smart Radio Systems (5G-CRN) by 2021. While many different regions of the country face serious limit shortages, there are still limit deficits, in addition that is, in many places there are definitely problems with the use of limits [3]. Therefore, a large amount of work is required to modernize marginal productivity methods. Like global climate issues, energy efficiency is another potential project area for sophisticated telecommunications companies due to limited access and wasteful use of mobile phone battery power [4]. Other things being equal, strategies that increase spectrum efficiency led to a decrease in energy efficiency [5].

The main test of the 5G architecture is to achieve high spectrum efficiency while using very low cell phone power levels. This problem is solved by offering better interchange between SE and EE by providing Quality of Service (QoS) [6] in 5G-CRN. Limit detection is the main part of CRN, which takes into account the main part of it is the blank validation range. Traditional range detection consists of sophisticated techniques such as filter matching (MF), cyclic detectors and the most complex eigenvalue indicator i.e., energy detectors. However, energy detection strategies are more complex methods. The low signal has a horrible display at the first noise level [7]. Efficient detection methods such as loop lock detectors are suitable for detecting

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RESEARCH ARTICLE

An improved spectrum sharing strategy evaluation over wireless network framework to perform error free communications

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Abstract

The possible application of wireless sensor networks is hampered and the widespread use of this novel method is slowed, according to recent surveys conducted within the field of automation in industry, which identified that accuracy pertains indicate currently among the primary obstacles to the dissemination of wireless networking for recognizing and regulating applications. In order to overcome these constraints, it is necessary to raise public understanding of the reasons for dependability issues and the potential approaches to resolving them. Low-power communications of sensor nodes are, in reality, quite susceptible to adverse channel conditions and can readily be affected by transmissions of other co-located devices, making them seem unreliable. In this dissertation, I explore several strategies that may be used to either eliminate interference altogether or reduce its negative consequences. In this paper, we study the creation and modeling of a brand-new spectrum allocation mechanism for wireless sensor networks. Cognitive radio technology can detect spectrum holes in the environment, learn from its surroundings using artificial intelligence, adjust the system's operating parameters in real-time, and use the secondary spectrum to increase efficiency. In this study, we present a reinforcement learning-based strategy for choosing the power of transmission and frequency that can help individual sensors learn from their prior decisions and those of their peers. Our suggested approach is multiple agents decentralized and adaptable to both the data needs from source to sink and the amount of energy that sensing devices in the network have left over. In comparison to different resource allocation algorithms, the results reveal a dramatic increase in the lifespan of the network.

Keywords: Communication, Cognitive sensor network, Cognitive spectrum, Spectrum sharing, Wireless network framework.

Introduction

First, we think about how to minimize interference by using dynamic spectrum access; particularly, we zero in on the concept of channel hopping and develop algorithms that enable sensor nodes to detect affected channels, locate nearby nodes, and keep their network architecture intact in multi-channel situations (Tianchen Wang & Raviraj Adve, 2022). Our research demonstrates that devices with limited resources in terms of complexity and power may successfully detect and thereby avoid interference. We also take into account the scenario of networked assessment in the setting of spectrum communication, with the goal of measuring the impacts of intra-network interference, caused by contention-based channel access, on the performance of an estimate system. By strategically selecting their transmission probabilities, sensors in a distributed control system can reduce the typical inaccuracy of state estimations. The second half of this thesis is dedicated to frequency hopping methods, and a novel adaptive hopping algorithm is proposed in this section. In particular, the method utilizes all the accessible frequencies, however varied chances that rely on the observed channel conditions, which is a novel approach to frequency hopping (Senthilkumar, C., *et al.*, 2021), (Parvini, M., *et al.*, 2023). Our examination of performance demonstrates that this method has a lower packet error rate than both conventional frequency hopping methods and

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Advanced hybrid attention-based deep learning network with heuristic algorithm for adaptive CT and PET image fusion in lung cancer detection

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ARTICLE INFO

Keywords:
Lung cancer detection
PET and CT images
Modified initial velocity-based capuchin search algorithm
Adaptive dilated convolution neural network
Hybrid attention-based deep networks

ABSTRACT

Lung cancer is one of the most deadly diseases in the world. Lung cancer detection can save the patient's life. Despite being the best imaging tool in the medical sector, clinicians find it challenging to interpret and detect cancer from Computed Tomography (CT) scan data. One of the most effective ways for the diagnosis of certain malignancies like lung tumours is Positron Emission Tomography (PET) imaging. So many diagnosis models have been implemented nowadays to diagnose various diseases. Early lung cancer identification is very important for predicting the severity level of lung cancer in cancer patients. To explore the effective model, an image fusion- based detection model is proposed for lung cancer detection using an improved heuristic algorithm of the deep learning model. Firstly, the PET and CT images are gathered from the internet. Further, these two collectedimages are fused for further process by using the Adaptive Dilated Convolution Neural Network (AD-CNN), in which the hyperparameters are tuned by the Modified Initial Velocity-based Capuchin Search Algorithm (MIV- CapSA). Subsequently, the abnormal regions are segmented by influencing the TransUnet3+. Finally, the segmented images are fed into the Hybrid Attention-based Deep Networks (HADN) model, encompassed with Mobilenet and Shufflenet. Therefore, the effectiveness of the novel detection model is analyzed using various metrics compared with traditional approaches. At last, the outcome evinces that it aids in early basic detection to treat the patients effectively.

1. Introduction

Millions worldwide suffer from lung cancer. Early lung cancer identification improves survival [1]. CT scans are essential for lung cancer diagnosis and prediction [2]. Cross-sectional lung scans may reveal cancerous lesions. Radiopharmaceuticals detect metabolic activity in PET [3]. PET scans may identify metabolically active regions by injecting FDG. These spots are cancerous [4]. But PET and CT may identify lung cancer. Conventional models take time to interpret images [5]. Modern methods failed to detect lung cancer with large medical data and had lower diagnosis rates [6]. Deep learning processes medical images well. Complex patterns and characteristics in input photographs need deep learning networks to be trained on huge datasets [7]. Medical picture cancer detection is efficient and accurate using deep learning [8]. Advanced machine and deep learning technologies find cancer tumours and nodes in PET and CT scan images. Most radiologists use deep learning to predict problematic regions and severe patients [9].

CT and PET scans may show noise, respiratory movements, metallic implants, and reconstruction artefacts, making lung cancer prediction difficult [10]. This is true despite imaging technology and deep learning. These characteristics degrade image quality, making lung abnormalities hard to detect [11]. Lung cancer CT and PET scan interpretation take skill [12]. Radiologists may interpret images differently, resulting in contradictory results. This subjective factor makes creating reliable automated lung cancer detection systems difficult [13]. Cancer nodules must be identified for diagnosis and treatment. Imaging and thinking alone may confuse these two types [14]. False-positive tests and unneeded surgery result from benign nodules seeming malignant.

CT and PET imaging lung cancer prediction and research use several approaches [15]. Automated detection methods, algorithms, and machine learning can identify lung cancer in CT and PET scans. These strategies attempt to improve diagnosis and results [16]. Deep learning in PET/CT lung cancer diagnosis is promising. Artificial Neural Networks (ANN) automatically identify complex medical image features. Lung cancer is commonly detected via CNNs. Traditional CNNs employ2D images, whereas 3D convolutional networks detect lung cancer using CT scans [17]. Deep learning should improve CT and PET lung cancer detection accuracy, effectiveness, and dependability. These

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Epilepsy Disease Detection Using the Proposed CNN-FCM Approach

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Abstract The electroencephalogram (EEG) signals are categorized using fuzzy C-means (FCM)-based deep learning classification method. The internal structure of this conventional CNN architecture is in sequential order, whereas the interior structure of the projected CNN architecture is in parallel order. The signals are initial data augmented of EEG samples in both cases are decomposed using empirical mode decomposition (EMD) transformation model in the existing methodology. The decomposed samples are given into the feature extraction process, where decomposed samples are trained. These computed IMF subbands and the intrinsic features are fed into the proposed CNN-FCM model to produce the trained sequences for the training phase of the network. In the testing model of the proposed system, the data augmentation process is applied to the test EEG signal, and then, EMD transformation model is applied to the data-augmented EEG samples to obtain the IMF subbands. The same architecture proposed in this work is also used for diagnosing the severity of focal EEG signals.

Keywords CNN · EEG · EMD · Features · FCM

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Optical and piezoelectric studies of an efficient frequency doubler: Imidazolium L-Tartrate (IMLT).

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Abstract

Good quality crystal of imidazolium L-tartrate (IMLT) with a large size of 34×25×22 mm^3 has been grown by the slow cooling cum seed rotation solution growth technique. The morphology of IMLT crystal has been indexed by single crystal X-ray diffraction study which revealed the monoclinic crystal system with major forms of (0-10) and (001). Phase matching angle of IMLT was found to be 42±0.2° using a Nd:YAG laser and it was also found that the IMLT crystal belongs to type-1 phase matching category. From the piezo-electric study, the direct (d_{33}) and transverse (d_{31}) charge coefficients were calculated to be 1 pC/N and 17 pC/N, respectively.

Keywords: Crystal growth, Nonlinear optical material, Piezoelectric materials

1. Introduction

Nonlinear optical (NLO) crystals are playing an important role in the field of laser science and technology due to their potential applications such as second harmonic generation (SHG), third harmonic generation (THG), fourth harmonic generation, difference frequency generation (DFG), etc [1-3]. Some series of typical inorganic and semi-organic NLO crystals, such as potassium dihydrogen phosphate (KDP), potassium pentaborate (KB_5), β-BaB_2O_4 (BBO) and L-arginine phosphate monohydrate (LAP) have been used for second harmonic and UV generations due to their high transparency in UV-Vis region, moderate

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Retrieving Images and Its Classification by Acumen Mechanism Using Texture Features

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Abstract: *The erudite software mechanism of content-based image representation and retrieval is crystal clear that it is perception-based approach. Here it main pragmatic concept is texture images and propose to model their textural concept. The main dexterous melted to estimate textural feature an namely Complexity, texture strength, coarseness, directionality, contrast, busyness and Textron. The ineffable computational measures are based on autocorrelation function (Associated with original image) An anchored comparison is taken among it statistical and structural methods of texture representation. It elicits which features given vivid performance.*

Kkeywords: Texture Classification, Statistical and Structural features, KNN classifier, Image Retrieval.

1. INTRODUCTION

Texture, which has great impact on human visual perception describe to the spatial distribution of gray-level are considered as the concept of deterministic or random repetition of one or several primitives picture form. Micro textures often have small primitives, and macro textures typically have huge primitives[7]. In the areas of classification, segmentation, and form from practical texture and picture retrieval, texture mechanism is highly helpful.There are various kinds of textural features for image classification have been proposed[1]-[3]. From a segmented region only It will defined texture measure. strategies for analysing textures The two primary giants of computation are spatial techniques and frequency-based approaches. The examination of the spectral density function in the frequency-based domain is the general foundation for our choice of frequency-based approaches. These techniques include the wavelet-based Gabor model and the acumen concept Fourier transform. Techniques for spatial texture analysis can be divided into three categories: statistical, structural, or hybrid methods.

In concerns of concept micro textures, statistical methods produce improved result, whilst structural methods produce better results in terms of concept macro textures. Whether it existing method they are statistical, structural or hybrid, have another drawback not less significant: in the computational cost.

Almost all sorts of textures were perfectly perceived by the human eye. While the automatic processing of these textures is really quite intricate, the human eye could typically perceive the variations between textures reasonably simple.

The overwhelming of computational techniques use mathematical relationships that have no perceptual meaning comprehensible by users, which is the principal reasons of the mismatch between human vision and statistical models

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Case Studies in Thermal Engineering

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Experimental investigation of ternary blends on performance, and emission behaviors of a modified low-heat rejection CI engine

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Coconut waste cooking oil
Di-ethyl ether
Lanthanum-doped partially stabilized zirconia
Emission

ABSTRACT

This study investigated the performance, combustion, and emissions of a modified low heat rejection (LHR) diesel engine fueled with a blend of 90 % coconut waste cooking oil (CWCO) biodiesel and 10 % diethyl ether (DEE). The engine combustion chamber components were coated with 300 μm lanthanum-doped partially stabilized zirconia for thermal insulation. Engine testing was performed at varied loads from 0 to 100 % using an eddy current dynamometer. Exhaust emissions, including hydrocarbons (HC), carbon monoxide (CO), nitrogen oxides (NOx), and smoke were measured. Compared to conventional diesel, the CWCO-DEE blend showed a 3 % higher brake thermal efficiency of 33.4 % and 2.42 % lower brake-specific fuel consumption at full load. HC, CO, and smoke emissions decreased by 18 % (39 ppm), 11 %, and 19 % at higher loads with the blend. However, NOx emissions increased slightly by 21.2 %. The DEE compensated for CWCO's lower cetane number and viscosity, while the LHR coating enhanced combustion by providing thermal insulation, raising exhaust gas temperatures by 13 %. The improved efficiency and reduced emissions demonstrate the potential of optimized biodiesel-additive blends in conjunction with LHR engine modifications to sustainably utilize inexpensive waste cooking oil feedstocks as renewable diesel replacements. However, further optimization of blend compositions, additives, and coatings is needed to balance performance benefits against possible NOx increases.

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WASTE GARBAGE DISPOSAL BY USING SMART TRASH CAN SENSOR

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Abstract - Once if the garbage bin in overflowed and spreading down in that place. To avoid this problem, by using a sensor in garbage bin to identify the level of garbage bin. Garbage bin sensor will mentioned some threshold value in that bin level. Like, that the sensor will check the garbage level. If the garbage bin will be fill the threshold level the sensor will search the details about garbage collector and send the notification to particular person about place, area, bin number. suddenly the garbage collector will clean it. It will reduce the noise pollution and many disease. Mentioned some threshold value to fill garbage bins. Some specified value will be done in this garbage bin sensor.

Keywords- Internet Of Things, Roads, Garbage bin, ultrasonic sensor and GPRS.

1. INTRODUCTION

The Internet of Things serves as a general environmental guidance for the development and construction of Smart Cities, helping to conceptualize the suggested Smart Cities in the direction of a safe, clean, and green Mauritius.Since every project site is diverse and unique, the goal of the guidelines is to offer a set of environmental standards that may be universally followed in the construction of a smart city.

They introduced a recent cognitive is "smart garbage bin", single areas multiple garbage bin will be having and The sensor will make mention of it. whether the trash can is going to be filled. It will suddenly search the database in the list. When someone is identified as the authorized user, a notification with their position and sensor ID will be sent.

People within smart cities will enjoy a quality of life in a evergreen, clean living environments like, this people will be enjoying where streams, public areas, and open places are immaculate. Its characteristics, which include rivers, marshes, and artificial and natural areas, are draws for people of diverse lifestyles.

Once if the garbage will over the bin automatically the sensor will search the particular person detail in predefined store data. By using ultrasonic sensor the notification message will send through GPRS in that person. Garbage collector details will be stored in predefined in the database. Notification will be send about which place, area, garbage bin number in this detail will send the particular person and suddenly the person get to unhygienic the particular place.

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Academic Year 2022-2023

Number of papers published per teacher in the Journals notified on website during the year

S. NO	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number
1	Segmentation& Classification of Gallstone in Ultrasound images of Gall blader using Support Vector Machine	Dr.SathyaPriya, Prof/ECE	ECE	IEEE	2023	DOI:10.1109/ICCN T54827.2022. 99843 61
2	Classification of Diabetic disorder using Machine Learning Approaches	C.Shalini,AP/ECE	ECE	IEEE	2023	DOI: 10.1109/ICCPC5 597 8.2022.10072213
3.	Logistic Regression with Elliptical curve Cryptography to Establish secure IoT	Dr.S.Velmurugan, HOD/ECE	ECE	Computer System Science and Engineering	2023	DOI:10.32604/csse.2023.031605
4	Effect of Kariba Weed Biodiesel Blended within-Pentane on the Chosen Parameters of a Ceramic-Coated Thermal Barrier Direct Injection Diesel Engine	Dr.E. Sivakumar, HOD/MECH	MECH	ACS Omega	2023	2470-1343
5	Investigation of ceramic coating on operating characteristic of DI CI diesel engine fuelled with safflower methyl ester	Dr.E. Sivakumar, HOD/MECH	MECH	Materials Today Proceedings	2023	2214-7853

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6	Investigation of Effect of Tool Offset Position on Mechanical Properties Of Dissimilar Aluminium Alloy Sheets Joined By Friction Stir Welding	M.Prakash, AP/MECH	MECH	Materials Today Proceedings	2023	2214-7853
7	Effect of thermal barrier coating of piston on the performance of Diesel engine	Sathya moorthi S, AP/MECH	MECH	Materials Today Proceedings	2023	2214-7853
8	Growth, optical, dielectric and mechanical studies in ferroelectric bis(methyl ammonium) tetrachlorocadmate single Crystal	Ms.S.ANITHA,AP/PHY	PHYSICS	Ferroelectrics	2023	0015-0193

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Segmentation and classification of Gallstone in ultrasound images of gall bladder using Support Vector Machine

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Abstract— The gallbladder is a hollow organ located just below the right lobe of the liver. Gallstones form in the gallbladder, a small organ located below the liver. The gallbladder aids in the digestive process by storing bile and releasing it into the small intestine when food is ingested. In this work, spatially weighted fuzzy C Means clustering is used to automatically extract the gallstone from gall bladder image. A batch of 25 normal gallbladder ultrasound images and 75 gallstone images are used. Haralick texture features are used to classify normal and gallstone images. The sensitivity, specificity, and accuracy of the Support Vector Machine classifiers are 92%, 80% and 88.56%, respectively.

Keywords—Gallbladder, ultrasound image, Gallstone, Spatially Weighted Fuzzy C Means, Support Vector Machine

I. INTRODUCTION

In adults, the gallbladder measures approximately 8 centimetre in length and 4 centimetres in diameter when fully distended. The gallbladder has a capacity of about 100 millilitres. The gallbladder has the shape of a tapering sac, the open end of which opens into the gallbladder tree and cystic duct. Anatomically, the gallbladder is divided into three sections: Fundus, Body, and Throat. The main function of the gallbladder is to store bile, also called gall. The gallbladder is part of the biliary system and serves as a reservoir for bile produced by the liver. The neck tapers and is continuous with the cystic duct, part of the Bilary tree.

The main purpose of the gallbladder is to store bile, also called gall. The gallbladder is part of the bilary system and serves as a reservoir for bile, which is produced by the liver. The liver produces the bile and then it flows through the hepatic ducts into the gallbladder. At any one time, 30-60 millilitres of bile is stored within the gallbladder. Gallstones are the most common problem to affect the gallbladder. Gallstones generally form because the bile is saturated with either cholesterol or bilirubin. Only the minority of gallstones cause symptoms, and the majority of stones are passed along the bilary tree. Inflammation of the gallbladder is called cholecystitis. Most commonly, the inflammation is due to obstruction of the bile duct by gallstones, called cholelithiasis. Ultrasound examination is the first imaging technique used to diagnose gallbladder disease. Some of the gallbladder diseases are gallstone, biliary sludge, biliary polyps. Measurement of gallbladder wall thickness to diagnose cholecystitis. Ultrasound is the first imaging technique for the diagnosis of gallbladder disease. Some of the gall bladder diseases are Gall stone, Bilary sludge, Gall poly. Measurement of gall bladder wall thickness for the diagnosis of cholecystitis. Ultrasound is the initial imaging modality for diagnosing gallbladder disease. Figure 1 shows the structure of gallbladder.

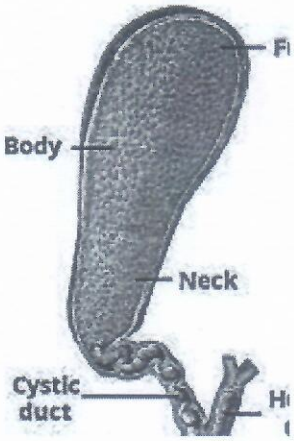

Fig. 1 Structure of Gallbladder

Ultrasound is the initial imaging modality for diagnosing gallbladder disease. Some of the gall bladder diseases are Gall stone, Bilary sludge, Gall poly. Measurement of gall bladder wall thickness for the diagnosis of cholecystitis. Ultrasound imaging is cheaper compared to MRI technique and it gives clear pictures of soft tissue. Ultrasound imaging is the best method to differentiate solid from cystic masses. Image segmentation is done to identify the boundary of gall

Classification of Diabetic Disorder using Machine Learning Approaches

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***Abstract*- Diabetes is a serious metabolic condition that can affect the entire body. Untreated diabetes raises the risk of heart stroke, diabetes, and other conditions. Millions of individuals are impacted by this disease around the globe. A chronic illness like diabetes may have an effect on world health. In Accordance to the International Diabetes Federation, 382 million people suffer from diabetes all over the world. This would increase to 592 million by 2035. High blood glucose levels cause diabetes, also referred to as diabetes mellitus. Numerous conventional methods based on physical and chemical investigations can be used to diagnose diabetes. Maintaining a healthy lifestyle requires early diabetes identification. Mechanical studies are a potential technique that can aid in early disease diagnosis and assist medical professionals in making diagnoses. Our goal is to use the Scikit-learn tool to develop a classification model that uses the KNN, MLP, SVM, RFC, and CART algorithms to predict diabetes.**

Keywords—Random Forest, KNN, SVM, Multi-Layer Perceptron, CART, Diabetes Mellitus.

I. Introduction

Worldwide, 415 million people have diabetes, a chronic non-communicable metabolic disease (NCD) that is expected to afflict 642 million people by the year 2040. India has the second-largest percentage of diabetes in the globe. Diabetes can develop when the pancreas generates insufficient amounts of insulin or when the body's immune system is not resistant to the insulin it produces. Diabetes has a negative impact on people's lives and finances. If diabetes individuals are not treated, it might result in heart disease, skin problems, and problems with vision. Machine learning has made significant advancements in the medical and healthcare fields during the past five years. owing to machine learning's effective operation, which is used in many real-time algorithms. Medical professionals must therefore recognize and make a diagnosis of the early phases of human peace.

II. Diabetes Classification

More than 200 million people worldwide are affected by Diabetes Mellitus (DM), one of the most prevalent endocrine illnesses. In the following years, it is anticipated that diabetes will become more common. There are various ways to categorize DM. According to the etiopathology of the condition, type 1 diabetes (T1D) and type 2 diabetes (T2D) are the two main clinical presentations. Type 2 diabetes (T2D), which is largely characterized by insulin resistance, affects 90% of diabetics. T2D is supposed to be mostly brought on by way of living, exercise, alimental choices, and hereditary, whereas T1D is believed to be brought on by autoimmunological destruction of the Langerhans islets harboring pancreatic cells. Around 10% of people with diabetes have T1D, and 10% of those people go on to develop idiopathic diabetes. Type 1 diabetes (T1D) and type 2 diabetes both have different etiopathology (T2D). According to the insulin secretion profile and/or onset, different kinds of DM include gestational diabetes, endocrinopathies, MODY (Maturity Onset Diabetes of the Young), and neonatal, mitochondrial, and neonatal diabetes. A few of the symptoms of DM include extreme weight loss, polydipsia, and polyuria. The diagnosis is impacted by blood sugar levels (fasting plasma glucose = 7.0 mmol/L).

III. Risk Factors for Type 1 Diabetes

Type 1 diabetes is an unclear exact etiology, but a variety of things could point to a higher risk, including Family history: If a parent or sibling has type 1 diabetes, the risk is enhanced. Environmental elements: Things like bacterial infections may have an impact on type 1 diabetes. An autoantibody test may be performed on family members of type 1 diabetics to check for the presence of immune system-damaging immune cells. Certain autoantibodies increase a person's risk of developing type 1 diabetes. But not all of these autoantibodies result in diabetes. Geographically, type 1 diabetes is a common disease in Finland and Sweden.

IV. Risk Factors for Type 2 Diabetes

Researchers are still trying to figure out why some people develop type 2 diabetes and pre-diabetes while others do not. However, it is evident that some circumstances raise the risk, such as:

Body weight: Their cells can handle insulin more effectively with the fattier tissue they have.

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Article

Logistic Regression with Elliptical Curve Cryptography to Establish Secure IoT

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Abstract: Nowadays, Wireless Sensor Network (WSN) is a modern technology with a wide range of applications and greatly attractive benefits, for example, self-governing, low expenditure on execution and data communication, long-term function, and unsupervised access to the network. The Internet of Things (IoT) is an attractive, exciting paradigm. By applying communication technologies in sensors and supervising features, WSNs have initiated communication between the IoT devices. Though IoT offers access to the highest amount of information collected through WSNs, it leads to privacy management problems. Hence, this paper provides a Logistic Regression machine learning with the Elliptical Curve Cryptography technique (LRECC) to establish a secure IoT structure for preventing, detecting, and mitigating threats. This approach uses the Elliptical Curve Cryptography (ECC) algorithm to generate and distribute security keys. ECC algorithm is a light weight key; thus, it minimizes the routing overhead. Furthermore, the Logistic Regression machine learning technique selects the transmitter based on intelligent results. The main application of this approach is smart cities. This approach provides continuing reliable routing paths with small overheads. In addition, route nodes cooperate with IoT, and it handles the resources proficiently and minimizes the 29.95% delay.

Keywords: Wireless sensor network; internet of things; security; elliptical curve cryptography; machine learning; regression analysis

1 Introduction

WSN is the leading technology necessary for the execution of the IoT structure. IoT's operational ability and energy established the network communication, cost-effectiveness, dependability, stability, and dynamic function [1]. IoT is talented naturally from the internet. The things associated with the internet differ significantly in terms of characteristics. IoT is promising as a dynamic cyber-physical network that

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Article

Effect of Kariba Weed Biodiesel Blended with *n*-Pentane on the Chosen Parameters of a Ceramic-Coated Thermal Barrier Direct Injection Diesel Engine

Elumalai Perumal Venkatesan,* Parthasarathy Murugesan, Sivakumar Ellappan, Silambarasan Rajendran, Abdul Aabid, Mohamed Abbas, Chanduveetil Ahamed Saleel, Pradeepkumar Arockiasamy Remigious, and Sreenivasa Reddy Medapati

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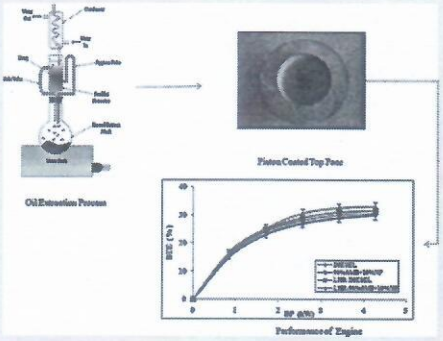
ABSTRACT: In this experimental investigation, Kariba weed biodiesel (KSB) blended with *n*-pentane has been tested in conventional and ceramic-coated thermal barrier engines, and the results have been compiled and presented. A single-cylinder, four-stroke, direct injection diesel engine has been used as the test engine with eddy current dynamometer loading as used in the experimental setup. The tests were repeated in various ambient conditions to get an optimal value. Ceramic coating has been done with partially stabilized zirconia by the plasma arc spraying process. Among the quantum of tests conducted, 90% KSB blended with 10% *n*-pentane showed appreciable results when it was compared with the test fuel (neat diesel). The brake thermal efficiency and brake-specific fuel consumption were found to be better when compared with neat diesel. At increasing load, unburnt hydrocarbon, carbon monoxide, and smoke opacity emissions were appreciably reduced.



■ INTRODUCTION

Tests on alternative fuel sources that are becoming incrementally more accessible have been sparked by the growing demand for energy and expanding discharge.[1] The majority of air pollution on the earth is spread by the subordinate consumption of gasoline. Air pollution, the oil consuming incidental impact, and all leaving animals are generally threats to children's prosperity and are key allies of discrimination.[2] In any event, there is a need to transition to sustainable power resources to meet the expanding demand for and overcome the greater lack of ecologically acceptable power sources. Biofuel would be an option later on because to initiate the discharge principles and the availability of gasoline oil in only a few areas around the world.[3] Biofuels have ethical, reasonable, and environmentally friendly behavior.[4] Analysts examine the value of using oil, which can reduce the cost of producing biodiesel, to make biofuel economically feasible.[57] The limitations of first-generation biofuels are overcome by second-generation biofuels. These are also referred to as olive-green fuel or cellulosic ethanol. They come from non-food yields such wood, waste from forests, waste from food crops, waste from vegetable oil, waste from industries, and ecological biomass crops. There is no doubt that using edible oil is not the ideal choice for a country with as much population as India. Non-edible oils can also be used externally for a number of purposes, including medicine, cosmetics, and light oil. As a result, the price and demand for biodiesel from plants that produce it for human use in any form will surely rise in the future. Additionally, limits with a high thickness are notorious for auto-oxidation, gum plan, and decreased engine determination.[7] Some plants are completely not used in any way, and their removal is not a serious problem like green growth. Full scale and Adityan et al. have taken measures to prevent the aforementioned problems with consumable and unsatisfactory yields.[8] The findings indicated a minor increase in express fuel consumption, poor brake power, and reduced unburnt hydrocarbon emission.[9] The consumption credits of diesel engines running on Spirulina sp. biodiesel and B15 blends were studied and revealed a 5.31% increase in chamber pressure and a 4.92% increase in heat discharge rate. The use of such lubricants in engines without modification will

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Investigation of ceramic coating on operating characteristic of DI CI diesel engine fuelled with safflower methyl ester

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ABSTRACT

As reliance on fossil fuel continued to rise, prices increased due to rapid deterioration in oil supplies and increased emissions, green energy sources such as alternative renewable fuels have been promoted. Biofuel is a compression ignition fuel substitute; It is also possible to enhance the CI biofuel-based engine's performance by transforming it into a low heat rejection engine (LHR). A CI engine's thermal efficiency can be improved with the LHR engine by reducing heat loss to the environment. In this investigation, a ceramic material (Partial Stabilized Zirconium) of approximately 0.5 mm was coated by the plasma spraying on piston crown.The effects of safflower methyl ester (SAME) in the LHR engine along with retarded timing (RT) is compared with the standard one engine in the present work. The results show that the LHR engine's Brake thermal efficiency was more than the standard one. The emission levels of CO and UBHC are lower on the LHR engine compared to the standard one.

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1. Introduction

Biodiesel is a renewable fuel made from plant and animal-based oils and fats, and it offers several advantages over traditional fossil fuels. However, several challenges need to be overcome for biodiesel to become a more widely used and sustainable fuel source. Some of these challenges include:Biodiesel production is dependent on the availability of feedstocks such as vegetable oils, animal fats, and waste cooking oil. Sufficient quantities of these raw materials are not always available, which can limit the scale of biodiesel production.Biodiesel production is currently more expensive than petroleum diesel, making it less competitive in the marketplace. This is due to factors such as the cost of feedstocks, the need for specialized processing equipment, and the lower energy content of biodiesel compared to petroleum diesel.Biodiesel requires specialized handling and storage to prevent degradation, making distribution and transportation more challenging and costly.Biodiesel has different properties than petroleum diesel, including a higher viscosity and lower energy content. These properties can affect engine performance and require adjustments in engines to function properly.There is a lack of consistent standards for biodiesel production, which can make it difficult for producers to meet regulatory requirements and for consumers to know the quality of the biodiesel they are purchasing.Despite its many benefits, biodiesel is not yet widely used, in part due to limited public awareness and understanding of the fuel. Increasing public education and awareness is crucial to promoting its wider adoption.Biodiesel production can also be hindered by technical challenges, such as the need to remove impurities and glycerol from the feedstock, and the challenge of ensuring consistent quality from batch to batch.

Researchers working on internal combustion engines often aim for energy preservation and efficiency [1]. The diesel engine produces typicallyenhanced fuel economy with petrol engine equivalent. Even the diesel engine refuses 2/3 of the fuel's heat energy, leaving a useful power output of remaining. In principle, if the heat was rejected, the thermal efficiencywould be increased, or at least until the limit laid down as perthermodynamics' second law. Low

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Investigation of effect of tool offset position on mechanical properties of dissimilar aluminium alloy sheets joined by friction stir welding

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ABSTRACT

Light alloys like aluminium, magnesium, and their composites can now be joined via friction stir welding to a great extent. In this work dissimilar aluminum alloy sheet AA2024 –AA7075 and AA6063-AA6069 were conducted using H13 high speed tool steel– Square tool pin profile.The tool parameter considered are 1600RPM,traverse 120 mm/min and four offset value as 0 mm,0.5 mm,1mm,and 1.5mmMechanical Properties like tensile strength hardness and bending strength were investigated using standard test procedure.It is clearly observed increase in offset value cause increase in tensile strength in the case of AA202 –AA7075 but insignificant changes observed in the case of AA6063 –AA6069. More hardness is observed in the weldment and comparatively lower value in the HAZ,lowest value in the base metal. Bending strength of the weldments are inferior than base metal, but among the bending strength of the weldments 1.5 mm offset produced better bending strength.

Selection and peer-review under responsibility of the scientific committee of the International Conference on Advancements in Materials and Manufacturing.

1. Introduction

Friction-stir welding (FSW) is a solid-state joining technique (metal is not melted) utilised in situations where the original metal's properties must, to the greatest extent possible, be preserved. It functions by mechanically mixing the two pieces of metal together at the joint, softening them, and then fusing them together under pressure, much like connecting clay, dough, or plasticine. The majority of the time, huge pieces that can't be easily heat treated post-weld to recover temper properties are employed in this procedure on aluminium. In December 1991, it was created and experimentally validated at The Welding Institute UK.

Light alloys like aluminium, magnesium, titanium, and their composites may now be weld much more easily thanks to friction stir welding (FSW). The enhancement in the tensile and fatigue strength of welds has been demonstrated using the very small grain size achieved by the technique, in the weld nugget, in conjunction with the high misorientation angle.

2. Working principle

As depicted in Fig. 1, a traversely fed cylindrical-shouldered tool with a profiled nib is continuously rotated and fed into a butt joint between two clamped pieces of butted material. The tool shoulder rides at the top of the work surface, and the nib is just a little bit shorter than the needed weld depth. The process two movements namely initial downward movement of tool outside the workpiece and lateral movement of the tool along the work piece.

Frictional heat is produced between the work parts and the wear-resistant welding components. The heat produced by the stirring action causes the materials to soften without melting, combined with heat from the mechanical mixing process and internal adiabatic heat. A unique design on the pin's leading face drives plasticized material to the back as it is advanced, where clamping force helps to forge the weld into place.

3. Objective of the study

The objective of the project work is as follows:

- To weld two dissimilar aluminium alloys

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Effect of thermal barrier coating of piston on the performance of diesel engine

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ABSTRACT

The principle reason for this Project is to break down the impact of clay covering on cylinder to work on the thermal proficiency alongside decrease in discharge of Engine. In this research, the outer layer of a cylinder in a diesel motor is covered with Zirconia material with profundity of 100 μm utilizing plasma-shower strategy. The temperature dispersion is in this manner broke down by Limited Component Examination strategy which is conveyed utilizing ANSYS. A trial work is led to identify the adjustment of motor qualities with the impact of practically reviewed covering material. The exploratory arrangement was developed and results were gotten for thermal effectiveness, Execution and discharges. The acquired outcomes were thought about among uncoated and Zirconia covered cylinder. Approvals between the trial and examination reports were made and the qualities were matched demonstrating the expected utilization of involving this task continuously situation. It likewise points in changing over a customary motor into a low intensity dismissal (LHR) Motor.

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1. Introduction

[1] In the event of Gas powered Motors, a large portion of the intensity created during burning cycle is consumed by cylinder. This is immediate intensity misfortune to the cylinder. This decreases Showed Power and in turns the presentation of Gas powered Motor. Motor covering with a ceramic thermal boundary can be applied to further develop dependability and strength of motor execution and productivity in diesel motors. In a customary diesel motor, around 30% of the all out energy is dismissed to the coolant and it was accounted for that the motor covering might be a decent arrangement. Principal benefits of the motor covering idea were, for example, further developed mileage, decreased hydrocarbon, smoke and carbon monoxide emanations, diminished clamor because of lower pace of tension ascent and high energy in the exhaust gases. The majority of the time, the plasma splash technique is used to apply thermal boundary coverings to the chamber head, cylinder, and valves. Additionally limiting the negative effects of wear, grinding, thermaling, erosion, and oxygenation are these parts being covered with artwork. It was likewise revealed in a hypothetical diesel cycle examination that more the intensity move diminishes, the less energy will be lost, in this way expanding the work yield and the thermal proficiency. In another review, with motor covering an expansion in motor power and decline in unambiguous fuel utilization, as well as critical decrease in fumes gas discharges and smoke thickness have been addressed in contrast with the uncoated motor. Utilizing the covered cylinder, the necessary temperature in the ignition chamber will be kept up with. This will lessen the intensity misfortune to the cylinder. This decrease in the intensity misfortune will be utilized to consume the unburnt gases there by lessening the contaminated exhaust gases.

Practically tested materials are highly sought-after due to their unmatched qualities, such as resistance to oxidation, disintegration, and consumption, as well as their high hardness, synthetic strength, and thermal strength at freezing and elevated heat. Due to these characteristics, they are useful for a variety of applications, such as Temperature Barrier Cover (TBC) on metallic substrates

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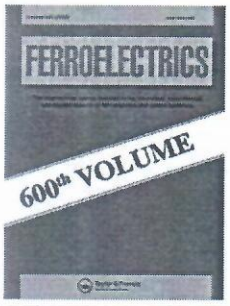

Ferroelectrics

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Growth, optical, dielectric and mechanical studies in ferroelectric bis(methyl ammonium) tetrachlorocadmate single crystal

S. Anitha, R. Priya, P.S. Latha Mageshwari & S. Jerome Das

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Academic Year 2021-2022

Number of papers published per teacher in the Journals notified on website during the year

S. NO	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number
1	A Novel Modulation and Multiplexing Scheme for Analysis of Wireless high speed optical fiber communication System	Dr.M.Sathya Priya, Prof/ECE	ECE	IEEE	2022	DOI: 10.1109/ICCPC5597 8.2022.10072213
2	RASPBERRY Pi Processor based I-Gloves for Mute Community for Home Automation System	Dr.M.Sathya Priya, Prof/ECE	ECE	IEEE	2022	DOI:10.32604/csse.2023.031605
3.	A Survey on Diabetic Retinopathy Diagnosis by Automated Detection of Microanerusysm	D.Mythily, AP/ECE	ECE	IEEE	2022	978-1-6654-9761-9/22@2022IEEE
4	Dielectric relaxation and optical properties in ferroelectric bis(methyl ammonium) tetra chloro zincate single crystal	Ms.S.ANITHA, AP/PHY	PHYSICS	Ferroelectrics	2022	0015-0193

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5	Prospective theoretical investigations of optical, dielectric, mechanical and third-order NLO property in potassium tri-hydrogen di-succinate single crystal	Ms.S.ANITHA,AP/PHY	PHYSICS	Chinese Journal of Physics	2022	0577-9073

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A Novel Modulation and Multiplexing Schemes for Analysis of Wireless High Speed Optical Fiber Communication System

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Abstract— **One of the basic needs of people is to communicate with each other. Many advanced communication schemes and devices have been designed to fulfill the requirement of the users. The invention of such advanced applications have led to huge increases in bandwidth. To meet the demands of bandwidth due to multiple users at the same time, various modulation and multiplexing schemes have been developed. Moreover, the designed fiber system must achieve the desired data rate that must have robust transmission and be cost efficient. This study's goal is to construct a full-duplex communication system using SMF and FSO (FSO). In places where cost of implementation becomes more or optical fiber is not applicable for laying, then the systems with FSO link are employed. With the use of pilot-assisted Coherent optical orthogonal frequency division multiplexing (CO-OFDM), Optic 16-QAM is utilized to boost data rate and transmit range. To improve the Figure of Merit (Fom) of a full duplex system, optical 16-QAM, 32 QAM, 64 QAM or 256 QAM has been used. The performance has been studied under various weather conditions. Numerous characteristics such as the Error Vector Magnitude (EVM), the Bit Error Rate (BER), the eye diagram, the optical signal to noise ratio, and the spectrum efficiency are measured and compared to traditional approaches.**

I. INTRODUCTION

In this era of modern communication, where there is abundant data usage by millions and millions of users, broadband networks have become faster than before. However, a limitless number of users at the same time results in a shortage of bandwidth, infrastructure, and other resources [1]. The main challenge faced by developing technologies is to meet the bandwidth requirement in a most cost-efficient way without much loss of data as well. So many schemes have been discussed in earlier papers. Various communication modes have been developed in recent years. The main motto behind all the types of communication is to increase the transmission fidelity, data rate, distance of transmission between the stations. All of the above demands could be achieved only by the use of Optical Fiber Communication.

Optical Fiber has several advantages over other modes of communication. The major reason to use optical fiber communication is that it meets the main requirement of high bit rate and longer transmission distance. Further these can be made higher by deploying multiplexing or modulation formats. Selection of the right modulation format plays an important role in achieving a high capacity, cost efficient Wavelength Division Multiplexing (WDM) network [2]. Choosing the modulation depends on various system parameters that mainly target channel interference rate, spectral efficiency, available per channel optical bandwidth, optical networking requirements, integration and power consumption [4].

To meet all the requirements, a full-duplex hybrid access link was proposed [5,6] with the use of optical 16-QAM that achieved a data rate of 10Gbps for both uplink and downlink. Advanced DSP systems have been designed to enhance the speed and to avoid signal distortion. To reduce the cost of transmission, you may keep base stations simple and execute network functions at the center station. Compensating for the high data rates and dealing with fiber communication limitations like attenuation and dispersion may also be accomplished via the use of complex modulation techniques. Differential Quaternary Phase Shift Keying (DQPSK) is utilized to provide direct detection even at large data rates. In order to avoid spectral congestion in lower frequency bands, mm-wave technology, which has a high data transmission rate, is employed. This system has been incorporated to design the DWDM system by incorporating some spectral components to carry higher bit rate.

The suggested method is able to boost optical communication system capacity and transmission distance by analyzing various modulations and multiplexing from many research papers. Full-duplex high-speed transceiver systems that meet bandwidth requirements and can communicate through fiber optics and FSO are the major focus of this research. Additionally, companies often choose a single carrier system since it delivers the desired data rate at a low cost and ensures reliable data transfer and also to design and analyze Radio over Fiber (RoF), coherent communication system and FSO link based on advanced modulation formats such as DQPSK, 16-QAM and multiplexing techniques like PDM, WDM, OFDM respectively and also to optimize the designed system implementing compensation technique for high speed, long distance and spectral efficient communication. The system's performance is assessed using simulation in terms of BER, EVM, eye diagram, and spectral efficiency [28] –[32].

Raspberry Pi Processor-based i-Gloves for Mute Community and Home Automation System

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Abstract – Communications plays the major role for sharing our thoughts and make others to understand our point of view. But the major difficulty faced by the deaf and dumb people is speaking and hearing illness. Dumb people use sign language to convey their thoughts but most of the people aren't know about the sign language which make them more difficult in sharing their thoughts. This research helps the deaf and dumb people to convey their thoughts without any difficulties. The aim of the research is to develop a cost efficient system to help the dumb people. In this project the sign language is converted into a text and voice over mechanism. The sign language gesture is analyzed using the flex sensor and then it gets converted into a text and voice. The output is displayed using the speaker. The data processing will be done using the processor. The gesture recognition will follow the principle of Hall Effect. This system helps the deaf and dumb people to get a chance to grow in their respective carrier and extended to home automation system.

Keywords--Gesture recognition, i-gloves, flex sensor, Raspberry Pi, Home Automation.

I. INTRODUCTION

India has 2.4 million dumb and deaf people, accounting for 20 percent of the world's dumb and deaf population. This individual lacks the basic necessities that a normal person should have. The main reason for this is a lack of communication, as deaf people can't hear and dumb people can't communicate. This declining ratio of literate and employed.dumb and deaf people is due to physical hearing impairment in deaf people and speech impairment in dumb people, resulting in a lack of communication between normal people and dumb and deaf people. It's the same difficulty as when two people speak two different languages and neither of them speaks the other's native tongue. It's difficult for them to communicate with each other, and they need a translation, which isn't always easy to get.To address this issue, one-of-a-kind applications were developed. This application model is a desired Interpreter that converts natural English sentences as text input for a deaf person and sign language in the form of a dumb person's gesture to synthesized English words with a corresponding meaning in sign language as an audio output for a normal person. By bridging the communication gap, this will help both normal and deaf and dumb civilizations.

The major goal of the proposed work is to create a cost-effective system that uses i-Gloves to provide voice to the silent. It means that when a deaf person uses i-Glove, they are able to communicate with others, bridging the gap between disabled and non-disabled people. This strategy can be used to solve problems that deaf people have in the workplace. As a result, an intelligent microcontroller-based system employing Flex sensors was built in the proposed study.

II. REVIEW ON SMART GLOVE

[1]Have proposed a smart glove for physically challenged people to use for remote control. The creation of a smart glove that allows a physically challenged person to execute simple tasks such as turning on a light, turning on a fan, ringing an emergency alert, and so on. These actions can be carried out by making a basic gesture such as folding a finger and mapping the movements to the appropriate action. The device is simple to use and can be adopted by anyone to assist patients. Because of the RF transmission employed, the range of functioning is currently limited. The transmission range can be extended by using Zigbee.

[2] Described a Wrist Ambulatory Monitoring System and Smart Glove for Real-Time Emotional, Sensorial, and Physiological Analysis. The Modular Autonomous Recorder Device for Autonomic Nervous System Measurement is a wrist-worn ambulatory monitoring and recording system that incorporates a smart glove with sensors for autonomic nervous system activity detection. The system consists of a "smart tee shirt," a "smart glove," a wrist device, and a data-capturing PC. The smart glove is one of Modular Autonomous Recorder Device most crucial features.

When the athlete's hands and the workout environment are in direct contact,[3] have introduced a smart glove that can

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A Survey on Diabetic Retinopathy Diagnosis by Automated Detection of Microaneurysm

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Abstract- Chronic hyperglycemia is caused by diabetes, which causes a chain reaction of molecular processes that results in microvascular damage. Microvascular problems like diabetic retinopathy are the leading cause of diabetic blindness. A person with chronic hyperglycemia must have regular eye exams to ensure they are not developing any eye problems. When diabetes is poorly managed, the retinal vasculature is affected by metabolic changes and altered hemodynamics, resulting in persistent hypoxia. Because the retina is a metabolically active tissue that requires adequate oxygenation, efforts are being made to combat retinal hypoxia via mechanisms such as the overexpression of the VEGF protein. In the end, the pathological processes of NPDR: retinal capillary microaneurysms, vascular permeability, and capillary closure, are the outcome of these fruitless attempts. Here, we have summarized some of the most recent published research on Diabetic Retinopathy Diagnosis by Automated Detection of Microaneurysm (DRD).

Keywords— Diabetic Retinopathy (DR), Microaneurysm (MA), Digital fundus image, Nonproliferative diabetic retinopathy (NPDR) and proliferative diabetic retinopathy (PDR)

INTRODUCTION

I. This eye illness, known as Diabetic Retinopathy, is a set of abnormalities detected in the retina of people with diabetes for more than twenty years. This is due to an unbalanced or unmonitored glucose levels in individuals, which causes the blood vessels of them to ruptured or blocked in the retina. These little blockages or bulging of the blood vessels are called microaneurysms (MA) as shown Fig 1. When the DR is undetected, in due course of time the MA may burst or spill liquids or blood over the retinal cells, which causes vision block. Vision loss in part or full occurs since the retina contains light sensitive cells which are blocked by the spillover of liquids or blood due to the leakage or burst of the MAs. Individuals who have diabetes may not realize they have diabetes until their retinopathy (DR) has progressed to the severe stage [1]. If the DR is untreated then partial or complete vision loss is inevitable.

Clinical signs of DR can be diagnosed by detecting the presence of MAs. By carefully examining the statistical and morphological characteristics of MAs, the Stage of DR is determined by the ophthalmologists. NPDR is the earliest stage of DRs with signs of MAs, and when the MAs do not spill over or burst, this is known as the "early stage of DRs with signs of MAs," and as this stage progresses, new fragile or weak blood vessels begin to grow to replace the damaged blood vessels, which is more dangerous than the leaking weak blood vessels"[2]. Because the newly grown blood vessels are not properly grown and are vulnerable to leak blood. It's called Proliferative Diabetic Retinopathy (PDR), an advanced stage of diabetic retinopathy that may cause irreversible visual loss and make treatment more challenging. This paper reviews some of the latest previous works on the diagnosis of DR by detecting the presence and severity of the lesion microaneurysm (MA). We reviewed these previous works by examining the following parameters [3] such as (1.) Retinal Image Databases used, (2.) Diagnosis of the part of Retina, (3.) Segmentation Algorithms Used, (4.) Classification Algorithms Used, (5.) Results Obtained in terms of Sensitivity (Se), Specificity (Sp), Accuracy (Ac), and (6.) Optimization Algorithms used.

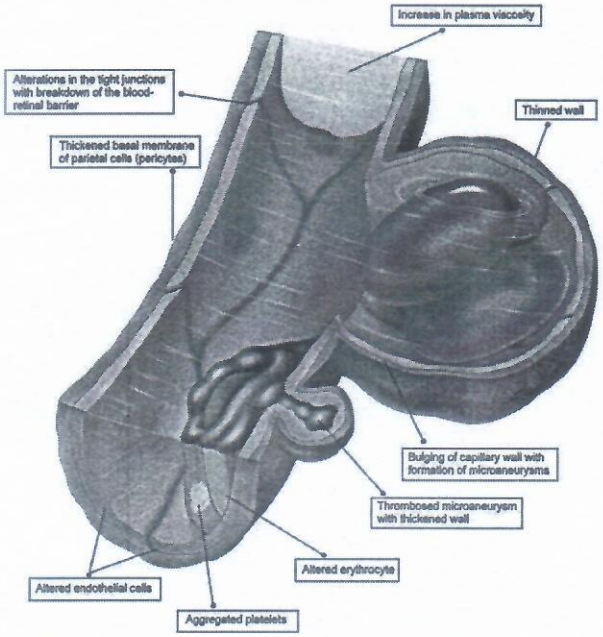

Fig 1. Development of a Microaneurysm (Adapted from Diabetic Retinopathy, Bruno Lumbroso et al, 2015, Jaypee Brothers Medical Publisher)

II. Literatures Reviewed

More than 592 million people will be diagnosed with type 2 diabetes by 2035, according to Diana Veiga, Nelson Martins, and their colleagues. [4] The kidneys, eyes, peripheral nerve system, and vascular system are the most often affected tissues by diabetes mellitus (DM). Microaneurysms, one of the first symptoms of diabetic retinopathy, are the subject of this study (MAs). Changes in capillary walls produced by high glucose levels in the blood generate these red, circular patches of varying diameters.Even in more late phases, when a patient's MA count and distribution are important for assessing a treatment's effectiveness, early identification is critical for implementing therapeutic interventions that slow or stop the illness from progressing.

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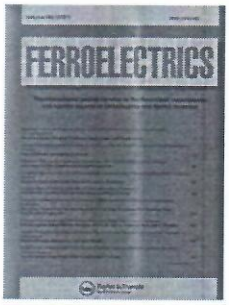

Ferroelectrics

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Dielectric relaxation and optical propeties in ferroelectric bis(methylammonium) tetrachloro zincate single crystal

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Dielectric relaxation and optical propeties in ferroelectric bis(methylammonium) tetrachloro zincate single crystal

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ABSTRACT

Bis (Methylammonium) tetrachlorozincate [MAC-Zn] is a well-known ferroelectric crystal. The crystal was synthesized by slow evaporation technique at room temperature. The grown crystal when subjected to single crystal X – Ray diffraction reveals that it belongs to monoclinic system. Dielectric properties, impedance spectroscopy and optical properties were analyzed. The variation of dielectric constant, dielectric loss, real and imaginary part of dielectric modulus were explored at different temperatures and frequencies. The yielded crystal exhibits Debye – type relaxation behavior and Correlation Barrier Hopping (CBH) conduction mechanism. The Debye phonon frequency and Debye temperature were calculated using dielectric studies. The resistance of the MAC-Zn crystal was determined using impedance spectroscopy. The theoretical calculation of optical transmittance, reflectance, refractive index, electrical conductivity, optical conductivity, electrical susceptibility and optical polarizability were calculated using optical studies and the results were discussed elaborately.

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KEYWORDS
Dielectric study; impedance spectroscopy; activation energy; CBH model; optical constants

1. Introduction

The static and dynamic properties of relaxor ferroelectrics (RFE or relaxors) have fascinated interest in recent years, not only because of their peculiar physical properties, but also because of their promising technical applications in piezoelectric devices and microelectronics. The existence of polar nanoclusters above and below the temperature of maximum permittivity is linked to physical properties. The majority of RFEs with possible piezoelectric applications are lead-based perovskites, but there is a growing need for more environmentally safe lead-free compounds, and an overview of RFEs was recently published [1–3]. Relaxor behavior in ferroelectrics is caused by frustration or compositionally induced disorder [4]. In general, the relaxor properties of perovskite structures are due to the above category of disorder and associated random fields. One of the most common properties of methylammonium cation compounds is dielectric relaxation [5–9].

Bis-alkylammonium zinc chlorides (C_nZn) are a broad class of structurally incompatible phases with the general formula $(C_nH_{2n+1}NH_3)_2\ MX_4$ that have been studied

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Prospective theoretical investigations of optical, dielectric, mechanical and third-order NLO property in potassium tri-hydrogen di-succinate single crystal

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ARTICLE INFO

Keywords:
Urbach energy
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Photoconductivity
Photoacoustic study
Z-scan

ABSTRACT

A propitious third-order nonlinear optical crystal potassium tri-hydrogen di-succinate (PTHS) ($C_8H_{11}O_8K$) is grown by conventional slow evaporation technique maintained at 303 K. Single crystal XRD analysis (SXRD) evidences the grown crystal pertain to centrosymmetric space group $P2_1/c$ with monoclinic crystal system and powder X-ray diffraction (PXRD) confirms the purity of the grown crystal. The existence of various functional groups was assessed by Fourier transform infrared (FTIR) spectral analysis and the optical absorption study authenticates to the transparency in the visible region. ICP-OES study substantiates the prevalence of alkali metal potassium. Interestingly, the Urbach energy of the grown crystal is explored to be minimum proving the good crystalline nature of the yielded crystal. The various optical constants were calculated in detail. The optical band gap was used to determine the position of the valence band (E_v) and conduction band (E_c) and the Wemple-Di-Domenico single oscillator method was used to find the different dispersive parameters. In dielectric, the various solid state parameters including electronic polarizability were calculated with different formulas and the value was proved to be higher than that of KDP. To determine the mechanical stability, Vickers microhardness test was carried out and their indentation size effect was elucidated by using different models. The crystal exhibits negative photoconductivity. By using photo acoustic study, the thermal diffusivity value is 1.25 times greater than standard KDP, signifying that the harvested crystal is remarkable material for nonlinear optical applications. In brief, the real and imaginary parts are reviewed by Z-scan technique and the susceptibility was compared with other single crystals.

1. Introduction

In the recent scientific era investigation on nonlinear optical (NLO) crystals and the prompt advancement in photonics, biophotonics and optoelectronics fields have provoked scientists, fresh and beginning researchers to scrutinize on many novel

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Academic Year 2020-2021

Number of papers published per teacher in the Journals notified on website during the year

S. NO	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number
1	Exploration on transport process of optically active third-order nonlinear disodium succinate hexahydrate (b phase) single crystals encompassing Self-focusing nature	Ms.S.Anitha, AP/Physics	Physics	J Mater Sci: Mater Electron)	2020	doi.org/10.1007/s10854-020-04641-8

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J Mater Sci: Mater Electron

Exploration on transport process of optically active third-order nonlinear disodium succinate hexahydrate (β phase) single crystals encompassing Self-focusing nature

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ABSTRACT

Disodium succinate hexahydrate ($Na_2C_4H_4O_4.6H_2O$) (DSSH) (β phase), an optically active third-order nonlinear single crystal encompassing self-focusing nature, has been harvested by the solvent evaporation technique at ambient temperature. Single-crystal XRD study authenticates DSSH (β phase) has centrosymmetric monoclinic crystal structure. To measure the optical transmittance, the sample of around 1 mm thickness has been exploited in the wavelength region between 200 and 900 nm and the cutoff wavelength substantiated as 296 nm. The optical transparency of the sample in the visible region is quite excellent and the theoretical calculation of optical constant, for instance reflectance, refractive index, electrical, optical conductivities, and electrical susceptibility, was computed. Moreover, the single-crystal quality, purity, and structural defect were corroborated using Urbach energy. The refractive index value is lower compared to the KDP crystal and the harvested crystal is most suited for solar thermal device applications. The optical conductivity for lower photon energies is seem to be minimum; on the other hand, it increases with increasing photon energies, conversely, the electrical conductivity decreases with a rise in photon energy. The activation energy is intended to be 0.0259 eV for frequency 2 M Hz and the lower value of activation energy divulges that the crystal retains lesser defects. In addition, AC and DC conductivity were measured at various temperatures using dielectric study data at different frequencies, and the results were deliberated in detail. The variation of the power law exponent 's' with temperature discloses that the AC conductivity is controlled by the Correlated Barrier Hopping (CBH) conduction mechanism.

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Academic Year 2019-2020

Number of papers published per teacher in the Journals notified on website during the year

S. NO	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number
1.	Demand Response Program with Different Elasticities	Mr.I.Arul Doss Adaikalam,AP/EEE	EEE	IJST	2019	10.1007/s40998-019-00299-z
2	An IOT based Smart Irrigation System Using Soil Moisture and Weather Prediction	Dr. S. Velmurugan, Prof & Head,V.Balaji, T. Manoj Bharathi, K. Saravanan	ECE	(IJERT)	2020	ISSN: 2278-0181
3	Last Mile Delivery by Drone	Dr. S. Velmurugan/ Prof & Head,K Gayathri, P. Praseetha, D. Priyadarshini, M. Chithra	ECE	(IJERT)	2020	ISSN: 2278-0181
4	An Enhanced Privacy Preserving Techniques for Asynchronous Streaming Data Mining in Distributed Environment	Dr. S. Velmurugan/ Prof & Head	ECE	(IJERT)	2020	ISSN: 2278-0181
5	Smart Parking Management System and Traffic Reduction in Parking Slots Using IoT	Dr. M. Sathyapriya/Prof , S. Jansirani, G. Jeevanasaipriya, L. Yuvashree, D. Ganga	ECE	(IJERT)	2020	ISSN: 2278-0181
6	Smart Stretcher and Integrated Medical Intelligence Systems for Unconscious Person	Dr. M. Sathyapriya/ Prof, G. Lokesh Kumar, B. Surendra Kumar.,	ECE	(IJERT)	2020	ISSN: 2278-0181

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		Venkateswarlu Katta				
7	An RFID based Smart LogisticsManagement System forMonitoring Perishable GoodsUsing Internet of Things	Ms. D. Mythily/Assoc. Prof,A. Ajin Anto, C. Arun Kumar, R.S. Naveen Kumar, B. Vignesh	ECE	(IJERT)	2020	ISSN: 2278-0181
8	IOT based Fisherman Border Alert and Weather Alert Security System	Ms. D. Mythily/ Assoc. Prof,R. Helan Renila, T. Keerthana, S. Hamaravathi, P. Preethi	ECE	(IJERT)	2020	ISSN: 2278-0181
9	Automatic Landmine Detection using Robot	M. Mary Grace Neela		(IJERT)	2020	ISSN: 2278-0181
10	Advanced Women Safety System using IBEACON Technology	Mrs. C. Shalini, AP, D. Shanthi, S. Kavitha, P. V. Keerthi, D. Sharmila	ECE	(IJERT)	2020	ISSN: 2278-0181
11	Medical Prescription Writing Robot	Ms. G. Bhavani/AP V.M. Bargav, B. Praveen Kumar, H. Shriram., B. Sathyaprabhu	ECE	(IJERT)	2020	ISSN: 2278-0181
12	Design of an Internet of Things Approach for Industrial Pollution Monitoring	Mr. V. Saravana Perumal/AP, P. Sathya, E. Rajesh Kumar, A. Mohamed Parvez	ECE	(IJERT)	2020	ISSN: 2278-0181
13	An IoT based Bank Locker Security System	Assistant Professor	ECE	(IJERT)	2020	ISSN: 2278-0181
14	An Evaluation on Game Theory Problem of RSSI Localization	Mr.S.Satheesh /Maths	Mathematics	International Journal of Innovative		

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	Technique in Wireless Sensor Networks			Technology and Exploring Engineering(IJITEE)	2020	2278-3075

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An Evaluation on Game Theory Problem of RSSI Localization Technique in Wireless Sensor Networks

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Abstract: ***The most interesting and challenging research areas in WSNs are routing protocol based on RSSI localization technique in wireless sensor networks. Get-up-and-go safeguarding is the most important experiment for WSNs and make the most of the energy efficiently during routing is an essential requirement and is a demanding task for all other research areas in WSNs. Enhancing the lifespan of the network be contingent on game theory based on RSSI localization technique in wireless sensor networks are the foremost purposes in Machiavellian WSNs since the course-plotting up for theory based on RSSI sensor nodes are battery operated and cannot be replenished or recharged frequently. Here game theory based on RSSI localization for increasing the Wireless Sensor Network life-time using Ant Colony Optimization metaheuristics.***

Key words: Game theory, RSSI, Wireless Sensor Network

I. INTRODUCTION

Take aim at the some degree of energy somatic physical appearance of wireless sensor networks, we apply to up for theory constructed on RSSI localization modus operandi to solve the power control problem to reduce energy feeding in wireless sensor networks. In this paper, a distributed game theory based on RSSI localization technique in wireless sensor networks power control set of rules of game theory based on RSSI localization technique in wireless sensor networks under incomplete information is proposed which adopts signal-to-interference noise ratio (SNIR) as a utility function. The purpose of game theory based on RSSI localization technique in wireless sensor networks is to achieve the principal utility by an optimum supremacy control organization, thus progress the total linkage energy good organization. Moreover, Bayesian Nash equipoise statement is acquaint with to study the way of life and distinctiveness proof of Nash equipoise set of rules virtual reality domino effect indication that there exist arguments for each one of the cost occupations well thought-out which give the thoroughgoing net utility given the line of attack are taken by all other nodules as fixed. And the recommended set of rules · well-organized and accomplish better presentation.

Revised Manuscript Received on October 05, 2019.

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V.Vinoba, HOD &Assistant Professor of Mathematics, K.N. Government Arts College for Women, Thanjavur

II. COLLECTION ESTABLISHED ON RSSI LOCALIZATION

Collection established localization typically consist of the succeeding stepladders:

• Step 1a

Collection capacity (Locus node within communiqué assortment of conventional node) Every single conventional nodule educated guesses its remoteness from each situation nodule by means of the succeeding ways and means:

Received Signal Strength Indicator (RSSI)

Every single too every one conventional nodule regulates its remoteness beginning a situation nodule by computing the Time-honoured Warning sign Strong suit and paralleling it with a collection hooked on signal diminution perfect. On the other hand, it is problematic to complete truthful alternating when multipath and private detective disappearing personal possessions exist (Burdic, 2002). In the meantime the path forfeiture in take advantage of set-up lifetime auditory frequencies is habitually time-varying and multipath end product jerry can end result in substantial get-up-and-go disappearing, the RSSI technique is the most important choice for take advantage of up for theory linkage lifespan localization.

Interval Transformation of Arrival (IToA)

For rainy-day localization, the ItoA modus operandi make the most of the time transformation sandwiched between two fold poles apart communication methods, to be exact, radio set communication and auditory conduction, to gauge the remoteness sandwiched between bits and pieces (Gu et al., 2006). Constructed on the two fold time-honoured signaling, the remoteness to the bringer can be single-minded. However, it is suitable for take advantage of game theory set-up life span localization because walkie-talkie does not promulgate well in mass and energy. On the other hand, the interval difference of appearance between symbol of hope from poles apart location nodes transferred using auditory signalling can be used in take advantage of game theory set-up lifetime localization, e.g., in Chenget al. (2008).

Time of Arrival (ToA)

The Time of Arrival (ToA) manner carries out alternating the up for philosophy constructed on the association among communication interval, speediness and detachment. Most suggested range-based take advantage of up for theory linkage lifespan localization organisations routine this

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Academic Year 2018-2019

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S.NO	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number
1	Magnetic Levitation Building Preventing from Earthquake	S. Jeya Anusuya	ECE	IJIRSET	2019	ISSN(Online): 2319-8753
2	Advanced Accident Detection Using NFC Technology	Pavaiyarkarasi R,	ECE	IJIRSET	2019	ISSN(Online): 2319-8753
3	A Novel Methodology for Authentication and Car Security Using Image Processing	Venkat S,	ECE	IJIRSET	2019	ISSN(Online): 2319-8753
4	Smart Indoor and Outdoor Guiding System for Blind	S. Jeya Anusuya	ECE	IJIRSET	2019	ISSN(Online): 2319-8753
5	Traffic Sign Detection to Avoid Accidents by Using Image Processing & Raspberry Pi	Edward Paulraj J	ECE	IJIRSET	2019	ISSN(Online): 2319-8753
6	Detection and Recognition of Vehicle Using Neural Networks	Edward Paulraj J	ECE	IJIRSET	2019	ISSN(Online): 2319-8753
7	Boiler Critical Parameters Control	M.Mary Grace Neela	ECE	IJIRSET	2019	ISSN(Online): 2319-8753
8	Simulation Analysis of 2D Filtering by Using Radix-3 Multiplier Less Stream Processor	M.Mary Grace Neela	ECE	IJIRSET	2019	ISSN(Online): 2319-8753
9	Performance Improvement of Low Power and Fast Full Adder by Exploring New XOR and XNOR Gates	S.V.Sathyah	ECE	IJIRSET	2019	ISSN(Online): 2319-8753

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10	Trolley System Using RFID Technology	Shalini.C	ECE	IJIRSET	2019	ISSN(Online): 2319-8753
11	Missile Burst Prevention and Tracking System Using Image Processing In MATLAB	Saravanaperumal V	ECE	IJIRSET	2019	ISSN(Online): 2319-8753
12	Rail Robot-Unmanned Automatic Track Cleaning Robot	G.Bhavani	ECE	IJIRSET	2019	ISSN(Online): 2319-8753
13	Distance Measurement Model Based on RSSI Localization Technique in Wireless Sensor Networks	S.Satheesh, AP/MATHS	Mathematics	International Journal of Mathematical Archive	2019	2229–5046

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Magnetic Levitation Building Preventing from Earthquake

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ABSTRACT: Earthquakes are unprecedented natural calamities that can cause negative effects on both our properties and lives An earthquake (also known as a quake, tremor or temblor) is the shaking of the surface of the Earth, resulting from the sudden release of energy in the Earth's lithosphere that creates seismic waves. The earthquakes can wipe out many buildings in a same place with its effects on ground. The mankind has faced many challenges in its evolution. This little play of mother earth is also to make us smart to understand her. Our project deals with the magnetic levitation effect to save building at the times of earthquakes.

I. INTRODUCTION

EARTHQUAKES, which often cause serious casualties and property damage are considered major disasters since they can destroy buildings and greatly affect human lives and environments.

An earthquake causes random movements of the ground, in all possible directions emanating from the epicentre. It is always accompanied by a horizontal vibration of the ground. The vibration of the soil vibrates the structures that rest on the ground, developing forces of inertia in the structure. As the earthquake changes direction, it can cause stress reversal in the structural components, that is, tension changes to compression and vice versa. An earthquake can generate large stresses, which can lead to large deformations, cracks and drifts, making the structure is not functional and unusable. The social, structural and economic damages caused due to an earthquake can be vastly reduced by preparing for such a calamity since earthquakes are almost unpredictable. From the engineering point of view, to prevent loss of life and property damages due to earthquakes, buildings are to be designed as earthquake resistant structures. In conventional systems, seismic energy is dissipated using inelastic mechanism s like flexural and shear hinging of elements like beams, columns and walls, axial tension yielding, brace buckling etc.

A consensus has been reached that more than 90% of all earthquake casualties are caused by the collapse of buildings. Therefore, studies on the impact of earthquakes on buildings have continued; these studies have focused on topics such as earthquake risk assessment of buildings post-earthquake building damage assessment and collapse prevention of buildings.

At present, the structures and facilities in most countries, including China, are mostly composed of concrete since it boasts a wide range of composite materials, low cost, high compressive strength, fire resistance, resistance to weathering, and low maintenance cost. However, its tensile strength is poor and consequently cracks easily. Surface cracks on buildings represent the accumulation of damage during normal us e, but they are also external manifestations of a certain degree of danger. The characteristics of fractures reflect the current working and structural status of the building facility. That is, if the value of a structural fracture on a building exceeds the safety threshold, it will not only

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Advanced Accident Detection Using NFC Technology

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ABSTRACT: With the increase of vehicles in today's world, fatalities occurring has attained its peak with more death rates. To reduce the recovery time and emergency personnel arrives, and to make mandatory use of license we propose a system that includes more detailed instant services to notify the injuries. Locating the exact incident may be a challenging task, but using GPS integrated with an embedded license has made it possible to reach out to the position, which has extended along with a profile of the user like name, blood group, license number, emergency number. This proposed system helps to alert the emerging requirements after an accident (like police stations and ambulance) service through GSM including the user condition with regard to extremity. In this project, we use NFC (Near-Field Communication). The NFC tag would be compulsorily placed in all vehicles. Also heart beat sensor is placed in the vehicle to detect the driver status during accidents. GSM and GPS sensors are also integrated along with the vehicle kit. We have placed flux sensor to detect major accident. Once the accident is been detected, the heart beat rate along with NFC tag details and current location is been uploaded in a cloud server using Internet of Things (IoT). Also alert message is been sent to the police stations and ambulance. Also to prevent accidents and rash driving, 3 times if the flux sensor is slightly triggered the NFC tag would be disabled. Since we embed and upload the driver license number in the tag, it would be seen by the government officials and respective actions would be taken.

KEYWORDS: Raspberry pi3, NFC, Internet of things, Element, Climate Notification, python.

I. INTRODUCTION

An embedded system is a combination of software and hardware to perform a dedicated task. Some of the main devices used in embedded products are Microprocessors and Microcontrollers. Microprocessors are commonly referred to as general purpose processors as they simply accept the inputs, process it and give the output. In contrast, a microcontroller not only accepts the data as inputs but also manipulates it, interfaces the data with various devices, controls the data and thus finally gives the result. NFC cards have brought a revolution in how industry takes care of large number of products. Either it has products in shopping mall, vehicles in an assembly line of a manufacturing unit or employee attendance etc., NFC card is nothing but a small electronic device either actively or passively functioned.

One of the key elements of NFC, near field communications technology is the ability for NFC enabled devices to be able to be touched onto passive "NFC tags." This facility of NFC technology is a key enabler for many applications. The NFC tags are now being manufactured in vary large volumes and they are being deployed in a number of areas of the world. Already many millions have been deployed and as NFC gains further momentum, tags

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A Novel Methodology for Authentication and Car Security Using Image Processing

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ABSTRACT: In the modern world the roadway communication has become the major part in the transportation. In these days usage of car transportation has become high and also the car theft and the drivers without license has become the major concern in our country. In the statistics 2017, motor vehicle theft rate for India was 13 cases per 100,000 population. Motor vehicle theft rate of India increased from 7.2 cases per 100,000 population in 2004 to 17 cases per 100,000 population in 2017 growing at an average annual rate of 6.95 %. And in addition to that rate of drivers driving the car without license results in the deaths of the innocent people. Out of the 5 lakh odd accidents across the country, close to 4 lakh of them involved people with a regular license while the rest involved those with a learner's license or without a license. In other words, 1 out of every 5 accidents involved those without a regular license. Out of the accidents that involved persons without a license, 25% occurred in Madhya Pradesh and 17% in Uttar Pradesh. So, the government has no advanced technique to stop the car theft and the drivers without the license which was going to overcome by our proposed project.

KEYWORDS: RFID Tags, RFID Readers, Sensors, Camera, Microcontroller ,Image Processing

I.INTRODUCTION

In the proposed system we are overcoming the major drawback by using fully automated mechanism. In our project we are using the IR sensor which will detect the whether the person is sitting on the driver seat and the details will be sent the microcontroller and if the IR sensor detects the person then he has insert the key the user has to keep the RFID tag in the RFID reader and in that the driver's license details is fed in that and it reads the details of the driver and send the details to the microcontroller through the ZIGBEE module. From the microcontroller the command will be send to the camera and it will capture the iris of the driver and then the captured iris will be compared with the iris that fed in the RFID tag. If both the details are matched then the car mechanism will turn ON the car and if the details doesn't match then there will be a buzzer which will give the alarm. By this setup we can check the driver license. Addition to this setup we are adding checking mechanism in which there will be a checking lane in the road which will check the crossing car detail and also the detail of the driver through the ZIGBEE module and it will be uploaded in the server through the IOT module. And if the IR sensor didn't sense the presence of person then the details will be sent to the microcontroller and from there car will be immediately turned off by the help of motor mechanism. From that we are able to catch the car theft and the driver without license which will reduce the rate of accidents.

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Smart Indoor and Outdoor Guiding System for Blind

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ABSTRACT: This paper presents a smart system for visually impaired, that makes use of ultrasonic sensor and camera. The main aim of this work is to design a voice based alerting system for the blind people. Visually impaired individuals find navigation difficult as they struggle everyday in performing actions for bypassing obstacles and hurdles in their path. In order to help blind people navigate safely and quickly this system is proposed. Ultrasonic sensor is placed on the spectacle which is used for obstacle detection with distance indication. The camera is used to detect the object in front of the blind people and alert them using APR voice module. This system prevents the blind people accidents and identifies the object in front of them.

I.INTRODUCTION

The visually impaired people usually have difficulties in walking in an unfamiliar and complex place independently. To provide them an automatic navigation device with effective guidance on their move, three problems should be considered:

1. Where is the person? The device has to know where the person is located in order to make a correct decision for guiding the person. This refers to be the localization problem.

2. Where does the person want to go? In order to help the visually impaired person reach his destination, the device has to identify the destination. This is known as goal recognition.

3. How does the person get there? This includes way-finding, route following and obstacle detecting. Way finding is to plan a shortest path from the starting position to the destination, route following is to make sure the blind person follow the planned path and obstacle detecting is to help him avoid obstacles.

So far, there are many navigation systems trying to solve the above problems, such as the low-cost white cane, guide dog and ETAs (Electronic Travel Aids). However, white cane is unable to find a globally shortest path and provide the location information. Guide dog is incapable of detecting overhanging object, and needs costly training, which may be unaffordable to the visually impaired individuals. Most existing ETAs are only intended for obstacle detecting or/and feedback, and cannot provide way-finding and route following functions. Although some ETAs were designed with way-finding and route following functions, such as the cactus tree based algorithm, obstacle (especially the dynamic

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Traffic Sign Detection to Avoid Accidents by Using Image Processing & Raspberry Pi

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ABSTRACT: At present situation the human beings are faced many accidents during the road ways transportation. At the same time they lose our life and valuable properties inthose accidents. To avoid these problems the system designed with the help of Raspberry pi. The Digital image processing plays important role in the sign capturing and detection system. The image processing algorithms to takes the necessary action for resizing the captured signs.The objective of the proposed work is to implement the available technique to detect the obstacles,Edge detection, stop board and red traffic signal for an autonomous car that takes action according to traffic signal with the help ofraspberry pi3 board. The system also uses ultrasonic sensor for distance measurement for the purpose of speed control of vehicle to avoid collision with ahead vehicle. Raspica meramodule is used for signboard detection and ultrasonic sensors are used to get the distance information from the real world. The proposed system will get the image of the real world from the camera and then maskingandcontourtechniquesareusedtodetecttheredsignals of the traffic and To determine the traffic board signs like stop board system will use Machine learning technique to determine the stop words. So vehicles will be able to take action and reduces the chances of human errors like driver mistakes that results road accidents. The coding for this whole system is in python and for image processing open cv is used that is much efficient as compare to the matlab.Ultrasonic sensor is used for the obstacle detection in place of camera because distance finding from the camera is more complex and computational as compare to the ultrasonic sensor. Ultrasonic sensor directly gives the obstacle distance infront of it without more complex computations.

KEYWORDS: Raspberry pi3, traffic signal detection, Obstacle detection, Edge detection, Climate Notification, python.

I. INTRODUCTION

Every person, whether a passenger, driver, pedestrian would have noticed along the roadside various sign board that serve important purposes. These important road paraphernalia help us as route guides, warnings and traffic regulators. As control devices for traffic, signs need full attention, respect and appropriate driver's response. With the advent of motorized traffic and its increasing pressure on road, many have adopted pictorial signs and standardized their signs to facilitate interna- tionaltravel,wherelanguagedifferenceswouldcreatebarriers. In adverse traffic conditions, the driver may not notice traffic signs, which may cause accidents. In such scenarios, automatic road sign detection comes into effect.

The main objective of proposed system is to detect the road sign automatically while driving and control the speed or makes the turn according to that Road sign. Road sign recognition is used to warn the distracted driver, and prevent

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Detection and Recognition of Vehicle Using Neural Networks

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ABSTRACT: In modern world the technology is growing at faster pace but there is still lot of fields need to be advanced. Toll mechanism is one of those things that needs to be advanced. It is known that the queuing is still a drawback in the toll gate system. There is no such system to eliminate this queue. The systems proposed by others are not implemented because of its major drawback and logical errors. So we propose a concept of queue eliminating system using raspberry pi. By this method we are reducing the queue system in the toll gate by capturing the image of the number plate and detecting the type of vehicle with the captured number plate. And amount will be deduced from the user account then the toll gate will be opened automatically.

I. INTRODUCTION

Automatic car license plate detection and recognition plays an important role in intelligent transportation systems. It has a variety of potential applications ranging from security to traffic control, and attracts considerable research attentions during recent years.

However, most of the existing algorithms only work well either under controlled conditions or with sophisticated image capture systems. It is still a challenging task to read license plates accurately in an uncontrolled environment. The difficulty lies in the highly complicatedbackgrounds, like the general text in shop boards, windows, guardrail or bricks, and random photographing conditions, such as illumination, distortion, occlusion or blurring.

The main contributions of this work are as follows:

- A single unified deep neural network is proposed, which can detect license plates from an image and recognize the labels all at once. The whole framework involves no heuristic processes, such as the use of plate colors or character space, and avoids intermediate procedures like character grouping or separation. It can be trained end-to-end, with only the image, plate positions and labels needed for training. The resulting system achieves high accuracy on both plate detection and letter recognition.
- Secondly, the convolutional features are shared by both detection and recognition, which leads to fewer parameters compared to using separated models. Moreover, with the joint optimization of both detection and recognition losses, the extracted features would have richer information.

The use of camera and raspberry pi in combination with each other, along with adequate power supply would result in faster movement of transports through toll booths.

II. LITERATURE SURVEY 2.1.LI-FI BASED AUTOMATIC

TRAFFIC SIGNAL CONTROL FOR EMERGENCY VEHICLES

In this paper, a V2V communication system is proposed in which the headlight and tail light of a vehicle are made as Li-Fi transmitter and Li-Fi receiver respectively. Using the proposed system, when a traffic signal receives an alert regarding an emergency vehicle, the traffic signal would immediately turn green. Thus, decreasing the waiting time of emergency vehicles in traffic dense lanes. The proposed system was designed, implemented and tested for its operation.

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Boiler Critical Parameters Control

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ABSTRACT: Any form of pollution that can trace its immediate source to industrial practices is known as industrial pollution. Most of the pollution on the planet can be traced back to industries of some kind. In fact, the issue of industrial pollution has taken on grave importance for agencies trying to fight against environmental degradation. Countries facing sudden and rapid growth of such industries are finding it to be a serious problem which has to be brought under control immediately. Our project deals with measuring the industrial affected parameters and control

I. INTRODUCTION

Industrial pollution takes on many faces. It contaminates many sources of drinking water, releases unwanted toxins into the air and reduces the quality of soil all over the world. Major environmental disasters have been caused due to industrial mishaps, which have yet to be brought under control. Below are few of the causes of industrial pollution that have resulted in environment degradation. This project considers two aspects of pollution: Dust / Smoke and Salt content.

Air Pollution: Air pollution has led to a steep increase in various illnesses and it continues to affect us on a daily basis. With so many small, mid and large scale industries coming up, air pollution has taken toll on the health of the people and the environment.

Water Pollution: The effects of industrial pollution are far reaching and liable to affect the eco-system for many years tocome. Most industries require large amounts of water for their work. When involved in a series of processes, the water comes into contact with heavy metals, harmful chemicals, radioactive waste and even organic sludge.These are either dumped into open oceans or rivers. As a result, many of our water sources have high amount of industrial waste in them which seriously impacts the health of our eco-system. The same water is then used by farmers for irrigation purpose which affects the quality of food that is produced.This project analyses the existing system dust / smoke control in the industrial heaters and based on the criticality a control action will be initiated. Through MATLAB software, dust / smokeand discharge salt level are being monitored and controlled. Air is the most vital constituent of environment for the sustenance of life on earth. Air forms nearly 80% of man's daily intake by weight. In pure air, the proportion of different constituents like oxygen, nitrogen and other gases is fixed and definite. It may be noted that air cannot be pure because some gases like sulphur dioxide, carbon monoxide, oxides of nitrogen, emission from volcanoes and swamps, salt spray, pollens from plants etc., are continuously added to the air by natural processes. Thus, air is polluted when its natural composition is disturbed either by natural or by man-made sources.

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Simulation Analysis of 2D Filtering by Using Radix-3 Multiplier Less Stream Processor

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ABSTRACT: Two Dimensional convolution-based channelsare exhibited explicitly intended to improve Visual Search applications. It misuses another radix-3 apportioning technique for whole number numbers, got from the weight segment hypothesis, which permits substituting multipliers with rearranged gliding point adders, taking a shot at 32 bits skimming point channel coefficients. The memory association permits expounding the approaching information in raster filter request, as those specifically given by an obtaining source, without casing cradles and extra adjusting hardware. This Proposed System Implemented utilizing Verilog HDL and Simulated by Modelsim 6.4 c and Synthesized by Xilinx instrument. The proposed framework actualized in FPGA Spartan 3 XC3S 200 TQ-144.

KEYWORDS: multiplier, radix-3, floating point adder, FIR filter.

I. INTRODUCTION

Late progressions in the elaboration of superb media substance have advanced a serious research movement for the improvement of sifting administrators, whose equipment (HW) unpredictability is a noteworthy worry in applications intended to unadulterated speed, for example, picture and video elaboration. Such intricacy, to be sure, generally backslides in the distribution of an expansive number of number-crunching administrators and a subsequent loosening of the general circuit. The ongoing writing demonstrates that the previously mentioned issue is typically overseen either by repeating to the full/halfway serialization of the channels and collapsing methods or by mediating on the characteristic multifaceted nature of combined duplicate adders and increase gatherers (MAC). Since the previous way as a rule causes a huge decrease of the channel exhibitions, the last methodology remains the most precise approach to accomplish a decent power, execution, and zone (PPA) tradeoff. For this situation, the total evacuation of the multiplier hardware is by a wide margin the favored decision of a few creators, who repeat to quick adders and shifters instead of multipliers, as indicated by the coding of the operands, authoritative marked digit (CSD), and changed stall (MB), essentially. The improvement of sifting circuits turns out to be especially compelling when one of the operands can be decreased to a limited arrangement of precalculated values, as on account of predefined channel pieces. In such cases, the circulated number juggling (DA) technique can be effectively connected so as to segment increases in less difficult movements and augmentations. By utilizing recollections to store precalculated incomplete wholes, whose number can be diminished by the assistance of various consistent increase (MCM) methods , DA can be, on a fundamental level, favorably utilized instead of MB and CSD . Be that as it may, real exhibitions of DA result from a watchful tradeoff between its "characteristic" bit serial task and the parallelism by which the fractional aggregates are determined, which can prompt the over the top addition of mapped physical assets.

Computerized flag handling (DSP) is broadly utilized in numerous applications going from sound and discourse preparing to picture and video handling to radar and sonar handling. DSP calculations are executed in equipment utilizing PCs, particular processors called computerized flag processors (DSPs), field-programmable entryway clusters (FPGAs), or custom manufactured equipment called application-explicit coordinated circuits (ASICs). The decision of

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Performance Improvement of Low Power and Fast Full Adder by Exploring New XOR and XNOR Gates

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ABSTRACT: Adders are the main component in digital devices. In this work circuit for XOR/XNOR gates are used. The design of full adder using XOR/XNOR gates is used. This circuit design is highly optimized in terms of power and delay. This circuit is designed by using 65nm technology. So we designed a new circuit by using GDI technique. The design of full adder using GDI technique also reduces the transistor sizing, thereby it also reduces the power and speed.it is designed by using 18nm technology. Our observation shows the comparison of both techniques in tanner platform.

KEYWORDS: Full adder, GDI, XOR/XNOR, particle swarm optimization algorithm, transistor sizing.

I. INTRODUCTION

The electronic systems are inseparable part of every life. Recently, the industries are demand for low power, less area and high speed for designing the circuits. With improvement in technology and the enlargement of embedded system used electronic devices such as mobile, laptops, TV applications, power consumption, which is one of the limits in both high & low performance system, has become a primary focus in VLSI digital design. Due to increasing interest in low power ICs for portable measurement instrumentation, laptop computers cellular communications, etc., design choices which take into consideration low power features along with other circuit features are of the utmost importance. In our daily life, electronic systems are an inseparable part of everyday life. Digital circuits, microprocessors, digital communication devices, and digital signal processors, comprise a large part of electronic systems. As the scale of integration increases, the usability of circuits is restricted by the augmenting amounts of power and area consumption. Therefore, with the growing popularity and demand for the battery-operated portable devices such as mobile phones, tablets, and laptops, the designers try to reduce power consumption and area of such systems while preserving their speed. The analysis and comparison developed here have been carried out in terms of speed, power consumption and power-delay product (PDP). The investigation, which also includes the most interesting recently proposed one-bit full adders, has been based on simulation runs on a tanner environment.

GDI method is based on the use of a simple cell as shown in Fig. At a first glance the basic cell reminds the standard CMOS inverter, but there are some important differences: GDI cell contains 3 inputs - G (common gate input of NMOS and PMOS), P (input to the source/drain of PMOS) and N (input to the source/drain of NMOS).

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Trolley System Using RFID Technology

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ABSTRACT: A shopping mall or complex is a place where people buy product/s for their regular use. The customers have to wait in long queues to get their products scanned using barcode scanner and get it billed. To get rid of this, we have proposed a new 'Smart Shopping Trolley using RFID (Radio Frequency Identification)'. This implementation is used to assist person while shopping and also to avoid standing in long queues and thus saving time. The smart shopping trolley would consist of a microcontroller, Android Device ,RFID Reader and an Electronic Display. The products in the shopping centers will have RFID tags to retrieve/access information about it. When a customer places a product in the smart trolley, the RFID Reader will read the Product ID and the information related to it will be stored in controller. There will be communication between android device, main server and billing system (gate system) via ZigBee module. The total amount of the products in the trolley will be calculated using android device and will be updated on server and the Central billing System.

KEYWORDS: RFID Reader, RFID tags, Central Billing System, Wireless ZigBee Module, Android, Security ,Central Server Database.

I. INDRODUCTION

Humans have always invented and developed a technology to support their needs ever since the beginning of mankind. The basic purpose of advancement in technology has been in minimizing tasks and making

II. LITERATURE SURVEY

Dr. Suryaprasad J in "A Novel Low-Cost Intelligent Shopping Cart" [1] proposed to develop a low-cost intelligent shopping aid that assists the customer to search and select products and inform the customer on any special deals available on the products as they move around in the shopping complex.
Instead of conducting the RFID observations at the level of individual carts, aisle-level scanning is performed. Satish Kamble in "Developing a Multitasking Shopping Trolley Based on RFID Technology" [4] proposed to develop a product to assist a person in everyday shopping in terms of reduced time spent while purchasing. The main aim of proposed system is to provide a technology oriented, low-cost, easily scalable, and rugged system for assisting shopping in person. MrP.Chandrasekar in "Smart Shopping Cart with Automatic billing System through RFID and ZigBee" [5] proposed to develop a shopping cart with a Product Identification Device (PID) which will contain a microcontroller, a LCD, an RFID reader, EEPROM, and ZigBee module. Purchasing product information will be read through a RFID reader on shopping cart, meanwhile
product information will be stored into EEPROM attached to it and this EEPROM data will be send to Central Billing System through ZigBee module. The central billing system gets the cart information and EEPROM data, it access the product database and calculates the total amount ofpurchasing for that particular cart.

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Missile Burst Prevention and Tracking System Using Image Processing In MATLAB

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ABSTRACT: The system is designed to track the missile and avoid the incidents where a single missile attack could cause the loss of thrust for an entire scheme. Here we are trying to develop a system to track the missile which ensuring the seeker and divert maneuver capabilities needed to remove system errors. The system will consist of two subsystems, a detection system and a deflection system. The detection system uses a camera and is connected to MATLAB and sends instruction for tracking in to microcontroller. The MATLAB reads the input image and is programmed to identify the presence of missile by analyzing the images using image processing. Once a missile is detected it activates the deflection system. The deflection system helps to detect the missile from following its current path thereby reducing the risk of missile tracking which has been implemented in MATLAB R2013a simulator.

KEYWORDS: PIC Microcontroller, Servo motor ,camcorder, Image processing.

I.INTRODUCTION

Image processing is a method of extracting some useful information by converting image into digital inform by performing some operations on it. Object detection and tracking are the task that is important and challenging such as video surveillance and vehicle navigation. Object tracking plays a vital role in the field of computer vision. Object tracking algorithms have acquired priority due to the availability of highly sophisticated computers, good quality and inexpensive camera. In the object tracking, the video analysis involves, moving object detection, object classification, frame to frame object tracking. Object detection deals with the identification of objects from video frame and to cluster pixels of these objects. In object classification, the objects are classified as birds, humans, vehicles and other moving objects. While object tracking involves the selection of Region of Interest (ROI) and keep tracking of motion and its positions from the video frames. This project reviews the various challenges and aspects of detection and tracking of missiles.

II.LITERATURE SURVEY

The purpose of a missile approach warning system (MAWS) is to detect approaching missiles with enough warning time to allow effective deployment of countermeasures. An active MAWS uses a pulsed Doppler radar to detect incoming missiles. For a fighter aircraft, application full spherical coverage must be provided by the MAWS. Due to

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Rail Robot-Unmanned Automatic Track Cleaning Robot

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ABSTRACT: Manual scavenging is done now-a - days, owing to the peculiar nature of the job, and many who are engaged for this job suffer from related health problems. The prevailing condition can be rectified to some extent by the adequate use of robotics and control technology. This device is the first of its kind proposed to be developed exclusively for the Indian Railways. Also, the railways can save a lot of money on water and labour charges. The application of this project in the current railway cleaning scenario will ensure that there will not be any nauseating scenes at railway stations across the country. We have accomplished some functionality critical in the waste clean-up in railway tracks, and have also tried to find solution for connected problems.

I.INTRODUCTION

Indian Railways is one of the largest railway networks in the world. Railways cover the entire length and breadth of the country. It has a total track length of 1, 14,500 km, with 7083 stations [1] dotted along. Indian Railways is also the largest employer in the country. It has come up as one of the nation's fast growing and profit making organizations. However, sadly enough, it has been years since the railways achieved complete sanitation. Open defecation through railways, unclean toilets, choked basins, and littered bogeys and tracks are the causes of the present poor sanitary condition of India's Railways

The toilets that are constantly in use in the train- coaches are small compartments with hole, through which human faeces is disposed off openly on tracks [1]. Disposing off the human excreta containing various harmful and deadly disease-causing microorganisms into the open tracks and thereby contaminating country-wide rivers, streams etc. Indian Railways is perhaps becoming the biggest mobile source of environmental pollution in the country. And of course, this kind of round -the-clock disposal of vast quantity of human waste in open environments to keep the trains clean is not at all healthy and advisable. The garbage from pantry cars and tray loads of hot meals on station and in train are also thrown off through the doors and windows of bogeys onto the tracks polluting the stations and places all along the train's way. The existing cleaning process of the tracks and the railway platforms is manual, which is tedious and far from the desired level of sanitation or cleanliness.

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DISTANCE MEASUREMENT MODEL BASED ON RSSI LOCALIZATION TECHINQUE IN WIRELESS SENSOR NETWORKS

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ABSTRACT

Node localization is one of the basic problems in wireless sensor networks.The localization method based on RSSI measurement is studied in this paper. Because the RF signals are affected by the environment, the exact distance between the nodes cannot obtain by RSSI measurement.The parameters of measurement model are determined by anchor nodes, and further correct the measurement data, which can reduce the measurement. The improved RSSI measurement can improve the accuracy of the unknown nodes localization.

INTRODUCTION

Research on WSN (Wireless Sensor Networks) has attracted a lot of interest in recent times, and this interest is growing because WSNs promise to be an enabling technology of the future owing to the fact that processors, sensors and wireless radios are becoming extremely small and inexpensive. In the near future, the world we live in will be populated by objects that are globally networked such that physical environments are enriched by computational power. A WSN is a network consisting of a large number of wireless radio nodes equipped with sensing devices and are densely distributed for specific applications. Each node is equipped with a transceiver to communicate with another node within its communication radio range. The requirements for WSN differ when compared to traditional ad-hoc networks. Forinstance, the quality of service (QOS) requirements of an ad-hoc network does not apply to WSN; moreover WSN has to be fault tolerant such that the connectivity of the wireless sensor nodes has to be robust against failure. Deployed for a specific application with known lifetime, they must be able to support a large number of nodes (Scalability) and must either be able to support a vast number or small number of nodes per unit area.

Typical sensors incorporated into wireless sensor nodes are light sensors, sound sensors, ultrasound sensors, accelerometers, temperature sensors, pressure sensors, humidity, and touch sensors to name a few. Some of the applications of WSN include disaster and relief operations, biodiversity mapping for wildlife observation, intelligent building and bridges, military operations and health where motes may be deployed to collect vital information such as pulse and heartbeat rate. Some WSN applications are seen underground for monitoring earthquake, soccer fields, locating people in a collapsed building, underwater applications which are implemented force a sampling network, disaster prevention, assisted navigation, pollution monitoring specifically for chemical and biological spillage and distributed tactical surveillance.

In many applications of WSN, sensed information only becomes useful when it is accompanied by the location of the area and accurate a distances of where such information is been sensed. Hence, sensor nodes need to know the distance between one another in order to calculate their positions. There are many techniques for determining distance between sensor nodes. Physically, the Time of Signal(Acoustic or RF) Arrival (TOA) calculates the distance by use of signal propagation velocity and propagation time, Angle of Arrival (AOA) is measured by getting the signal direction sent by the adjacent node through the combination of array antenna and multiple receivers, while Received Power of Signal (RSSI) measures received power by receiving node, calculates propagation loss, transform propagation loss to distance by theoretical or empirical signal path loss mode, without any additional hardware so as to reduce input cost.

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