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ISBN : 978-93-92105-38-8

43rd World Conference on

APPLIED SCIENCE, ENGINEERING & TECHNOLOGY

"Technological Developments & Modern Trends in Applied Science and Advanced Engineering"

29th & 30th December 2022

Goa, India

Organized by :

Padre Conceição College of Engineering

In association with :

Institute For Engineering, Research and Publication (IFERP)

ISBN : 978-93-92105-38-8

Publisher : IFERP Explore

ISBN : 978-93-92105-29-6

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Editorial

We cordially invite you to attend the **43rd World Conference on Applied Science, Engineering and Technology (43rd WCASET-2022)** which will be held on ***29th & 30th December, 2022*** - Goa, India . The main objective of **43rd WCASET-2022** is to provide a platform for Researchers, Students, Academicians as well as Industrial Professionals from all over the world to present their research results and development activities in relevant fields of Science, Engineering and Technology. This conference will provide opportunities for the delegates to exchange new ideas and experience face to face, to establish business or research relationship and to find global partners for future collaboration.

These proceedings collect the up-to-date, comprehensive and worldwide state-of-art knowledge on cutting edge development of academia as well as industries. All accepted papers were subjected to strict peer-reviewing by a panel of expert referees. The papers have been selected for these proceedings because of their quality and the relevance to the conference. We hope these proceedings will not only provide the readers a broad overview of the latest research results but also will provide the readers a valuable summary and reference in these fields.

The conference is supported by many universities, research institutes and colleges. Many professors played an important role in the successful holding of the conference, so we would like to take this opportunity to express our sincere gratitude and highest respects to them. They have worked very hard in reviewing papers and making valuable suggestions for the authors to improve their work. We also would like to express our gratitude to the external reviewers, for providing extra help in their view process, and to the authors for contributing their research result to the conference.

Since October 2022, the Organizing Committees have received more than 150 manuscript papers, and the papers cover all the aspects in Electronics, Computer Science, Information Technology, Science Engineering and Technology. Finally, after review, about 111 papers were included to the proceedings of **43rd WCASET-2022.**

We would like to extend our appreciation to all participants in the conference for their great contribution to the success of **43rd WCASET-2022**. We would like to thank the keynote and individual speakers and all participating authors for their hard work and time. We also sincerely appreciate the work by the technical program committee and all reviewers, whose contributions made this conference possible. We would like to extend our thanks to all the referees for their constructive comments on all papers; especially, we would like to thank to organizing committee for their hard work.

Message from Managing Director

Mr.Siddth Kumar Chhajer
Managing Director & Founder
IFERP, Technoarete Groups

On behalf of IFERP & the organizing Committee, I express my hearty gratitude to the participants, keynote speakers, delegates, reviewers and researchers.

The goal of the **43rd WCASET** 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. WCASET 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.

43rd WCASET 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. WCASET hopes to set the perfect platform for participants to establish careers as successful and globally renowned specialists in the field of science, engineering & technology.

A. Siddth Kumar Chhajer
Managing Director & Founder
IFERP, Technoarete Groups

Message from Chief Executive Officer

Mr.Rudra Bhanu Satpathy
CEO & Founder
IFERP, Technoarete Groups

IFERP is hosting the **43rd World Conference on Applied Science, Engineering and Technology** this year in month of December. The main objective of **43rd WCASET-2022** is to grant the amazing opportunity to learn about groundbreaking developments in modern industry, talk through difficult workplace scenarios with peers who experience the same pain points, and experience enormous growth and development as a professional. There will be no shortage of continuous networking opportunities and informational sessions. The sessions serve as an excellent opportunity to soak up information from widely respected experts. Connecting with fellow professionals and sharing the success stories of your firm is an excellent way to build relations and become known as a thought leader.

I express my hearty gratitude to all my Colleagues, staffs, Professors, reviewers and members of organizing committee for their hearty and dedicated support to make this conference successful. I am also thankful to all our delegates for their pain staking effort to make this conference successful.

Rudra Bhanu Satpathy
CEO & Founder
IFERP, Technoarete Groups

Message from Session Speaker

Mr. Nilabdhi Samantray
Vice President, Head -Data Science & Artificial Intelligence, CSM Technologies
Bhubaneshwar Area, India

I am enormously delighted to participate in the "43rd World Conference on Applied Science, Engineering &Technology" (WCASET-22) which is organized By Padre Conceição College of Engineering, Goa in association with Institute for Engineering Research and Publication (IFERP).

Analytics, Artificial Intelligence and Data Science are powerful tools that have the potential to revolutionize the way we work, live, and play. AI has already made a significant impact on various industries such as healthcare, Agriculture, Food, Telecom, Mining, finance, transportation, education etc., while data science is being used to unlock new insights from huge amounts of data. There is no doubt that Analytics, artificial intelligence (AI) and data science are the most talked about and researched topics in the tech world today. But what are the other related emerging technologies, and what impact will they have on our lives?

I am certain that this conference will provide researchers and scholars an insight into theoretical and practical backgrounds related to these emerging technologies.

My special thanks to the organizers for their great efforts in making this scientific event remarkable, stimulating, and successful. My thanks also go to all the participants. Wishing you all the best.

Message from Session Speaker

Mr. Arijit Bhattacharyya
Founder, World Leader Summit
Kolkata, West Bengal, India

I am enormously delighted to participate in the "43rd World Conference on Applied Science,Engineering &Technology" (WCASET-22) which is organized By Padre Conceição College of Engineering, Goa in association with Institute for Engineering Research and Publication (IFERP).

I am NOT a professor rather an Entrepreneur Since 1998, Investor, Mentor (globally about 95 countries) globetrotter, author "I call entrepreneurship is Like Riding a Tiger, when you start your startup- it's a small cub, eventually you feed milk to it, when it's big you have intention to ride on the top, now it needs meat - that's money and the risk is you can't stop if the Tiger is hungry, so it's an art how you keep riding your own startup and make it big with a thrill . I am glad to be a speaker in "43rd World Conference on Applied Science, Engineering &Technology" (WCASET-22) which is organized By Padre Conceição College of Engineering, Goa in association with Institute for Engineering Research and Publication (IFERP).

By and large, in this era, the Internet, the Internet of Things, advanced and smart technologies, deeptech, AR combined with Blockchain and encryption level, and other advancements the industry is getting different vertical of way forward. I am certain that this conference will provide researchers and scholars with in-depth insight into theoretical and practical backgrounds related to sustainable technologies.

I wholeheartedly appeal to all participants to move forward to conduct further advanced research in Sustainable Technology.

My special thanks to the organizers for their great efforts in making this scientific event remarkable, stimulating, and successful. My thanks also go to all the participants. Wishing you all the best."

My special thanks to the organizers for their great efforts in making this scientific event remarkable, stimulating, and successful. My thanks also go to all the participants. Wishing you

all the best.

Message from Session Speaker

Prof. Md. Zahir Uddin Arif
Former Chairman & Former EMBA Program Director
Department of Marketing
Faculty of Business Studies Jagannath University, Dhaka
Bangladesh.

I am enormously delighted to participate in the "43rd World Conference on Applied Science, Engineering & Technology" (WCASET-2022) which is organized By Padre Conceição College of Engineering, Goa, managed by Agnel Charities, approved by AICTE and affiliated to Goa University in association with the Institute for Engineering Research and Publication (IFERP).

By and large, in this era, business, management, marketing, digitalization, ethical use of human resources with use of the Internet, the Internet of Things, advanced and smart technologies and other advancements in sustainable technologies have become the most indispensable parts of human life. I do believe that this conference will provide academicians, researchers and scholars with in-depth insight into theoretical and practical backgrounds related to business, management and marketing with the proper application of sustainable technologies. I wholeheartedly appeal to all participants to proceed and carry out additional cutting-edge research in business, management and marketing with sustainable technology.

I would like to congratulate and thank to the organizing committee and other associated team members of this international conference for their great efforts in making this scientific event remarkable, stimulating, and successful. I am thankful to all the participants under this platform of acquiring and dissemination of knowledge through research and development activities.

I wish you all the best.

Message from Session Speaker

Prof. Dr. Patrick Glauner
Professor of Artificial Intelligence
Deggendorf Institute of Technology
Deggendorf, Germany

I am enormously delighted to participate in the "43rd World Conference on Applied Science, Engineering &Technology" (WCASET-22) which is organized By Padre Conceição College of Engineering, Goa in association with Institute for Engineering Research and Publication (IFERP).

By and large, in this era, the Internet, the Internet of Things, advanced, smart technologies, artificial intelligence, and other advancements in sustainable technologies have become the most indispensable parts of our life. I am certain that this conference will provide researchers and scholars with in-depth insight into sustainable technologies, both from a theoretical and application perspective.

I wholeheartedly appeal to all participants to move forward to conduct further advanced research in sustainable technologies. I particularly see great potential for quantum computing in this field.

Quantum computing allows to solve certain optimization problems substantially faster. With larger quantum computers becoming a reality, they could further skyrocket the field of sustainable technology in the coming years.

My special thanks to the organizers for their great efforts in making this scientific event remarkable, stimulating, and successful. My thanks also go to all the participants.

Wishing you all the best.

Message from Session Speaker

Dr. Vimukthi Jayaweera
Head and Senior Research Scientist
Printed Electronics and Sensors Group & Graphene Research, Sri Lanka Institute of Nanotechnology (SLINTEC), Colombo, Sri Lanka

I am ecstatic to participate in the 43rd World Conference on Applied Science, Engineering & Technology (WCASET-22), which is being hosted by Padre Conceição College of Engineering, Goa, in collaboration with the Institute of Engineering Research and Publication (IFERP).

The design and synthesis of new materials, to novel device design, through modelling and digital manufacture of integrated systems all, fall under the umbrella of the multidisciplinary study of flexible hybrid electronics and sensors. Each attendee must gain from the conference a much clearer picture of where the field is now and what lies ahead, while also seeing the breadth and wide-ranging prospects made available by FE technology.

My heartfelt gratitude goes to the organizers for their tireless efforts in making this scientific gathering memorable, stimulating, and successful. My gratitude also extends to all of the participants.

I wish you the best of luck.

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ABSTRACTS

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Novel Binary Coded JAYA Algorithm for Feature Selection in Healthcare: An Evolutionary Approach

[1]Shrishailappa Patil, [2]Pranali Sheth, [3]Sunil Sangve, [4]Ashwini Patil

[1] Professor, Vishwakarma Institute of Technology, Pune, India
[2] Assistant Professor, Government College of Engineering, Karad, India
[3] Professor,JSPMs Rajarshi Shahu College of Engineering, Pune
[4] Team Lead, Faurecia, Pune.

Abstract:
For any project implementation feature selection is the first step in is an important step in the supervised classification of cancer diagnosis. Numerous insignificant features may mislead the classification accuracy. Therefore, the selection of the most appropriate features via feature selection is necessary. Feature selection problems are solved as multi objective optimization problem. In this problem of detection and classification, accuracy, dimensionality reduction are the two goals that need to attend simultaneously. In this work problem of feature, the selection is solved using Evolutionary algorithms (EA). Evolutionary algorithms can work on multiple solutions at a time. Jaya Optimization Algorithm (JOA) is a modest Swarm Intelligence (SI) based on evolutionary algorithms, which is employed to solve feature selection problems. An improved version of Jaya Optimization Algorithm is called Binary Jaya Algorithm is proposed for solving feature selection problems using a multi-objective scalarization method for various cancer datasets such as brain tumor, breast cancer, and lung cancer. The implemented results show better competitive performance when evaluated for parameters like solution fitness, classification accuracy, feature set cardinality, and computational time.

Keywords:
Machine Learning, Meta-heuristic Algorithms, Optimization, JAYA Algorithm

ISBN : 978-93-92105-38-8

Revival of Courtyards- Review Paper

[1] Ar. Rubina Mehraj, [2] Dr. B.Saritha
[1][2] Bharath Institute of Higher Education and Research., Chennai, Tamilnadu, India

Abstract:
Our living environment will transform as a result of climate change, especially in metropolitan areas. Designing courtyards using climate-responsive techniques can assist to control temperatures and lessen the thermal stress on its residents. Courtyards serve as an amalgamation of manmade structures with nature. Courtyards have been a staple in architecture for centuries, providing a sustainable and efficient way to promote natural ventilation and daylighting.
The research paper aims to understand the history of the courtyard and its social, cultural, religious, and climatic implications. It elaborates on the revival of courtyards in sustainable planning to understand the passive technique of cooling the space in a modern context.
They provide an oasis that is protected from the outside environment and can be used for a variety of purposes. Traditionally, courtyards were used for family gatherings, as a place to sleep during the summer, as a secure area for kids to play, and as a place to shelter cattle. In addition to being used as an outdoor area, it served as a source of natural lighting and ventilation and passive solar heating and cooling.

Keywords:
Natural ventilation, Biophilic, Microclimate

Conventional Propellers – Can Biomimetics be a Good Alternative?

Shashank
Department of Ship Technology, CUSAT

Abstract:
The regulations and operational requirements related to the development of technology in all types of vehicles for pollution reduction and environmental impact have become very strict. Over the past two decades, there has been a dramatic increase in the size and scope of AUVs, which can be attributed to the many uses of this technology. However, one thing that limits the current technology is the time factor- the time required for the fulfillment of missions and one thing that contributes to this is the propulsion system's efficiency. A possible way to increase the propulsion system's efficiency would be to use a biomimetic method. Biomimetics is the study of nature and natural phenomena to understand the principles of the basic approach, obtain ideas from nature, and apply concepts that can benefit science, engineering, and medicine. Since marine mammals have excellent swimming and maneuvering skills and are skilled swimmers, greater efficiency can be achieved by mimicking their fish-tailing system. This paper considers RoboSalmon which came out as a concept design and is currently a prototype underwater vehicle with a biomimetic propulsion system. RoboSalmon was manufactured at the University of Glasgow, Scotland and all the experiments are carried out there only. The RoboSalmon is a custom-built vehicle based on the size of Adult Atlantic Salmon. The first type of biomimetic propulsion system is a tendon drive system that uses two tendon cables driven by a single DC servo engine to produce almost a tail-like motion.
Examination of this model shows that the tendon drive propulsion system produces a forward movement and allows for a straight line and a twisting turn. Typical screw propellers are often used in marine vehicles such as Autonomous Underwater Vehicles. However, the noise and distractions caused by this type of propeller may often interfere with useful marine data signals. The low efficiency of screw propulsors is another concern where vehicle performance tolerance is reduced. These propellers operate less efficiently, lower vehicle controllability, loud signature signals, and critical time delays in temporary situations. They are therefore used for temporary missions. In nature, aquatic animals (e.g., birds) and aquatic animals (e.g., fish, tortoises, and penguins) are very active animals, able to move with the help of their bodies and wings. This paper looks primarily at the biomimetic propulsion system and takes into account how it could be a new alternative to the conventional man-made propeller and reduction in global warming. This paper also presents a comprehensive overview of the current state-of-the-art investigation on the newly developed flapping foil propulsion of UAVs (aircraft with unmanned aerial vehicles) and AUVs (Autonomous underwater vehicles) to explore Earth's oceans.

ISBN : 978-93-92105-38-8

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Proposed Feasibility Study on Bioconversion of Coal to Hydrogen

Satya Harpalani
Professor and Associate Dean, College of Engineering, Computing, Technology and Mathematics
Southern Illinois University, Carbondale, USA

Abstract:
Recent emphasis on net-zero carbon, and even net-negative carbon, emissions has led to tremendous interest in what has evolved as the hydrogen economy. This presentation summarizes the different techniques to produce hydrogen, merits and challenges associated with each, and specifically, how coal and coal waste can be converted to hydrogen. After all, almost 30% of coal mined is considered waste, typically in the form of fines/ultra-fines, necessitating development and maintenance of extensive facilities for its storage. The technology would also have application in abandoned mines, with a large amount of residual coal, depleted coal-gas operations and unmineable coals.
The technical feasibility of the process will be investigated by first retrieving water from deep coal and identifying the microbial communities present, isolating the ones with capability of converting coal to hydrogen, and developing appropriate nutrients to stimulate their activity. The second component will study the changes in the microstructure of coal with continued bio-conversion, with emphasis on properties related to hydrogen storage and flow. Although there are virtually no studies completed to date to establish the hydrogen production and storage behavior of coal, bioconversion of coal to methane has been studied in the last two decades. The findings of these studies serve as the foundation for production of hydrogen.

ISBN : 978-93-92105-38-8

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Prediction of Concrete Strength with Micro and Nano Silica Using BPANN

[1] Lohith Ashwa, [2] Sivakannan Subramani, [3] Aveeral Prakash, [4] Nitisha Nigam

[1][2][3][4] Dept of Advanced Computing, St. Joseph's University, Bengaluru, Karnataka, India

Abstract:
Back Propagation Artificial Neural Network (BPANN) is created to predict the expected compressive strength of the different varieties of concrete in which the cement is partially replaced by nano silica and silica fume. The dataset used to train the models was collected from earlier researchers who calculated the effect of nano silica and silica fume on the compressive strength of concrete. The earlier researchers varied the quantity of NS up to 10% and SF up to 20% as a partial cement replacement after two time periods of curing of 7 days and 28 days. All together totally 488 samples obtained through experiments were being supplied to the models as test and training data. The important quality of concrete is its compressive strength. Traditional machine learning models like linear regression don't yield high accuracy in its prediction. Hence, neural network model is made use of in this paper namely BPANN. It was evident from the outcome that this model was successfully producing high accuracy making it a more potential replacement for the traditional regression models.

Index Terms:
BPANN, cement replacement, concrete strength prediction, silica.

ISBN : 978-93-92105-38-8

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Applied Science,
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An Efficient and Secured Framework for Face Recognition System Using LBP, PCA and FLD

[1]J.Vikram, [2]Dr.M.Gobi
[1] Researcher, Department of computer science, Chikkana Government Arts College
[2] Assistant Professor, Department of computer science, Chikkana Government Arts College

Abstract:
This research work present a novel and efficient secured face recognition system the face image is represented and the features of the face image is taken for classification is done for face recognition LBP, PCA, LDA methods are used. In LBP the face image is segregated into several regions helps for representing the face image. The purpose of PCA is reduce the large dimensionality of the data space to the smaller intrinsic dimensionality of features space. LDA is to make the classifier different. To secure the face image cryptography is used if offers much security and more robustness against malicious attacks, a complete security examination is achieved to confirm the secrecy of face recognition, in cryptography symmetric, asymmetric, and hybrid are the method in that hybrid is applied for the best security.

ISBN : 978-93-92105-38-8

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Applied Science,
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Development of Internet of Thing (IoT) Framework for Drip Irrigation System

[1] Edralin R. Raro, [2] Evelyn M. Baesa, [3]Jocelyn M. Beriña,
[4] Victor Q. Parillas Jr., [5]Thelma D. Palaoag

[1] Assistant Professor III, Camarines Norte State College
[2] Assistant Professor IV, Camarines Norte State College
[3] Dean, Baao Community College
[4] Assistant Professor I, Divine Word College of Legazpi
[5] Associate Professor, University of the Cordilleras

Abstract:
Agricultural production is one of the areas where a large amount of water is necessary, and wasted water is one of the significant issues. New technologies must be tested to meet ever-increasing demands for quantity and quality. One of the options to modernize traditional agricultural processes is to integrate smart agriculture via the Internet of Things (IoT). This study aims the applicability and viability of automated drip irrigation method for water conservation and enhanced farming and production.The essential data were gathered applying qualitative research methodologies and through observation and in-depth interviews with Local farmers, Municipal Agriculturist, and Agricultural Engineers. The three levels of IoT architecture were employed to gather and process data from the natural environment, which served as the basis for the actuators' operation. The results proved that the proposed smart irrigation system controls the irrigation model, application, and water distribution. The real-time monitoring, efficiency, daily temperature, humidity, and quantity of water application produce high crop yield, water, and energy conservation. The established framework offers a complete platform for implementing Internet-of-Things-driven crop farming.

ISBN : 978-93-92105-38-8

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Topic Modeling on Tweets About Limited Face-to-Face Classes During Covid-19 in the Philippines

[1]Jocelyn M. Beriña, [2]Victor Q. Parillas Jr, [3]Evelyn M. Baesa
[4]Edralin R. Raro, [5]Thelma D. Palaog

[1] Dean , College of Information Technology, Baao Community College
[2] Assistant Professor 1, Divine Word College of Legazpi
[3] Assistant Professor IV, Camarines Norte State College
[4] Assistant Professor III, Camarines Norte State College
[5] Associate Professor, University of the Cordilleras

Abstract:
In line with the huge disruption caused by the spread of the coronavirus in the academic learning and education of Filipino students, this study aims to conduct a topic modeling examining tweets about limited face-to-face classes during COVID-19 in the Philippines for the purpose of determining what Filipinos on Twitter talk about and what their topmost concerns are with regard to this new educational or learning setup. Using the qualitative research approach, the researcher utilized the topic modeling method in order to obtain and mine data from Twitter and use it as a source and reference in gathering insights from people that will help achieve the maximization of academic learning, in the midst of the massive educational disruption in the country. Topic modeling was used in this study to identify topics and obtain hidden text patterns from a given text corpus. Findings from the topic modeling conducted on Twitter revealed certain predominant topics that Filipino Twitter users are currently discussing or talking about based on their tweets related to limited face-to-face classes during COVID-19. These topics include the limited nature of classes during the pandemic, which limits their knowledge and learning as students and concerns about health and safety. The topics derived from the study's findings put emphasis on people's concerns about the limited nature of classes during this time, which also restricts the students' ability to acquire new knowledge and learn. As their discussions centered mostly on the limitations of classes, it is evidently one of their topmost concerns.

ISBN : 978-93-92105-38-8

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Design and Development of a Low-Cost Robotic Arm for Assistance in Surgical Environment

[1] Jaya Rubi, [2]Naresh Priyan N, [3]Mareeshwaran B, [4]A. Josephin Arockia Dhivya, [5] Dr. Kishore Kanna

[1]Assistant Professor, [2]Student, [3]Student, [4]Assistant Professor, [5]Assistant Professor

[1][2][3][4][5] Vels Institute of Science Technology and Advanced Studies (VISTAS), Chennai, Tamil Nadu

Abstract:

Robotic arms are being utilized in diligence and boom effectiveness, productiveness and to provide the perfection of the operations in many fields. This paper introduces the design and improvement of a robotic arm with proximity and color detection with the use of an Arduino microcontroller. This robotic arm has 3 degrees of freedom (DOF). This undertaking not only satisfies the criteria of being a substitute for difficult human labor but is also a smart and multipurpose robot, because it can be used in choosing an item and object by performing a particular function. This color-recognition robotic arm can perform front and back operations as well as actuation operations such as grasping an object. It is basically built based on Python software. It works on the basis of Python frame size, as it detects the color and performs the respective operation. This allows the robot to pick the gadgets and make consistent movements with the entered instructions. This robotic arm may be very powerful in diverse fields which include, clinical industries and surgical environments. Designing this robotic arm based on color sorting methods, we have executed actions based on the color detected which would possibly supply additional accuracy to the precise prototype.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Current Challenges in Industrial Training and The Impact of Mixed Reality on The Modernization of Training Procedures

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Abstract:
Organizations and businesses have continued to evaluate ways of optimizing existing manufacturing processes and operations toward meeting the desired objectives. Thus, they have shifted towards applying information and communications technology (ICT) and industrial 4.0 for more optimized operations. Thus, Industrial processes, automation systems, control systems etc., have evolved to become what is popularly known as Industry 4.0. under Industry 4.0, companies continue to shift toward automating their processes using smart technologies powered by artificial intelligence. However, even with the potential of the huge benefits that are likely to be gained from companies that apply Industry 4.0, such organizations are yet to fully implement vital technologies that support Industry 4.0 due to manual industrial training processes. Most manufacturing companies are still using manual technologies for industrial training, which is less efficient in equipping employees with the desired skills to manage critical technologies needed to automate existing manufacturing processes. Thus, few employees meet the desired technical skills to facilitate the adoption of industry 4.0 within organizations. Thus, there is a need to revisit the industrial training processes, modernize them and enable them with technology, make training processes more agile and adapt to current market needs through adopting disruptive technologies in industrial training such as mixed reality. This report evaluates the current challenges in Industrial Training and the impact of Mixed Reality on the modernization of training procedures.

Keywords:
Industrial 4.0, Industrial Training, Mixed Reality, Human Computer Interface (HCI), Industrial MR, Training Automation, Mixed Reality for Manufacturing, Mixed Reality for Training

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
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Review Paper on Effect of Refrigerants on Green House and Their Implication on HVAC

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Abstract:
The greenhouse effect is tangible and aids to legalize the hotness of our earth. It is crucial for lifecycle on Ground and is one of Earth's natural progressions. The green house effects took its appellation from the manners of green house. A conservatory's glass consents shortwave emission to arrive nevertheless prohibits departing long wave radiation from withdrawing, warm air in greenhouse. Pollutants of the Refrigerants which are used in Refrigeration and Air Conditioning will produce the green house effect. All the Refrigerants which are used in Refrigeration and Air Conditioning will not affect the greenhouse, some of the Refrigerants will affect the greenhouse and some will not effect, based upon the physical and chemical properties of the Refrigerants used in Refrigeration and Air Conditioning plants.

Keywords:
Refrigerants, chemical and physical properties, greenhouse effect, global warming effect

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
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Web-Based Data Collection and Implementation System for Blood Donation

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Abstract:
"Blood" is one of the most essential elements of life. A blood donation search app for Android has been developed so that users can view information about nearby Donors. This system is designed from two perspectives, one being donors who can easily register and be available to the receptor and the other for the patient in need who can look for donors nearby. The proposed work will provide client validation, such as enrolment and login for both new and existing clients. This project creates an android-based system to search for blood donations on the online platform. The android app will assist users in viewing and accessing data such as the close-by hospitals, blood banks, and blood donors. The App will include the names, addresses, phone numbers, and blood types of nearby blood donors who are in need of blood. The main benefit of creating this web-based application is to improve the availability of blood donors and hospitals nearby with a single touch of the hand. The reduction in time is of great use as it increases the possibility to find donors quickly and making quick decisions that might save lives during emergency situations. The application will register and also verify the data provided by the donors and the recipients.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Non-Invasive Therapy System with Temperature Detection of Varicose Veins

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Abstract:

During these days many people suffer with varicose veins which results in serious problems like inflammation or swelling of veins, blood clots etc.so for the prevention of varicose veins using non-invasive methods we propose an light weight and wearable device at affordable cost. To make this Concept possible we have used Arduino Controller as the Brain of our Project. We use NTC thermistors for measuring the temperature of the patient in the affected area and also in the normal body.to obtain pressure variations we use microcontroller pressure simulator and for providing vibrations compression stocking with micro motors are used. The method includes continuous monitoring of temperature of the affected area when the temperature of the affected area becomes more than the normal body temperature. If improper blood flow is detected we apply vibrations automatically to make the blood flow proper in the desired area.Hence we have decided to take surveys of our idea by implementing it in different age groups.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Literature Review on Comparative Study of Secure Data Hiding Techniques Like Cryptography, Steganography and Watermarking along with their Effectiveness.

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Abstract:
In today's world, the communication is the basic necessity of every growing area. With the growth of internet, transfer of critical and secret data has become easy and with this came the various methods and techniques to securely transfer them. This paper presents a review study on the fields that are used in a secured data domain. The main reason of this review study is to explore the capabilities of secured data that used widely by researchers and scholars. Furthermore, in this research work the benefits and the drawbacks for each of secured data domain are also studied elaborately. This paper comes into the conclusion that that cryptography techniques could be utilized with steganography and watermarking in secured data domain to enhance the security mechanisms during transfer . In order to share the information in a concealed manner two techniques could be used. These mechanisms are steganography, cryptography and watermarking. In cryptography, the message is modified in an encrypted form with the help of encryption key which is known to sender and receiver only. The message cannot be accessed by anyone without using the encryption key. In order to overcome the shortcomings of these techniques, steganography techniques have been developed. Thus, steganography hides the existence of data so that no one can detect its presence. In steganography the process of hiding information content inside any multimedia content like image, audio, video is referred as a "Embedding". In watermarking techniques, a symbol of owner authenticity (watermark) is embedded into the host signal and, later, this watermark data can be extracted. For increasing the confidentiality of communicating data all the techniques may be combined.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Method for Improving the Accuracy of Autonomous Vehicle Control

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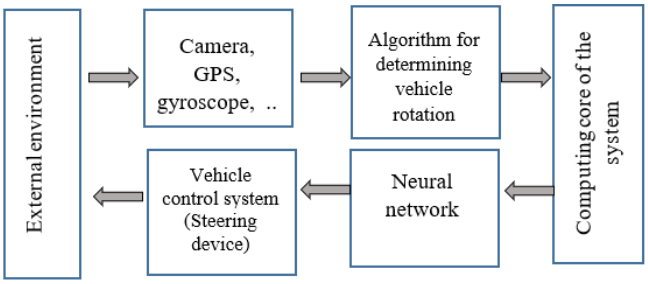
Abstract:
Every (namely, most) control system structurally contains inaccuracies in the transfer of the control action to the node implementing this control. So, the steering contains a number of links and the resulting behavior of the wheels, even with a non-linear gear function, has some lag (backlash). In a number of agricultural units that were not originally intended for accurate positioning, such a lag can reach tangible values and interfere with accurate positioning when equipping the unit with automatic control systems (piloting).
To solve the problem of increasing the control accuracy, it is proposed to add a direct propagation neural network with a small number of neurons (approximately 10-30 neurons) as an additional link between the control body and the control mechanism. Such a neural network, after a short training, will be able to predict the control lag and adjust the current control signal to the angle necessary for turning the agricultural unit to the angle closest to the expected one. The network training should be carried out on the basis of data on the rotation of the c\x unit obtained in one way or another: through a satellite navigation system (preferably with a high position update frequency, not less than 10 Hz), through an algorithm for determining the rotation based on data from fixed cameras, based on data from a gyroscope\ accelerometer\magnetometer.
The neural network training algorithm can be briefly described in the form of three main steps:
1) The autopilot (if available) or the pilot generates a control signal (turn left or right), the signal passes through the neural network and moves further to the controller of the thruster, and the tractor \ agricultural transport turns (or does not turn).
2) The algorithm for determining the rotation fixes the amount of rotation of the tractor at a particular angle based on the data received from the camera (either from the satellite navigation system, or from the accelerometer\gyroscope\ magnetometer).
3) The expected rotation angle is compared, based on the control signal at step 1, with the angle determined at step 2. The difference between these angles is an error in the operation of the neural network. Using this error, you can adjust the weights of the neural network in any convenient way (by the method of back propagation of the error, by a genetic algorithm, ...).



Using this algorithm, the neural network quickly learns to predict the lag in control and supplement the value of the control turn to the necessary, most appropriate to the expected result, which means an increase in control accuracy.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Conceptualization of Smart Personal Protective Equipment for the Prevention of Community Transmission of Respiratory Diseases

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Abstract:
We all know that the major cause of the proliferation of many communicable diseases is community transmission. Thus, our objective is to impede community transmission of respiratory-based communicable diseases. This can be achieved by the use of surgical mask in a "smart way" with embedded systems and IoT. This smart mask will help to ease the burden of front-line workers, mildly affected and asymptomatic individuals. According to a recent study [1], the reports states that surgical masks like N-95 are not very effective in blocking complete transmission of air-borne pathogens or viruses from infected individuals. The notion is, optimizing the existing purification process used in the masks available today. We know that surgical N-95 masks which are being commonly used today is used to let the purified air in. But, this smart personal protective equipment helps to let the purified air out. By letting the virus free air out through UV-C purification, there will be slim chances of an infected or asymptomatic individual spreading the disease.

Index Terms:
Asymptomatic individual, community transmission, , health-care and personal protective equipment.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

DEEP Learning Approach Using Modified Auto-Encoder for PPG Signal Compression

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Abstract:
PPG signal measures the heart's pumping capacity which uses a light-emitting diode to track the blood flow which controls the actions of the heart rate. PPG is widely used in all healthcare applications which range from monitoring a person's oxygen saturation level - in the intensive care units to measuring the heart rate in preferably wrist-worn devices. In this paper we formulate an algorithm known as bio-electrical signals with encoder and decoder and feature engineering). This combined method incorporates a method by combining FE and encoder-decoder. In the end, our algorithm differentiates between relevant tasks and gets all the features required for classification. Our proposed method accomplishes the feature engineering on higher-level learning features, this also ensures encoder and decoder for constructing the generative units. The experimental outcome of our proposed model sets a benchmark to state that our model works better in comparison with existing methods.

Keywords:
Feature engineering, PPG signal, Encoder-Decoder, Bio-electrical signals

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Artsy: Digital Assistance and Routine Detection Using ML

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Abstract:
The voice assistants that we have today such as Apple Siri, Amazon Alexa, and the Google Assistant are a complex Artificial Intelligence technology. People now connect with computers in novel ways thanks to personal assistants, conversational interfaces, and chat bots. A personal virtual assistant may even perform certain basic duties like launching apps, reading out news, taking notes, etc. with just a voice command. Users can ask inquiries to them in the same way they would to a real person. This paper targets on describing the importance of digital assistants and how they can be further enhanced compared to the versions we have in the market today.

Keywords:
Voice Assistants, voice command, Artificial intelligence, conversational interfaces, chat bots, voice command.

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Applied Science, Engineering & Technology

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A Systematic Review on LoRaWAN-based Sewage Monitoring and Alerting System

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Abstract:

This paper reviews one of the LoRaWAN (Low Power Wide Area Network) applications. LoRaWAN offers low-power, secure, low-data rate communication with more than 10km (6.1 mi) coverage. In recent years, LoRa technologies received significant attention from Engineers and Research communities. And many researchers have used LoRaWAN as a solution for many problems, one of which is Sewage Monitoring. Untreated, stagnant, and overflown sewages in civilian neighborhoods attract serious health issues. This paper provides an overview of the methodologies and research work published from 2019 to October 2022, which are accessible through Google Scholar and IEEE Explore. In this paper, we start with a detailed overview of the Technologies used with existing reliability and security mechanisms. In this paper, we reviewed the previous papers by categorizing them into the following topics (i)Physical layer aspects (ii)Network layer aspects (iii)Security and Reliability (iv)CAPEX and OPEX. Finally, concluding with the possible solutions, future scope, and improvements.

Keywords:

LoRaWAN, LoRa, IoT, Water level Sensors, Gas Sensors, Cloud Computing

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Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Drive Scheme for a Car with an Internal Combustion Engine, Allowing the Vehicle to be Equipped with an Electric Motor

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Abstract:
The development relates to the field of automotive technology, and can be used to replace internal combustion engines of cars with an electric motor. The goal is to ensure the prompt replacement of the internal combustion engine of cars with an electric motor, with the possibility of returning to the internal combustion engine.
The main elements of the developed drive are the drive mechanism, the mounting of the electric motor, the electrical circuit diagram of the circuit. The drive mechanism allows you to connect the shaft of the electric motor with the drive shaft of the gearbox, mounted using a hub in the rolling bearings in the transition plate. The mounting of the electric motor is made in the form of a spatial truss and allows using a bolted connection to position the electric motor on the transition plate. The electrical equipment system includes the following components: electric motor, electric motor control controller, electronic gas pedal connected to the controller, batteries. The batteries are connected in series and provide the necessary voltage in the vehicle network. To control the circuit, a contactor control relay is installed, control is carried out through the ignition lock from the circuit.

ISBN : 978-93-92105-38-8

Bioprospecting of Coscinium Fenestratum Colebr. against Biofilm Forming Pathogens

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Abstract:

Genetic language for social behavior in bacteria is mediated through Quorum sensing. This collective group behavior posses' obvious advantages for the bacteria to adapt to suitable growth modes by migrating to amicable environmental conditions which makes them highly virulent and detrimental to the environment. 80% of the complicated UTIs that occur in healthy individuals are due to uropathogenic E. coli which are the leading cause of morbidity. Current study investigates antibiofilm activity of methanolic extracts from Coscinium fenestratum against clinically isolated, MDR E. coli. The extracts exhibited a MIC in a range of 0.1mg/mL- 0.15mg/mL. Reduction of EPS and rhamnolipids was found to be 79%, 68% and 62.0% respectively by methanolic extract of C. fenestratum. LC / MS-MS screening of the herbal bioactive compound showed the presence of berberine component which is observed to be acted as quorum inhibitors for attenuation of MDR E. coli, at sub inhibitory concentration of 50µg/mL.

Key words:

Quorum sensing, Coscinium fenestratum, MDR E. coli, EPS and rhamnolipids.

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Applied Science, Engineering & Technology

43rd WCASET - 2022
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Goa, India

Smart Irrigation Model for Controlling and Monitoring Agriculture Land Remotely

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Abstract:
Environmental parameters analyses and monitoring is one of the challenging task in the sector of agriculture. Agriculture is one of the most accepted methods experienced on earth. Suitable conditions are essential for crop production and better yield. In this research, intelligent and smart irrigation monitoring and controlling system will be deployed. Deploying the proposed system utilizing an advanced Internet of Things (IoT) technical approach to monitor farm fields effectively and efficiently by utilizing water resources and fertilizer in a proper manner.
Different parameters of farmland for crop production should be taken in consideration during research work such as soil pH, soil moisture, surrounding humidity, and temperature of farmland, which will be sensed using sensors placed in the farmland where the crops are grown. Sensor technology helps to sense data and stored in a cloud platform. The water motor pump, water sprinkle pump, and fertilizer pump can be switched between the ON/OFF states manually and automatically from a remote distance using the mobile-based application. In addition, the proposed system switch to automated mode, it measures the threshold value of soil moisture and soil temperature. It automatically turned on /off two pumps one for water supply when soil moisture is low and one for water sprinkling when soil temperature is high respectively to irrigate the field. The proposed system also measures the most ideal soil pH conditions for growing and developing plants. Suitable pH of soil for most of the crop is between 6 to 7.
Balancing of soil pH is also taken into consideration by the automatic supply of fertilizer by mixing it with supply water if soil pH is more acidic or alkaline. This paper proposes the development of sensor network nodes compatible to measure all agricultural parameters and create the actuation signal for all the respective actuators. Also, sensors designed are compatible with sending sensed data to the cloud network. Sensor data will be collected and reached to the Arduino controller board can be connected to an interactive website/dashboard with help of a WiFi network. This allows us to monitor and control the water irrigation pump to maintain soil moisture, the sprinkle pump for controlling temperature, and of fertilizer pump for balancing soil PH from a far distance through a website/mobile application. It also helps to meet the standard values of selected parameters which would maximize crop production and its quality in our country.

Keywords:
Internet of things, sensors, cloud network, soil ph, soil moisture, controller, wifi, controller

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Applied Science, Engineering & Technology

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Process Optimization Studies of Uniaxial Compressive Strength of Soft Synthetic Rock by Coupling Taguchi and Response Surface Methodologies

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Abstract:
Physical Geotechnical modeling is used widely worldwide for rock mechanics. Laboratory experiments have been carried out with synthetic rocks consisting of cement, fine sand, and water to check the analytical and numerical predictions in infrastructures such as rock slopes and tunnels to consider material costs and modeling scales. Depending on the site areas, different properties of the rock need to be modeled. A novel statistical framework was introduced for soft synthetic rock's uniaxial compressive strength (UCS) by coupling the Response Surface Methodology (RSM) and the Taguchi technique. First, the Taguchi technique creates a combination of three independent parameters (cement, sand, and water) in four levels, which generates a minimum number of UCS tests. Then, the combined impacts of these variables were investigated through RSM employing the quadratic model for predicting the equation and the optimum point. Within these conditions, the model predicted a maximum of 27.36 MPa of UCS at the weight ratio of both cement and sand of 1.00 kg, with a 200-gr weight ratio of water. The experimental values differed from the predicted values by around -0.69–0.90%..

Keywords:
Geotechnical Modeling, Response Surface Methodology, Rock Mechanics, Synthetic Rock, Taguchi design, UCS

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
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A Deep Study on Video/Image Cyber Breaches – Efficient Model for Detecting Intrusion Anomaly in the Breach

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Abstract:
Network Cyber-attacks are most predominant and highly sophisticated type of attacks happening around the world. The world after pandemic mostly relies in Work from Home. With this the intrusion detection rate increases rapidly. Thereby it's a need to present the increasing challenges to detect the intrusions. Dereliction to detect the intrusions will reduce the security services e.g., Integrity, Confidentiality, Availability, data integration. To tackle the intrusions and prevent the attacks efficient model need to be designed and implemented to break-down the chain. Computer security classified the system into two systems. This paper mainly focuses on one of its systems to design the efficient and accurate model to detect the intrusions observed in the video data. It also presents the taxonomy of comparative table which describes which machine learning technique is best suited and applicable with accurate results. These techniques make computer security more secure. The main goal of an intrusion detection system is to detect the intrusions more efficiently and in and effective way. It is always better to detect the intrusion in its early stage rather than in a complicated stage. In this paper, we use six machine learning techniques to detect the intrusions extracted from the video data. Each and every technique is efficient to a specific attack. Anomaly detection is best suited for big datasets which are trained using some algorithms and classified using ensemble algorithm.

Index Terms:
Intrusion Anomaly, Machine Learning, NIDS.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
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Identification of Risk Factors of Cardiovascular Diseases Using Association Rule Mining & Clustering Techniques

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Abstract:
Cardiovascular diseases (CVDs) describe disorders that affect the heart or blood vessels. CVDs are the primary cause of death worldwide, accounting for 17.9 million deaths annually. There is no single cause for CVDs; however, there are risk factors that raise the likelihood of acquiring them. Early detection of CVDs can increase the chance of survival. Unfortunately, traditional methods of diagnosing CVDs are time-consuming and costly. Given that early diagnosis of CVDs and risk factors associated with CVDs could save lives, we propose using associate rule mining and clustering to discover the risk factors contributing to CVDs utilizing the Framingham Heart Study data. The association rule mining results suggest that the presence of heart disease, hypertension, or heart attack is a high-risk factor. On the other hand, clustering results show that older age, high BMI, high glucose levels, and faster heart rate are considered high-risk factors.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Improvement of IRNSS Position Accuracy using SNR and Doppler

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Abstract:
The Indian Regional Navigation Satellite System (IRNSS) is Indian satellite-based navigation system developed by Indian Space Research Organization (ISRO) which uses L5 and S1 band frequencies. The operational name of the IRNSS is Navigation with Indian Constellation (NavIC). Military and civilian users are provided with positional accuracy of 10 meters and 0.1 meters, respectively. Many sources of error affect the positional accuracy of IRNSS systems, including ionosphere delays, troposphere delays, multipath errors, and receiver errors. There are various methods for compensating for GPS system, including RTK-GPS (Real Time Kinematic GPS), D-GPS (Differential GPS), and A-GPS (Assisted GPS). In this paper SNR and Doppler Effect of receiving signal are taken under consideration and therefore the weak signals are exempted from the calculation of position accuracy. In literature this method is employed to calculate the position accuracy of Global Positioning System (GPS). Experimental testing was conducted in a dense environment under static conditions rather than dynamic conditions in order to verify the performance of the proposed method. Using the proposed method, the position accuracy of IRNSS system is reduced up to 10 m.

ISBN : 978-93-92105-38-8

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Applied Science,
Engineering & Technology

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29th & 30th December 2022
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Elegant Prioritized Emergency Vehicle System Using Mobile Applications for Real Time Applications

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Abstract:
In this swiftly embryonic hi-tech globe, effectual automatic traffic control systems are becoming very requirement for the upcoming generation. In the contemporary day traffic signals required an efficient communication system to the pupils, it amplified effectiveness to tragedy vehicles. This proposed system not only abolishes the waiting period of crisis vehicles but also lessen the retort occasion to emergency vehicles. Each lump consists of a passage signal scheme engaged at a connection having a sole recognition figure which in twist is linked to a federal complex planning construct around a solitary server. This attendant in twist and it is connected to the network and enclosed all the information about the lump in a single region. The traffic signal structure is intended such that it embarks upon the impediment in retort and the announcement disruption may occur with the help of the federal server linked to corresponding region. The attendant acting an essential role in manipulative the aloofness between the resembling emergency vehicle and the traffic signal and coach the analogous passage signal which thereby revolve the signal at the respective lane green. The series and the type of pointer in the tragedy plan can be altered depending on the signal intersection requirements. In case of disturbance in announcement among the server and the traffic signal due to climatic conditions or system failure, the traffic signal could be embarrassed via a mobile application developed. The various system executed to organize the passage signal are discussed in this work.

Keywords:
Smart Traffic Control Systems, Traffic Signals, Network area, Mobile Application, Emergency Vehicles

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

IoT Based Gas Leakage Monitoring and Alerting System for Industries

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Abstract:

Internet of Things aim towards making life simpler by automating every small task around us. As much is IoT helping in automating tasks, the benefits of IoT can also be extended for enhancing the existing safety standards. Safety, the elementary concern of any project, has not been left Untouched by IoT. Gas Leakages in open or closed areas can prove to be dangerous and lethal. The Traditional Gas Leakage Detector Systems though have great precision, fail to acknowledge a fewfactors in the field of alerting the people about the leakage. Therefore, we have used the IoT Technology to make a Gas Leakage Detector for society which having Smart Alerting techniques Involving sending text message to the concerned authority and an ability performing data analytics on sensor readings. Our main aim is to be proposing the gas leakage system for society where each flat have Gas leakage detector hardware. This will detect the harmful gases in environment and alerting to the Society member through alarm and sending notification.

Keywords:

Internet of Things, Gas Leakage Detector, Smart Alerting Techniques, node MCU esp8266,MQ-6.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
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IoT Based Real-Time River Quality Monitoring and Control System

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Abstract:

Current water quality monitoring system is a manual system with monotonous process and is very time-consuming. This paper proposes a sensor-based water quality monitoring system. The main components of Wireless Sensor Network (WSN) include a microcontroller for processing the system, communication system for inter and intra node communication and several sensors. Real-time data access can be done by using remote monitoring and Internet of Things (IoT) technology. Data collected at the apart site can be displayed in a visual format on a server PC with the help of Spark streaming analysis through Spark MLlib, Deep learning neural network models, Belief Rule Based (BRB) system and is also compared with standard values. If the acquired value is above the threshold value automated warning SMS alert will be sent to the agent. The uniqueness of our proposed paper is to obtain the water monitoring system with high frequency, high mobility, and low powered.

Keywords:

Internet of Things (IoT), Arduino UNO, PH Sensor, Turbidity Sensor.

43rd World Conference on
Applied Science,
Engineering & Technology

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Smart Farmer - IoT Enabled Smart Farming Application

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Abstract:

The growth of the global population coupled with a decline in natural resources, farmland, and the increase in unpredictable environmental conditions leads to food security is becoming a major concern for all nations worldwide. These problems are motivators that are driving the agricultural industry to transition to smart agriculture with the application of the Internet of Things (IoT) and big data solutions to improve operational efficiency and productivity. The IoT integrates a series of existing state-of-the-art solutions and technologies, such as wireless sensor networks, cognitive radio ad hoc networks, cloud computing, big data, and end-user applications. This study presents a survey of IoT solutions and demonstrates how IoT can be integrated into the smart agriculture sector. To achieve this objective, we discuss the vision of IoT-enabled smart agriculture ecosystems by evaluating their architecture (IoT devices, communication technologies, big data storage, and processing), their applications, and research timeline. In addition, we discuss trends and opportunities of IoT applications for smart agriculture and also indicate the open issues and challenges of IoT application in smart agriculture. We hope that the findings of this study will constitute important guidelines in research and promotion of IoT solutions aiming to improve the productivity and quality of the agriculture sector as well as facilitating the transition towards a future sustainable environment with an agroecological approach.

Keywords:

Internet of Things (IOT), Arduino UNO, Soil moisture sensor, temperature monitoring sensor, Humidity sensor.

43rd World Conference on
Applied Science, Engineering & Technology

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IoT Based - Smart Solutions for Railways

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Abstract:
The concept of smart railway Under the background of accelerating the construction of smart cities in China, railways are an important transportation channel between cities, and their information construction should also rely on emerging technologies. It should move from the traditional concept of "railway" to the "smart railway". According to the current research status of railway intellectualization, the definition of smart railway is proposed in this paper: Smart Railway refers to a railway transportation subsystem of intelligent traffic system in smart cities. It mainly uses new generation information technology such as Internet of Things, cloud computing, big data, satellite positioning and navigation, geospatial information, and artificial intelligence. It is a new system and new ecology that fully integrates with railway transportation planning to support, promote and guide the intelligent development of railway transportation. At the same time, it is also a comprehensive service platform and mobile information physics space on the railroad for mobile leisure, office, learning and consumption. 3.2. The overall architecture model of the top design of the smart railway Smart Railway integrates new generations of information technology such as cloud computing and big data with railway management to build an intelligent information railway, and realize various services such as accessing various intelligent terminals online at anytime and anywhere in the railway operation. The main features are network ubiquitous interconnection, intelligent sensing, data sharing, business collaboration, and intelligent services. It mainly includes the intelligent sensing layer, intelligent transmission layer, information resource layer, application support layer, application platform layer, standard specification management system and information security system.

Keywords:
Internet of Things (IOT), Human sensor, QR Scanner, Navigation Technology.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Visualizing and Predicting Heart Diseases with an Interactive Dashboard

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Abstract :

The healthcare data can be employed to develop a health prediction system that can improve in heart disease prevention. Big data on health care, including patient records, clinical notes, diagnosis, parents and family pastailments, hospitals, and scan results can aid in the phase of disease identification and prediction. The emerging machine learning method offers an important framework for forecasting cardiac diseases. An advanced SupportVector Machine (SVM) classifier was used by the program to conduct parameter tuning to improve classification accuracy and performance. The methodology of this research is applying parameterization for parameters on SVM to make the possibility of prediction is higher using the most effective features.

Keywords :

IBM Cognos Analytics, IBM Cloud, HTML, CSS

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Hand Gesture-Based Smart Touchless System Using Machine Learning Techniques

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Abstract:
In the ever-evolving age of technology we live in, each industry undergoes a technological revolution. Concerning the current pandemic period, solutions that offer contactless, social-distancing ideals are of peak interest. We propose the development of an interactive and innovative platform that utilizes navigation through hand gestures. The proposed intelligent touchless system aims to offer a real-time gesture-based solution that can be applied and customized to provide multiple solutions based on the requirements set forth. The system uses a set of standard hand gestures for simplicity, familiarity, and user accessibility. This study will develop a mobile food ordering system to illustrate the proposed gesture-based touchless system. Initially, the dataset is constructed by personally capturing and scraping images from the web for common hand gestures. Then, the EfficientNet-Lite[0-4] algorithms are trained on the constructed hand gesture dataset. This study performs transfer learning and utilizes pre-trained deep learning models to reduce the computational resources and time taken for training. The trained models are evaluated using the mean average precision (mAP) and inference time. The trained models are converted into a lightweight format, TensorFlow Lite, to run on mobile devices. Finally, the top-performing model is integrated into the food ordering mobile application to evaluate the hand gesture-based system. The evaluation results indicate that all the trained models achieved an mAP of 82% and above, with the most complex model, EfficientNet-Lite4, reaching 87%. However, trained models had a significant inference time, except the EfficientNet-Lite0 model, ranging from a second to up to ten seconds. Considering the need for an adequate performing model with low inference time, this study selects the EfficientNet-Lite0 model with an inference time of half a second for the hand gesture-based touchless system task. Hence, the proposed system is an innovative, user-friendly solution that adheres to the social-distancing norms that form a standard platform that provides many opportunities in the modern era.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
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Goa, India

Biochemical Activities and in Silico Analysis of J.excisa: An Experimental Study

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Abstract :

Jatropha excisa is a shrub that grows in tropics & subtropics regions. In the present work J. excisa seed and flower oil has been extracted and conducted for biochemical analysis and in silico activities from Jatropha species. In the present experiment, biochemical analysis like proteins, carbohydrates, fatty acids, phenols, terpenoids, tannins, phlobotannins, cardiac glycosides, saponins, coumarins, flavonoides and quinones has been conducted. The seed oil contains proteins, carbohydrates, fatty acids, terpenoids, tannins, cardiac glycosides, and saponins. The flower oil contains proteins, carbohydrates, fatty acids, phenols, cardiac glycosides, saponins and coumarins. The leaf ethanolic extract contains proteins, carbohydrates, phenols, terpenoids, cardiac glycosides and coumarins. The stem ethanolic extract contains carbohydrates, terpenoids, tannins, coumarins and flavonoids. The root ethanolic extract contains carbohydrates, phenols, tannins, coumarins and flavonoids. The study also shown anti-candida activity with Seed oil (10mm). The in silico docking studies of gossipidien acid, gossipifan, gossypiline and n – demethylricinine from Jatropha species was analysed against Candida protein (5JPE). Gossypiline (-124 kcal/mol) has shown good activity followed by Gossipifan (-118.4kcal/mol) and Gossipidien (-108.7kcal/mol). The above experimented samples may show antioxidant, antifungal and anticancer activities due to rich biochemical components.

Keywords:

Jatropha, biochemical activity, in silico activities.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
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An Analytical Study of Global Wild Fires

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Abstract:
Wild fires are highly destructive to life and property even in the most advanced nations in the world. This paper analyzes the characteristics of wild fires across the globe with some important parameters and looks at some intelligent, software assisted methodologies for prevention and mitigation.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

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Data Acquisition and Power Monitoring System Based on Web Services

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Abstract:

Saving electrical energy is an obligation for campus operational activities. Based on the Regulation of the Minister of Energy and Mineral Resources of Indonesian Government Number 13, 2012 is concerning in efficiency of electrical consumption in state buildings. Education institution is obliged to carry out this mandate. For this reason, efforts are needed to support saving of electricity. One of them is use of alternative energy such as solar panel. Output of solar panel must be able to monitor its stability. Amount of power used must be monitored to find out how much saving energy are in term of cost. The system must be able to acquire data and monitor for power consumption and next it can be displayed in real-time and be accessed at anytime and anywhere. This system uses Internet of Things (IoT) technology. The result of study are expected to be references in managing of electrical energy efficiency in education institution especially at Politeknik Negeri Medan (POLMED).

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Vulnerability Analysis for Captchas Using Deep Learning

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Abstract:
Websites can improve their security and avoid dangerous Internet attacks by implementing CAPTCHAs (Completely Automated Public Turing test to tell Computers and Humans Apart) verification to identify whether the end-user is human or a robot. The most prevalent type of CAPTCHA is text-based, designed to be easily recognized by humans while being unsolvable to machines or robots. However, as deep learning technology progresses, developing convolutional neural network (CNN) models that recognize text-based CAPTCHAs becomes easier. The purpose of this research is to investigate the flaws and vulnerabilities of CAPTCHA generator systems in order to design more resilient CAPTCHAs. To achieve this, we created CapNet, a Convolutional Neural Network. The proposed platform can evaluate both numerical and alphanumerical CAPTCHAs.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Review of Discrete Methodologies for Social Network Analytics Towards Crowdsourcing Management

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Abstract:
With the increasing usage of the social network application, there has been evolution of various applications in order to deal with efficient information propagation at the time of emergency. At present, there are massive archives of scientific approaches towards improving the information propagation using social network using different methodologies. At the same time, there is also an increasing attention towards an alternative and non-conventional usage of crowd sourcing in order to further carry out processing of different services and data. The current paper intends to explore the applicability of social network application when integrated with crowd sourcing to be helpful for data propagation at various event of need. The paper discusses about various research trends in this direction and further contributes towards highlighting distinctive research gap in order to assist the future researchers to offer better insight towards developing an integrated application of social network with crowd sourcing.

Keywords:
Social network, crowd sourcing, emergency, information propogation.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Development of Training Modules for Workers on Gmp & GHP in Food Testing Industries

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Abstract:
This sickness is called food borne disease and is caused by dangerous microorganisms and/or toxic chemicals. Food borne diseases affect both developing and developed countries, and affect the elderly, and children most causing strain on the health system. With more people travelling, and food supply chains increasingly becoming global, food borne diseases. However, most food borne disease is preventable with proper food handling and attention to good practices and hygiene. GMP covers all aspects of production from the starting materials, premises and equipment to the training and personal hygiene of staff - To identify essential principles of food hygiene throughout the food chain. Recommend a HACCP- based approach as a mean to enhance food safety. Provide guidance for specific codes which may be needed for sectors of the food chain processes or commodities to amplify the hygiene requirement. GMP training provide guidance for manufacturing testing and quality assurance in order to ensure that a manufacture product safe for human consumption. The ISO stepped in and brought out ISO 22000:2005 harmonize on a global level, food safety management sys requirement for any organization in food chain. All operations and processes used in testing be capable of consistently yielding finished products that conform to their specification and suitably protected against contamination or deterioration. Product quality complaints should be thoroughly investigated by the quality control manger. Provide health education program which effectively communicate the principles of food hygiene to industry and consumers.

Key word:
HACCP, GMP, GHP, Quality control, ISO

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Enhanced Environment and Effective Usage of Controlled Environment in Wireless Sensor Network Applications

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Abstract:

Micro Electro Mechanical Systems, wireless communications, embedded systems, distributed computing, and wireless sensor systems have all made a significant impact on Wireless Sensor Networks (WSNs) in the last few years. Both in the workplace and at home, it aids and enhances productivity. Agricultural surveillance and habitat monitoring have both benefited greatly from the widespread usage of wireless sensor networks. Real-time design and control connection with the actual world is made possible by environmental monitoring, which has grown to be an important control and protection field. It is possible to acquire and interpret a huge quantity of data from the beginning to monitor and control air quality, traffic conditions, and weather conditions using an intelligent Wireless Sensor Network system. In this study, we evaluate and explore environmental control applications using wireless sensor networks. It is necessary to follow a number of guidelines in order to put in place an effective monitoring system. It has been shown to be an option in contrast approach of monitoring the environment that relies on the utilisation of men's force. It has also been demonstrated that these methods can enhance performance of the system, provide us with an effective and easy technique, and also meet functional criteria.

Index Terms:

Environmental Monitoring; Wireless Sensor Network; Monitoring Applications.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Product Price Rate Detection using Regression Models and Shopping Assistant

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Abstract:

E-commerce websites deal with a wide variety of products from all over the world. Our suggested shopping system offers a variety of features to make online buying convenient for users. When a user wants to purchase something from one of these sites, he or she requires instructions on how to utilize the system and other items, much as when shopping in a store. We combine a fake chat system with an e-commerce site in order to deliver these kind of services online. We also create an app-like interface that allows users to follow and predict product pricing in the future. When a user first visits an online store, he or she can ask questions to learn more about the software. A pattern matching algorithm is used by the e-commerce system to send a customer's query to the AIML Knowledge Base System for an answer.

The e-commerce website the user is on will automatically read his product and respond with a response before returning control to the user and the system. This essay focuses on outlining the value of shopping assistants and how they might be improved upon over the current models available.

Keywords:

Shopping Assistants, Chat-Bot, Artificial intelligence, Monitoring, Price Detection, and Universal basket.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Analysis of Solar Test Simulator Design Using Snubber Circuit Damping System

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Abstract:

The technology of solar panel testing equipment is carried out through equipment simulation called a solar test simulator. Settings are made on this tool through variations in light and temperature so as to be able to provide detailed information about the optimal performance of solar panels. The performance of solar panels is shown through a monitor display that is placed on the design which will contain information about the solar panel as a whole. Measurements are made by varying the light and temperature and then short circuiting the output of the solar panel. The snubber circuit method as a damper for the switching process of the IRF540 mosfet according to the capacity of the 20 WP solar panel tested so that the capacity value of the capacitor is 46.66 uF and the resistor is 4.7 Ω. The test results show that the shape of the solar panel characteristic curve corresponds to the test with a fill factor of 0.7.

Keywords :

Solar panel, circuit snubber, mosfet, solar test simulator, fill factor

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

System Implementation of Solar Panel Optimization by Adjustment of Tilt Degrees and Cooling System Integrated Internet of Things

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Abstract:
As a result the need for energy continues to increase, so that the use of alternative energy is required, one of this is the use of solar panels. Solar panel will work optimally if it get maximum sunlight and work in the working temperature range of solar panel, so needed to implement a solar panel optimization system by adjusting the degree of tilt and an integrated cooling system for the Internet of Things. The method used is setting the degree of inclination so that the movement of the solar panels is at the maximum slope of sunlight and utilizing the Peltier effect on water as a surface cooling system for solar panel. To ensure the system works properly, all parameters are monitored using Internet of Things-based technology in real-time. From the tests that have been carried out, the system can work well as a solar panel optimization system that has been integrated with the Internet of Things, which shows an increase in power from setting the degree of tilt of 35.19% and tilt angle settings and cooling system by 44.16% between solar panel without system and solar panel with system.

Keywords:
Solar Panel, Optimization, Internet of Things, Implementation, Energy

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Design and Development of Automated Front Axle Differential Case Assembly Line

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Abstract:
Automation is an advanced technology by which tasks can be accomplished without human intervention or with minimal human intervention. The present work is an effort to upgrade the manual assembly of differential case of front axle assembly line by adapting semi-automated assembly line for both parts assembly as well as material supply to the assembly line by using PLC controlled system and ODIN system for tracking and documentation of assembled parts on the assembly line. The trial run was conducted to check the performance of the automated assembly line. The test results reported that a drastic reduction in cycle time with significant increase in the productivity of the parts outcome.

Keywords:
Automated Assembly line, Differential Case Assembly, ODIN, PLC Contoller, Automated Material Handling.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Synthetic Data Generation of Urban Floods for Computer Vision Application

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Abstract
Floods are frequently occurring due to climate change with increasing severity. The most affected countries are the ones that do not have enough funds or resources. We propose using synthetic data; synthetic data reduces the cost of developing computer vision systems for floods. In developing Computer Vision systems for critical areas like disaster rescue, accuracy and efficiency are essential. Detecting humans is challenging during disasters; urban floods pose a unique challenge. Considering the lack of variety in the dataset for such an environment, we propose a solution to generate synthetic data in the open-source software Blender using Procedural generation and Flip Fluid simulation. Blender has introduced a Geometry Node to lower the barrier of entry for generating the Procedural Model. Flip Fluid gives us realistic water simulation. Using Blender's Python API; we can interact with the environment and generate synthetic data from various perspectives. Using synthetic data also reduces the risk of developing computer vision systems for floods and generating data for testing them adequately before being deployed in real-life environments.

Index Terms
Computer Vision, Computer Graphics, Synthetic Data, Flood.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Educational opportunities and accommodations for students with Neurodevelopmental Disabilities: A way forward

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Abstract:
Introduction: The term 'Neuro-Developmental Disorders (NDD)' refers to a specific class of disorders which manifest specific characteristics of developmental delay affecting an individual as a whole. There are several educational techniques and methods specially designed for the teaching and training of students having such conditions. Aims and objectives: The objective framed for the present study helps to shed light on the intervention and stimulation techniques designed for this target group through an in-depth exploration and understanding of practices like specially designed learning strategies, cognitive education and cognitive training, behaviour management, use of tiered frameworks, prioritized interventions through a systematic and in-depth review of secondary data sources. Findings: This study helps to understand the evolving evidence-based practices in this area, thereby supporting professionals in the educational, mental-health and other targeted support services. There are several categories of intervention options further classified into behavioural intervention models, comprehensive treatment models and focused interventions. The reviewed literature clearly indicated the use of such methods was aimed at optimizing the skill development and holistic functioning of learners with NDD. Recommendations: It is crucial to explore and review the range of available and future educational opportunities and accommodations for children with NDD.

Keywords:
Accommodations, Behavioural models, Educational opportunities, Focused intervention, Holistic functioning, Neuro-Development Disorders (NDDs)

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Wise Investor - Aiding Stock Market Investment Decisions

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Abstract:
Stock Market is an entity which facilitates the buying and selling of stocks of companies that are publicly held by the shareholders, and where people can participate actively by short term trading or passively in the form of investing for long term wealth creation, In the current world where rapid changes in economies are seen, the assumption of stock growth rate can be hazardous to the investments and this is still one of the drawback. To mitigate this gap and facilitate the users with valuable insights this research proposes a mechanism for aiding investment decision by utilizing machine learning techniques such as Bidirectional LSTM, Boruta Feature Selection Algorithm, with the combination of Fundamental and Technical Analysis of a company and putting through an informed analysis visually for the user to understand it better and make a wise decision, here we have used the past 10 years of data for the better and relevant analysis, and were able to achieve an R2 score of 96% and MSE of 8.58. Thus with the detailed work and analysis into each module, this research contributes to the financial and technical domain research community.

Keywords:
Bi-Directional LSTM, Boruta Feature Selection, Deep Learning, Fundamental Analysis, Technical Analysis

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
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Assessment of Advanced Variable Rate Pesticide Spraying Technologies

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[3] Professor, Dr. D. Y. Patil College of Agricultural Engineering & Technology, Talsande

Abstract:
In the agricultural industry, spray applications are an important tool for plant protection and efficient production of crops. To ensure high-quality products from orchards, pesticides are applied at a variable rate according to target tree characteristic information. Existing spray systems are not efficient. The level of efficiency and inaccuracy is even higher in orchard applications than in field crops. Most orchard crops are sprayed more than enough while using constant rate sprayers. Due to spray drift and residue, less than 30% of pesticide sprayed reaches tree canopies while the rest are lost. Lack of proper spray equipment and technology is blamed as the reason for this excessive pesticide input. This article presents methodologies used for variable rate spraying techniques in orchards. The main contribution of this work lies in a comparative study of the development of precision spraying techniques by hardcore and soft-core technology. This study shall help to choose and develop the efficient and economic method out of all these techniques while developing a precision sprayer.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Using Opensees Software Analysis of Structure in Fire

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Abstract:
In Todays era the uses of structure fire have been increased by using modern software analysis tools. One of the main is by using opensees analysis of software in fire. In our project we have only focused only on C++ concepts that will relates to Opensees[1] models and framework with the structure of object oriented, by using this approach our project will be consistent. We have also included some new concepts of classes that will helpful in for concrete as well as steel materials for their temperature material that is dependent in nature. Basically, opensees frameworks was introduced for the earthquake analysis, but now we have used it for thermal and load fire testing purpose.
This paper will be introducing the new classes and the old opensees framework interactions to test and develop in fire structure.

Keywords:
Thermo-mechanical Analysis, Sequence diagram, Class diagram, Opensees, Modelling through computational

ISBN : 978-93-92105-38-8

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Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
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AR: A Visual Aid for Classrooms

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Abstract:

Traditional educational approaches as we once knew them are fading into history. They are being influenced by technological advancements and becoming more and more digital. Multiple uses for augmented reality in education are possible. It makes it simpler for the pupils to learn, understand, and retain the material. Additionally, AR enhances the fun and engagement of learning itself. A faster and more effective learning process, improved collaboration capabilities, and globally applicable practical learning are just a few of the advantages. Accessible learning resources are available whenever and wherever they are needed, requiring no specific equipment. The project's objective is to develop a computer vision application using the augmented reality concept to provide a 3D visual of the image scanned by the person utilizing the said software.

Keywords:

Augmented reality, computer vision application, 3D visuals, machine learning, advancements in EduTech

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
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Analysis of Variations in wood microstructure of Juglans regia L.

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Abstract:
Juglans regia.L (English walnut) is a tree species with a wide range of distribution. It is found in parts of Europe and Asia. It is well known for its commercial production of walnuts as well as quality timber. However, little is known about the anatomical variation in this species. There is a need to conserve this species as it comes under the threatened list of species of IUCN which can be brought about by carrying out extensive research in all the fields be it genetic, morphological or anatomical. Such studies will help in the better conservation of the species. This study presents the data on the anatomical variations of this tree both qualitatively and quantitatively. Samples belonging to different localities were studied under the compound microscope. The study was carried out in all three directions of the wood samples i.e. transverse section, tangential section and radial section. Nine parameters (vessel diameter, number of vessels per mm2, intervessel pit size (IVP), Vessel ray pit size (VRPs), ray height, ray number of cells, ray width, ray seriations and number of rays per mm) were studied from the above three sections and five parameters (fibre length, fibre diameter, fibre lumen , fibre wall thickness and vessel length) were studied after macerating the samples. Analysis of variance (ANOVA) and Tukey's post hoc was applied on the quantitative data which produced significant result. This study revealed significant amount of variation in anatomical parameters which was linked with latitude of the localities to which the samples belonged and other environmental factors such as water availability in the area.

ISBN : 978-93-92105-38-8

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Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
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Topic Discovery in Crop Science Domain using Text Mining

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Abstract:

Topic discovery is a strategy to identify hidden topics in large collection of unstructured text. The analysis of unstructured text is a cumbersome process. Topic modelling is helpful in topic identification and plays a significant role in producing topic clusters. A topic consists of a group of words that frequently occurs together and defines semantic relationship of these words. To provide an approach in finding topics from unstructured text using Latent Dirichlet Allocation (LDA) with appropriate hyperparameter settings to generate quality topics. The abstract and titles of research articles of Crop Science domain were accessed from KRISHI Portal using customized search and web scraping. Different preprocessing approaches were applied by fixing the number of topics with different combination of other hyperparameters of LDA. The topics were obtained through the grid search method, in which the values of hyperparameters were different. The results of the study suggest that preprocessing affect the number of topics as well as the performance of the model. The identified topics will support the information retrieval process and topic recommendation too in the Crop Science domain.

Index Terms:

Topic model, Hyperparameters, Topic discovery, Latent dirichlet allocation (LDA), grid search.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
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Urban Framework Integration for Drone Delivery Services in mixed use Area

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Abstract:
Fast-moving consumer content (FMCC) has the highest share of the market after e-commerce in India. Thereby, last mile delivery services (LMDS) are also increasing supporting the FMCC in the market through human services. But, human powered delivery faces many obstacles in urban context like traffic, pollution and physical distancing. These are urging towards a reform in LMDS strategies. Thus, this study is aimed to analyze alternate delivery services in the cities. The paper is aimed to explore the emerging drone industry for commercial activities in mixed use areas. The study is to devise frameworks and guidelines to accommodate drone delivery services(DDS) as a green technological approach. The research majorly focuses on integrating DDS with architecture and urban design framework. The focus of the study is the examine drone infrastructure in a qualitative manner with supporting literature studies of Amazon air, zomatao etc. The study includes the policy level support of various projects, their stakeholders, infrastructure and their technologies. The paper concludes with a framework at Urban and architectural level including the revisions in the policy. The main agenda of the research is to propose a DDS friendly neighborhoods through architectural and design frameworks.

Index Terms:
Unmanned aerial vehicle, Drone, Drone rules 2021, Amazon Air, Drone Frameworks

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Importance of Life Skills for Adolescents: A Review

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Abstract:

Background- Adolescence is a turning point in one's life and a period of increased potential. There is a need to focus on physiological, emotional and socio-cultural dimensions of their growth and development. Adolescents are unable to utilize their potential in an appropriate way and are engaged in non-productive activities due to lack of proper guidance and motivation. To be nurture a healthy & productive adolescent proper life skills education must be incorporated.

Objective- The present paper focuses on the importance of life skills education and the benefits of imparting life skill education i.e., developing social, emotional & thinking skills in adolescents.

Methods- An attempt has been made to systematically review various studies related to the subject for better understanding and analysing multiple factors to discuss the importance of life skills for adolescents. The secondary data has been collected. For this purpose, various journals have been used.

Results- The present scenario of adolescents clearly shows that the condition of our youth has significantly deteriorated. Adolescents with low levels of life skills are known to develop high risk behaviours which lead to long lasting health and social consequences. Positive results of imparting life skills education is to adolescents and bringing the change in their attitude, thought and behaviour by providing supportive environment to them. Acquisition of life skills changes both the person and the environment.

Conclusion- Life skills play an important role in all aspects of an adolescent's life such as strengthening coping strategies and developing self-confidence and emotional intelligence, as well as enhancing critical thinking, problem solving and decision-making skills as has been well documented in the aforementioned studies.

Keywords:

Life Skills, Adolescent, Holistic development, life skill education.

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Applied Science, Engineering & Technology

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Intelligent Traffic signal Control Using RF Technology for Emergency Vehicles

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Abstract:
The transportation system in our nation has been greatly impacted by the problem of traffic congestion. This leads to a number of complications or problems, especially when there are emergencies in the heavily trafficked lanes at traffic lights. To address these challenges, a traffic light management system is built in. Based on an RFID module, this system was designed to operate when it received a signal from an emergency vehicle. The Programmable Arduino nano micro controller was used to regulate the LEDs used in the traffic signals. The system's use of LEDs makes it easier for emergency vehicles to manoeuvre through traffic. As a result, the project's analysis and implementation of the traffic signal control system for emergency vehicles were successful.

Keywords:
RFID, LED, Arduino nano, traffic light management system.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

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29th & 30th December 2022
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Comparative Study on Various Eye Blink Detection Algorithms

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Abstract:
The objective behind this paper is to show a comparative study on the previous and existing eye detection methods. We carried a survey of various eye detection methods which included detection of eye structure, gaze detection and blink detection. By referring all the previous researcher papers and studies, we observed that there are various algorithms and techniques that have been developed over the years to effectively detect an eye. Eye detection mechanism have become an interesting research topic over the years as it has many applications in medical, technology and automation field. Particularly it can be adapted as a great tool for the communication of paralyzed people who are only able to do few eye movements. By comparing all the algorithms and method in this field, we have observed few interesting patterns and are also able to predict the best suited algorithms and upcoming developments in a particular application.

Keywords:
eye tracking, eye blink detection, algorithms, computer vision

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
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Goa, India

Modelling and Analysis of a Fast-Charging Station and Evaluation of Quality Metrics

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Abstract:
Public infrastructure networks for charging have played a significant role in the development of electric vehicle (EV) technology, and they must continue to assist the uptake of this technology. Long-distance EV travel is made possible by DC fast charging (DCFC), which also has the potential to enable the electrification of high-mileage vehicles. Though there have been significant obstacles to the broad deployment of DCFC plants, including high construction costs and irregular power demand. The station is made up of a single inverter that is connected to the grid and a DC bus to which the electric cars are attached.Decentralized controls are used to manage the various electric vehicle charging procedures, while centralised controls are used to manage the power transmission from the AC grid to the DC bus. It is necessary to comprehend the loading and level of customer care at DCFC stations. Additionally, a quantitative relationship should be established between the initial investment choice to construct a specific number of ports and customer satisfaction. Additional simulations using a homogeneous vehicle population are run, and closed-form equations are constructed from them to predict the length of time it will take to charge a battery and how long it will take to wait in line.The quantity and capacity of ports is another factor that is taken into account while optimising DCFC station designs. The electric car charging station design that is being developed is ideal for the quick DC charging of numerous electric vehicles. To depict the behaviour of the station, simulations are run in Matlab/Simulink. The outcomes demonstrate the viability of the suggested concept and the control system's capacity for quick DC charging as well as vehicle-to-grid.

Keywords:
Electric vehicle, DC bus, Grid station

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
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Goa, India

Brain Tumour Segmentation Using Adaptive Deep Convolutional Neural Network System

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Abstract:

Major studies in the current area of academic localization are brain tumor segmentation. The focus of the emotional system is diverted to an important organ called the brain. Therefore, deficiency in synchrony causes real and disconnected clinical complications, in which case early diagnosis is seen as an important part. The differentiating evidence of the organization of growth and the area affected by growth is seen as the underlying movement in disease characterization. The need for a mechanized office to study the life structures and defects of the vital element has a definite influence on the different application of solution films. In this paper Adaptive Deep convolutional Neural Network (ADCNN) is developed for brain tumour segmentation. The ADCNN is a combination of Deep Convolutional Neural Network (DCNN) and Remora Optimization Algorithm (ROA). In the DCNN, the optimal learning rate is computed with the help of ROA algorithm. The DCNN method is utilized to portion extraction from the MRI images. After that, the learning rate of the DCNN is selected with the help of ROA algorithm. The proposed method is implemented in the MATLAB and performances is evaluated. The proposed method is validated by performance metrices such as Dice similarity coefficient (DSC), Jaccard Similarity Index (JSI),accuracy, sensitivity, and specificity. The proposed method is contrasted with the conventional techniques such as Convolutional Neural Network (CNN), Fuzzy C Means Clustering (FCM), and K-Means Clustering.

Keywords:

semantic segmentation, brain tumor, convolutional neural network, remora optimization algorithm and MRI images.

ISBN : 978-93-92105-38-8

43rd World Conference on
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43rd WCASET - 2022
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A Study on Transpliing Speech into Python Code

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Abstract:
The world we live in today has seen major improvements in the field of technology. Most of the task which required maximum human effort is now being done with the help of machines. One such area is the processing of human languages. Recent studies have come up with solution which only requires one's voice to achieve the targeted output. But there is one such application which can be one of the many possible problems out there. As we know this entire thing is possible with the help of our developers and they too tend to get exhausted after some time. The concept of speech recognition can be used to propose a solution using natural language processing. This combined with a special type of parser to convert human transcription into a language such as python and many more popular languages out there used by everyone.

Keywords :
Speech Recognition, Natural Language Processing, Recurrent Neural Network

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
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Effect of Ductility on Rubberised Concrete Columns

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Abstract:
This article illustrates the results of short columns using different whimsies. To assess the effect of rubber total as a partial substitute for coarse total in concrete, the response of columns was examined. To evaluate the test units' disappointment example, the test data stood out from the limited component model. When compared to ordinary total's concrete, columns with a 5 percent rubber total replacement ratio had comparable burden conduct. A definitive heap of columns made with 5% reused rubber total, aggregate could be supplemented and utilized due to the comparative reaction as that of columns prepared with customary concrete.

Keywords:
Experimental; Rubber, Tyre.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
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Design Model for Flight Delay Prediction using Quantum Machine Learning

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Abstract:
Nowadays, there is a lot of research being done on quantum algorithms since they have the potential to run exponentially faster than machine learning algorithms. The field of computer science may undergo a radical change as a result of quantum machine learning. Information processing could be accelerated far beyond current classical speeds. One of the most challenging challenges in aviation control has been recognized as flight delay. A key piece of work is how to build a model that can handle the delay prediction problem. To solve the problem that the flight delay is difficult to predict, this study proposes a model for predicting flight delay. This paper also propose a mathematical model for predicting flight delay using quantum machine learning also presents results of SVM-SVR machine learning algorithm which achieves MSE 70% and also other performance measures like RMSE,R2Score etc.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
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29th & 30th December 2022
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Fraud Recruitment Detection Using Machine Learning

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Abstract:
The article suggests an automated application that uses machine learning-based classification approaches to prevent fraudulent postings on job in online. The outputs of various classifiers are evaluated in order to determine the best employment scam detection model. These classifiers are used to verify fraudulent posts in the Internet. It assists in identifying fake job postings among a large number of postings. For the purpose of detecting fake job postings. The issue of fraudulent employment is growing on online hiring platforms like LinkedIn and Glassdoor. The platform's credibility is impacted by fraudulent job postings, which also negatively effect user experience Leakage of data .These platforms must therefore identify and eliminate these bogus jobs. In general, false job ads include unpalatable information about domain-specific entities, such as a mismatch in the promised remuneration, available industries, and skill sets.

Keywords:
Fake Job, Online Recruitment, Machine Learning.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Analysis and Prediction of Diabetes Mellitus using Machine Learning Techniques

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Abstract:
Diabetes mellitus is one of the most distinguished illness all over the world. As the populace has developed to be generally solitary, the impact of diabetes is quickly spreading. It is the metabolic illness where the affected person has excessive blood sugar both because of the fiasco of the body to supply requisite insulin or the fiasco of the body cells to react to the already generated insulin. It may be recognized with the aid of analysing numerous readings taken from the affected person which includes albumin, creatinine, fasting, glucose, potassium, sodium and plenty more. This work concentrates on several standard data mining algorithms for diabetes prediction. Naive Bayes, K- Nearest Neighbour algorithm, Decision Tree, XGBoost and Neural Network are few of the algorithms compared in the paper. From the contrast, we can analyse which method gives enhanced precision for diabetes prediction.

Keywords:
Diabetes, Prediction, Detection, Insulin, Algorithms, Machine Learning

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Studies on the synthesis and characterization of ternary metal chalcogenide mercury bismuth sulfide ($HgBi_2S_3$) sensitized titanium dioxide (TiO_2) thin films with a chemical bath deposition (CBD) method

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Abstract:
Mercury bismuth sulfide ($HgBi_2S_3$) belongs to the II-V-VI group of semiconducting materials. This ternary metal chalcogenide has never been synthesized, investigated and reported for a solar cell absorber layer. This work reports the chemical deposition of nanoparticles of the ternary metal chalcogenide mercury bismuth sulfide ($HgBi_2S_3$) onto a thin film of titanium dioxide (TiO_2) deposited using a spin coating method. The synthesized layer of TiO_2-$HgBi_2S_3$ was characterized by techniques such as XRD, UV- Visible spectroscopy, surface morphology, energy dispersive X-ray composition analysis, and cross-section. Nanoparticles of the ternary compound HgBi2S3 with a diameter of about 100 nm to 500 nm were synthesized by chemical bath deposition method and the thickness of this layer of about 25 µm were deposited on the FTO substrate. The results of characterization confirm the deposition of nanoparticles of the ternary compound $HgBi_2S_3$ onto a thin film of TiO_2, which also lowered the optical energy band gap of the TiO_2 thin film. This $HgBi_2S_3$ sensitized TiO_2 thin film will be further explored for photovoltaic applications and reported for the same.

ISBN : 978-93-92105-38-8

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Applied Science, Engineering & Technology

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Goa, India

Cytocol – Online Law System

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Abstract:
There is an increase in crime in our country and most people are not aware of the criminal laws. Therefore, it is necessary to inform citizens about all kinds of laws that are enforced by our constitution against crime so that people can come forward to register cases against them. People can come and search for the laws of their crimes. There are also options for search where users can find or search for their requirements by entering their query. There is also an option for users to get in touch with lawyers. A query form is provided where users can ask their query and can register cases and the form is sent to the court authority. This online system is developed on c#.net platform and supported by a SQL database to store user specific details.

Keywords:
Research Paper, Technical Writing, Science, Engineering and Technology

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Stratification of Garbage using Deep learning

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Abstract:
In many countries recycling became the paramount of this decade. The easiest way to recycle the garbage is to classify them into several categories. In this article we will detect the single waste object which are classified into glass, paper, steel, plastic etc. by giving the dataset of images and videos. We use several deep learning algorithms such as SVM, CNN in order to classify the garbage. The accuracy provided by this algorithms is so efficient and quick and the best way.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

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Goa, India

Design and Development of Medical Diagnosis System for Identifying Different Levels of Alzheimer's Disease

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[2][4][5] Student,CSE, NHCE, Bengaluru, India
[3] Professor and Head, CSE, NHCE, Bengaluru, India

Abstract:
Alzheimer's disease (AD) is meant to be an irreversible degenerative brain disease and it is progressive. About 50 million individuals world-wide suffer dementia, with about 10million new-cases every year. There is currently no cure for condition. Dementia cannot be treated unless itis detected early. Therefore, early detection of Alzheimer's requires a computational approach. Our project seeks to classify and determine deep leaning methods for the AD stage. Build a model mistreatment the ADNI knowledge set. The employee data is initial augmented to increase the scale of the dataset by adding additional data and increasing the variability of the dataset. MRI pictures are pre-processed with noise suppression.

Keywords:
Alzheimer's Disease, MRI, ADNI, Deep Learning, Diagnosis

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
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Virtual companion: Expert system to improve post-pandemic emotional stability in students, Peru - 2021

[1] Julissa Elizabeth Reyna-González, [2] Jessica Ericka Vicuña Villacorta, [3] Iarov Oscategui

Abstract:
Emotional stability has become an internal struggle that we all have, and also a very important factor in the development of learning. Emotional stability comes from the inner spirit that we have and we can only acquire it in two places, which is the family and friends or external people, since this factor is forged with self-esteem and self-confidence, in the course of time, it has been observed how students have various problems, and largely influences their academic performance or in the development of the tasks designated by teachers as well as in household chores, this leads to social isolation, which leads to lack of self-confidence and therefore causing instability in their emotions. Dialogue is a very important means by which we find answers to our doubts and comfort to loneliness, we are aware that being alone for a while helps us to know ourselves, but if not, we can sink into depression, stress or anxiety that could have many consequences. (Porras Jimenez, 2020) is why in the face of social isolation this has worsened, affecting their academic performance, as well as their personal life. In the face of all adversities, the world continues to advance, technology evolves day by day, (Castillo Saenz & Montoya Bello, 2021) artificial intelligence can become an essential use for selection processes. On the other hand remote symptom tracking and monitoring can be systematized, as institutions and professionals generate new, service delivery and technological advances continue to emerge, such as the case of the collaboration between Google X and Biogen collaborating with sensors and data analysis and the dreamMS project in Switzerland, which involves the identification of digital biomarkers for multiple sclerosis using smartphones (Khannan & Jones, 2021). General models have been advanced for the integration of telehealth and remote patient monitoring (RPM) based on reflections of the pandemic with proposals for "augmented continuous connected care" driven by human inputs. It should be noted that companies with a large amount of redundancies, it is problematic to use the traditional selection method as every process requires time to choose a candidate, while having a tool such as artificial intelligence as a complement can be very useful and necessary to optimize time, money and mainly eliminate human bias. Knowing that artificial intelligence can detect various types of changes or alterations, it can also detect an emotional alteration and provide moral support, when a person is not emotionally stable, usually negative thoughts and ideas come to mind, artificial intelligence can detect such problems and provide phrases or tips in order to motivate the user, and in turn help with simpler tasks in daily work. Dialogue is one of the most effective ways to prevent any emotional alteration, the human being needs communication to be able to maintain a balanced mind and once he performs his daily activities (Vivanco Alvarez, Yarleque Ubilluz, & Pajuelo Lucas, 2021) seeks the emotional well-being of the staff, so that they are psychologically fit and can perform their professional work that will be for the benefit of the population. Despite the little interest of the responsible institutions, he saw how the health area was affected in this pandemic.

Keywords:
Emotional stability, artificial inteligence, comunication

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Effectiveness of Dynamic Analysis Tools and Honeypots for Inspecting Android Applications

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Abstract:
Android applications are software components that are used to perform tasks such as messaging, calling, social networking, banking, trading, capturing photos and videos, etc on Android devices. Android users use a variety of such applications on their mobile devices as per the requirement. Android developers and security researchers can use certain tools to understand and analyse the dynamic behaviour of Android applications without installing them on real Android devices. This paper focuses on the detailed study of dynamic analysis tools and honeypots for inspecting the behaviour of Android applications either on a simulation environment or a real Android device. This paper will help Android developers and security researchers to select the appropriate tools based on the necessity of inspection.

Index Terms:
Android application behaviour, Android application inspection, Android honeypots, Dynamic analysis tools.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Spatial Assessment Of Ground Water Quality Of Balasore District, Odisha, India

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Abstract:

Groundwater is an intricate system from revive to release and it is the major source of drinking water. Population explosion, intensify use of fertilizer in agricultural fields, food security along with boosting of industries, these are some of the factors that have a direct and/or indirect connection to reduce the wholesomeness of groundwater quality. As a result, it is critical to assess groundwater quality over time. Accordingly, the present work focuses on the spatial assessment of groundwater quality of Balasore District of Odisha state. Methodically, water samples were collected from various locations of 12 blocks of the district. The studied physicochemical parameters are p^H, turbidity, alkalinity, TDS, EC, TH ,Ca++ ,Mg ++ ,Cl^-, HCO_3-, SO_4- , Fluoride, Iron etc. Our observations found that the quality of groundwater of 12 blocks is within the acceptable limit except for Cl^-, F^- and iron which is due to coastline influence and geogenic sources. The parameters observed were compared with the Bureau of Indian Standards (BIS) and World Health Organization (WHO). WQI was determined to identify the groundwater quality types which was classified within excellent to poor types. In summary, geochemistry of groundwater revealed that exposure to an excess (out of limitations) of Cl^-, F^- and iron, may cause severe chronic diseases, autoimmune disorders and metabolic disorders. Thus, proper awareness and government policy are required to get contaminant free groundwater for a sustainable healthy living.

Keywords:

BIS; WHO; Groundwater quality; wholesomeness; spatial assessment; physicochemical parameters; contaminant; sustainable.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

High-performance, low-harmonic, three-phase PWM rectifier control adopting a modified harmonic controller

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Abstract:
Active AC-DC rectifiers are widely used, however their presence lowers the quality of the grid current, leading to an increase in non-linearities in electronic equipment. In recent years, the three-phase boost power factor correction (PFC) rectifier has gained popularity as a practical solution to this issue. In this research, an unique objective function is used in conjunction with proportional-integral (PI) and repetitive (RC) controllers to improve the controller parameters of a 3- phase boosted power-factor correction (PFC) rectifier. Focusing on optimising the settings of the various control loops, this work attempts to decrease total harmonics distortion (THD) and improve dynamic performance indices such overshoot, rising time, and zero steady-state error. The optimal control parameters of the three-phase boost PFC rectifier are determined by employing an evolutionary method. Once the optimal values for PI and RC were determined, a simulation employing boost rectifier with high performance was performed in MATLAB. Furthermore, utilizing more, we cofirm that the best outcomes in terms of THD reduction and dynamic performance indices improvement are achieved.

Keywords:
shunt active power filter; parabolic PWM; current controller; harmonics mitigation; power quality; power factor improvement

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

PIC based Drowning Prevention using Wearable Sensor Networks

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Abstract:

Drowning is a silent killer. According to WHO, the world's third major cause for death was drowning. The people who are suffering cannot able to call for help as they were pushing all their energy trying to breathe or survive in the surface of water. Inhaling the water straight away goes to the upper airway or larynx (voice box) and may go into spasm, making it difficult to cry for help. Due to this, the victims might get no help from surrounding person because it's hard to notice whether a person is drowning or not. A device is set up to alert to save the drowning victims. When one feels they are about to drown, an SOS message is sent to nearby swimmers on and off shore and even to the people above water level through wrist band worn. In this paper, the method for alerting and signal transmission within and above water is discussed.

Keywords:

Sensor Network; Accelerometer; GSM module; Acoustic signals; PIC microcontroller

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Early Prediction of Juvenile Osteoporosis in Bone Scan Images using Deep Learning Approaches

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Abstract:
Osteoporosis is a clinical situation that affects the shape and strength of bones. Due to the quicker-developing global, it affects younger kids. In kids, it called Juvenile osteoporosis. Osteoporosis is identified when the bones are thinner than normal, negative increase of bone tissues and a genetic ailment. In some cases, there is no precise motive may be discovered, that's known as idiopathic juvenile osteoporosis. A baby with juvenile osteoporosis can also have a history of damaged bones. A toddler with IJO might also have decrease again, hip, foot pain and different signs. In general, there are a clinical diagnosis and test results that will help us to know the present state of IJO. Usually, children who affected with osteoporosis are found in the later stages, which results in permanent bone disorder. Even though enormous research communities are working in treating osteoporosis, the data science research community has started working on the early prediction of osteoporosis before falling into persistent bone disorder. Through, modern deep learning algorithms the possible occurrences can be easily predicted. The parameters health condition, genome expression and tissue growth can be used to-do the prediction using deep learning algorithms. The proposed methodology is a modernized approach of predicting the tissue growth of bones using bone scan images and health parameters data set. This will identify and locate the tissues which result in poor growth and yields in early prediction osteoporosis.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

A comprehensive Survey of Encryption for Secure Internet of Things Environment

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Abstract:
The encryption key is the data's last line of defence. The number of possible key values in a protocol is mostly determined by the key's size, which is the most important security aspect. So, in this study, we use a new random key size technique to give keys of varying sizes to the data being communicated from each node. Increasing the difficulty of cryptography is the setting of a key size that is both changeable and random. Offering security in the IoT is becoming more important, but doing it within the constraints of the physical constraints of IoT devices is exceedingly difficult. The interconnection, heterogeneity, scalability, spontaneous interaction, dynamic network, and security of the IoT ecosystem's many systems define it. In this paper, we have survey different Encryption for Secure Internet of Things Environment by review the different algorithms and different methods. And also comparing different methods in encryption type, finally by this comparison analysis, we have found the technique in encryption method.

Keywords:
Encryption, dynamic network, Internet of Things, cryptography and information security.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Role of Limnological Properties in occurrence of Aquatic Fungi

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Abstract:
Aquatic fungi are peculiar in their morphology, physiology, ecology and ability to reproduce in the aquatic environment. These fungi due to ecological barriers frequently occur and therefore, their occurrence is less. A positive correlation between the occurrence of lower fungi and dissolved oxygen is observed. Probability of occurrence of lower fungi is less, at very low and at very high levels of hardness of the water. Submerged aquatic fungi from Moniliaceae were observed thriving well at temperature between 18 to 21o C while marine fungi grow luxuriantly between 26 to 28oC. The submerged and aero aquatic species grow well in favorable BOD range 6.22 mg/l to 10.23 mg/l. While 6.1 to 7.2 pH range favors mostly by the aquatic fungi from fresh water. Maximum fungi observed in fresh water bodies having alkalinity 21 -35 mg/l. While, marine fungi grow luxuriantly in high range of alkalinity. Seasonal fluctuations of various physicochemical factors in fresh aquatic systems and correlated with their occurrence, distribution and periodicity of freshwater fungi.

Keywords:
Submerged, aquatic fungi, alkalinity, seasonal fluctuations.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Combating Cognitive Dysfunction Among Chronic Kidney Disease Patients Through Physical Activity: It's Need and Importance

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Abstract:

CKD (Chronic kidney disease) is a non-communicable usually caused and manifested by diabetes and hypertension. It worsens over time and leads to both physical and psychological health problems. Over 10% of people globally have CKD, a critical and rapidly progressing illness. Decreased renal function is associated with cognitive dysfunction, depression, and poor quality of life. A major contributor to morbidity and death, chronic kidney disease (CKD) is on the rise as a severe health concern throughout the world. As per the recent research, 63.9% of CKD patients under Hemodialysis showed anxiety, 60.5% depression, 51.7% reported stress and there is a 20 to 50% prevalence of cognitive dysfunction among the CKD population with 70% increase among the older population of patients undergoing maintenance Hemodialysis. In chronic renal disease patients, a lack of mental and physical activity impairs cognitive performance. Strong evidence supports the numerous positive health implications of regular, adequate physical activity. In various studies, it is found that Hemodialysis patients are at greater risk of developing cognitive deficits. An association between higher levels of physical activity and a reduced risk of cognitive decline and dementia is evident in researches. People with CKD can benefit from exercising regularly just like those without this condition. Therefore, the challenge is to develop an integrated treatment model for physical activity and exercise that is safe, feasible, and sustainable for chronic kidney disease patients and also educate patients on adherence. Therefore, the goal of this review is to educate patients, their caregivers, and kidney care specialists about the importance of physical activity and exercise in all phases of CKD as well as the implementation of recommendations that have been clinically proven to be effective in preventing and treating cognitive dysfunction in CKD patients.

Keywords:

Cognitive Dysfunction, Cognitive Impairment, Chronic Kidney Disease, Cognitive Function in Kidney Disease, Physical Activity, and Cognitive Function.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Initial permeability studies of Li-Cd ferrites

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Abstract:
Variation of initial permeability(μi) with the temperature of the Li-Cd ferrites with the general formula Li0.5-x/2 Fe2.5-x/2CdxO4 with x = 0, 0.1,0.2,----- up to 0.7 has been reported. In all the samples up to the concentration of Cd = 0.5 initial permeability increases gradually and later on rapidly. Near the curie temperature (Tc) μi drops sharply to zero. The samples with Cd concentration of 0.6 and 0.7 shows a continuous decrease in initial permeability. The sample with x= 0.5 attends greatest permeability of all the samples and also shows largest variation of μi -T curve. At room temperature initial permeability of 25 and peak magnitude of 60 was measured for the lithium ferrite composition. The sample with X = 0.5 shows maximum permeability i. e. 242 and peak magnitude 464. This variation of μi has been explained by considering saturation magnetisation, magneto crystalline anisotropy, microstructure, and domains of the samples.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Role of Limnological Properties in occurrence of Aquatic Fungi

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Abstract:
Aquatic fungi are peculiar in their morphology, physiology, ecology and ability to reproduce in the aquatic environment. These fungi due to ecological barriers frequently occur and therefore, their occurrence is less. A positive correlation between the occurrence of lower fungi and dissolved oxygen is observed. Probability of occurrence of lower fungi is less, at very low and at very high levels of hardness of the water. Submerged aquatic fungi from Moniliaceae were observed thriving well at temperature between 18 to 21o C while marine fungi grow luxuriantly between 26 to 28oC. The submerged and aero aquatic species grow well in favorable BOD range 6.22 mg/l to 10.23 mg/l. While 6.1 to 7.2 pH range favors mostly by the aquatic fungi from fresh water. Maximum fungi observed in fresh water bodies having alkalinity 21 -35 mg/l. While, marine fungi grow luxuriantly in high range of alkalinity. Seasonal fluctuations of various physicochemical factors in fresh aquatic systems and correlated with their occurrence, distribution and periodicity of freshwater fungi.

Keywords:
Submerged, aquatic fungi, alkalinity, seasonal fluctuations

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Resource Allocation and Workload Scheduling in Cloud Computing

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Abstract:
Cloud Computing is an emerging technology to provide high performance computing where application (workload) is decomposed into number of independent subtasks and each of these tasks is allocated to the resources for parallel execution and analysis. Most of the existing workload scheduling strategies are meant for computing which are supposed to have homogeneous resources interconnected with homogeneous and fast networks. The management of resources and services for scheduling applications, however, becomes a complex undertaking if the resource are not homogeneous. Resource allocation and workload scheduling involves two levels: (1) find resources for the jobs, (2) prioritize and schedule jobs to execute in a reasonable order. In this paper, we propose a new scheduling algorithm to optimize for execution time, keeping the cost of computation and number of the context switches minimum. We have demonstrated the efficacy of our new approach by simulating the World-Wide cloud Resources and jobs for cost scenarios given in workload log files and compared it with the cost time optimization scheduling algorithm.

Keyword:
Cloud Computing, Resource Allocation, Workload Scheduling, Job Runtime, Processing cost.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

An Eco-feminist Reading of Mahasweta Devi's Breast-Giver

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Abstract:
This paper attempts to explore how Mahasweta Devi's protagonist Jashoda in the short story Breast-Giver points out herself with the Mother Earth and finds comfort in the lap of Nature. Breast-giver is a part of a trilogy entitled Breast stories by Mahasweta Devi. It is a story of female subaltern, a housemaid from post colonial India who is subjected to enslavement of sexual abuse, and persecution of male dominated society. She finally capitulates to death in a most painful way leading the readers to equate her with dying Mother Earth.

Keywords:
Mother Earth, eco-feminism, women, breast

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Handwritten Digit Recognition Using Neural Network

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Abstract :
The job of deciphering handwritten digits is far more challenging than one may think. It entails interpreting the provided digit after it has been received. It is quite challenging for machines to comprehend these written numbers and interpret them as a digital number because of the diversity and diverse writing styles. Different tiers make up the recognition system. The canvas board is initially divided into 28 by 28 pixels. Additionally, a neural network is applied. The MNIST dataset served as the source for both the training and testing handwritten images. Models in Python In order to build the user's GUI canvas, the libraries tkinter and pillow were combined with the software packages scipy and numpy for complex mathematics and neural networks, respectively.

Keywords:
handwriting recognition, neural network, machine learning, digital digits, MNIST dataset.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Bioprospecting of Coscinium fenestratum colebr. against biofilm forming pathogens

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Abstract:
Genetic language for social behavior in bacteria is mediated through Quorum sensing. This collective group behavior posses' obvious advantages for the bacteria to adapt to suitable growth modes by migrating to amicable environmental conditions which makes them highly virulent and detrimental to the environment. 80% of the complicated UTIs that occur in healthy individuals are due to uropathogenic E. coli which are the leading cause of morbidity. Current study investigates antibiofilm activity of methanolic extracts from Coscinium fenestratum against clinically isolated, MDR E. coli. The extracts exhibited a MIC in a range of 0.1mg/mL- 0.15mg/mL. Reduction of EPS and rhamnolipids was found to be 79%, 68% and 62.0% respectively by methanolic extract of C. fenestratum. LC / MS-MS screening of the herbal bioactive compound showed the presence of berberine component which is observed to be acted as quorum inhibitors for attenuation of MDR E. coli, at sub inhibitory concentration of 50µg/mL.

Key words:
Quorum sensing, Coscinium fenestratum, MDR E. coli, EPS and rhamnolipids.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

UPFC Based Fuzzy Controller for LVRT Improvement Of DFIG Based Grid Connected Wind Farm

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Abstract:
Wind power fluctuates due to its time varying nature and has stability issues. Oscillating wind and changing system load creates unstable PCC voltage. In such events disconnection of wind turbines from grid happens in the grid side. In addition, the installation of variable speed turbine generators has increased significantly around the world in recent years. Turbine Generators (WTG) may not comply with recently developed grid codes for Wind Energy Conversion Systems (WECS). Dual Induction Generators (DFIGs) are considered for variable speed wind farms. The integration of wind turbines into the grid creates a number of power quality problems. The proposed system addresses the LVRT (Low Voltage Passage) capability of the DFIG and is enhanced by FACTS devices. FACTS devices are used to control the current, expand the transmission capacity and optimize the stability of the power system. One of the most widely used FACTS devices is the Unified Power Flow Controller (UPFC). It consists of parallel and series controllers connected to a DC binding capacitor. A new approach for UPFC to improve the LVRT capability of a DFIG-based wind farm during voltage drops using a Fuzzy Logic Controller (FLC) was discussed. The UPFC can thus effectively improve the LVRT capacity of a DFIG-based wind farm, keeping the turbines connected to the grid in the event of a fault. Simulations are done using MATLAB/Simulink software.

Keywords:
DFIG, LVRT, UPFC, FUZZY system, voltage stabilizer

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Insurance Claim Fraud Prediction Web App Using Machine Learning-Flask Web Framework

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Abstract:
In recent years fraudulent insurance claims is the problem faced by many of the insurance companies which leads to huge financial loss yearly and insurance fraud has been since the beginning of the insurance organization. When a person makes a false claim in order to get benefits to which they are not entitled is known as an insurance fraud. So detection of an insurance fraud is a challenging problem for the insurance industry.so we chose to do a project based on the insurance claims fraud prediction using machine learning. These frauds have adverse consequences on society as the losses are settled down by increasing the premium cost of policy holders. Also the traditional claim investigation process being time consuming and tedious that generally leads to inaccurate results has been identified as main culprit. These project are going to identify potential fraud insurance claims and help insurance company to make more secured claim authentication & settlement by early identification of probable fraud claims. Solution of these problem is to Build a classification methodology AI based App to determine whether a customer is placing a fraudulent insurance claim using machine learning(ML) algorithms such as random forest classifier, XGBoost classifier, logistic regression, ensemble methods (namely bagging and boosting) with Support Vector Machines, K-nearest neighbors and using HTML,FLASK for front end development. The aim is to identify fraud claims accurately within shorter period of time. Throughout the process data analysis is used to validate, clean and extract the relevant data. Hence, by using this framework insurance company can maintain its respectability in outside world and can also share trustworthy relationship with customers.

keywords:
fraud insurance claim, Machine learning, XGBoost, Random forest, flask.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Performance study on Biofuels with nano TiO2 particles as additives in Diesel Engine

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Abstract:
The present work concentrates on experimental investigation to evaluate the performance characteristics of a single cylinder, four stroke, water cooled diesel engine by using Calophyllum Inophyllum biodiesel blends with TiO2 nanoparticles as an additive with engine having maximum power of 3.7 kW at 1500 rpm. Experimental analysis has been carried out for Crude Diesel (baseline fuel), ratios of Biodiesel-Diesel blends and upon addition of TiO2 nanoparticles in the blends for various loading condition ranging from no-load to full-load. The TiO2 nanoparticles were dispersed into different blends fuel with a dosage of 30 ppm. From the investigation it is concluded that Calophyllum Inophyllum biodiesel blend (B10) with the addition of TiO2 nanoparticles exhibits better engine performance compared to the other fuels.

Keywords:
Biodiesel, TiO2 nanoparticles, Brake Power, Brake Thermal Efficiency, Specific Fuel Consumption, Nano additives.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Share Price Vulnerability During Acquisition Tempo: First and Final Deal Announcement

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[2] Associate professor, Chandigarh university

Abstract:
The intent of this research paper is to analyze the deviations occurred in stock price response to acquirer-company's announcement made for acquisition of target-company based on first announcement and deal executed announcement. To study the aforementioned objective this paper have included five companies as the samples companies which accomplished the final deal of acquisition during 2020 and have been studied using event-study methodology to the event window (-15,…..,0,…..15) days of event occurrence. With this purpose two popular techniques within event study methodology are employed videlicet average security return variability (ASRV) and cumulative average abnormal return (CAAR) to examine the share price reaction to the respective announcement and to measure the magnitude of abnormal return gained by the shareholders during the announcement period. The findings indicate that ASRV has sufficiently reacted towards the event day similar response is also confirmed by CAAR i.e. statistically different from zero. Further, this paper has also explored that first announcement event is more consistent with the assumptions of CAAR in the semi-strong efficient market as compared it with deal executed completion announcement.

Key-Words:
M&A Tempo, ASRV, CAAR, event-study methodology, First acquisition announcement, and deal executed announcement
JEL Classification Code:C12; C14; C15; G14; G15, H25, H32, K34.

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Morphometric Analysis of Gandak River Drainage Basin Using Geographic Information System (GIS) And SRTM-DEM.

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Abstract:

Quantification of drainage networks in relation to geomorphology, lithology, climate, and tectonics gives important evidence of an area's hydro-geomorphic, denudation characteristics and drainage development. The current research used the Shuttle Radar Topographic Mission(SRTM) DEM to investigate drainage morphometry and its impact upon the environment and hydrological analysis of Gandak river basin, which is a prominent tributary of River Ganga , India. Pioneer approaches like Horton and Strahler have been used to assess and evaluate the morphometric parameters of watershed. The findings of this study demonstrate that techniques for geographic information systems and remote sensing are more effective for computing and analysing morphometric parameters. With the help of the Arc GIS 10.5 programme, 17 morphometric parameters were determined. According to the morphometric analysis, the Gandak catchment may be classified as a 5th order drainage basin, with an area, perimeter, and basin length of 54470.4 km2,2417.457 km, and 642.796 km, respectively. The elongated shape of the watershed was revealed by the results of form factor, circulation ratio, and elongation ratio which are 0.132, 0.117 and 0.409 respectively. They also reflect dendritic type of drainage pattern of Gandak watershed. Mean bifurcation ratio of 6.13 suggested, geologic structures play a significant part in the field of research. The watershed has a porous subsurface hence runoff is comparatively modest as seen by the low drainage density, infiltration rate and frequency of streams. In the present study shows low value for drainage density which is 0.169km/km2 suggest very permeable sub-soil, shows medium relief, rather thick flora growth, and also indicates a very coarse textured drained basin. The region's wells will have good water potential and better specific capacities since the low value of drainage density impacts more infiltration. Given the high basin relief and ruggedness number, it is inferred that the land has an inherent structural complexity in respect to relief and drainage density and is more prone to soil erosion. The Gandak basin's low drainage density and coarse drainage pattern suggest that it has a lot of opportunity for artificial recharge structures. The presence of high Length of overland flow (Lg) 2.959 and Constant channel maintenance (C) 5.917 values indicates that the area has been subjected to sheet erosion. The first and second stream orders are of significant priority streams that are inclined to to more soil loss and erosion than the others. The current morphological-based prioritising is also supported by geological field verification. As a result, in order to protect the land from future erosion, adequate soil erosion management techniques are required in this basin. This research will aid in the efficient use of water resources and the long-term development of the Gandak River basin.

Keywords :

Watershed, Morphometry, Geographic Information System, Gandak river basin

ISBN : 978-93-92105-38-8

Water Conservation through Geo-Informatics

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Abstract:
This paper encapsulated the solution for the depleting ground water table and rising demand of food security using latest technologies such as Remote Sensing (RS) and Geo-graphical Information System (GIS). Due to increasing population of the country, the available water resources are being overexploited and there is a need to tap the potential sites and to ensure the sustainability of natural water resources. Since rainfall is one of the important sources of water therefore appropriate methods could be used to tap the maximum runoff water to reduce the water poverty during non-monsoon season. In many of the places, the average annual precipitation is insufficient to cop up the dry spell throughout the year. Application of Geographical Information System & Remote Sensing have gained attention through multidisciplinary inputs from various sources to focus on such sensitive issues. Numerous methods are available these days to overcome the crisis of water scarcity, out of which some have been discussed in the review paper. At the end, it is concluded that use of Geo-informatics ensures the reliable and accurate solution for decision making concerns of water conservation practices.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Effect of a Zwitterionic Surfactant for Hardness Enhancement of ENi-P-nano TiO_2 Deposits synthesised on Marine Grade AH 36 Steel

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Abstract:
This study aims to understand the feasibility of fabricating electroless Ni-P-nano TiO_2 on marine grade AH36 steel to enhance its surface hardness for marine applications. For obtaining a uniform co-deposition of nano-TiO2 into the ENI-P matrix, a zwitterionic surfactant (C14-SB) was used, and its effects on the enhancement of the hardness were analysed and discussed. Furthermore, the EDAX elemental details are used to investigate the significant contribution of phosphorous, nickel, and second-phase TiO_2 elemental presence to coating hardness enhancement. Furthermore, the SEM images and XRD micrographs are utilised for the morphological and phase study of the coatings to support the outcome. Finally, the study findings show that the weight percentage of constituent elements present in the ENi-P-nano TiO2 deposits significantly improved the coating's hardness and made it compatible with marine applications.

Index Terms:
AH36 steel, ENi-P-nano-TiO_2, C14-SB surfactant, hardness.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Awareness, Perception, and Attitude Towards Doping Among Sports Science University Students In Ethiopia Between Their Living Areas.

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Abstract :
Doping in the current time it is a global issue that affect both the athlete and sports. In Ethiopia doing becomes series issue. If it is not prevented starting today it will have its own impact on the development of sports and health of athletes. So, the main objective of this study was to assess the awareness, perception and attitude of sports science university students towards doping in Ethiopia between their living areas. Across sectional design of study was applicable with collection of data by using the modified and standardized questionnaires. The simple random sampling technique was used to select 13 universities among 26 universities that offering the sports science program in their institution. The students (urban areas=363,rural areas=373 and total=736) were selected from each targeted universities using whole or census sampling method due to their small number of graduate students. The SPSS version 24 was also used to analysis the data collected from the students. To know the association of students doping APA chi-square(x2) was implemented with fixed $p<0.05$.The result shows that the sport science university students those who comes from urban area of the country were score better doping APA than the rural areas. But generally the sports science student are in a better position of doping APA. Therefore; it could be suggested that the ETH-NAD should have to give an attention for the students that come from the rural area of the country by preparing different workshops and seminars. And also the universities must actively work with the ETH-NAD to produce a better professionals that dislikes the doping.

Key words:
Awareness, perception, attitude, sports science students, doping

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

A Study on Capital Budgeting Practices of Manufacturing Companies in Ethiopia

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Abstract:
This study was conducted to study the capital budgeting practices of manufacturing companies in Ethiopia. The researcher was used a mixed research approach. Cross sectional data were gathered from employees of thirty manufacturing companies. The questionnaires were distributed to 264 respondents, including chief financial officers, chief executive officers, financial managers, cost and budget heads and financial account heads. To analyze the collected data the researcher was used both descriptive statistics and regression model. The findings of the study confirmed that, Ethiopian manufacturing companies were actively engaged in the expansion of existing products. Majority manufacturing companies were regularly used net present value and payback period capital budgeting appraisal techniques to select the profitable investment opportunities. There was a statistically insignificant difference in capital budgeting practices among categories of manufacturing companies. As regression result indicated, net present value and profitability index had positive and statistically significant impact on return on assets of Ethiopian manufacturing companies. However, internal rate of return and payback period had negative and statistically significant impact on return on assets of manufacturing companies in Ethiopia. Finally, the researcher suggested that, Ethiopian manufacturing companies should implement sophisticated capital investment appraisal techniques instead using non-discounted technique, except for internal rate of return.

Key words:
capital budget, capital budgeting technique, net present value, payback period.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Product Lifecycle Management with Ride-Brain Optimization Meta-Heuristic Algorithm

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Abstract:
The product lifecycle management (PLM) is an important tool for managing products and its data throughout its life cycle. The advantages of the PLM systems are in the small, medium, and large enterprises and groups. In the current study the objective is to simplify and optimize PLM system with Ride-Brain optimization meta-heuristic algorithm and designed new workflow
In changing business environment, companies are looking for different advantages on how to get better position in the market. One way to do that is to find help from PLM systems for optimizing the production processes and methods, to give better and quicker overview of the actual situations in the job shop scheduling problem and according to the real situation changing the processes to react quicker for changed situations. This paper describes how Product lifecycle management with Ride-Brain optimization meta-heuristic algorithm can be used to support the job shop scheduling problem in automotive industry The results show weak preparation of the evaluated company from the aspect of PLM and its method. Such a conclusion has been made by utilizing PLM novel model for company.

Keywords:
Background of Product lifecycle management, Product lifecycle management tools, workflow designer, schedule manager

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Conducting Systematic Literature Review in Product Life Cycle Management for Design of Job Scheduling Technique

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Abstract:
Now a days increasing product complexity and increasing customer demand and variety of product coming in market and increasing competition in the market. Every one searching a way to manufacture excellent product in minimum time and minimum cost and provide excellent service to customer. The increased product complexity in industry and organization makes it difficult to manage product information and minimized makespan and maximum utility rates from several and traditionally different engineering methods. PLM plays a large and important role for minimized makespan and maximum utility rates in the industry of tomorrow. The initial literature review about the research areas will be explained. This review can help to find the state of the art in the research area, and can help to find if there is any previous research and designs method for minimized makespan and maximum utility rates on the Product lifecycle management platform. In this paper explain in first section scheduling methods and the second section explain about PLM Workflow and schedule manager, and addressing the previous researches about scheduling techniques used in the manufacturing area, and its relation to the PLM systems.

Keywords:
Job Shop Scheduling Problem, Optimization, Product lifecycle management

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Sustainable biofabrication, characterization, evaluation of antioxidant, antibacterial and antimitotic assay of Zinc and Magenesium oxide nanoparticles from "Thuja essential oil".

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Abstract:

Green synthesis represents an eco-friendly alternative to the environment by minimizing the use of chemical reagents and reduces temperature and pressure conditions. Thuja essential oil is extremely medicinal due to their large amount of compounds derived and was selected for the present study. In the present work the Zinc oxide (ZNP) and Magnesium oxide (MNP) were synthesized and characterized using Thuja essential oil as a precursor. The optical energy gap of ZNP (2.74-2.84eV) and MNP (2.16-2.75 eV) and the mesoporous nature of the biogenic NPs have attributed by UV-DRS and surface area studies. The FT-IR characterization revealed a characteristic peaks of functional group involved in metal oxide ion bonding (Zn and Mg) such as 3372 cm-1) O-H, (2427 cm-1) aromatic aldehyde, (1590 cm-1) Nitro compound, (1115 cm -1) Amine, (856 cm -1) Chornobyl, (1383 cm-1) Asymmetric and symmetric stretching. SEM micrographs showed agglomeration of nanoparticles with a spherical shape. The elemental analysis using EDS confirmed high Zn and Mg atomic percentage of 24.32% and 15.04% respectively. XRD results are in colloboration with SEM images as the synthesized particles were of spherical in shape and the size of the particles were in the range of 33 nm and 26-37nm for ZnO-NP and MgO-NP respectively, calculated using Scherrer's formula. The characterization findings reveal the "symbiotic association" of bio reducing agents and metal to influence the pronounced activity in biomedical studies. The free radical scavenging hunt was maximum with DPPH inhibition of IC50 of 300µg/ml (ZNP) and 150µg/ml (MNP). The biosynthesized ZNPs offered significant antibacterial potential against Staphylococcus aureus (25 mm), Pseudomonas aeruginosa (18 mm), Escherichia coli (15 mm), Bacillus subtilis (9 mm). MgO-NPs offered significant antibacterial potential against E. coli (18 mm), S. aureus (16 mm) B. Subtilis (11 mm), P. aeruginosa (11 mm). Apart from antibacterial potentiality, antimitotic activity was also observed with a mitotic index of 53.3% and 62.2% in ZNP and MNP respectively. The results affirm that biosynthesized ZnO-NPs and MgO-NPs can be used as an alternative to present-day chemical compounds.

Keywords:

Thuja, zinc oxide, magenesium oxide, antioxidant, antibacterial and antimitotic assay.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Design of Smart Transformer Breather and Analysis Using Ansys Fluent.

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Abstract:
Power Transformers are a key component of the transmission line as it is used to transfer electric current over long distance by step-down the current receiver from the generator. Large amount of heat is generated in this process which causes the oil in the conservator tank of the transformer to heat and expand. Due to this, air in the transformer is expelled out. During lower working load or no load condition, the oil retracts and this causes the atmospheric air to enter the tank. This process is called as the breathing of the transformer. The atmospheric air contains moisture which can cause heavy damage or breakdown of the transformer. Therefore, a silica gel breather is used to remove the moisture in the atmospheric air. Traditional breather requires timely maintenance and lack of it may cause moisture to enter the tank. Therefore, a smart breather is used to automate the regeneration process of the breather. In this paper a design of a smart breather is presented. The model is made in SolidWorks Students version and analyzed using Ansys Students version. The silica gel bed is defined as porous zone in Ansys Fluent and thermal analysis is carried out for complete heating of the silica gel bed. An optimization of the design is done by varying various parameters.

Keywords:
Power Transformer, Smart Breather, Porous Zone, Ansys Fluent.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Review on Determining of Blood Components Count in Real Time Microscopic Images Using Image Processing

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Abstract

RBCs, WBCs, and platelets are all components of blood, which is one of the body's most vital organs.The state of health is characterized by a complete blood count. Consequently, segmenting and identifying blood cells is crucial. Many hospitals and healthcare facilities still count blood cells manually using the outdated conventional approach. This method takes a lot of time and can lead to inaccurate results. On the other hand, health centers cannot afford expensive equipment like the hematology analyzer. This study describes a raspberry-pi based image analytic system that is meant for the segmentation and counting of blood cells from microscopic blood-smear images using linked component labeling and the Hue, Saturation, and Value (HSV) thresholding method, respectively.On 10 microscopic pictures, RBCs, WBCs, and platelets have been identified and counted. A statistic based analysis was done to contrast the values recorded by the suggested system with each patient's actual total blood count test result. It demonstrates that the proposed approach has an accuracy of 90% or higher in relation to the real results of CBC testing. Additionally, an Android app was created to assist users, particularly those in the non-urban regions, in determining the amount of blood cells and to send the results from the Graphical User Interface to a certified physician or expert through Short Message Service for remote diagnostic purposes[5].

Keywords

HSV thresholding, connected component labeling, Blood counter,Red Blood Cell,White Blood Cell,platelet,Image Analysis.

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

An Electric Vehicle Charging Technology: A Review and Size Estimation

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Abstract:
Many different types of electric vehicle (EV) charging technologies have been reported in the literature and put into practice. In terms of converter topologies, power levels, power flow directions, and charging control systems, this study provides an overview of existing and proposed EV charging solutions. A review of the primary charging methods is also provided, with the purpose of importance an effective and quick charging procedure for lithium ions batteries in terms of extending cell cycle life and maintaining high charging efficiency. After presenting the most significant components of charging technologies and tactics, the final section of this study estimates the appropriate size of charging systems and, based on a subtle analysis, the possible outcomes.

Keywords:
Electric Vehicle - Plug-in Electric Vehicles - Battery charger - Charging Infrastructure – V2G - G2V -Charging Techniques

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

A Novel Approach to Reduce Cell to Cell Variation in Lithium-Ion Battery Packs during Operative Condition

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Abstract:
In this project, to improve battery utilisation, an experimental strategy to reduce cell-to-cell variance during operation is investigated. This paper intends to fill a gap in the literature caused by the numerous theoretical considerations of intelligent battery management systems without long-term experimental validation of their capabilities. Two batteries' ageing behaviours have been studied for about 1.5 years for this purpose. An active balancing battery management system (BMS) is connected to one battery, and a conventional passive balancing BMS to the other. Each cycle records crucial battery characteristics like capacity and internal resistance. The voltage differential between the individual cells at the end of discharge and the amount of charge balanced by the BMS are used to determine the battery performance in detail. The advantages of active balancing are illustrated by the elucidation of significant disparities between the employed BMS systems. Active balancing, as opposed to passive balancing, results in a voltage spread at the end of discharge that is more than five times smaller, which improves usage and slows down battery ageing.

Keywords:
Active balancing, Passive balancing, Aging, Cell variation, Battery Management System (BMS), Lithium-ion.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Production Performance Evaluation in SME's with Lean Manufacturing Practices: A Review

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Abstract:
SMEs make up between 95% and 70% of all jobs in OECD countries. There is room for smaller enterprises to have an impact as economies of scale. But in a globalized, technology-driven society many of the traditional problems that SMEs face become more obvious. There is need for small businesses to improve their management techniques, and information-gathering process. There will be significant gains in quality, cycle time, and responsiveness to customers as a result of SMEs systematically using Lean manufacturing practices. LM is a manufacturing system that prioritizes continuous flow throughout the supply chain and seeks to perfect its product by removing waste and constantly improving the process. Anything above the necessary tools, supplies, components and time is considered waste, thus it is necessary to make LM as the industry norm for producing goods. Here different LM papers with performance parameters have explained many ways of theoretical as well as conceptual frameworks to help business and save the money by reducing waste.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Predictive Protection of Sensitive Data

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Abstract:
The traditional idea of privacy faces a brand-new challenge from artificial intelligence and big data. These techniques can be applied to forecast human behaviour, the onset of a disorder, security issues, or consumer behaviour, for example. Building data models using sensitive personal information might jeopardise consumer privacy and cause intentional harm to someone if the information is leaked or utilised inappropriately. Predictive analytics is commonly linked to advantageous packages that enhance, for instance, our health care. Additionally, this makes it possible to infer private information without the subject's knowledge, such as gender, sexual orientation, health risks, intellectual capacity, or political views.

Keywords:
sensitive records, predict, defend, clustering classification.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

A Comprehensive Study of Plant Disease Detection and Disease-Causing Factors

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Abstract:

For the development of profitable plants and to ensure the protection of food, accurate prediction of plant disease is essential. When predicting plant diseases, relevant information such as incidence, frequency and infection areas are essential. However, now gathering such information is dependent on fixed-point observations or field tests conducted by agricultural agencies. Insufficient data and low regional representation are two of the main issues affecting forecasting model performance. There has been some good development in Deep learning models that could identify the disease in plants thereby easing the job of the farmer based on features of plants. This review has analyzed different work where machine learning and deep learning models employed in detecting the disease in plant. Deep learning was also found to have the best level of disease diagnosis accuracy. By directing the ongoing development and use of instruments to enhance plant disease detection and offer farmers support for disease management, these can help close existing research gaps.

Keywords:

plant disease detection, Machine Learning, Deep Learning

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

RNN Based Stock Exchange Pricing Forecast Model

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Abstract:
Predicting stock market prices is a challenging task that typically involves a lot of human- computer interaction. Due to the interrelated structure of stock prices, conventional stock market analysis approaches are ineffective. It is frequently set off by the bursting of a price bubble and culminates in a tremendous sell-off as a result of a large number of market participants all rushing to liquidate their assets at the same time. It could be ideal to build a machine learning system that can predict stock market movements solely based on historical price data. Price bubbles are a sign of market inefficiency. As a result, asset prices in inefficient markets may not always precisely reflect their underlying worth, instead inflating or deflating as traders' expectations rise or fall. All of these prejudices are reinforced by futures trading, which drives commodities prices higher (or lower). As a result, inflationary (or deflationary) price bubbles arise. The creation of a machine learning system that can forecast stock market movements solely from historical price data is the aim of our research. A recurrent neural network (RNN) called Long Short Term Memory (LSTM) uses stochastic gradient descent to update the weights for individual data points. This will produce more accurate results when compared to conventional stock price prediction algorithms. The network is trained, put to the test, and the results are tallied as the amount of data increases.

Keywords:
Stock Market Prediction, Machine Learning, RNN, LSTM

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Modified Allowable Depth of Cohesive Subsoil Underlying Highway Embankment to Satisfy Tolerable Residual Settlement

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Abstract:
Study on Residual settlement of highway embankment is repeated for different strength of cohesive subsoil through extended considerations. As extension of previous study, another parametric study is carried out for different height of highway embankment and different stress-strain modulus in calculation of consolidation settlement of cohesive subsoil instead of compression ratio. The elastic settlement due to self-weight of pavement layers is also included in current analysis. In the current study modified definition of the Residual Settlement is the sum of 90% of consolidation settlement due to self-weight of embankment fill excluding pavement layers, 90% of consolidation settlement due to self-weight of pavement layers, elastic settlement due to self-weight of pavement layers and elastic settlement due to axle load only which are to be occurred after construction of pavement layers and before the first maintenance of highway pavement. The values of residual settlement for various depths of soft cohesive soil (Hs) are obtained and presented in graphical form for SPT Value (N60) of 1-5. The tolerable limit of residual settlement is considered as 0.1m for rigid pavement, 0.2m for flexible pavement in bridge or culvert approach and 0.3m for flexible pavement in in general road sections. A modified design guideline is developed for design and assessment of ground improvement in highway embankment underlain by soft cohesive soil for limiting level of the residual settlement considering vehicle equivalency factor or ESAL factor of 6. Design tables, design charts and empirical design equations are integrated in the prepared guideline. Modified maximum allowable values of the soft subsoil depth (Hs,0.1, Hs,0.2 and Hs,0.3) are obtained corresponding to mentioned tolerable values of the residual settlement. The modified guideline to be used instead of previous guideline in design and assessment of the necessity of ground improvement for limiting settlement limit. The ground improvement is only required if the depth of soft subsoil is greater than Hs,0.1, Hs,0.2 or Hs,0.3 which indicate the residual settlement is more than the tolerable limit corresponding to a particular depth and strength of soft cohesive subsoil.

Keywords:
Consolidation Settlement, Degree of Consolidation, Elastic Settlement, Equivalent Standard Axle Load (ESAL), Vehicle Equivalence Factor, Ground Improvement, Highway Embankment, Tolerable Residual Settlement.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Comparative Study of Print Contrast on Coated and Uncoated Paper Using Amplitude Modulated, Frequency Modulated, Hybrid Modulated and Digitally Modulated Screening in Offset Printing Process

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Abstract:

This research is an experimental study. The purpose of this research was to determine the significant differences that exist in print contrast of AM vs. FM vs. XM vs. DM screening of multicolour offset printing process on coated and uncoated paper. Print Contrast is the ability of printing press to hold shadow details. Print quality increases with increase of print contrast. Print Contrast is determined by particularly checking the screen in the three-quarter tone. The experiment was conducted using FOGRA 39/ PSO standard. The master/plates of 44.5×29.5 cm output was prepared by incorporating quality measuring parameters and printed in KCMY colour sequence on coated and uncoated paper on 'RYOBI 524HX (Sheet fed Offset) by using different screening technologies. During test, around 150 sheets of each paper were printed to achieve target Solid Ink Density value (+ 0.05). Once the density values were achieved according to standard SID values, another 50 sheets were printed for spectrophotometer analysis. Solid Ink Density patches were not compared, as one could expect similar result from all screening technologies. The finding of this research work comparing print contrast of AM vs. FM vs. XM vs. DM screening led to the conclusion that DM screening showed maximum print contrast on coated and uncoated paper among all screening technologies (AM, FM, XM and DM).

Index Terms:

Amplitude Modulation Screening (AM), Digitally Modulated Screening (DM), Frequency Modulated Screening (FM), Hybrid Modulated Screening (XM)

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Equitable and Inclusive Nature of Education in Nep 2020

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Abstract:
The National Education Policy 2020 (NEP 2020), which the Association Bureau of India supported on 29 July 2020, frames the vision of India's new education system. The new policy replaces the past National Policy on Education, 1986. The policy is a far-reaching system for rudimentary education to advanced education as well as professional preparation in both country and metropolitan India. The policy expects to change India's education framework by 2040. Soon after the arrival of the policy, the public authority explained that nobody would be compelled to concentrate on a specific language and that the vehicle of guidance won't be moved from English to any local language. The language policy in NEP is an expansive rule and warning in nature; and it depends on the states, establishments, and schools to settle on the execution. Education in India is a Simultaneous Rundown subject.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
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Analysis of The Double-Winded Sequential Machine's Performance

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Abstract:
For applications requiring continuous speed, synchronous machines are typically used. This project makes an effort to conserve energy while simultaneously increasing the synchronous machine's efficiency and power factor. The design, construction, and testing of a 3kW, 415V, 1500 rpm double winding synchronous machine (DWsyM) has been completed. Two sets of three-phase windings are contained in the same core as the stator. The secondary winding's terminal voltage is always kept constant since the machine always runs at synchronous speed. Excitation of the synchronous machine's field winding requires a separate DC source. There are many ways to stimulate the field's winding. In comparison to other technologies, the excitation process in double winding synchronous machines is simplified. The energizer for one of the three phase stator windings is a three-phase supply Field winding doesn't require a separate DC supply. There has been stress testing with a range of electrical and mechanical load combinations. Results of the experiments show a significant improvement in efficiency and power factor when compared to induction and reluctance motors. The electricity drawn from the second set of winding is seen as energy conservation because the load connected there is not reliant on a separate supply. Where a machine is required to run continuously, this type of machine can be used. Performance enhancement is realised, but so is energy conservation.

Keywords:
DW Synchronous machine, Double winding, Power factor, Energy conservation Efficiency.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
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From Health Practice to Population Health: How Can Law Redefine Clinical Medicine

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Abstract
The appropriateness of making health laws has been debated for recent years. Now the focus changed from awareness to exposing and telling to the higher settings like courts. The paper highlights important issues that may arise during the process of health law reform. It provides guidance about issues and requirements to be addressed during the process of developing health laws. It also includes a variety of countries to illustrate effective law reform practices and some features of effective health legislation.

Index Terms
Health law, Healthcare provider, regulation, mal-practice.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
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Airborne Hybrid Power Generation System for Electric Vehicle Charging Station

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Abstract:
Airborne Wind and Solar Energy Converter (AWSE) is "the conversion of wind energy and solar energy into electricity using tethered flying devices". The transition toward electric vehicles is a promising strategy towards green and clean transportation. The charging infrastructure is very important to accommodate the rapid public adoption of electric mobility. In India there is a big opportunity in developing robust charging stations. Considering the energy requirements there is a need for renewable energy-based charging infrastructure.

An airborne hybrid power generation system is proposed to utilize the wind and solar energy to meet the power requirements of EV charging stations. The new power generation system employs tethered helium balloons with a small wind turbine and covered with flexible monocrystalline photovoltaic panels therefore generates electricity from both wind and solar energy.

The major advantages of this type of airborne hybrid power generation system are the requirement of big towers and space can be eliminated and also small wind turbines can operate at minimum wind velocity. At high altitudes wind speed is more which can be tapped using the proposed system. Design of a lightweight generator, tethered balloon, control system for stabilizing the balloon and environmental effects on the proposed system are the major challenges to overcome.

An airborne hybrid power generation system has been developed. Performance Analysis of Horizontal axis small wind turbine is carried out using QBlabe software. The feasibility of using an array of airborne hybrid power generation system to meet the power requirement of EV Charging stations is presented. Potential applications of the proposed system for power generation in coastal regions, workplace charging, home charging and cost effectiveness is discussed.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science, Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Solanum Tribolatum Nonedible Seeds as Potential Feedstock for the Synthesis of Liquid Fuel and Characterization of Its Fuel Properties

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Abstract:
The liquid fuel derived from nonedible seed oils plays an important role in the fast diminishing era of non -renewable energy sources like coal petrol and diesel etc. In this work the Solanum tribolatum nonedible seeds are selected for liquid fuel synthesis by alcoholysis process. The percentage oil obtained from Solanum tribolatum seeds is 18.00. Physicochemical properties of oil like Acid value, free fatty acids, Iodine value, saponification value, molecular weight, density and kinematic viscosity, refractive index are determined experimentally. Fatty acid components of Solanum tribolatum seed oil (STSO) are obtained by GC-FID analysis. Then it is subjected to alcoholysis process under optimized conditions to get Solanum tribolatum methylesters (STME). The conversion of STSO to STME is confirmed by FTIR and Proton NMR spectra. The fuel characterization of produced liquid fuel is carried out (Cetane number, kinematic viscosity, density, flash point, HHV and LHV, Cloud pint and pour point, oxidation stability etc.). The fuel properties of STME are compared with fuel parameters of already existing biodiesels and American (ASTM), European testing standards (EN). The STME properties are also calculated using already developed mathematical models. The calculated fuel parametrs are very close to expertimentally determined fuel parameters. This work concludes that the produced liquid fuel can be used as fuel and Solanum tribolatum nonedible seeds are suitable for liquid fuel synthesis.

Keywords:
Solanum tribolatum, Non-edible seed oil, Alcoholysis, Liquid fuel properties, Fuel properties.

ISBN : 978-93-92105-38-8

43rd World Conference on
Applied Science,
Engineering & Technology

43rd WCASET - 2022
29th & 30th December 2022
Goa, India

Smart Blind Stick

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Abstract:
About 253 million people are visually impaired worldwide. It can be challenging for these people to navigate through places without bumping into obstacles. The blind has to depend on others for navigation, which generates a feeling of insecurity and dependency. Hence, there is a need for a smart blind stick that will assist impaired people and will make lives easier.

Keywords:
Blind stick, Obstacle detection, Vision, visually impaired.

43rd World Conference on
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29th & 30th December 2022
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A Novel Hybrid Classifier for Solving Class Imbalance Problem

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Abstract:
The class imbalance problem has become a leading challenge. Class imbalance problem is a situation in which the observations that belong to one class are significantly lower when compared to the observations of other classes. This causes biasness towards the classes with higher observations. Classifier Ensembles have recently achieved more attention as effective technique to handle imbalance problem. Ensemble concept uses multiple classifiers for better predictive results compare to the methods which uses only single classifier to obtain the results. This paper proposed an ensemble method using automobile data by fusing classifiers such as Radial Basis Function (RBF) and Support Vector Machine (SVM) with arcing and their performances are analyzed in terms of accuracy. A wide range of comparative experiments are conducted for standard dataset of automobile. The proposed hybrid ensemble method provide significant improvement of accuracy compared to individual classifiers and previous works on standard dataset of automobile are exhibited.

Keywords:
Accuracy, Bagging, Ensemble, Radial Basis Function, Support Vector Machine.

ISBN : 978-93-92105-38-8

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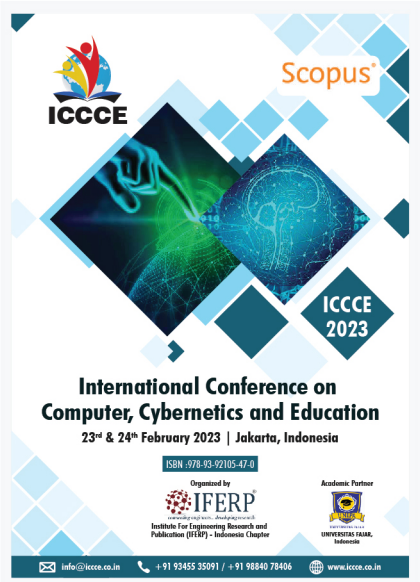

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