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ICFMRS-2022

INTERNATIONAL CONFERENCE ON

FUTURE ROAD OF MULTIDISCIPLINARY STREAMS

21ST - 22ND DECEMBER 2022 — UTTARAKHAND

Organized By

Roorkee Institute of Technology (RIT), Roorkee, Uttarakhand.

In Association with

Institute For Engineering Research and Publication (IFERP).

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Institute For Engineering Research and Publication (IFERP)

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PREFACE

The International conference on future road of multidisciplinary streams (ICFMRS-2022) is being organized by Roorkee Institute of Technology (RIT), Roorkee, Uttarakhand, India in Association with IFERP-Institute For Engineering Research and Publication on the 21st & 22nd December, 2022.

The ICFMRS-22 was a notable event which brings Academicians, Researchers, Engineers, Industry experts and Students together.

The purpose of this conference is to discuss applications and development in area of "Engineering, Technology, Management, Science & humanities" which were given international values by Institute For Engineering Research and Publication (IFERP).

The International Conference attracted over 150 submissions. Through rigorous peer reviews 80+ high quality papers were recommended by the Committee. The Conference aptly focuses on the tools and techniques for the developments on current technology.

We are indebted to the efforts of all the reviewers who undoubtedly have raised the quality of the proceedings. We are earnestly thankful to all the authors who have contributed their research works to the conference. We thank our Management for their wholehearted support and encouragement. We thank our principal for his continuous guidance. We are also thankful for the cooperative advice from our advisory Chairs and Co-Chairs. We thank all the members of our local organizing Committee, National and International Advisory Committees.

PREFACE

Roorkee Institute of Technology (RIT)

Roorkee, Uttarakhand, India

Over the years Roorkee Institute of Technology (RIT) has become a favorite destination of aspirants of science, technology, and management courses. Here, talent meets guidance and is nurtured to the efflorescence for transforming aspirations into reality with an avowed aim of changing its young disciples into professionally expert individuals and new generation citizens possessing ethical values and fervour for social responsibilities. Established in 2005 and located in the serene surroundings of Uttarakhand, exhaling an aroma of tranquility and an ambience of peace and composure, RIT Roorkee instills feelings of piety and spiritual mooring. Its lush green landscape spread over 30 acres with sylvan backdrop makes its charm irresistible and bewitching. Established under the aegis of Himalayan Charitable Trust, RIT has stood true to its vision and mission of imparting qualitative futuristic education, instilling high values and fostering growth.

RIT Engineering College is an affiliated Uttarakhand Technical University, and AICTE has approved it. Students aspiring to become successful engineers would attend our engineering programs. Based on the merit list and the entrance examination ranking, we release the eligible candidates to enroll in their chosen stream of engineering. Its majestic architecture, panoramic view and world class infrastructure whisper a grand message into the ears of aspirants. At RIT, the latent and potent qualities of students are given proper let out to find fullest growth after chiselling, redirecting and sublimating them to be broad based, result oriented and ambitious professionals ready to face the challenges strategically with a global perspective. At RIT, pedagogy is bipolar, participative and student centred. Here students are prepared for a balanced synthesis of aptitude and attitude, invoking creativity, hard work and excellence. Today, RIT has achieved a towering position in academics, in India and abroad as its fame has reached beyond Indian boundaries and it accepts students from Nepal, Bhutan, and African countries into its loving cradle. RIT's mode of imparting education is value based, well synthesized and ambitious. Here students enjoy multi ethnic, multi lingual and multi cultural experiences. This gives them global exposure and makes them a truly global citizen. Dehradun is here to help you to establish your career and earn handsomely in the future.

Major Achievements of College

The RIT College Roorkee has the goodwill for having the most enthusiastic placement professionals onboard. We guarantee 100% placements to students in the final years by inviting several companies with job openings. Our faculty members train and guide our students with various Q & A sessions and with group discussions to crack their campus interviews in flying colors'.

TOP POSITION FOR EXCELLENCE IN INNOVATION 2020
Awarded by Institution Innovation Council (IIC), MHRD Gov. of India

INDIA STEM SUMMIT & AWARDS OUTSTANDING INITIATIVE OF THE YEAR IN ROBOTICSAwarded by All India Council for Robotics and Automation at New Delhi Municipal Corporation (NDMC) Convocation Center by Shri Nitin Gadkari, Minister of Micro, Small and Medium Enterprises2020

BEST ENGINEERING COLLEGE EXCELLENT IN INNOVATION CATEGORY
Awarded by DivyaHimgiri and Uttarakhand Technical University, Dehradun

TOP POSITION FOR EXCELLENCE IN INNOVATION
Awarded by Institution Innovation Council, MHRD Gov. of India

BEST TECHNICAL INSTITUTE IN UTTARAKHAND
8th National Education Excellence Awards 2015 were declared by the Associate Chambers of Commerce & Industry of Inida (ASSOCHAM, India) at Hotel Taj Mahal, New Delhi.

Institute For Engineering Research and Publication (IFERP)

Chennai, India

Institute for Engineering Research and Publication (IFERP) is one of the world's largest non-profitable professional association meant for research development and promotion in the field of Engineering and Technology. We are a platform to promote the advancement and dissemination of the knowledge of Engineering & Technology.

IFERP is a professional association and a forum where innovations & research interest could be supported and developed prioritizing out mutual interest. Our forums & Associates constitutes of professional leaders & organizations, connecting each other with mission to work as wizards of science for defending the earth.

IFERP provides a world class platform for Scientists, Researchers, Academicians, Business figures by organizing conferences and publishing research articles. IFERP Conferences bring together the professional wizards and leaders who have explored all avenues to reinforce the field of Applied Science, Engineering and Technology.

We work with a motto of creating a better tomorrow by organizing conferences and creating a network which will lead to a better tomorrow with the help of advanced technology, thus helping achieve sustainable development.

Mr. A. Siddth Kumar Chhajer
Managing Director & Founder,
Institute For Engineering Research and Publication (IFERP)

On behalf of Institute For Engineering Research and Publications (IFERP) & the organizing Committee, I express my hearty gratitude to the participants, keynote speakers, delegates, reviewers and researchers.

The goal of the International conference on future road of multidisciplinary streams (ICFMRS-2022) is to provide knowledge enrichment and innovative technical exchange between international researchers or scholars and practitioners from the academia and industries in the field of engineering, science & technology. This conference creates solutions in different ways and to share innovative ideas in the field of Science, Management, Engineering & Technology. ICFMRS provides a world class stage to the Researchers, Professionals, Scientists, Academicians, and students to engage in very challenging conversations, assess the current body of research and determine knowledge and capability gaps.

ICFMRS will explore the new horizons of innovations from distinguished researchers, scientists and eminent authors in academia and industry working for the advancements in Applied Science, Engineering and Technology from all over the world. ICFMRS hopes to set the perfect platform for participants to establish careers as successful and globally renowned specialists in the field of science, engineering & technology.

Mr. Rudra Bhanu Satpathy
CEO & Founder,
Institute For Engineering Research and Publication (IFERP)

On behalf of Institute for Engineering Research and Publications (IFERP) and in association with Roorkee Institute of Technology (RIT), Roorkee, Uttarakhand. I am delighted to welcome all the delegates and participants around the globe to participate in the "International conference on future road of multidisciplinary streams (ICFMRS-2022)" Which will take place from 21st & 22nd December, 2022.

It will be a great pleasure to join with Engineers, Research Scholars, academicians and students all around the globe. You are invited to be stimulated and enriched by the latest in engineering research and development while delving into presentations surrounding transformative advances provided by a variety of disciplines.

I congratulate the reviewing committee, coordinator (IFERP & RIT) and all the people involved for their efforts in organizing the event and successfully conducting the International Conference and wish all the delegates and participants for their virtual presence.

Prof. Madhav Ji Nigam
Director General, Roorkee Institute of Technology,
Roorkee, Uttarakhand, India

I am pleased to inform you that Roorkee Institute of Technology is a fully equipped campus and offers courses at undergraduate & postgraduate levels in diverse disciplines. Our Vision & Mission has always been a guiding force for me and my colleagues. The main focus of the institute is to be a recognized leader in Engineering & Science, Management & Research for excellence, empowerment through knowledge, innovation, societal relevance, and impact of its pursuits.

RIT extends all support for academic and personal growth of the students in order to convert them into responsible engineers to meet the challenges of industries. We focus on imparting instructions that help in creating an environment conducive to learning by self-study and discussions. Attendance in the classes is most important for us. Whether a student or a teacher, classes are the top priority, and no one can afford to miss it. That is the fundamental recipe for success. This seems to be a little harsh but it in fact lays the basic foundation of our Academic Programme.

Dr. Parag Jain

Director, Roorkee Institute of Technology,
Roorkee, Uttarakhand, India

The wealth of a nation is evaluated in the number of educated men and women it harbours. In the competitive world where knowledge determines the winners and losers, it has become increasingly necessary to ensure that, besides a sound education, students have the ability to excel and win in the global context. Believing that Knowledge is Power, Knowledge is Safety and Knowledge is Happiness we venture at RIT to equip our students with latest subject knowledge and strive to create a learning culture that promotes quality, innovative exploring, discipline and in the process grooming students to face the challenges of the corporate world. State-of-the-art facilities in job-oriented disciplines, brilliant faculty, seminars, workshops and a regular industry-academy interaction make RIT a top-ranking institution in this area. We are optimistic and this trend will continue as long as people value quality education and discipline. RIT aims to provide the right direction to the young generation who can focus on their future right from the beginning of their career.

At this Institute we are providing the best possible opportunities and infrastructure for nurturing the students in a serene environment. Our Academic Programmes are growth oriented and relevant for developing critical thinking and problem-solving skills. We intend to make the Teaching-Learning mechanism to be at par with the international standards and firmly believe that by imparting quality education our students will be ready to compete globally.

Dear Students, you are now embarking on a great learning adventure, and you may face challenges of varying degrees and nature ahead. But I am sure these challenges will inspire you further and undoubtedly, you will be the achievers at the end. Once you pass through the portals of RIT, the road ahead will be opened for a journey of wonderful life. I also know for certain that you will lead the change of tomorrow and the world will admire your success.

Dr. Gopal Krishan
Scientist D, National Institute of Hydrology,
Roorkee, Uttarakhand, India

WELCOME MESSAGE

Good Day..!

It is my pleasure to welcome you all to the prestigious International Conference on Future Road of Multidisciplinary Streams (ICFMRS-2022) being organized by Roorkee Institute of Technology (RIT), Roorkee, Uttarakhand and Institute for Engineering Research and Publication (IFERP) during December 21st–22nd, 2022, in a virtual mode. The conference will mainly focus on the impact of the transition to the Fourth Industrial Revolution on Infrastructure, Ecosystem, Efficiency, and Competitiveness of industrial operations. The impact of robotics augmented reality, IoT, and artificial intelligence on value chain support and optimization will also be discussed.

In addition, since the conference is on the Future Road of Multidisciplinary Streams it will be a very good platform for researchers working on various disciplines including Water in Engineering and Technology. Thus, the main motive of this ICFMRS-2022 is to provide a common platform for researchers, academicians, students, scientists, managers, industrialists and technocrats to discuss and present their vision.

Finally, I wish all the participants a pleasant time at the conference and look forward to fruitful interaction with you in the future.

WELCOME MESSAGE

Ms. Chinmoyee S Deshpande
Sr. Supply Chain Transformation Leader
IBM, Raleigh, North Carolina, United States of America

Good Day!!

On behalf of Maharishi University, and the organizers we warmly welcome you to this International virtual global conference on the 'Future Road of Multidisciplinary Streams (ICFMRS-2022)' sponsored by Roorkee Institute of Technology (RIT), Roorkee, Uttarakhand and Institute For Engineering Research and Publication (IFERP) on the 21st–22nd December 2022!

It is my honour and pleasure to welcome all the eminent dignitaries, keynote speakers, session chairs, presenters and delegates to an immersive experience around the impact of transitioning into the 'Fourth Industrial Revolution' around Infrastructure, Ecosystem, Efficiency and Competitiveness of industrial operations and the future role of robotics, augmented reality, IoT and artificial intelligent on value chain support and optimization.

Once again I would like to express my gratitude to the organizers for giving me the honour and opportunity to be part of this distinguished gathering and inviting me as a keynote speaker. Wishing everyone the best and looking forward to a very successful and insightful event !

WELCOME MESSAGE

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2022

International Conference on

Future Road of Multidisciplinary Streams

ABSTRACTS

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21st–22nd December, 2022
Uttarakhand, India

A Comparative study of Pre-Processing and Classification Techniques on Performance of Sentiment Analysis

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Abstract

Sentiment Analysis or Opinion Mining is a natural language processing technique that analyses user reviews, opinions, emotions, sentiments expressed often in the form of text related to various products , services, organization, events, activities etc. In today's world with the advent of various social digital media anybody can express his reviews thus generating lots of data often in the form of text but can be other forms like emoji These reviews are further analysed by various organizations using machine learning algorithms for many purposes like to know the feedback about their products. The efficiency of these machine learning algorithms can be improved by pre- processing the data. In this paper, we will study the effects of pre-processing techniques on the efficiency of various machine learning algorithms especially Classification techniques used for sentiment analysis.

Keywords

Sentiment Analysis, Tweets, social media, Opinions, Data Pre-processing, Machine Learning, Classification

ICFMRS

2022

Root Causes of Failures in Gas Turbine Blades

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Abstract

In gas-turbine power plants, mechanical power is produced by utilizing the energy of burnt gases and air, which are at high temperature and pressure and expands through the several stages of fixed and moving blades (stator and rotor). If a blade failed in service, this could result in safety risk and substantially increase the operation and maintenance cost. In the event of turbine blades failure, turbine does not work and this leads to shutdown of power plant and results in economic loss and service to mankind also stops. There have been numerous causes of gas turbine blade failures worldwide and many of them are reported in archival literature. The most common failure mechanisms in turbine blade are fatigue, creep, oxidation, degradation of coating of turbine blade, corrosion, erosion, surface degradation due to overheating and large amplitude of resonant frequencies. However, the degree of deterioration of an individual blade differs due to its operating temperature, rotational speed, mode of operations, total service time and manufacturing differences. The failure of gas turbine blades takes place due to the combination of aforesaid failure mechanisms. This research work provides the better understanding of the root causes of turbine blade's failures. A case study of a real time failed high-pressure gas turbine blade is presented to diagnose the root causes of its failure.

Keywords

Hot Corrosion, Fatigue, Turbine Blade, Oxidation, Sulphidation

Industry 4.0-Emerging Trends of Technology Adaptation - The Case of Footwear Industry

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Abstract

Footwear been seen as traditional product and perceive to be made using manual or mechanized system. Increased manufacturing capacity across the globe and increased consumption has created intense competition. The industry has gradually evolved itself towards with the new generation products. The technology which holds potential for the future of footwear product and technology are biomechanics, IoT based intelligent insoles, development of the materials using nano particle technology for improving product performance apart from using additive technology for making complex product. The designing in footwear has changed drastically using virtual design application thereby reducing lead time for design. The application of additive manufacturing is expected to create products having specific application. Whereas, application of robotics, automation including CIMS has arrived in the manufacturing of the footwear particularly in stitching and assembly system. There is paradigm shift in the entire process of product conceptualization to the product delivery. The footwear manufacturing will no longer be a traditional sector.

Keywords

Emerging Technology, Industry 4.0, Footwear, Smart Footwear

Experimental Investigation on Hypo Sludge Concrete by using Sikacrete

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M.Chandran
M.E., Assistant Professor, Annapoorana Engineering College, Salem, India

Abstract

This project deals with "Experimental Investigation on Hypo Sludge Concrete by Using Sikacrete". In order to achieve the desired compressive strengths given in the concrete mix design, the study aims to examine the hypo sludge concrete employing sikacrete. Hypo sludge is also known as paper industry waste. It is the byproduct of the paper waste. This hypo sludge contains low calcium and minimum amount of silica. Hypo sludge behaves like cement because of silica and magnesium properties. Hypo sludge may be used as part replacement of cement. It is usually used in proportion of percent of cement content of the mix. Hypo sludge is a recent arrival among cementations materials. It was originally introduced as artificial Pozzolana while producing paper the various wastes are comes out from the various processes in paper industries. This project tries to encourage the recovery of waste materials to be used in production of paper for concrete hence preserving the environment.

Education 4.0 – Footwear Sector- The Way Forward

Satyam Srivastava
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Abstract

Industry 4.0 has completely changed the dynamics of manufacturing Industry worldwide, and Footwear industry is not an exception. Industry has moved from being labour intensive to knowledge intensive. Future Smart factories are changing the landscape of industry across the globe. It is imperative for HEIs, globally, to produce highly specialised skilled workforce that can handle the complexities of the intelligent machineries, technology, materials and processes and hence critical to embrace Education 4.0. Education technologies, when adopted appropriately and optimally, can "strengthen education systems, knowledge dissemination, information access, quality and effective learning, and more effective service provision" The implementation of Education 4.0 in sector is at the early stage though some of the universities have started working in this direction, still the proliferation of digital tools and technology is needed with overhauling of the entire education system with student centric approach. The objective of this paper is to focus on the impact of industry 4.0 in the Footwear sector and preparedness of the HEIs to embrace education 4.0 to meet the industrial need thereby preparing students for future roles in the globalised knowledge society.

Keywords

Education 4.0, Footwear Industry, Innovations, Industry 4.0

Heart Disease Prediction using Conventional Machine Learning Classification Methods

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Sudhakar T
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Abstract

Heart disease, also known as cardiovascular disease, encompasses a variety of conditions that affect the heart and has been the leading cause of death worldwide in recent decades. A correct prediction of heart disease can save a person's life, while an incorrect prediction can be fatal. It associates many risk factors in heart disease with the need for time to obtain accurate, reliable, and sensible approaches to make an early diagnosis in order to achieve prompt disease management. According to a WHO (World Health Organization) survey, cardiovascular diseases are the leading cause of death worldwide. The annual death toll is estimated to be 17.9 million. In the healthcare domain, machine learning is a widely used technique for processing massive amounts of data. Researchers use a variety of machine learning techniques to analyze complex medical data, assisting healthcare professionals in the prediction of heart disease. This study presents various aspects of heart disease, as well as a model based on supervised learning algorithms such as Nave Bayes, Decision trees, K-nearest neighbor, Logistic Regression, and the Random Forest algorithm. It makes use of an existing dataset from the UCI repository of heart disease patients' Cleveland database. There are 303 instances and 76 attributes in the dataset. Only 14 of these 76 attributes are considered for testing, which is necessary to validate the performance of various algorithms. The purpose of this research paper is to forecast the likelihood of patients developing heart disease. The Decision Tree achieves the highest accuracy score, according to the results.

Keywords

Machine Learning, Heart Disease, Classification Algorithms, Artificial Neural Networks

A Critical Review of Soft Computing Technologies for Tackling COVID-19 Pandemic and Suggest Research Idea for Identifying Stages of COVID Patient using Fuzzy Sets

Dr.Maya V.Mawale
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Abstract

Whole World is going through situation that never imagine. COVID 19 pandemic situation affects people in various ways and it is spreading globally. Various Researcher and Scientist are ongoing to develop vaccines and remedies in the form of Medicine. Though we got some sort of success in the form of vaccine, yet the pandemic continues to spread. Today's our main responsibility is prevention, surveillance, and containment as well as major development of measures how whole world will free from this crises.
In light of this, emerging technologies artificial intelligence (AI), smart applications, robotics play important role in detecting, monitoring and creating awareness. Therefore, this study aimed at providing a comprehensive review of development using soft computing emerging technologies that can be utilized for detecting, diagnosing, diagnosis in order to tackle COVID-19. Also we are planning to develop research idea about design and development of MISO Fuzzy System which will useful for identifying stages of corona and provide dose in the form remedial medicine when it will discover.

Keywords

MISO, FIS, AI, SARS Cov-2, MI

IP Identification under Shredded Domain Over the VPN to Manage Threat to Curb Cybercrime

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Abstract

The development of cybercrime as of late has been astonishing. Cybercriminals frequently work utilizing intermediary IP locations to hide their genuine IP addresses for upgraded masking. One normal strategy is to not get to the objective PC straightforwardly yet rather through an "intermediary" server or a VPN/Proxy server, which basically goes about as a layer among them and the target PC. Many existing findings depend predominantly on blacklisting bothersome sites, with the final product being that numerous clients discover that unknown intermediaries permit them to effectively sidestep this separating. While blacklists fill a need, how can we say whether clients are dodging our security architecture and our blacklists? One response is to zero in on recognizing admittance to unknown VPN/Proxy accesses. This project aims at following the IP that will decide if the traffic coming is from a genuine IP address or behind the intermediaries/proxies. It additionally gives detailed data about the IP.

Keywords

Tracking, Tracing, IP, Proxy, VPN

Effect of Grinding Process on Difficult-To-Machine-Materials analyzed by integration with Internet of Things: A Methodical Review

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Dr. Vinay Kulkarni
Associate Professor, Department of Mechanical Engineering, D. Y. Patil College of Engineering, Akurdi, Pune, India

Abstract

For Precise and close tolerance working Grinding process is used in different sectors. Majorly it is used in Automobile Sector, Biomedical Field and Energy Industry. Different category of materials like ceramics, non-metals, super alloys, smart materials are super-finished in Grinding operation. Grinding process mainly required more energy investment and it also affects environment and human health too. Researchers have developed various techniques like Creep Feed Grinding, Shape Adoptive Grinding, Liquid Nitrogen method and Minimal Quantity Lubrication in order to achieve quality output. The main objective of this paper is systematic investigation of effect of grinding process on difficult to machine material and investigate the effect of grinding wheel and cooling techniques used to minimize human hazards and environmental sustainability. Also to check the impact of various factors affecting during the grinding operation and integration of Internet of Things with conventional process to check various parameters like Wear of tool and workpiece, surface topography, deformation analysis.

Keywords

Proton Exchange Membrane Fuel Cell; Electric Vehicle; CAD Modelling; Finite Element Analysis; Green Energy

Modeling and Simulation of Hydrogen Fuel Cell and Proton Exchange Membrane Fuel Cell with E-Scooter

Priya Singh
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Pankaj
Roorkee Institute of Technology, Roorkee, India

Dr. Madhavendra Saxena
Roorkee Institute of Technology, Roorkee, India

Abstract

The objective of this research is to improve and upgrade an E-Scooter, which is currently in use also different technologies are being researched to achieve this goal in timeframes appropriate to their current states of development. The fuel cell is the technology that will make it possible to solve environmental problems. The generalization of this technology will depend essentially on its applications, performances, and costs. The comprehension of the phenomenon and its adequate modeling is an essential step to controlling all the aspects of the fuel cell. In this work, we carried out a model of a proton exchange membrane fuel cell built on E-Scooters. The investigation has been made to study the characteristics of polarization in a proton exchange membrane (PEM) fuel cell. As we are all aware, Firstly in conventional E-Scooters it is compulsory to charge again and again, and takes 6-7 hours for charging, secondly E-scooters have to keep standing for this system which will result in a waste of time. But in this paper, a PEM fuel cell is used to run the E-Scooter through which average savings has been achieved of Rs.60 to Rs70. In this way, we are saving the environment, economy, and time of charging for the nation. Because energy generation, as well as utilization, should be renewable. This will result in the reduction of cost in hydrogen production too. The cost is independent of the technology pathway and takes into consideration a range of assumptions for fuel cell electric vehicles (FCEVs) to be competitive with hybrid electric vehicles (HEVs). Of all the various types of fuel cells, Proton Exchange Membrane Fuel Cells (PEMFC) are the most popular, especially in the 1-100 kW power generation range. This paper focuses on Proton Exchange Membrane Fuel cells with E-Scooters and attempts to provide a comprehensive model and analysis and illustrate the complex chemical processes that occur inside the device during power generation operation.

Reduction of Heat-Affected Zone through Analysis of Different Types of Welding at Different Material

Ali Ahmad
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Syed Nehal Abbas
Roorkee Institute of Technology, Roorkee, India

MD Najish Khan
Roorkee Institute of Technology, Roorkee, India

Abstract

The objective of this paper is to show a brief study of the heat-affected zone or material by different types of welding at different temperatures. While performing welding experiments by workers, a lot of heat and energy will losses or unwanted welding material disturbed the design of the workpiece, because of a lack of skills for performing the work which is not available for the proper chart of welding characterization which means different types of material shows different characterization at different temperature. Our main motive for this work is to pick different materials, (cast iron, mild steel, grey iron) and perform many welding experiments up to a minimum 3 times, we noted the data of temperature, and current supply, and after that we tested material on the testing machine to determine how much-welded portion (HAZ) resist the data for each experiment and also, we noted precise data in chart format. For example, we took mild steel (0.16%-0.29% of carbon) for performing the many experiments on it, as we continuously noted every experiment result, and throughout the many welding experiments, due to which we get one precise value at which losses are less as compared to other experiments. So, we focus on the reduction of the losses and decreased heat-affected zone, providing precise data on different materials showing different characteristics at different temperatures and loads.

Review of Autonomous Vehicles: Development, Approaches and Issues

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Roorkee Institute of Technology, Roorkee, India

Nitesh Karn
Roorkee Institute of Technology, Roorkee, India

Kamaljeet Kumar
Roorkee Institute of Technology, Roorkee, India

Manish Kumar Jha
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Abstract

Technology has made self-driving cars a reality, and over the next ten years, it is anticipated that they will achieve the utmost level of automation. While the benefits of self-driving cars are generally acknowledged to require advanced human-autonomous vehicle (HAV) interaction, it is less obvious what function artificial intelligence (AI) should serve in this setting. The automotive industry is already introducing AI-based products and services that may have an impact on our technological and societal future, either positively or negatively, even as the scientific community debates the role and intersections of AI, autonomous vehicles, and related issues, most importantly ethics. This study focuses on virtual assistants, which are the humanized representation of automotive intelligence and have an algorithmic "brain," a synthetic human "voice," and robust sensor-based "senses." Should virtual assistants only help people or should they take the place of people when necessary? Should their purview of action be restricted to driving-related safety-related chores or to any activity carried out in or managed from the car? The article will cover the most advanced in-car virtual assistants, highlighting their role and functions in the connected and automated driving environment, despite the fact that they are still in very early stages of commercial development. It will then outline a number of concerns that the scientific community, policy-makers, and stakeholders in the automobile sector need to solve by drawing on prior observations on automation, robotics, and intelligent agents.

Keywords

Autonomous, Machine Learning, LiDAR, Internet of Things, Deep Learning

Electronic Health Records in Healthcare-A Bibliometric Analysis

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Abstract

Technology has made self-driving cars a reality, and over the next ten years, it is anticipated that they will achieve the utmost level of automation. While the benefits of self-driving cars are generally acknowledged to require advanced human-autonomous vehicle (HAV) interaction, it is less obvious what function artificial intelligence (AI) should serve in this setting. The automotive industry is already introducing AI-based products and services that may have an impact on our technological and societal future, either positively or negatively, even as the scientific community debates the role and intersections of AI, autonomous vehicles, and related issues, most importantly ethics. This study focuses on virtual assistants, which are the humanized representation of automotive intelligence and have an algorithmic "brain," a synthetic human "voice," and robust sensor-based "senses." Should virtual assistants only help people or should they take the place of people when necessary? Should their purview of action be restricted to driving-related safety-related chores or to any activity carried out in or managed from the car? The article will cover the most advanced in-car virtual assistants, highlighting their role and functions in the connected and automated driving environment, despite the fact that they are still in very early stages of commercial development. It will then outline a number of concerns that the scientific community, policy-makers, and stakeholders in the automobile sector need to solve by drawing on prior observations on automation, robotics, and intelligent agents.

Keywords

Health Care, Electronic Health Records, EHR, Systematic Survey, Bibliometrix, Biblioshiny

ADAS - A Modern Technology in Automobile Sector

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Abstract

Human mistake causes maximum car accidents, that can be avoided using Advanced Driver Assistance Systems (ADAS). The role of this system is to reduce the numbers of accidents and the gravity of those that cannot be prevented in order to decrease mortality and injuries. Because driver error causes most road accidents, ADAS is meant to automate, respond, and upgrade car technology for greater safety and driving. Pedestrian and video detection for advanced driver assistance systems (ADAS) has emerged as a hot technology issue of interest to governments, OEM manufacturers, suppliers, universities, and research institutes. These cooperative systems are progressing toward autonomous driving, in which autos use their own actuators to interact with other vehicles on the road, enhancing safety and efficiency. If a driver fails to react appropriately, the car may take autonomous steps to increase safety and efficiency. Driver assistance systems (ADASs) have emerged as a focus of ongoing research targeted at increasing traffic safety. Vehicle hardware-in-the-loop (VEHIL) simulation is used to test and develop sophisticated driver assistance systems (ADASs). To provide a realistic test environment, VEHIL experiments are carried out in an accurate, reproducible, and controlled manner. The curve warning and adjustive control square are ADAS application samples that utilize this information. This technique is known for accurately calculating the collision mechanical phenomenon, speed of the crossing vehicle, and distance, allowing the ADAS to be improved by this new warning perform.

Industrial Automation is Facilitating with Product Quality and Makes it Reliable

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Abstract

Automation or automatic control is the use of various control systems for operating equipment such as machinery, processes in factories, boilers, heat treating ovens, switching in telephone networks, steering, and stabilization of ships, aircraft, and other applications with minimal or reduced human intervention. Wireless communication technologies are widely applied in the fields like Industrial Automation. Wireless communication and smart sensors and actuators pose means to sustainably improve automation technology. After an exhaustive review process, four key issues were found "Controlling method of injection molding machine for new technologies, new trends in industrial Automation, Energy Storage in co-generation power plant & Wireless Data Transmission" which mostly need to enhance Industrial Automation aspects to get better solution approach. Injection molding machines can fasten the molds in either a horizontal or vertical position. All running technologies have been on the verge of getting replaced by a great system that provides very specific, efficient, and quick access and control for the devices as per user demand. That is nothing but IoT which stands for the Internet of Things. It deals with bringing control of devices over the internet. The internet of things (IoT) is the network of physical devices, vehicles, buildings& items embedded with electronics, software, sensors, actuators, and network connectivity that enable these objects to collect and exchange data. Being in one place users will get access to all the types of machinery in the industry. It makes the whole system automated. We propose an efficient industry automation system that allows users to efficiently control industry appliances/machines over the internet. The filling is a task carried out by a machine that packages liquid products such as cold drinks or water Artificial Intelligence could be used to control and monitor the industry. IoT is not a technology basically it is an Ecosystem with Industry Specific Implications.

Thermal Management of Lithium-Ion Battery Module with Different Fan Positions: CFD Analysis

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Abstract

In the present work, thermal management of electrical vehicle battery is done with the help of ANSYS Fluent. An EV battery with 24 batteries in one stack of row was considered for the present numerical analysis. Inlet temperature of air, inlet velocity of air and internal heat generation in each battery are considered as input parameters. Five different inlet and exhaust fan positions (each name as Type 1 to Type 5) are considered. Numerical simulations are obtained to know the exit temperature of air, surface heat transfer coefficient and surface skin friction coefficient along with pressure drop across the battery stack. It was found that velocity distribution of air is more uniform when the inlet and exit sections are placed in parallel to the battery stack at the top and bottom. Average surface temperature of the battery is found to be a strong function of the position of the inlet and exit sections and their orientation with the battery stack. Among all geometries under consideration, Type 3 configuration of the inlet and exit sections were found to be good in terms of heat transfer coefficient (at an average of 5.9175% higher) and average surface temperature (at an average of 2.7275% lower) of the battery. Type 2 configuration is found to be good in pressure drop (at an average of 66.51% lower) point of view.

Emerging Trends in Soft Robotics - A Review

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Abstract

Soft robots are generally made of naturally malleable materials like fluids, gels, and elastomers that match the rheological and elastic characteristics of biological tissue and organs. A soft robot must alter its shape and movement technique for a wide range of tasks, obstacles, and environmental conditions, much like an octopus squeezes through a small entrance or a caterpillar rolls through uneven terrain. This new category of versatile, biologically inspired, elastically soft robots represents an intriguing and highly interdisciplinary paradigm in engineering that could transform any use of robotics in cooperative human aid, field exploration, and healthcare of robots made from soft materials like silicon, etc. outperform conventional rigid robots in respect of adaptability, safety, and mobility. There are several multiple methods to operate soft robots, including pneumatic actuators, cables, intelligent materials, shape memory alloys, dielectric elastomer, or ionic polymer-metal composites, etc.).Many robots are made of metal and different hard materials which are capable of defeating human which can be a rise of the new era of robot and it would be harmful to humans. A robot made of soft material which has high compressive and tensile stress and is capable of working at any temperature at any place is said to be a soft robot in short this is our prime motive in this abstract. Biography: Amio Das pursuing an undergraduate degree specializing in mechanical engineering in 2nd year from Roorkee Institute of Technology, Roorkee, Uttarakhand. I am skilled in using CNC programming, Basic AutoCAD, and industrial applications for hydraulic and pneumatic. For creating awareness, I have done a project on Pneumatic vices and jacks.

Object Detection using YOLO-v3 and YOLO-v4 in Android

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Abstract

A lot of research is going on in the field of object detection. Different algorithms pretrained or otherwise are being used for rendering better accuracy and speed. YOLO is one such algorithm which uses Convolutional Neural Network (CNN) and it has several advantages compared to other methods. In the proposed system, YOLO v3 and v4 algorithms are used in android apps for effective object detection and also to do a comparative analysis of the results gathered from the apps. TensorFlow Lite framework is used to implement the YOLO algorithms while deploying them in the android apps.

Keywords

CNN, Neural-Networks, Tensorflow, YOLO

A Novel Approach to design a Multi-Function Radar for Air and Weather Surveillance

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Abstract

RADAR, an acronym for "Radio Detection And Ranging" has become a very common technology as the development of radar systems was accelerated by military necessity and independent developments in many countries across the world. Initially, each radar was designed to optimize the performance for a specific function like search, track, and weather monitoring. As the technology progressed, two or more of these functions, depending on their requirement, have been integrated into a single radar, called a Multi-Function Radar (MFR). Initial designs of MFRs were confined to combining search and track functions for military applications. Later, other functions like communication and weather surveillance have been added for both military and civilian applications. In this paper, various challenges in the design of MFRs, various design approaches and their pros and cons are discussed. A new approach is proposed to design an MFR for air surveillance and weather surveillance by utilizing the merits of phased array technology and overcoming some of the limitations of current designs. Details of an MFR which is being developed by using the proposed method are also given in the paper.

Object Detection using YOLO-v3 and YOLO-v4 in Android

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Abstract

Railways' unreserved ticketing system aims to address the issue of overcrowding and long queues encountered at railway ticket booking offices. Because of the long lines, we have to spend a lot of time waiting and there is a good chance that we will miss our train. We intend to address this issue by developing a website for booking unreserved tickets. The customer simply enters the origin and destination of his trip and receives one unreserved ticket no. on the ticket; there is also the option to cancel a ticket. While travelling, customers can order delicious food at their berth. Customers can also book platform tickets from this location. For all front pages, we used HTML, Tailwind CSS, and Vs Code. Python is used for the backend, and a database called Xampp is used to store all data.

An Analysis of Exploratory Buying Behavior Tendency of SUV Cars

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Abstract

Any decision making process involves many patterns and is a province claimed by many disciplines, like management science economics, philosophy, statistics, and so on. The role of psychology can be best illustrated by the economic concept of "comparative advantage. Future research must adopt a broader perspective in the decision literature. Study of Exploratory buying behavioural tendency is a novel avenue in marketing and management. This study intends to understand the demographic profile of the respondents using frequency and percentage analysis. It also aims to identify the respondent's preference towards Digital Media Marketing Channels, Personal Preference Parameters and their Exploratory Buying Behavior Tendency while making SUV purchase using mean value. The chapter analyses the second objective to identify the impact of demographic characteristics of respondents on Digital Media Marketing Channels, Personal Preference Parameters and their Exploratory Buying Behavior Tendency using independent sample 't' test and one way ANOVA. The demographic profiles of the respondents considered for the study are gender of the respondents, age group of the respondents, their occupation, educational qualification, the family size of the respondents and their family monthly income in Rupees. Frequency analysis (descriptive statistics) was used to understand the demographic profile of the respondents. The demographic distribution of the respondents (N=603) is exemplified.

The mean value for the factors of Exploratory Buying Behavior Tendencies are identified using descriptive statistics and the results are presented. The mean value ranging from 1.0 – 2.4 indicates low level, 2.5 – 3.4 indicates medium and 3.5 – 5.0 indicates high level. The results show that in the region studied there exists a pattern useful to be exploited in framing strategies for SUV market.

A Study on "Workforce Diversity in the Field of Automobile Industry"

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Abstract

This study is based on "workforce diversity in the field of automobile industry" in India. India enjoys a strong position in the global heavy vehicles market as it is the largest tractor producer, second-largest bus manufacturer, and third-largest heavy trucks manufacturer in the world. India's annual production of automobiles in FY22 was 22.93 million vehicles. India is also a prominent auto exporter and has strong export growth expectations for the near future. In addition, several initiatives by the Government of India such as the Automotive Mission Plan 2026, scrappage policy and production-linked incentive scheme in the Indian market are expected to make India one of the global leaders in the two-wheeler and four-wheeler market by 2022.

Diversity involves the presence of a wide range of individuals who vary in aspects such as race, gender, ability, age, sexual orientation and a host of other human qualities. Taking these terms together, a company can begin to implement a strong culture that leads to an enhanced ability to follow and achieve its missions through the individual perspectives and talents brought by the diverse range of employees.

The sample size taken for this study is 150 employees. The analytical tools used in this research article are percentage analysis and chi-square analysis. Thought the workforce diversity brought new ideas and innovative methods there are problems which brings diversity among the working employees. The problem arise in the form of Communications barriers, Less trust, cost for accommodation and so on. This study advices to encourage the working employees from various diversity to work together to form unity.

Keywords

Workforce Diversity, Race, Culture, Communication Barriers

Image Restoration for Old Images

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Abstract

In today's world, the digitality of photos is increasing so new techniques are also emerging to make different changes to them. But techniques that can improve quality or repair the damage of old photos are less in number. here we present our tool which can do three operations i.e., denoising, inpainting, and contouring. to build this tool we have used Python 3.10 and its libraries. the one library which we have used most is OpenCV. The goal of this project is to repair damaged, distorted images. This project cuts down on the time and effort you'd have to put in to repair your damaged photos. This project also features a section where you can change the background and remove the background which is called as image masking. We also have used features like contours.

Resume Builder

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Abstract

Today, everyone is looking for a better way to live a high standard of living, which is perfect. So, the tipping point that some people experience is moving from one recruiter to another and starting a new step. A first impression is made when you introduce yourself to a recruiter at a job interview. Resume Builder is a website designed to simplify the task of creating a personal resume. Providing a means to effectively design the required resume, this software is flexible to use and reduces the need to think and design a suitable resume for candidates according to their qualifications. Individuals typically get confused while writing their resumes and do not have a clear idea of what content or information they should include in their resumes to get the attention of recruiters. After visiting the software, users create, modify or edit a resume, and an auto-generated resume will be provided in PDF format.

Keywords

Java, Resume, JDBC

Optimized Design of Shell and Tube Heat Exchanger with Segmental Baffles

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Abstract

Heat exchangers are the apparatus which is widely used in various industries. They transmit heat among two or more fluid streams. Theoretical analysis done by Kern's method has been done on Shell & tube heat exchanger with segmental baffle and then experimented in CFD to check Heat Transfer rate & pressure drop with varying number of baffles which is 6, 8 & 10, and by keeping all the rest of parameters constant. It is found that as the number of baffles increase heat transfer rate increases also pressure drop is increases significantly. To optimize model in next step, CFD analysis is has been done by varying baffle cut to 25%, 35% & 45% by keeping same number of baffles which found best in heat transfer rate in earlier Kern's method. Other parameters like velocity, temperature, pressure and baffle numbers are kept constant. Results obtained from numerical solution are analysed extensively to get the effect of baffle cut on heat transfer rate and pressure drop on shell side.

The pressing need of the heat exchanger industry, the tradeoff optimization between the pressure drop and the heat transfer coefficient has been studied to provide an idea to get effects of the change in two parameters, namely, baffle spacing and baffle cut simultaneously and observe how these two will affect the performance of an STHX. An attempt to find the optimum geometric configuration has been carried out with number of baffles. Increasing baffles for same length of shell and baffle cut increases from 25% to 35%, heat transfer rate increases. It is beneficial in elucidating that a higher heat transfer coefficient can be obtained for fewer baffles when coupled with the appropriate baffle cut. So selection of correct optimized shell and tube heat exchanger. The work is carried out for copper tube bundles and steel shell. So optimization of baffle cut with correct number of baffles and reduction in pressure drop studied with CFD tool.

Keywords

Computational fluid dynamic methods, Heat exchanger, Kern's Method, velocity, temperature, pressure, baffle cut

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Abstract

In this world of digitalization, a Car is a necessity for every individual. Our system is an online place where dealers can maintain records of cars using this application. This system will help the clients to search for car information when needed. Users can also get information about new or used cars directly using this system in a cheaper way. Customers and Dealers can use both according to their purpose. This application can be a one-stop solution for all car-related problems. We all know the feeling of being at a car dealership, haggling over prices and trying to get the best deal possible. It can be stressful, time-consuming, and frustrating. What if there was a way to automate the car buying process? With our new car sale system using Java, you can do just that! This software will help you find the best deals on cars, so you can save time and money.

Keywords

Car, Sale, Java, Buy, Sell, Java AWT, Swing

A Review of Construction Waste Management Practices in India - Challenges to Circular Economy

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Abstract

Ever Increasing population, outstretched resources, and rapid urbanization are significant contributors to the negative impacts of construction waste in urban India. Also, outdated and inadequate infrastructure to manage the volumes of waste generated appears to be a common denominator across the domains of construction waste management. Improper planning and insufficient data combined with the ineffective application of waste management standards augment the challenges urban cities like Bangalore in India face. Current research indicates that approximately one-third of extracted natural resources are channeled into the construction industry, generating almost a quarter of the solid waste globally. A "Linear Economic" model is pervasive in the construction industry, with the norm procuring, processing, utilizing, and disposal of materials and waste. More recently, a paradigm shift has been observed, with concepts of Circular Economy and closed-loop principles in the construction industry. Incorporating principles of circularity into waste management results in positive impacts such as a considerable reduction in volumes, an increase in re-manufacture, re-fabrication, and utilization of usable construction waste. Circularity positively impacts waste management, ensuring the waste is circulated and facilitating environmental, economic, and social benefits. This study presents a recent literature review of gaps and impediments to achieving circularity within construction and demolition waste (CD&W) management in urban areas. This literature review uses a systematic approach to identify various aspects of construction waste and barriers to achieving circularity. A literature review of waste characterization, current practices, and applicable models such as Life Cycle Assessments (LCA), material reuse, and recycling are studied. Finally, where appropriate, a summary of conclusions with observations is provided.

Keywords

Construction and Demolition waste; Circular Economy; Linear Model; Waste Generation; Life Cycle Assessments; Waste Hierarchy

Comparative Analysis of Environmental Impact between Online Shopping and on-site shopping in Thailand

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Abstract

Since the growth of E-commerce sales in Thailand continually increases, also E-commerce activities have more complexity due to the product can be ordered from anyway and also sent from various sellers. To protect the product along the seller's path to the customer's hand, then the protected material is created to add value to the product. Therefore, the environmental impact has to be concerned. This paper is conducted by studying the process of online shopping and on-site shopping through the discipline of Life Cycle Assessment (LCA) to declare the activities all along the chain from cradle to grave and using the concept of carbon footprint to evaluate and compare how environmental impact between online shopping and on-site shopping. The research data is collected by interviewing the expert who specializes in production, carbon footprint calculation, E-commerce platform and logistics activities, then using questionnaires to inquire demography behavior on online and on-site shopping. The Monte Carlo method is used for simulating with 1,000 randomness to find a delivery distance, then calculate the carbon footprint and test whether or not the mean of carbon footprint between two different shopping method is equal by a two-sample t-test at significance level $\alpha = 0.05$. The research found that both online and on-site shopping generates carbon emissions of 4.48 $kgCO_2$ eq and 4.27 $kgCO_2$ eq respectively. The obvious activities of online shopping that create the carbon footprint are packaging, many transportation activity chains, as well as disposal activity because of the determination of packaging.

Keywords

Carbon footprint, Monte Carlo simulation, Life Cycle Assessment, Online shopping

Emerging Trends in Humanoid Robotics – An Industry 5.0

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Abstract

The next two decades are on the verge of the subsequent technical revolution—robots are going to march into our lives. However, to act together with humans or to be incorporated into a human collectivel robots have to be provided with a quantity of human-like cognitive abilities. An important automation application for cognitive technologies is performing tasks at a scale that is impractical with conventional alternatives. In the next ten years, a similar budget is going to be spent to tackle the Cognitive Robotics problems in the frame of the Human Brain Project.

Challenges: But over the past few decades, cognitive robotics becomes a brand-new field of robotics research. In cognitive robotics, the use of robots as platforms, in the study of cognition, is the best-suited mechanism as they naturally interact with their environment and learn through this interaction.

Opportunity: "Robots, friends of human health and the environment"

1. The history of robotics can be divided into three phases. During the initial phase, robots were basically developed as machines to replace humans in handling tasks that were strenuous or repetitive; in the second phase, they began to be used outside factories as well, especially in professional environments. We've seen robots on Mars, in surgery, underwater.
2. We can already see this happening in factories, where robots are becoming increasingly capable of performing tasks requiring real craftsmanship.

Risk: Cognitive robotics to do something disturbing: self-governing weaponry is artificial intelligence systems that are automatic to kill. In the hands of the wrong person, these armaments could with no trouble cause mass casualties.

To threaten the description of robots as human substitutes and therefore as potential threats to our service. In recent years, a great many tasks have already been replaced by technology.

Sentiment Analysis of Student Feedback using Lexicon Based Approach

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Abstract

The responses of students are an essential component in the evaluation process used within the educational system. The comments provided by students can be examined utilizing a lexicon-based technique in order to determine whether or not the students have a favourable or negative attitude. The majority of the current methods that are used to evaluate instruction do not take into account words that are either intensifiers or blind negation words. The result does not reveal the level of opinion, such as if it is a good or negative viewpoint. In order to solve this issue, we have come up with a plan to autonomously evaluate the textual feedback given by students using a lexicon-based method in order to determine the level of teacher effectiveness. For the purpose of determining the polarity of words, a collection of English sentiment terms is being compiled as a lexical source. We are able to identify the opinion outcome of teachers by evaluating the semantic meaning containing intensifier terms extracted from the pupils' comments. This enables us to describe the degree of either positive or negative attitudes held by educators. This system displays the judgment outcome of teachers, which is portrayed as highly negative, fairly negative, or slightly negative; highly positive, fairly positive, or slightly positive; or neutral.

Keywords

Sentiment Analysis; Students' Feedback; Lexicon-Based Method, Feature Extraction, Feature Selection

Malicious Node Detection and Avoidance in Mobile Ad-hoc Network

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Abstract

An ad-hoc network (MANET) is a type of communication technology of mobile nodes connected by wireless links. Each node acts as an end system and a router for all other nodes in the network. Nodes in a mobile ad-hoc network can roam freely and organize in any way. The path between each pair of users can have multiple links, and the wireless links between them can be heterogeneous. Using wireless connections makes ad-hoc networks vulnerable to a variety of connection attacks ranging from passive eavesdropping to active spoofing, message replay, and message distortion. Ad-hoc network routing protocols adapt well to dynamically changing topologies, but they were not designed to protect against malicious attackers. The same applies to AODV routing. In this article, we implemented a malicious node that drops packets periodically and examined its effect on wireless LAN and AODV routing. I also implemented an improved AODV which detects and avoids such knots when building routes in AODV. Simulation results show that route-finding time and throughput are typically improved by the modified AODV.

A Review on the Various Technical Issues Involved in An Online Learning

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Abstract

Online education has become increasingly popular in India and especially higher education within last five years. Higher education institutions believe that this method of instruction will be critical for the future of higher education. Online has many prospective benefits, but technical difficulties are one drawback. Online learning, being the most recent flood of training, is as of now having a reasonable show in spite of posturing challenges for the techies and teachers. While teachers need to put in serious work and time to outline the guideline, understudies need to outfit themselves with specialized capability to separate the course material. In my view online learning is a very good thing that one can have if we use it in a proper way. Rather now a days students are blindly believing that online classes is waste of time, and they are not getting what is being taught every student is under a impression that just we should on the class and can do anything they want but if one student is really interested in learning something then no matter what the platform is they will definitely learn it .And also in online we have a vast number of courses available if one want to learn something they can definitely find it and learn. As students are being habituated to offline classes. These online classes have a worse effect now. i.e. Students are influenced in such a way that online education means nothing. But in reality, one classes have much more scope than offline learning. But the thing is student should focus on the pros of online learning and utilize it in a proper way. This paper reviews various technical issues and provides solutions to these issues. With educational institutes closed due to the COVID-19 pandemic, the government has been encouraging online education to achievement academic continuity. While many still find it a difficult effort, the majority of elite private and public institutions have accomplished the transition smoothly using online tools like Zoom, Google Classrooms, Microsoft Teams, etc. And this sudden implementation of online classes without any head start from teaching side and from students it has been the major effect for online education. There are many opportunities for both students and teachers in online education. However, it might also make India's socioeconomic structure more unequal. A clear vision, earnest efforts, and enough time will pave the route for success.

Keywords

Distance Education; Online Education; E- Learning

Architecture Education in the Digital Age: A Comparative Study between the Academics and Practice

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Abstract

The beginning of the 21st century is the booming period of the digital technology development of software and hardware to support the architectural design process. In the realm of digitization, the architectural profession has remained one step ahead to support architects to become innovative because of the challenges and issues faced in real-life practice. In addition to it, digital architecture design has scaled up whereas computer-aided design in architecture brings a revolutionary change in the design and construction industry. However, it is equally important to update the curricula and teaching strategies by following the trend of development of the industry. Therefore, it is highly important to analyze the current status of architecture education in terms of incorporating digitalization along with classroom teaching to target Sustainable Development Goals (SDG). To achieve this, the author has analyzed the computational design approach adopted in architecture institutions and the professional industry as well, which was based on the background information, through literature, experience, and feedback. In conclusion, it was found that the concept of learning theory and teaching methods has to be transformed. The integration of technologies must emphasize blended mode by incorporating digitization in the teaching-learning process with the different modules of learning.

Keywords

Digital technology, Architectural Education, Architectural Practice, Digital Design Process

Impact of National Education Policy on Higher Education: An Empirical Study in the Changing Academic Environment

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Abstract

Futuristic and properly defined education policy is imperative for any country at the college and school level. This is mainly because education is the key to social and economic progress. Different nations adopt different systems taking into consideration the culture and traditions of the country. At different stages of the life cycle at college and school education, they follow these systems to make it efficient. The latest education policy that has been announced by the Government in India is being considered a welcoming step. This policy will provide more flexibility in learning to the students and more autonomy to the institutions and universities. This policy is a very important step towards connecting education with social concerns and making education more meaningful. The kind of provisions that have been made in the national education policy has the capability of transforming higher education. This study is descriptive in that data has been collected from 150 educators and analysed with the help of the t-test. The outcome has been discussed in terms of significance to various parameters taken under the study.

Keywords

NEP 2020, flexibility in education, higher education, t-test

Emerging Trends in Wireless Network (WSN)-A Survey

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Abstract

This survey research paper describes research in technology is moving and has led to the rapid advancement in wireless communications and electronics altogether. While this promises yet, even more, research has led to the development of low-cost sensor networks. The sensors can be appliedin a variety of sectors, including the military, the home, and healthcare. In all the different application areas mentioned in this article, there are different technical issues that researchers are currently resolving these cutting-edge technologies include energy harvesting that is both efficient and wireless, which helps to enhance the efficiency of wireless communication networks and systems. The next generation of distributed sensor systems, including battery-free sensors, passive RFID, as well as IoT, 5G, and M2M solutions, will be accomplished by wireless power transfer (WPT), which is the key technology. Investigating how such cutting-edge technologies may support the design and creation of resilient and highly effective socio-technical systems, ultimately enabling the shift to a smart circular economy, is the last aspect to consider. Future and emerging technologies, such as 5G networks, the Internet of Things, By allowing resources to be tracked, shared, reused, and repurposed within the context of cutting-edge business and operation models, distributed ledger technology and crowd-sourced systems will play a significant role in the transition to a circular economy.

Smart Agriculture

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Abstract

Smart agriculture is a very new term and most of the farmers do not know what it is. The term smart agriculture refers to usage of technology like Internet of Things which enables interaction of various devices hardware as well as software based. The main goal of Smart Agriculture is to increase the quality and quantity of the crops while reducing human labor. The project is based upon smart agriculture. It involves connecting Hardware which includes components like NodeMCU ESP8266, DHT11, Soil Moisture Sensor and Solenoid Valve. It would tell us when to water the plants by using the reading from Soil Moisture Sensor.

Due to explosion in population researchers are scrambling to figure out how to feed the world. Soil plays an important role for irrigation. The better yield is possible of good amount of soil and water as well. But nowadays it's rarely possible to have good enough water as well as land. This what brings up the idea called Smart agriculture.

Smart agriculture is a very new term and the most of the farmers do not know what it is. The term smart agriculture refers to usage of technology like Internet of Things which enables interaction of various devices hardware as well as software based. The project starts from gathering information on each component that are required.

The main goal of Smart Agriculture is to increase the quality and quantity of the crops while reducing human labor. The project is based upon smart agriculture. It involves connecting Hardware which includes components like NodeMCU ESP8266, DHT11, Soil Moisture Sensor and Solenoid Valve. It would tell us when to water the plants by using the reading from Soil Moisture Sensor. Our project mainly triggers on one of the most common irrigational issues i.e., scarcity of water and so making it as problem statement we started our research on how to overcome this issue. Also, it's difficult to keep watch on the yield constantly to know whether water has been supplied everywhere. So as to reduce human labor we came up with the idea of smart agriculture with smart work.

Keywords

Irrigation, NodeMCU, Smart Agriculture, Smart Sensing, Soil Moisture Sensor

Blockchain Solutions for Data Security in the Financial Sector

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Abstract

Sectors like Finance are facing tremendous challenges in providing security to their confidential information. The financial industries face several challenges that need to be addressed. The industry is facing various challenges such as data breaches and keeping up with data privacy regulations. Blockchain technology is an emerging one nowadays. Blockchain Technology mainly provides trust, safety, security, and reliability. This paper mainly focuses on a rigorous survey to identify the gaps of existing systems and to provide suitable solutions using emerging, powerful Blockchain Technology, especially for data storage.

Keywords

Blockchain Technology, Finance, Data Security, Unified Payment Interface (UPI), Privacy, Data Storage

An Efficient Spreading Factor (SF) Allocation Scheme for Optimizing throughout the LoRaWAN Network

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Abstract

LoRaWAN technology has gained spacious attention for the wide-reaching IoT (Internet of Things) applications during the last decade. The LoRaWAN offers minimal power consumption and provides longer spectrum communications in real-time. This widely recognized LoRaWAN technology is facing multifarious restrictions nowadays because of speedy communication technologies progression all around the globe. Few of the major encountered limitations of this technology by previous researchers are but are not limited to restricted throughput along with the minimal PDR (Packet Delivery Ratio) in case of a large number of active nodes of the network in communication. In this article, the authors proposed an enhanced spreading factor (SF) allocation scheme for improving throughput as well as PDR of LoRaWAN networks. Further, the authors investigated scalability as well as node densification efficacy along with overall gateways over the communication system trustability. For analysis and validation of the suggested scheme, the authors proposed one optimization complication for deriving multiple node dispersal over diverse SFs (Spreading Factors) within the LoRaWAN spectrum along with multifarious gateways.
Later, researchers introduced a resilient algorithm that provides a means for convenient implementation of the SFs optimization through regulating the signal-to-noise (SNR) ratio. The overall PDR values over selected area from 10 to 50 KM for diverse 3 selected gateways i.e., 3 gateway, 5 gateway and 9 gateway are measured 0.4, 0.42, 0.5, 0.51, 0.57, 0.47, 0.43, 0.46, 0.47, and 0.49, 0.47, 0.55, 0.59, 0.64, 0.54, 0.53, 0.42, 0.5 and 0.55, 0.57, 0.6, 0.63, 0.65, 0.7, 0.55, 0.55, 0.55, respectively. The performance constraints of the suggested scheme have been measured as well as compared with existential protocols with higher accuracy. Our scheme demonstrates that it offers considerable, enhanced, and pragmatic throughput along with PDR values. In the future, there are prospects and studious scope for more enhancement in the existing scheme for finding improved outcomes.

(ACAD): Anti Crash Automatic Detection BOT

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Abstract

This paper describes an obstacle-avoiding robot vehicle and automatic braking system. The robot is created using an ultrasonic sensor and it's controlled by Arduino microcontroller. This project aims to scale back the number of accidents that cause the worst damages, serious injury, and even death using automation. This method detects obstacles and alerts the motive force through a buzzer and LED. Also, this technique has an automatic braking system whenever there's an obstacle in between. The rpm of the vehicle will be displayed on the LCD screen. The development, application, and technical implementation are all discussed in this work.

Keywords

I2C, Microcontroller, Speed Sensor Module, Ultrasonic Sensor

StoreIt-Well: An Application to keep Track of Seldomly Used Things

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Abstract

Storing some of the unaccustomed things and then being unable to retrieve them back whenever required is a general problem that an individual faces each and every day. This causes an end-moment rush and can even make a person incensed. It also causes anxiety and stress because, at times, those belongings may be very precious or have some memories attached to them. This may also include important documents, valuable stuff, or some gift for an important person. As a result of not being able to get that particular thing when required, it may lead to unnecessarily buying items despite having them at home. Many times, those things could be costly, and misplacing them may even cause financial issues in one's life. So basically, this small issue has serious and severe repercussions in human lives. Hence, in the project "StoreIt-Well", there is a provision made in order to get the better of the problem which everyone faces regularly in their lives. The project focuses on developing an application that can help individuals to make a note of which items are stored at what locations and can help in recovering the stuff with ease and trouble-freely. This will enable the users to discover their belongings quite easily, reduce their end-moment hustle and lessen the expenses involved. The main motive for building this aimed application is to make it convenient for easy operation. It will help the users to maintain their stuff in an organized manner and recover them effortlessly.

Face Recognition Based Smart Attendance System using OpenCV

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Abstract

The present work reports a face recognition-based attendance tracking system. It would be useful for educational institutions to improve and upgrade the existing attendance system to be more effective and efficient as compared to before. The system that has existed up to this date has not been able to deliver upon accuracy and efficiency of taking attendance. These systems lack proper controls and user intractability which prevented institutions from adopting to them in their early phase. The technology that binds this project is implementation of computer vision that detects human face. The human face is one of the features that are unique to each person. Due to this unique proposition of each person's face, it has a low possibility of being replicated in exact same manner. So, machine learning can be used to mark attendance by capturing image of human face. For that purpose, databases of every face will be created which are further used to provide data to the algorithm of recognition. Further, the face which is in front of camera will be compared to the faces in database to find similar match and identify the person from his specific face trait. If the face matches to the one in database, the necessary information will be accessed, and attendance of that person will be fed into a excel sheet.

Computer Vision based Parking Detection

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Abstract

The project paper reports an intuitive and simple method to monitor parking spaces. With the use of Python language, a Camera along with OpenCV library the computer is able to check and display free parking spaces. Empty parking spaces are then counted and displayed on a screen installed at the gate. The back end has been optimized to run on easily available hardware. With the help of the presented solution, the paper aims to automate parking spaces.

Legal Dimensions towards the Role of Artificial Intelligence and Trademark in Indian Corporate Sectors

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Abstract

The Trademark Law constitutes as one of the pillars of the Intellectual Property Law as well as the retail industry. Over the years, the trademark law has not only promoted retail growth by promoting several creators to establish their brands efficiently but also assisted consumers in making smarter and informed buying decisions. As decided in the landmark case of *Amritdhara Pharmacy v. Satyadev Gupta* , reasonable man's tests and overall impression test of the mark was the key principle while deciding the deceptive marks. However, there is a paradigm shift in the retail industry from seller's choice, choosing brands from super market, and to rely on the Artificial Intelligence seems to directly impact the very basis of the Trademark Law i.e. human frailty. This can be attributed to the tendency for AI softwares to filter and predict the needs and wants of the 'human' consumer. The biggest example of this is the Amazon 'Alexa' an artificial intelligence programme meant to assist humans in their everyday menial tasks as well as providing assistance with regards to their shopping experience. The software carefully limits the consumer market into 3 options, which include one Amazon's choice, one industry leader and finally one based on consumers past purchases and preferences. However, there exists a drawback to this software, as these options overlook consumer emotions and gives more importance to the price and speed of delivery.

Crop Disease Detection Using Convolutional Neural Networks (CNN) Model

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Abstract

Crop disease is a very important problem for small scale farmers, causing a threat to their life and food security. New Inventions in smartphone and computer models have made it possible for image categorization in the agriculture field. Through Convolutional Neural Networks and picture recognition we can detect the disease in the crops and take appropriate measures towards it. Crop diseases can cause a remarkable threat to food security, but its detection is very difficult in various parts of the world as there is absence of the critical foundation. In the field of leaf-based image categorization, the development of precise approaches has yielded excellent results. Using Random Forest, the data sets created for this paper are used to distinguish between healthy and diseased leaves. This new technology will help us to reduce crop diseases. The implementation phase in our study includes the dataset development, extraction, training of the model and classification. Healthy pictures and infected pictures are merged to form a dataset and then it is trained. Finally, we got about 90% accuracy using CNN model on different classes.

Keywords

Agriculture, CNN, Deep Learning, Plant disease detection

A Study of Deep Learning Models for the Analysis of Covid-19 Virus

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Abstract

The progress of precise recognition techniques and the evaluation of genetic connection are required for the reason that worldwide spread of COVID-19. A number of alignment-free techniques for viral identification were taken into account using the outcomes of genomic methods using nucleotide alignment. As Conservative techniques for COVID-19 detection are time consuming and require accurate variables in order to minimize or cut short errors which could possibly occur, the COVID-19 epidemic's necessity for early diagnosis and surveillance led to the deployment of Deep Learning (DL) technology for efficient evaluation. The intention of the current investigation is to lay out a thorough evaluation of the DL methods (DLM) utilized to evaluate the COVID-19 genome sequence. It aims to deliver a summary of earlier research and its COVID-19 applications.

Keywords

COVID-19, Deep Learning, ANN, RNN, Genome sequencing, SVM

Obfuscated Threat Detection Model using Learning Algorithms: Approaches, Datasets and Comparative Analysis

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Abstract

The network size and associated data have significantly increased as a result of the quick developments in the internet and communication areas. The resulting proliferation of innovative threats has made it difficult for network security to reliably identify breaches. Furthermore, it is impossible to overlook the existence of intruders who intend to conduct a variety of attacks against the network. One such technology is an intrusion detection system (IDS), which monitors network traffic to maintain the confidentiality, integrity, and availability of the network and guards against potential invasions. Despite the researchers' tremendous efforts, IDS still has difficulties detecting fresh intrusions and increasing detection accuracy while lowering false alarm rates. In order to effectively detect intrusions across the network, machine learning (ML) and deep learning (DL)-based IDS systems have recently been introduced as promising solutions. In order to provide a taxonomy based on the significant ML and DL techniques used in constructing network-based IDS (NIDS) systems, this article first explains the idea of IDS. The discussion of the advantages and disadvantages of the suggested solutions provides a thorough evaluation of the recent NIDS-based studies. We discussed a number of research issues and the potential directions for future work on ML and DL-based NIDS.

Recent Advancement in Material Science - A Survey

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Abstract

The objective of this paper is to bring a survey on recent advancements in material science.Although there is carbon fiber has been introduced for more than 150 years, it has only been improved through the manufacturing process in the last half century, so its excellent strength-to-weight and stiffness-to-weight ratio have been achieved. Sir Joseph Wilson Swan first created carbon fiber in 1860 to use as an early incandescent light bulb. In 1879, Thomas Edison used cellulose-based carbon fiber filament in some of the first light bulbs to be heated by electricity. In 1958, at the union carbide Parma technical center in Cleveland, OH, roger bacon accidentally produced the first petroleum-based carbon fiber when he tried to measure the triple point of carbon by heating stands of rayon in argon. Polyacrylonitrile (PAN) was the precursor employed by Dr. Akio Shindo of the agency of industrial research and technology in Japan in 1960. In 1963, British scientist W. Watt, L.N. Phillips, and W. Jhonson of the UK ministry of defense patented a new carbon fiber manufacturing. This manufacturing process created a much stronger carbon fiber product than the previous process yielded. a joint technology agreement made in 1970 allowed union carbide to produce the PAN–based carbon fiber previously only manufactured by the toy industry in Japan. Since late 1970, several other types of carbon fiber yarn have entered the global market.

Pet Adoption Website using HTML and MySQL

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Abstract

As we move towards nuclear families, we see more people becoming pet parents. Though the most common way remains buying pets, yet adopting pets would not just rehome a homeless, but also fill their lives with adoration they have pinned for. As in lockdown we saw everything moved online, so adopting pet too could go online. The following paper talks about a pet adoption website which is a novel concept. Website is the easiest way for customer to shortlist a pet and through map locate the nearest one for adopting. By creating an online pet adoption system, the user will be more convenient to adopt a pet rather than buy an animal. Not, only would it give another life to pet, but also prevent them from being on roads and contribute towards environment. Login page helps in managing authenticity of people posting and obtaining details of pets, thus preventing animal atrocities. The paper also talks about advantages of provision of a pet guide for food, vaccination, toys, clothes, and minute requirements to make users more inclined to adopt. Inclusion of contact details of NGOs and shelter home, gives users an assurance of well-being of pets to be adopted. Mapping the pets available for adoption, gives users a choice for selecting the one nearest to home and make the best choice amongst all pets.

Keywords

Map Integration, Pet Adoption, Pet Care, Website

HI-FI Mouse

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Abstract

The development of teaching methods using era-dependent innovative products to have a greater level of effectiveness is the primary problem in today's e-learning world. The current Virtual Mouse is changed to characteristic greater than a mouse and act as a mouse pointer additionally giving it the gain of all the capability of a mouse. In this paper we have discussed about a real time virtual mouse called HI-FI Mouse based on computer vision and hand gesture. The mouse is an exceptional invention in HCI (Human-Computer Interaction) era. Even while wireless or Bluetooth mouse are currently being developed, they are not necessarily completely tool-free and need battery and strong connection dongle. This study suggests a digital mouse device based on HCI that makes use of hand movements and computer vision. Gestures captured with an integrated digital camera or web camera and processed with detection method. The person can access the mouse functionality such as moving cursor, clicking, control volume and draw on virtual painter.

Keywords

Fingertip Detection and Tracking, Fingertip Gesture-based Interface, Human Computer Interaction (HCI), Hand tracking, OpenCV, Virtual Mouse

Trade-Labour Dichotomy- A Case of Mismanagement in Global World

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Abstract

The world has witnessed rapid changes since the advent of globalization. The phenomenon has started a race to form single market (economic globalization). WTO, World Bank and IMF promoted participation by removing barriers (liberalization) to international trade. The whole regime of trade law attempts to formulate theories to explain and justify effects of reduced barriers on price, income and employment. Conflictingly, trade negotiation rounds were kept focused on free flow of capital and reciprocity of benefits but tactfully set aside sensitive areas like agriculture, garments labour mobility and services outside. Developing countries have labour-surplus population which keeps labour-wages low. Low-labour wages is considered comparative advantage for these countries as low wages allow these nations to attract firms within their territorial limits. On the contrary, the industrialized nations are pointing out violation of human rights occurring in these developing countries. The 'comparative advantage' of developing nations is often argued as 'race to bottom' by human rights supporters. The paper identifies whether disguised protectionism on the part of developed nations, is motive behind advocacy for implementing labour standards in developing countries.

Keywords

Globalizations, Capital-Mobility, Labour-Mobility, Protectionism

Development of Chitoson, Graphene Oxide and Cerium Oxide Composite Blended Films; Anticancer, Antimicrobial and Antioxident Studies under In-Vitro Conditions

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Abstract

Cancer is considered to be one among the listed deadly disease which has always caused a great threat to people's health .In the recent past few decades, the treatment for various types of cancer includes surgery, chemotherapy and radiotherapy. These methods are found to be costlier and life threat for less immune peoples. Hence it is highly essential to seek methods which can diagnose cancer at early stage and it can be implemented with the usage of nanomaterials which are now becoming more and more popular in anti-tumor researches. In this study, a simple ultrasonic assisted chemical technique was involved to synthesis Chitosan/ Cerium oxide/ Graphene oxide (CS/CeO2 /GO) ternary nanocomposites. To confirm the physio-chemico properties of obtained nanomaterials, certain analytical works such as X-Ray Diffraction (XRD) and Fourier Transform Infrared Spectroscopy (FTIR) were performed. Their surface morphology and particle size was studied using transmission electron microscopy (TEM). Thin film device is constructed using developed nanocomposite and is subjected to MTT assay test (-3-(4,5-Dimethylthiazol -2-YI)- 2, 5Diphenyltetrazolium Bromide. To validate the developed thin film device to act as anti-cancer, anti-microbial and anti-inflammatory potentials.

Pharmacy Management using Java and MySQL

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Abstract

As the lockdowns have eased and the world has opened, we realise subtle changes around us. More focus on health is being emphasized and healthcare a sensitive but booming domain. Pharmacy Management system is the need of the hour. So, with a flexible base like Java will make Pharmacy Management easier, accessible, and available for use by Chemists readily to reduce their plight.

Keywords

Chemist, Java, Medicine, MySQL, Pharmacy Management, Pharmacy Software

AFC – Automatic Fare Collection System for Metropolitan Public Transport

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Abstract

Any city's operation, but especially the non-vehicle owning community, depends on public transportation. Corporation provided buses are the most popular mode of transportation and plays vital role in lifestyle. it is challenging to integrate electronic payments in buses due to the current system as a whole part of travelling in metropolitan cities. Internet of things-based automatic fare collection makes use of databases, RFID tags, and other technologies. An Arduino based database connected fair collection has introduced in paper. Contributing to smart city mission using digital methods of payment daily travelling can be made easy. With the same perspective electronics based automatic fare collection system has risen.

Keywords

Automatic Fare Collection, Contactless Payment, Embedded System, IOT, Public Transport

Design and Optimization of Heating Ventilation and Air Conditioning (HVAC) Systems for Analysis of Indoor Air Quality in Commercial Buildings

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Abstract

This research focuses on the modeling of an HVAC system, to calculate the amount of heat that can be created inside healthy buildings for the determination of indoor air quality. The Current scenario for the sustainable green building rules is superficial and unsuitable for selecting materials and creating ventilation systems that promote a healthy indoor atmosphere. To accurately represent the heat storage and heating ventilation characteristics of building components like walls and rooms was a challenge for us while constructing good models. Future technologies will typically be more responsive and occupant-specific. A "smart," responsive ventilation-building dynamic system will develop using natural ventilation, displacement ventilation, micro zoning with subfloor plenums, point-of-source heat regulation, and point-of-use sensors. The hierarchical control algorithm, which comprises a PID controller at a lower level and an LQR controller at a higher level, has now been introduced to regulate the design portion. A cost function with two quadratic terms is optimized by the LQR controller. One accounts for the degree of comfort, and the other for the control effort, or the number of resources used to run the HVAC system. Structural and thermal analysis, which is frequently used to illustrate sophisticated ventilation design methods, was introduced in our design system. We can see now through the design and analysis of the HVAC system how much energy we can save from this ventilation design system for healthy buildings.

Keywords

Automatic Fare Collection, Contactless Payment, Embedded System, IOT, Public Transport

Development of System for Connecting NGOs

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Abstract

India is a diverse country with many different sides, huge area and diverse culture. Though India has developed in various aspects there are still some areas where the development is lacking. Education, Social welfare, Human rights and Health are some areas where there is still scope for improvement. Various Social Groups and Organizations are working towards the development of this area. NGOs are the Non-Governmental Organizations working for betterment of India. NGOs are prominent organizations working towards this social goal and contributing in development of India. They play a significant role in carrying out various development initiatives for numerous field like Education, Health, Women Empowerment, assisting Old age people, spreading literacy among them and many more. In the contemporary world, connectivity plays an important role for communicating with people. There is a lack of communication between the Non-Governmental Organizations and the people who wants to contribute for these social cause. With the help of latest technology, This issue can be easily addressed. The proposed system is developed for resolving this issue. With the help of the proposed system, NGOs and society can utilize this connection for social services, promoting their work, making public aware of various events carried out by them for this social cause. The proposed system acts as a framework for collaboration between the organizations and the general public.

Keywords

Android Studio, JAVA, Xml, Android SDK, NGOs

EEG Based Emotion Analysis using Deep Learning Model

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Abstract

It is convenient to employ EEG signal capture for various applications because it is non-invasive and portable. An essential active BCI paradigm for understanding a person's inner state is the recognition of emotions based on BCI. Emotion recognition is a field of affective computing that could improve human relationships and human computer interactions. Emotions are affective states that influence behavior. Studying them might allow for self-managing emotions to increase emotional intelligence applied to work performance and other social situations. EEG signals can be acquired through BCI devices, which is a non-invasive method for capturing brain activity. In this work, a hybrid multi-input deep model using Bi-LSTM and CNN. Raw EEG data is processed by CNN to extract time-invariant features, and Bi-LSTM enables lateral interactions over extended distances between features. First, deep learning method for identifying emotions from unprocessed EEG information. Here, we can use the datasets called DEAP Dataset. Experimental results show the best performance of the system based on classification report to recognize the outcome of the system. Furthermore, we compare the classification performances of each algorithm based on performance metrics of accuracy, precision, recall and f1 score of the system. The results comparable with the state of the art research corresponding to a similar number of output classes.

A Comprehensive Analysis on Silent Heart Attack Detection using Deep Learning Models

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Abstract

A silent coronary heart attack is a heart attack with few or no signs or symptoms, or with signs and symptoms not currently diagnosed as a coronary heart attack. Asymptomatic coronary heart attacks may not cause chest pain and shortness of breath often associated with coronary heart attacks. The danger elements for a silent coronary heart assault are similar to the ones for a coronary heart assault with signs and symptoms. The objective of this work is to provide an exhaustive summary of all research works done by various authors in silent heart attack detection and prediction. In this work, we have outlined methodologies, problem, and performance indicators. A table that compares the effectiveness of various methodologies and various algorithms has been highlighted based on its application in the prediction of silent heart attacks. State-of-the-art technologies and various illustrations have also been shown visually on the prediction of heart attack and different methodologies that were deployed to carry out the research have been discussed in detail.

Energy-efficient and Context-aware Mobile Application Execution in Mobile Cloud IoT

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Abstract

Mobile Cloud Computing has become an emerging technology over the mobile and cloud computing technologies. In mobile cloud IoT platform, a smartphone is a very popular device in society due to ease of accessing the internet over wireless technology enabling the mobility. To overcome the obstacles of ever-increasing computational and energy demands of smartphone real- time applications, the research have been done for the computing capability of cloud computing for mobile devices. To further enhance the performance of the energy-efficient MCC framework, the work can be enhanced on mobile networking. MCC can provide the services to the numerous mobile users at the same time. However, it causes discomfort to mobile networks while providing the services to mobile application processing. Hence, the future attention of the research can be aimed at processing the mobile applications on a remote server while ensuring the context-aware execution even in the increase of the congestion rate in mobile networks. This paper discusses how to ensure energy-efficient and context-aware mobile application execution in mobile cloud IoT.

Keywords

Mobile Cloud Computing; Mobile networking; Context-aware execution; Energy-efficiency, Mobile applications; Mobile Cloud IoT

Augmented Reality - An Overview

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Abstract

This paper surveys the field of augmented reality, in which 3-D virtual objects are integrated into a 3-D real environment in real-time. In recent years, several articles and scientific study findings have been published on AR by an increasing number of universities, research institutions, and businesses of international repute. It describes the medical, manufacturing, visualization, path planning, entertainment, and military application that have been explored. It describes the characteristics of augmented reality systems, including a detailed discussion of the trade offer between optical and video blending approaches registration and sensing error are two of the biggest problem in buildings affected by augmented reality systems. These findings support the viability and inventiveness of augmented reality as a tool for human-computer interaction. As computer software and hardware have become more powerful, augmented reality (AR) has gradually moved from the theoretical research stage of the laboratory to the stage of mass and industry application.

As a link between the digital and physical worlds, AR offers people a new way to perceive and interact with the objects around us. As a result, this report describes current attempts to address these issues. Future discussion and areas requiring Future discussion and areas requiring additional research are covered. This survey is a good place to start if you're interested in exploring or using augmented reality.

Dispensation of Credit and Guarantors Obligation: An Indian Perspective

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Abstract

The topic is of essence keeping in view the credit dispensation for need and development, besides, for addressing to different sectors of economy. The Banking system is disciplined to adhere credit norms which require security for sanction of credit and in addition seek the guarantees for repayment of debt. The law governing guarantors and providing inter-se obligations of guarantor, principal debtor and that of creditor is covered by the Indian Contract Act, 1972. This position is forcing the guarantor for waving what law has given to him. In the changing economic scenario there is need to ponder on the situation credit dispensation with review towards guarantors obligation .The topic is deliberated on doctrinal methodology with a research question as to genesis for guarantors presence in loan transaction and tarnishing his right by permissible contractual metaphor and/or gimmick as hypothecated /assumed which is established prima-facie in the Research Paper.

Keywords

Credit dispensation, Guarantees, Right, Obligations, Creditor, Principal Debtor, Debt Standard Form of Guarantee Agreement

Parking Slot Allotment using OpenCV

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Abstract

One of the key elements of a proper urban civilization is proper management of parking space. Not only does proper management help reduce land wastage, it saves a huge amount of time and contributes the same to productivity. In this paper, we propose a system that will be useful for real-time assignment and allotment of parking slots based on visual input. This will be useful for both users and non-users, as it will save precious time that would've been otherwise wasted.

Keywords

Parking Slot Assignment; Allotment Rule; Time Management; OpenCV

A Comparative Study of few Image Processing Algorithms

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Abstract

There are a lot of image processing algorithms available to us. This paper is a comparative study of few image processing algorithms namely Inpainting, Denoising, Resolution enhancement and contour detection. In this paper we have compared the two inpainting algorithms namely NS and Telea using the SSIM and MSE technique. Also, we have compared the High-Resolution images obtained by EDSR and FSRCNN method. For studying and comparing these algorithms we have used the OpenCV library.

Keywords

Inpainting, Denoising, Contours, OpenCV, Skimage, Resolution

Fire Detection Alarm System

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Abstract

Fire disaster is a threat to the lives of thousands of people. A fire detection alarm system comprises of different electronics/ electrical equipment. This paper describes the design of fire detection alarm system which is developed by using ESP 32 module and flame sensors. The main objective of the project is to avoid the fire accidents and to fulfil two major requirement protection of life and protection of property. ESP 32 module has integrated Wi-Fi and provides dual mode Bluetooth connectivity. It is capable of working in any environmental conditions with an operating range of temperature from -40 degrees to +125 degrees and has wide range of application. The project uses Embedded C programming language which provides the function to program the ESP 32 with the Arduino ide The project is linked with IFTTT server through which the user get the notification or alert message. Flame sensors are sensitive to normal light that's why it is used in sensor module it has detect flame of wavelength within the range of 760nm-1100nm. The module has a photodiode to detect the light and an operational amplifier to control the sensitivity. It is used to detect fire and provide a 0 or 1 signal upon the detection. The ESP 32 module reads the signal and provide alert by turning on the buzzer and simultaneously sends a mail to the user about the fire detection through the help of IFTTT server. Through this technique, it can help users to enhance their safety standards by having instant response in preventing accidents.

Global Benchmarking –The case of Ethiopian Footwear Industry

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Abstract

Increased competition in the footwear apparel trade has already causing firms to focus upon resource utilization at optimum level and work on cost structure which is efficient and creates value for the organization. Benchmarking provides a tool to the organizations to compare their performance with the best practices in the sector and thereby develop capacity to perform better. In the manufacturing sector particularly, it is important that bench marking implementation shall follow a clear strategy to implement rather selective approach basis. The selective approach many a time does not leave a desired outcome. However, for long term outcome it is important the organization shall take the approach on overall organization basis. This paper discusses the implementation strategy of the Global bench marking for footwear sector in Ethiopia for select footwear companies undertaken by the Government of Ethiopia with the objective of enhancing the competitiveness.

Keywords

Footwear, Global Bench Marking, Productivity

HYDROGEN: A Clean and Green Energy for Future

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Abstract

Hydrogen, the lightest element is most abundant element found in universe including the main sources of energy on the earth i.e. the Sun and the largest planet in our solar system i.e. the Jupiter. The first internal combustion engine was made in 1806 using the mixture of hydrogen along with oxygen as fuel and the National Aeronautics and Space Administration (NASA) started using it in 1950s that means from beginning scientists believed that hydrogen can be the fuel in future. Most of the powerful country in this world like China, Germany, Japan, UK, Australia, and many other European countries along with the Arab countries with the largest oil reserves claims that Hydrogen is the clean and green future fuel and are working on it with big projects and investments. Hydrogen is colorless, tasteless, odorless, non-toxic, highly combustible, lightest, diatomic and simplest member of the family of chemical element. It can be available unlimited and cheap as energy carrier because of ease in stocking and transportation in liquid state and its non-polluting quality. It can be produced easily by electrolysis of water to an efficiency of 95-100% and with some modification it can be produced in large scale. The other methods of producing hydrogen are natural gas reforming, charcoal gasification and many more. The inverse electrolysis process can produce electricity using hydrogen and oxygen that can be used to charge battery. At last, Hydrogen is best green and clean energy for future and sustainable development.

Recent Advancement in Wireless Communication – An Overview

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Abstract

It has become clear that there are a number of related technical and socioeconomic areas whose understanding is still far from satisfactory and in which long-term research is required as a result of the emerging communication and networking technologies and the manner in which these are being integrated into the human, industrial, and social framework. Meanwhile, a number of emerging concepts like cloud computing, the Internet of Things, web 3.0, and green radio have been proposed in communication and networking. The research on emerging communication and networking technologies is considered a global research challenge. This paper aims to investigate the experiences of social work educators who used technology to educate during the COVID-19 pandemic. Over the last decade, there has been a move to digitalize higher education in many countries worldwide. The COVID-19 pandemic has sparked a rapid mass flight from the classroom to the home office and brought to light a number of issues, including the global digital divide. In this study, information acquired from a global questionnaire that asked educators' opinions on a range of topics linked to working during COVID-19 was analyzed. A thematic method was used to identify the data. The results showed that social work educators, in general, were favorable to online teaching, although the findings highlight critical areas that require consideration in the climate of increased digitalization and the lack of assurance regarding the timing of returning to a comfortable teaching setting. These results are taken into account in the context of critical pedagogy-based social work education. The findings have implications for achieving a practical balance between in-person education and online learning.

A New Revolution in the Tourism Industry with 'TOURISTRY'

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Abstract

This paper is a brief on the website 'TOURISTRY'. We have created a website that contains all the information related to all the forts, historical places, picnic spots, worship places, IT parks, etc. in a specific city. Our website is created considering the need of the tourists for touring around a totally unknown city. This website will help not only tourists but also the residents of that particular place who are somewhat unaware of their city.

Keywords

E-business, Tourism, Tourism Website, Website Evaluation

Right of Blood -Web Based Blood Bank Management System

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Abstract

Hospitals are having a lot of trouble finding blood donors as demand for their services has increased. Hospitals are in need of blood, and individuals today are happy to donate it. In order to connect donors and receivers during that moment of need, this research effort recommends a web-based online blood donation system that provides a platform of contact in case of need. A website that allows users to donate blood to those in need is called the Web-based Online Blood Donation System. The hospitals, businesses, and donors who have signed up are all represented on this website.

Keywords

Online Blood Bank, Database Management, Donors

Credit Card Fraud Detection

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Abstract

Because of cashless transactions, everyone uses cash cards and credit cards, which can increase fraud.
Each year, fraudulent credit card transactions cost billions of dollars. Developing effective fraud detection algorithms is important to reduce these losses, and more and more programs are using advanced machine learning approaches to assist fraud investigators.

Keywords

Machine Learning, Python, Jupyter Notebook, Logistic Regression

Performance Analysis of Micro Finance Banking in Selected Area of Rajasthan and Gujarat

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Abstract

This review paper intends to measure the determinants of performance of Indian financial sector. The performance variables of banking sector and microfinance institutions in India are studied over a study period of six years i.e. 2006-07 to 2011-12. The financial sector of India is gaining strength over the years and its contribution to growth is overwhelming. Banks are considered the main component of Indian Financial Sector. Indian banking sector is providing new and improved financial services to economy and masses over the years. The banks have achieved the above objective in some areas but failed to reach to other areas. To fill this gap of access Microfinance Institutions were established in India. The main objective of MFIs is to reach to masses to which banks are not able to provide the services. The main intention of establishing MFIs was to fill the gap of access to financial services by poor people. So, overall the mixed results are obtained from the study. The performance rotates around mainly two variables i.e. size and spread to total assets. All other variables are either negative or insignificant or both to the performance of banks and microfinance institutions. The paper conducts a detailed examination of the existing evaluative frameworks for microfinance institutions to gauge the differences and similarities. Efficiency evaluates how MFIs are meeting the performance standards considering time and budget constraints. Outreach evaluates the effectiveness of MFIs in reaching the beneficiaries. Relative efficiency scores were calculated using data envelopment analysis and outreach was measured in five different dimensions (pentagon model). Further, cluster analysis assisted in categorizing the MFIs into five value clusters. The study compares both outreach performance and relative efficiency scores employing ANOVA and correlation analysis. The study was conducted among the Indian context when the sector was hit by crisis during 2010. Paper brought out important insights about the sample. Indian MFIs were found to be more socially efficient, since the social dimension taken into consideration was number of female clients and majority of Indian MFIs has exclusive female focus. The correlation tests found that relative efficiency scores are positively related to depth (poor focus) and length (sustainability) outreach. The results showed that cluster analysis model basing outreach scores was more comprehensive and captured more information compared to the data envelopment model relative efficiency scores. The study is original in its approach in using cluster analysis for outreach performance and in the objective of comparing the two different models.

Text-to-Speech and Speech-to-Text Converter – Voice Assistant

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Abstract

According to the International Agency for Prevention of Blindness's Vision, there are around 32 million people who live with avoidable blindness and a further 259 million with preventable visual impairment that is decent to acute. Though there may be a few existing solutions to this problem, none of the solutions provide an all-in-one experience like this project does. This Voice Assistant can not only be used to read a Word document or a PDF file but also search content on Google or Wikipedia. Along with the Voice Assistant, the project includes a website with comprehensive documentation, a guide to using the Voice Assistant, certain prerequisites to use the Voice Assistant on the device, and the links to download the source code and setup of this Voice Assistant.

Keywords

Voice Assistant, Read, Search Contents, Website, Documentation, Guide, Prerequisites, Download

Machine Health Monitoring Using Vibration Analysis

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Abstract

Vibration Analysis is one of the most critical factors in looking after the machines' health. In other words, it is necessary to analyze the vibration to protect and maintain consistency in the machine's performance. Vibration Analysis is the process of measuring the vibration levels and frequencies and using that information to boost the health of the machinery and its components.

Excessive vibration is the root cause of the damage to vulnerable parts and components of the machine. Monitoring a machine will help us to retain its effectiveness and performance by leveraging its capacity.

In this paper, we propose that machine health achievement can be easier by a cost-effective vibration monitoring system to monitor the machines' vibration remotely at any time.

This method will help you to detect the problems such as;

- Bearing failures
- Imbalance
- Mechanical looseness
- Electrical Motor Shafts
- Misalignment
- Resonance and natural frequencies
- Gearbox failures
- Critical speeds, etc.

It will help the maintenance department to detect the issue up to the minute and resolve it precisely to improve life expectancy.

Besides, we establish a relationship between machine vibration, quality, and age.

Facial Detection and Recognition using Python

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Abstract

During the situation of pandemic, we face many difficulties during online lectures and meetings, and one of the difficulties in managing the attendance of an individual, it is a very time consuming process to take attendance in a traditional method. It is difficult to know whether on the other side is the same person attending or a different person to overcome these we have made a website named AttenDee. The website is also be used in detecting face masks. AttenDee is a website that anyone can use by simply logging in to it. It will save your logging information and will create your account so that you will not need to log in again and again. It is made by using python, HTML, and DMS. Due to this website, it will be easy to take attendance and save it. It also provides many features like a teacher dashboard, student dashboard, attendance report, etc. This website can be accessible by the laptop as well as smartphone also, which makes this website is flexible and userfriendly.

Keywords

Attendance, Authentication, Face Detection, Recognition, Website

Translation Studies in Exploring the Dynamics of English Didactics

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Abstract

Translation studies is an ancient as human culture. With the help of the translation many scripts or Manu script is translated in his owns' languages. In 16th and 17th century use the translation as a means to study and teach Latin and Greek Language. Translation-Cum-Grammar methods came in existence throughout the world to study and teach a foreign language in an easily way.

Keywords

Translation, Grammar, Transfer text, Source, Target Language

Performance analysis of RIT origination using Enterprise Resource Planning ERP

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Abstract

Purpose: In the literature, there is not sufficient research on the impact of Enterprise Resource Planning (ERP) usage on firm performance for small and medium-sized organizations. Therefore, the purpose of this paper is to provide clarifications regarding this topic by investigating two research questions:
What factors drive ERP usage in small- and medium-sized RIT enterprises? Does ERP usage affect Firm Performance in small- and medium-sized RIT enterprises? Design/Methodology/Approach: To approach our research questions 10 hypotheses are constructed based on previous studies. Further, to gather the data required to test these hypotheses, a survey was sent to 1000 RIT small- and medium-sized enterprises which generated 100 responses. The data was later analyzed using a Partial Least Square Structural Model. Findings:
The first outcome of this study is that the main drivers of ERP usage in RIT small- and medium-sized enterprises are Top Management Support and Effective Project Management. The second outcome is that ERP usage has a significant positive impact on Firm Performance. Contribution/implication: The main practical contribution derived from our results is that small- and medium-sized firms should focus on Top management support and Effective project management to increase their ERP usage, which in turn could lead to greater levels of firm performance. In the theoretical spectrum, we contribute to the literature by enhancing the importance of effective project management not previously tested in the ERP usage context and by adding question marks regarding the effect of certain variables on ERP usage.

A Succinct Review on Blockchain Technology

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Abstract

The newest and most promising technology in the contemporary economy is blockchain. This technology can aid in the resolution of a variety of industry issues, including trust and transparency and security, and the dependence of processing of data. In principle, using blockchain technology produces excellent and beneficial outcomes, but what can be said about actual usage? This paper describes the blockchain technology and analyzes its benefits and drawbacks. Numerous already used blockchain applications have been examined and have an impact on deployment success or problem aspects. This essay seeks to seek the advantages and downsides of integrating and applying blockchain technology across many modern industrial sectors

Keywords

Blockchain, Cryptocurrency, Ethers, Hash Key, Security

Blockchain in IoT

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Abstract

IoT is a new invention in information technology that aims to connect the physical and digital worlds. It presents a smartness vision by facilitating communication between items and individuals over the Internet. The connectivity of smart devices to gather data and make smart choices is described as the Internet of Things (IoT). However, the lack of inherent security safeguards exposes IoT to privacy and security concerns. Blockchain is a popular study topic that can be used for the majority of IoT applications. Including its "security by design," blockchain can help tackle security related challenges in IoT. Blockchain properties such as immutability, transparency, auditability, data encryption, and operational resilience can assist address the majority of IoT architectural flaws. This paper provides an in-depth examination of Blockchain and IoT connectivity. This report's aim is to assess current developments in the field of using blockchain-related techniques and technologies in IoT environments.

Legal Dimensions relating to Consumer Food Preference and Brand Association in India: Special Reference to Rural and Urban Lifestyles

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Abstract

Background: India's development is visible both in small and large cities. Furthermore, enormous growth has occurred across industries, resulting in larger pockets. The food and beverage industry is also flourishing, due to the emerging middle class's desire to try new cuisines and the desire to replicate the western way of life.
Findings and Outcome: Urban growths, changes in lifestyle and increased number of nuclear families are just a few of the primary reasons driving the global demand for packaged and processed foods.
Objective: The main objective of the research is to find out the consumer food preferences are likely to vary due to increased economic power, changes in demography, and empowered consumers
Conclusion: The study aims to investigate the food brand association of people of Odisha based on headquarters of three revenue zones. The study also tries to establish the link of brand association with consumers' response and how the association affects the consumers' response to prefer & recommend the brand and to accept its extended product & the willingness to pay price premium.

Keywords

Nuclear Families, Emerging Economies, Conventional Joint Families, Consumer Food Preferences

Smart Electric Car

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Abstract

The automated rain wiper system detects rainfall and automatically activates automobile rain wiper without driver interaction. The system is developed to mitigate driving distractions and permit drivers to specialize in their primary task of driving. The distraction eliminated with the event of this product is that the manual adjustment of windshield wipers when driving in precipitation. The few seconds that a driver takes their attention off the road to regulate a knob while driving in poor weather could potentially cause car accidents. The system uses a mix of impedance and rain sensor to detect rain and its intensity. While driving a car in night a controversy like many drivers don't dip the headlamps of their vehicles in night while approaching. The switching operation is employed to dip the pinnacle light which can distract the concentration. Automatic upper dipper is that the latest convenience in today's cars. This eliminate the necessity for the motive force to manually turn on or throw the dipper beam in most driving situations. Electronics devices are capable of replacing human in various non- stop duties. Some typical A typical reason the device is preferable over human is that it can work faster and more reliably feel tired. Device that's accustomed do endless measurement is commonly called monitoring system. Such quite device can measure physical information about an object with help of sensors. a tool equipped with data logging shield can ea data logging shield can even save the information into a memory card. one in every of the important applications of electronic monitoring system is vehicle detection system.

A Convenient Remote Keyboard for Challenged People and Children

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Abstract

The keyboard is aimed towards the welfare of visually impaired people. The visually impaired have an exposure to all the latest equipment made especially for them, but none has attempted a better research over this issue. Hence, this paper is sure to create a revolution in its own field and ensure complete support from people of different societies. This project helps the visually impaired and children to interact and learn with the computer system at a maximum probability and easier to communicate. At the international arena this project will definitely achieve greater heights and is expected to be welcomed by communities for helping the blind.

Keywords

Keyboard, patients, virtual, Arduino board, wireless

A Review of Properties of PP Fibres When Exposed to High Temperatures

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Abstract

Despite being strong under compression, concrete is rather weak when subjected to tensile stress. Concrete has been reinforced with a variety of materials over time in order to resist tensile stresses. Among various types of fibers, polypropylene fiber, which is available in a range of sizes, is being used to strengthen concrete. The fiber also increases the concrete's toughness, durability, and low permeability. Polypropylene fibers may be utilized in place of conventional reinforcement, according to a number of researchers. The aim of this study is to collect information from already carried out research on polypropylene fibers. Important characteristics of concrete, such as workability, compressive, tensile, and flexural strength, are reviewed. The review also explores failure modes of polypropylene fiber reinforced concrete. Furthermore, durability aspects, such as water absorption, porosity, dry shrinkage, and microstructure study (scan electronic microscopy), were also reviewed. Results indicate that polypropylene fiber improved the mechanical strength and durability of concrete (particularly tensile capacity) but decreased the flowability of concrete. The optimum dose is important, as a higher dose adversely affects strength and durability due to a lack of flowability. Scanning electronic microscopy results indicate that the polypropylene fibers restrict the propagation of cracks, which improves the strength and durability of concrete. The review also indicates that shrinkage cracks are considerably reduced with the addition of polypropylene fibers. Finally, the review also provides future research guidelines for upcoming generations to further improve the performance of polypropylene fibers that reinforce concrete.

Keywords

Fiber Reinforced Concrete, Polypropylene Fibers, Compressive Strength, Failure Modes, Cracking Behaviours

Smart Traffic Control System

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Abstract

Fatigue, increased gasoline use, energy waste, higher fuel prices, air pollution, accidents, and verbal and physical altercations among commuters are just a few of the negative repercussions of traffic congestion on the roadways. Cost, unreliable technology, and the incapacity of the current system to include parts of the new technology are just a few of the difficulties that need to be overcome. In this way, traffic management systems can be extended and improved utilising inexpensive techniques.

Keywords

Image processing, Microcontroller, OpenCV, Traffic management

Hand Gesture Wheelchair Control using Raspberry-Pi

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Abstract

We know wheelchair is used for helping disable people and it requires more strength to move the wheels on their own and sometimes they receive help from others that doesn't mean those people will help them everyday. So, here we are making it easier for them to move the wheelchair on their own without implying strength with the help of only their fingers yes we introduce our wheelchair which moves with the help of hand gestures. Our wheelchair is controlled by Raspberry-pi. We have installed camera through which we will detect hand gestures. This gesture will be recognized and mapped to actions defined. The wheel chair will perform movements based on the gesture recognized. Apart from this NodeMCU is used for Home Automation. ThingSpeak is used as a cloud server to connect Raspberry Pi to NodeMCU over internet. Our main aim is to make movements of the disabled people easier I.e. To make a wheelchair using hand gesture reorganization and installing home automation to make their work flow easy and smooth that is to switch on lights or AC/fan or other appliances with just a click.

Keywords

Wheelchair, Hand Gesture, Home Automation, Cloud server, Raspberry-pi, NodeMCU, Camera

Door Lock System using Password

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Abstract

The aim and object of this project are to prepare a Door Lock System for a secure door lock. What this project will do is, create passcode-based door lock which will open only if correct passcode is entered, which will result in glowing of green light and the buzzer will beep once but if wrong passcode is entered then red light will lit and buzzer will beep twice.

Keywords

Door Lock system, Passcode, Light, Buzzer

Personal Finance Management Application for Students

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Abstract

Nowadays students spend a lot of money unknowingly. Making and sticking to a monthly or daily budget can be critical for your financial management and your financial success. Especially when you're just starting, knowing how much money enters and exits your household regularly is a habit you want to develop. Hence, it is very important to maintain the money by keeping a budget. The best budget tool for you is the one you'll use, whether that's a full-featured app, a spreadsheet, or more manual means. Personal finance apps can connect with your bank account and help you keep up with your spending. Not only that, but these apps can also help you figure out which categories you spend the most in and track upcoming bill payments.

Keywords

Finance, Money, Savings, Investment, App

Unexplored-Maharashtra

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Abstract

Tourism in the modern world has surpassed its status as a significant source of foreign currency both developed and underdeveloped countries' economies.
Consequently, offering effective Tourism-related information has increased vital in obtaining the advantages arising from that area of the global economy. This research work suggests a research plan to enhance and improve the level of tourism.
The text explains the working's overall design principle, followed by an explanation of the design detailing the system's software in addition to the introduction of the system's software design flow.

Keywords

Maharashtra tourism, CSS, Javascript, HTML

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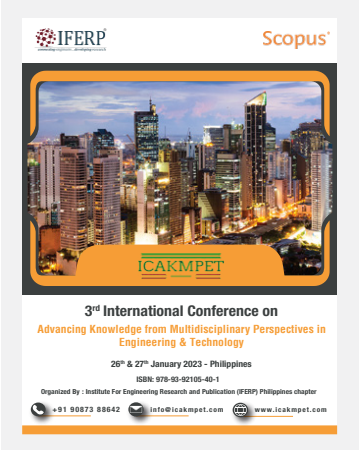

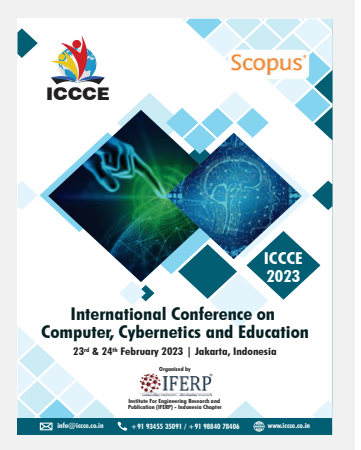

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