



Late Tatyasaheb Gunjal
Founder , JCEI, Narayangaon



Jaihind College of Engineering, Kuran

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NATIONAL CONFERENCE ON EMERGING TRENDS IN ENGINEERING & SCIENCES (NCETES) (Hybrid Mode)

JCON-2024

2nd & 3rd March 2024



**PROCEEDING OF NATIONAL
CONFERENCE ON EMERGING TRENDS IN
ENGINEERING & SCIENCES (NCETES)
(Hybrid Mode)**

JCON-2024

2nd -3rd March 2024

Jaihind College of Engineering, Kuran

In association with Savitribai Phule Pune University, Pune.



Hon. Shri. Jitendra M. Gunjal

Chairman, JCEI, Narayangaon

MESSAGE

I'm happy that Jaihind College of Engineering, Kuran is contributing to the field of research by organizing this National Conference on Emerging Trends in Engineering and Sciences (NCETES) JCON-2024 in Jaihind College of Engineering. I hope this conference will bring together students, teachers, researchers, scientists and industrial, professionals to share their findings and discuss them in detail.

I congratulate all the delegates and participants and hope that this event nourish and fosters the spirit of research, thereby catering to the wholesome development and enrichment of the society.

Wishing the event all success.



Dr. S. D. Gunjal

Director
JCEI, Narayangaon

MESSAGE

It is noteworthy that JCEI's, Jaihind College of Engineering is progressing at a very fast pace. This year we are hosting the JCON-2024 National Conference in series in the fourteenth year of existence of the college. The response is very encouraging. The papers submitted by the Students demonstrate the enthusiasm in their creations. Sponsorship of the Conference by the "Savitribai Phule Pune University" is a big blessing for all of us. Conference helps to reflect the work done by the students and the process of developing their minds to becoming an engineer. That is actually the aim and objective of education. The thought of our Chairman that quality education to the poorest and needy children without being the burden on parents is being witnessed in the conference. Ultimate goal of the conference being to obtain views from others on the work projected by the students in their papers. These views will help students to improve upon and do a better job in future.

Finally this conference is a step towards setting up of a good professional, satisfying life by the students and alleviation of poverty for the nation. We would like to express our deepest appreciation to the authors whose technical contributions are presented in these proceedings. It is because of their excellent contributions and hard work that we have been able to prepare these proceedings. Wishing a grand success to the conference.



Dr. D. J. Garkal,

Principal

Jaihind College of Engineering, Kuran

MESSAGE

Warm and Happy Greeting to all!!!

I am immensely happy that our college is organizing a National Conference on Emerging Trends in Engineering & Sciences (JCON 2024) on 2nd and 3rd March 2024.

Being a highly inter disciplinary research area it is a perfect topic for a conference giving, opportunity for researchers to meet and exchange information and collaborate. I am very happy to state that the JCON 2024 provides a platform for such exchange of information in continuation to the earlier conference.

The papers being presented have been selected based on reviews and are of good standards. An opportunity has been provided for research scholars to discuss their problems and an achievement with senior researchers.

I am sure the conference will provide a new perspective to the researchers. The various technical and non technical committees have put in admirable effort in making the conference a memorable one to all the delegates.

I take this opportunity to congratulate all the delegates for their participation and contribution.



Dr. V. M. Dhede
Convener NCETES-2024

FOREWORD

It is my great pleasure to present the proceedings of the National Conference on “Emerging Trends in Engineering and Sciences”, NCETES (JCON 2024).

I welcome the participants of JCON 2024. The main goal of organizing this conference is to share and enhance the knowledge of every individual of this world. We have given a good opportunity for those who have a desire in knowing the present technological developments and also share their ideas. Furthermore, this conference will also facilitate the participants to expose and share various novel ideas. The conference aims to bridge the researchers working in academia and other professionals through research presentations and keynote addresses in current technological trends. It reflects the growing importance of intelligent systems as a field of research and practice. You will get ample opportunities to expand your knowledge and network. Outside of the conference, I hope that you would enjoy some of the many attractions found in and around our beautiful campus of Jaihind College of Engineering. I wish that NCETES will keep on growing in coming years with more impact on the International research community. I thank the conference committee for extending their valuable time in organizing the program and all the authors, reviewers, other contributors for their bright efforts and their belief in the excellence of JCON 2024 and Jaihind faculty for making a conference success.



Dr. R. M. Mulajkar
Convener NCETES-2024

FOREWORD

Welcome to the 2024 National Conference on Emerging Trends in Engineering & Sciences (NCETES-2024) organized by Jaihind College of Engineering, Kuran (Pune), Maharashtra. This conference is scheduled to be held on 2nd and 3rd March 2024. The main aim of the conference is to provide a high level international forum to bring together industry professionals, academics, and individuals from institutions, industrial and government agencies to exchange information, share achievements, and discuss the advancement in the fields of Computing, Communication, and Information Security etc. This is one of the most prestigious conferences conceptualized in the fields of engineering and sciences. The conference features a rich collection of original research embodied through oral presentation, invited talk and interactive demos.

We received submissions from across the world for all track such as Civil Engineering, Computer Engineering, Electronics & Telecommunication Engineering, Mechanical Engineering, Artificial and Data Science Engineering, General Science fields. Each submission was initially screened for conference scope, technical relevance and possible plagiarism by technical program committee. The papers successfully passed the screening stage were assigned to reviewers based on their area of expertise, Outcome of the reviewer were then examined by technical program committee for their recommendation on the paper to the organizing chair. The organizing chair communicated to corresponding author about status of the paper and changes in manuscript if any required. The conference received manuscripts from different states. The conference would not have been possible without vision and dedicated efforts of a number of people. I am indebted to the management of JCEI, Principal, and Program committee members for their exceptional work.

I would like to thanks to all 288 authors who have submitted their research review articles for considering JCON 2024 as a platform to present and publish their work. I also would like to deploy acknowledge all the presenters. Session chairs and attendee who bring JCON 2024 a valid meaningful and potential encouragement.



Dr. A. A. Khatri
Convener NCETES-2024

FOREWORD

It is my privilege and honor to welcome you all to the “National Conference on Emerging Trends in Engineering & Sciences (NCETESs) (Hybrid Mode) JCON-2024, on 2nd and 3rd march 2024 at Faculty of Engineering, Jaihind College of Engineering, Kuran, Pune.

The main goal of organizing this conference is to share and enhance the knowledge of each and every individual in this fast-moving Information Era. We have given a good opportunity for those who have a thirst in knowing the present technological developments and also share their ideas. Additionally, this conference will also facilitate the participants to expose and share various novel ideas. The conference aims to bridge the researchers working in academia and other professionals through research presentations and keynote addresses in current technological trends. It reflects the growing importance of Intelligent Computing systems as a field of research and practice for contribution and better opportunities in industry 4.0

I want to thank in advance the conference committee for extending their valuable time in organizing the program and all the authors, reviewers, and other contributors for their sparkling efforts and their belief in the excellence of JCON02024.

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Prof. Santosh D. Dhobale

MESSAGE

JCON 2024 Conference has established as reference for the high quality research in all expects for interaction and exchange of ideas. JCON 2024 fortunate to attract high interest among the community .The conference received papers from different fields the members of technical review committee work efficiently. We are grateful to thanks all authors and all committee members for their hard work and dedication.

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Proceeding
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National Conference
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Organized by
Jaihind College of Engineering, Kuran
Sponsored by
SPPU, Pune

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MECHANICAL ENGINEERING

JCON2024_MECH_T2-0013

Design and Development of Walking Robot with Human Seating Trolley

Vedant Chikhale, Ashish Mule, Shubham Kashid, Atish Patil, Prof. Gadekar.R. A
Mechanical, Jai hind College of Engineering, Kuran, Maharashtra, India.

Abstract -- This project presents the design and development of a walking robot trolley constructed primarily from mild steel angle, featuring a unique leg mechanism for mobility. The trolley is equipped with two 24-inch diameter wheels capable of accommodating one person comfortably. The walking mechanism utilizes rotary motion converted into sleeve motion to facilitate movement while bearing the weight of both the trolley and an individual. A 24V, 30 RPM motor, coupled with a gearbox to reduce speed to 5 RPM, powers the walking mechanism, with power transmission facilitated by a chain drive. The trolley is powered by two 12V batteries, providing the necessary energy for operation. Keywords-- About four key words or phrases in alphabetical order, separated by commas.

JCON2024_MECH_T2-0015

Design & Optimization of Relation Gauge for TVS Handle Holder

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Abstract - Gauges are tools used to assess the size, shape, and relative positions of various parts but do not have graduated adjustable members. Gauges are interchangeable and play an important role in any quantity manufacturing system. The numerous types of inspection processes use a CMM (coordinate measuring machine) and various gauges. A gauge is a tool or device used to measure and compare components. Gauges are defined as single-size, fixed-type measuring equipment. This initiative focuses on item inspection. A relationship gauge is a gauge with an interior measuring surface for determining the size and counter of the male portion. The gauge is designed in accordance with standards that ensure the dimensions are accurate. Gauges are commonly used in manufacturing industries for inspecting dimensions during mass production. It significantly reduces time spent verifying product authenticity within specified dimensional tolerances. The gauges are intended to replace the frequent usage of expensive measurement instruments. The Plug gauge, also known as the GO and NO-GO gauge, is used to evaluate the internal diameter of a hole made within a specific tolerance. Other gauges have also emerged, which are highlighted in the paper.

Keywords –Design, Gauge, Inspection, Manufacture, Relation Gauge

JCON2024_MECH_T2-0018

Design, Development and Analysis of Fins for Light Emitting Diode Lamp to Improve Efficiency

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Abstract -- Industrial and home base applications of LED (light-emitting diode) technology for the streets, terminals, stadiums etc. now a days luminaries are taking more and more important role in lightning industry. Even though LED luminaries are much more energy efficient than traditional lighting however these luminaries are exposed to high temperature influence. In this work the

luminaries body cooling is investigated at variable fins shape. Properties of the cooling fins of luminaries body are investigated using FEA models as well as practical testing. FEA procedures of the cooling fins robust shape optimization will be discussed in details.

Key words-- LED, fins shape, Optimization, thermal analysis.

JCON2024_MECH_T2-0019

A Battery Brackets for Enhanced Performance and Safety in Electric Vehicles

Mr. Saurabh Nawale, Dr. Galhe D. S., Prof.Mankar R.L.

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Abstract -- This research paper investigates the design, material selection, and optimization of battery brackets to enhance the performance of electric vehicles (EVs). The battery bracket, a critical component in EVs, is essential for securing and stabilizing the power source. The study focuses on design considerations, exploring weight distribution, thermal management, and structural integrity. Material selection is examined, encompassing high-strength alloys, composites, and advanced polymers, while prioritizing environmental impact and cost-effectiveness. Optimization techniques, including Finite Element Analysis (FEA) and computational algorithms, are employed to achieve a balanced approach to weight reduction, structural integrity, and cost efficiency. Emphasis is placed on ensuring safety and reliability, considering crashworthiness, thermal management, and adherence to guidelines and standards. The paper includes real-world case studies, showcasing successful implementations of optimized battery brackets in electric vehicles. The findings underscore the significance of enhanced battery brackets in augmenting the overall performance, safety, and sustainability of electric vehicles. Future research directions and potential advancements in battery bracket technology are also discussed.

Keywords--Electric vehicles, Battery bracket, Design optimization, Material selection, Safety, Sustainability.

JCON2024_MECH_T2-0022

Design, Analysis & Optimization of Material Handling Trolley

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Abstract - The majorities of trolleys, which are used in enterprises to transport goods safely, are manufactured by vendors and have ISO standard dimensions along with other safety features. This effort aims to validate the design and develop the material handling trolleys through the application of finite element analysis. This project's main objective is to develop a new design that will allow the trolleys to be more affordable and lighter. The industry-designed trolleys that are now in use heavy trolleys without taking loading conditions into account, which The current project, therefore, is concentrated on designing a new trolley and utilizing FEA simulations to optimize the design while also verifying the weight carrying ability and FOS. Thus, the concept of changing the trolley's design to fit more products in the available area was born, taking into account the following factors: weight, cost, and design. In this study, finite element software is used for the trolley's static analysis while CATIA software is used for the design. The distribution of stress intensity has been found using the Von-misses yield principle. The proposed model outperforms the existing trolley model in terms of results.

Keywords-- Design, Material handling trolleys, Von-misses Stresses, Finite Element Analysis, CATIA V5.

JCON2024_MECH_T2-0023

Design, Development & Analysis of Elliptical Leaf Spring Mount Vibration Isolation

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Abstract-- Agricultural equipment powered by engine application generates vibrations that will produce significant listenable & more noise and discomfort to the operator's hands. This results in decreased efficiency for farmers and laborers. To address this issue, it is crucial to minimize or isolate the vibrations produced by the engine from the handle or body of the equipment. This helps reduce operator fatigue as vibrations transmitted to the hands, known as Hand-Arm Vibration (HAV), can lead to long-term adverse effects. Studies indicate that regular exposure to HAV can result in permanent health issues, particularly when contact with a vibrating tool is a routine and remarkable aspect of a workers job. Hand & arm vibration can cause various conditions collectively referred to as Hand & Arm Vibration Syndrome, including particular ailments similar as white finger and carpal tunnel syndrome. These conditions have negative effects on circulation and nerves in the hand, leading to symptoms like numbness, pain, and discoloration.

Keywords-- Elliptical Leaf (Laminated) spring, Vibration absorber.

JCON2024_MECH_T2-0034

Design and Development of Automatic Reaper Machine

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Abstract-- A reaper is a farm implement or person that harvests (cuts) crops when they are ready. Typically, the crop included is cereal grass. The first documented reaping machines were Gallic reapers, which were employed in modern-day France during the Roman period. The Gallic reaper used a comb to harvest the heads, while an operator knocked the grain into a box for later threshing. These reapers are expensive and only available for really large-scale agricultural. However, agricultural groups hire these out on an hourly basis. However, small holding farm owners typically do not require full-featured combine harvesters. Furthermore, these combine harvesters are not available in all rural areas of India due to economical or transportation constraints. As a result, there is a need for a smaller, more efficient combine reaper that is both more accessible and significantly less expensive. Taking into account the current sugarcane harvesting environment, we decided to create a sugarcane reaper model with a compact structure that will be most suitable for farmers with small farms. The machine prototype will be cost-effective and convenient for cutting corn stalks and other plants with similar or lower shear strength than corn. Harvesting is the process of gathering ripe crops from their fields. Reaping is the process of cutting grain or pulses for harvest, usually with a scythe, sickle, or reaper. Process automation has improved the efficiency of both sowing and harvesting operations.

Keywords– Reaper Mechanism, Cutting Blade, Gathering Mechanism, Threshing Mechanism, Sensors Engine Power Source, Safety Features , Control Panel , Real-time Monitoring , Energy Efficiency , Thermal Comfort

JCON2024_MECH_T2-0036

Design & analysis of pneumatic leaf spring fatigue testing machine

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Abstract — In the modern car industry, heavy-duty cars frequently utilize leaf springs. A leaf spring is a basic type of spring that's frequently utilized for suspension in automobiles. Ninety percent of industry failures can be attributed to fatigue. To find a material's fatigue life or fatigue strength, fatigue testing equipment is utilized. Students studying mechanical engineering are finding it difficult to visualize how leaf spring producers calculate their fatigue strength. This is due to the fact that lecturers only cover the ideas and concepts of leaf springs; there is no practical demonstration of how leaf spring testing is carried out. Thus, efforts were made to create a prototype microcontroller and pneumatic cylinder leaf spring fatigue testing apparatus.

JCON2024_MECH_T2-0037

Stress Analysis and Optimization of Deep Freezer Door Hinge

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Abstract-- The purpose of this analysis is to enhance the design of a door hinge assembly to comply with the IS 7872:2020 test requirement and improve its reliability. The door hinge is an operating system that consists of a combination of MS connecting rod, Cylinder rod, body, and spring. During the opening and closing operations of a deep freezer, the door hinges hold the door on a predefined axis. To achieve this, the design of the door hinge is developed using Uni graphics- NX V220.6. The Hyper Mesh Altair V 21 software is used to create mesh and boundary conditions on the designed parts. Structural analysis was carried out using ANSYS 2023, and the Von-Misses stresses were calculated in stress analysis. The design verification was done by calculating the factor of safety, and the improvement in the factor of safety was achieved. The optimization of design analysis was performed by using Six Sigma analysis techniques and validated by performing a door opening test and hinge reliability test. Keywords-- Design, Uni Graphics Door Hinge, Von- misses Stresses, Finite Element Analysis, Hyper Mesh, Six Sigma ANSYS 2023.

JCON2024_MECH_T2-0040

Design & Fabrication of River Water Cleaning Robot

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Abstract — this project emphasizes the design and production of a river waste cleaning machine. A "river cleaning machine" is a machine that removes waste impurities from the water surface and safely disposes of them from the water body. The work was done considering the current situation of our national rivers, which are dumped with millions of liters of sewage and loaded with pollutants, toxic materials, debris, etc. Due to the increase in water pollution in the form of sewage debris; restricts the life of aquatic animals and threatens their life. The machine will lift the waste surface debris from the water bodies, which will ultimately lead to a reduction in water pollution and last but not least the mortality of aquatic animals from these problems. The main goal of the project is to reduce the manpower and time required to clean the river. In this project, we stored energy in a battery and used this energy to clean the river using a motor and chain drive. The main goal of our project is to design and develop a river cleaning machine. The 3D model is drawn. All the parts are manufactured and then assembled together and then the model is tested.

Keywords — Motor, Bucket conveyor, Collecting tank, Sprocket, Bearing.

JCON2024_MECH_T2-0049

Design, analysis and modification of auger dosing unit to improve the dosing efficiency using vacuum system

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Abstract -- Objectives of this research are to study causes of filling weight variation of Auger filling machine, to study ways to improve filling weight, and to evaluate the achievement after the improvement. The study was started by brainstorming engineers and technicians to analyze relevant factors like screw design, product characteristics, product BD, content of dust in the product and content of moisture in the product to be filled and found that factors affecting the filling weight variation are variation of product BD (loose BD) and dust content in the product. Then design the experiments to verify ways to improve filling accuracy. The improvement results showed that the product BD is increasing using vacuum in the auger casing and hence the filling accuracy is improved. The filling accuracy increased from $\pm 2.5\%$ to 1% .

Keywords-- Design, Solid Works, powder packaging, Auger filling machine, filling improvement.

JCON2024_MECH_T2-0050

Design & improvement in Machining Process and Cost Optimization for Tooth Wheel used in traction Motor for metro.

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Abstract - This paper is base on machining improvement and cost reduction of part tooth wheel; which is used in the traction motors for metro in Moscow. The main reason is to reduce the stress developed in the job because of more machining process is done on the job. In this paper we have tried to reduce the setup of job and the cost of the job by using the forging material. We reduce the three setup also tried to reduce the debarring cost of job by using the cutter on machine after the milling operation also tried to save the insert cost by re sharpening of insert and use this for roughing process.

Index Terms – traction motor, forging, debarring, sharpening.

JCON2024_MECH_T2-0053

To Design Geothermal Air Conditioning System and To Choose Best Soil for Eco Friendly Air Conditioning System

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Abstract — Geothermal Air Conditioning Systems leverage the Earth's stable subsurface temperatures to provide efficient and environmentally friendly cooling. By harnessing the consistent thermal energy stored in the ground, these systems minimize reliance on traditional energy sources and reduce greenhouse gas emissions. This abstract explores the principles behind geothermal heat exchange, emphasizing the system's ability to offer both heating and cooling functionalities, thereby promoting year-round energy efficiency. Eco-Friendly Air Conditioning Systems represent a broader category of cooling technologies designed with a focus on environmental sustainability. These systems employ innovative materials, advanced refrigerants, and energy-efficient components to achieve optimal cooling performance while minimizing their ecological footprint.

Keywords — Condenser Coil, Container, Sensor, Air Pump, Solar Panel

JCON2024_MECH_T2-0054

Management of automatic cow feeding and drinking system using Microcontroller

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Abstract —This paper is base on machining improvement and cost reduction of part tooth wheel; which is used in the traction motors for metro in Moscow. The main reason is to reduce the stress developed in the job because of more machining process is done on the job. In this paper we have tried to reduce the setup of job and the cost of the job by using the forging material. We reduce the three setup also tried to reduce the debarring cost of job by using the cutter on machine after the milling operation also tried to save the insert cost by re sharpening of insert and use this for roughing process.

Index Terms – traction motor, forging, debarring, sharpening.

JCON2024_MECH_T2-0056

Comparative Thermal Analysis of Battery Pack Using Different Software

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Abstract— With the development of electrical vehicles, the battery technology has made significant progress but still it faces several challenges. The battery efficiency is highly influenced by its operating temperatures, and due to this it became important to develop an effective battery thermal management system in order to ensure that batteries are maintained within its recommended operating temperature range and ensure its efficient operation. Keeping this in view, a numerical analysis of heat generation phenomenon is examined in this article to understand the thermal concerns of the battery pack. A computational fluid dynamic analysis is carried out to understand the temperature profiles of battery pack and the heat release performance of its thermal management system. Also, different cooling phenomenon is taken in to consideration by changing the surface area and position of coolant inlet and outlet in the system. Here, the battery pack is modeled using Solid Works software and the analysis is done by adopting solvers in Altair's AcuSolve 3D and GE's Flow Simulator. It is noticed that the most favorable operating temperature of battery varies between 45°C to 85°C. However; following to this observed that the life of battery is enhanced by using an impactful thermal management system related to battery pack.

Keywords— BTMS, Battery Pack, Altair CFD, MATLAB Simulink, Thermal Analysis.

JCON2024_MECH_T2-0057

Automatic Seed Sewing Machine Using Microcontroller

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Abstract— In India, near about 70% people are dependent upon agriculture. So the agricultural system in India should be advanced to reduce the efforts of farmers. Various number of operations are performed in the agriculture field like seed sowing, weeding, cutting, pesticide spraying etc. Very basic and significant operation is seed sowing. But the present methods of seed sowing are problematic. The equipments used for seed sowing are very difficult and inconvenient to handle. So there is a need to develop equipment which will reduce the efforts of farmers. This system introduces a control mechanism which aims to drop seeds at particular position with specified distance between two seeds and lines while sowing. The drawbacks of the existing sewing machine will be removed successfully in this automatic machine.

Keywords — DC Motors, Servo motor, Aurdino, Microcontroller ATMEGA 328P, Bluetooth module.

JCON2024_MECH_T2-0063

Design and Development of foot pedal operated flour mill

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Abstract— This paper is based on machining improvement and cost reduction of part tooth wheel; which is used in the traction motors for metro in Moscow. The main reason is to reduce the stress developed in the job because of more machining process is done on the job. In this paper we have tried to reduce the setup of job and the cost of the job by using the forging material. We reduce the three setup also tried to reduce the debarring cost of job by using the cutter on machine after the milling operation also tried to save the insert cost by re sharpening of insert and use this for roughing process.

JCON2024_MECH_T2-0070

A Review on Design and Development of 3 D Printer

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Abstract— This is a research paper on Design and development of 3D printing which has become an important topic in today's technological discussion. 3D printing is a form of additive manufacturing process technology where a 3D object, parts or model is created by laying down successive layers of material it is also known as rapid prototyping, it is a mechanized method where the 3D models or parts are quickly made as per the given size machine connected to a computer containing blue prints for the model. Here in this technology there are 3 steps are included such as Design, Printing and Finishing object or model which we want. In 1st step we use any CAD software which is to create 3D design in 2nd step 3D printer create an model (object) using this design. And 3rd step finished product or object is removed from printer. This technology saves time and cost, it saves wastage of material that used to make a deposition or the layers to print an object. It has the potential to radically transform many design, production and logistic processes.

JCON2024_MECH_T2-0074

Air Purification System

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Abstract— The program focuses on the development and use of new air filters to improve the air quality of construction sites, lighting areas and dusty areas. The system has a steel (small) square corner frame and includes multiple 12V blowers powered by solar-charged batteries. Additionally, the system integrates sensors such as humidity and temperature for real-time monitoring and has a remote operation feature. A variety of filters are used to remove airborne pollutants, including activated

carbon, AAA filters, and stone filters. The structure of the system involves the assembly of a square frame mounted on the collection tank, leading to the air inlet and several layers of filters. The visible process involves aqueous filtration using fine filters to remove dust. The system is designed to provide fresh air to the environment by cleaning an area of 1 to 2 meters around the device.

JCON2024_MECH_T2-0084

IOT Based Indoor Air Quality and smart energy management for HVAC system

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Abstract— This paper presents an integrated solution for Indoor Air Quality (IAQ) monitoring and smart energy management for Heating, Ventilation, and Air Conditioning (HVAC) systems using Internet of Things (IoT) technology. The proposed system aims to enhance indoor air quality while optimizing energy consumption in buildings. The IoT-based IAQ monitoring system consists of sensors deployed strategically throughout the indoor environment to continuously measure various parameters such as temperature, humidity, carbon dioxide (CO₂) levels, Smoke level, Gas level. These sensors collect real-time data, which is transmitted wirelessly to a central hub for processing and analysis. Furthermore, the smart energy management system utilizes the data collected by the IAQ sensors, along with additional inputs such as occupancy status and outdoor weather conditions, to dynamically adjust HVAC settings for optimal comfort and energy efficiency. Machine learning algorithms are employed to predict indoor air quality trends and optimize HVAC operation accordingly, considering factors like thermal comfort requirements and energy costs. The integration of IAQ monitoring with smart energy management enables proactive decision-making to maintain a healthy indoor environment while minimizing energy consumption. By continuously monitoring IAQ parameters and intelligently controlling HVAC systems, the proposed solution offers the potential for significant improvements in occupant comfort, productivity.

Keywords —IoT (Internet of Things) , Indoor Air Quality (IAQ) , Smart Energy Management , HVAC (Heating, Ventilation, and Air Conditioning) System , Sensors Real-time Monitoring data Analysis Machine Learning Energy Efficiency Thermal Comfort Occupancy Detection Environmental Sensing Building Automation Predictive Maintenance Sustainable Buildings

JCON2024_MECH_T1-0155

Smart Multi-Purpose Automatic Patient Lift and Transfer Chair

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Abstract— The ratio of working-age people was less than that of elderly people resulting in a shortage of elderly caregivers and increased healthcare costs. Although the lifestyle the elderly remains the same, their physical abilities are reduced, requiring them to rely on special equipment when traveling in order to gain more control and safety. Therefore, the Elderly Portable Transport chair are developed with help of Arduino Uno & weight sensor to reduce human efforts. The Elderly Portable Transport Machine or chair is designed in terms of structure, electrical equipment, and sensor systems. First, the shapes, sizes, and thicknesses of the mild steel

used for construction of the Elderly Portable Transport Machine structure are calculated by using CATIA V5 software.

CIVIL ENGINEERING

JCON2024_CIVIL_T2-201

REVIEW PAPER ON STUDY OF SPONGE CITY FOR WATER MANAGEMENT

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Abstract— The Chinese government's strategy for managing urban surface water is known as "Sponge City." The idea was developed in 2014 in response to an increasing number of cities experiencing water logging or urban floods. While having a broad and ambitious primary goal. The initiative has to be carried out by certain local government organizations. Therefore, even if the idea is comparable to India's sustainable drainage systems, it is evolving with unique regional features at a time of rising urbanization. Undoubtedly, the rising body of knowledge that has developed since the beginning of the Sponge City creativity movement is evidenced by the increased usage of national rather than international models of excellent practice. The implementation of national guidelines is influenced by several aspects such as climate, geology, and socioeconomic status; however, project funding, integration, and value are proven to have a greater impact.

Keywords— sponge city, water management.

JCON2024_CIVIL_T2-202

EVALUATION OF BI-DIRECTIONAL LOADING INTERIOR RC BEAM–COLUMN JOINT

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Abstract— Reinforced concrete beam-column joint shear strength analysis is an open issue. The Bi-directional loading joint shear strength solution is a point of discussion. However, research effort has been devoted to this topic. Substandard detailing, which is typical of building practices before to the 1970s, can increase the uncertainty in the measurement of shear strength. Such include poor anchorage of beam bars, usage of plain bars without any transverse reinforcement. The purpose of this paper is understanding the effect of bi-directional loading, on performance of interior beam-column joint of reinforced concrete frames, by using nonlinear finite element analysis tool midas FEA.

Keywords— shear force, Interior Joint, Reinforced concrete, Beam-column joint, Concentric Joint.

JCON2024_CIVIL_T2-203

**EVALUATION OF SHEAR STRENGTH FOR REINFORCED CONCRETE
CANTILEVER TYPE PIER CAP-JOINT SUB ASSEMBLAGE**

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Abstract— In every structural assembly, joints play a crucial role in determining the behavior of the structure. This study considers joint as an element that connects the pier cap and the pier. The joints are the most critical regions of a structure under the lateral loads, because the framing members tend to reach their capacities and form plastic hinges near the joints. A joint should be able to sustain the forces developed at

the end of a member and transfer them to the other connected members to maintain equilibrium. The assumption of joint being rigid fails to consider the effects of high shear forces developed within the joint. The shear failure is always brittle in nature which is not an acceptable structural performance especially in seismic conditions. The sub-assembly consists of a pier, joint and a pier cap. The capacity of the sub-assembly depends upon the failure modes associated. The realistic force resisting mechanisms and capacity of the joint could be understood only when the joints are tested to fail in pure shear. The study evaluates the joint shear strength of RC cantilever type pier cap joint. The joint shear strength is studied for various parameters viz. reinforcement ratio of pier and pier cap with variation of compressive strength of concrete. The parametric study gives an empirical equation for joint shear strength.

Keywords— Pier Cap –Pier Joint Sub assembly; Shear Strength ; Lateral Load ,Reinforced concrete; Cantilever type Pier Cap joint.

JCON2024_CIVIL_T2-204

EXPERIMENTAL STUDY ON PARTIAL'S REPLACEMENT OF CEMENT WITH GGBS

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Abstract— Cement in concrete has several disadvantages when used without any replacement to it in concrete such as high carbon footprint, high cost of construction, and low tensile strength. To address these disadvantages alternative materials such as fly ash, GGBS, and silica fume can be used, designing concrete mixtures with lower cement content can reduce the carbon footprint, cost, and potential cracking, resulting in more sustainable, cost effective, and durable concrete structures. In our project we are going to use GGBS as a replacement material to cement in varying percentage. GGBS stands for ground granulated blast furnace slag. It is a by-product of the iron and steel industry, produced during the process of iron production in blast furnaces. GGBS has cementitious properties and can partially replace cement in concrete mixtures. It improves the durability, workability, and long-term strength of concrete. GGBS also has a lower carbon footprint than traditional cement, making it an environmentally friendly alternative. It is commonly used in large-scale construction projects such as bridges, highways, and high-rise buildings. This experimental investigation is being conducted to compare the compressive strength of concrete mix of m30 grade with partial replacement of cement with varying percentage of GGBS of 10%,20% and 30% to the dry weight of cement in the mix and find out the optimum percentage at which the concrete mix has highest strength. We are going to test compressive strength of 36 cubes of concrete mix consisting of 9 cubes of nominal M30 mix and 9 cubes of each mix containing 10%,20% and 30% GGBS replaced mix at 7th,14th and 28th day from the day of cube casted.

Keywords— Experimental Study on Partial's Replacement of Cement with GGBS.

JCON2024_CIVIL_T2-205

REVIEW PAPER ON PERFORMANCE BASED ANALYSIS OF ELEVATED BASED RESERVOIR (ESR)

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Abstract— Since the dawn of civilization, there has been a need for a service reservoir to store water for use in many purposes such as chemical manufacture and drinking water. In order to store fully treated potable water close to the point of distribution, this study analyzes a single structured RCC Underground and Elevated Service Reservoir with a capacity of 1500000 liters square shaped and 900000 liters circular shaped. The primary goal of planning and evaluating a single structured service reservoir is to boost pressure and water storage capacity without negatively impacting the local ecosystem or natural resources. need to provide both adjacent and farther-off residents with the proper water pressure. The study on the response of single structured UGSR and ESR to seismic and wind forces is presented in this publication. The review begins by elucidating the significance of ESRs in ensuring reliable water supply to growing urban populations, emphasizing the need for comprehensive performance assessments to optimize their functionality and effectiveness.

Keywords— Single structured elevated Service Reservoir, Building Information Modeling {BIM}

JCON2024_CIVIL_T2-206

NIGHT SHIFT MANAGEMENT ON CONSTRUCTION SITE

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Abstract— Managing night shifts on construction sites presents unique challenges and requires a specialized Approach to maintain productivity and ensure the safety of workers. This abstract explores the key aspects of Effective night shift management in the construction industry. The focus is on prioritizing safety measures, Efficient task planning, effective communication and compliance with regulations. The abstract delves into the critical considerations required for a successful night shift operation. It discusses the necessity of adequate lighting to ensure visibility and safety, the significance of meticulous planning to schedule tasks optimally during night hours, and the essentiality of clear communication and coordination between night shift workers and daytime management. Furthermore, the abstract highlights the importance of workforce well-being and compliance with regulatory requirements. It addresses security challenges and the adoption of technological advancements to enhance safety and efficiency during night shifts. The culmination of these elements contributes to a comprehensive understanding of the multifaceted approach required for effective night shift management on construction sites, ensuring a seamless and safe operation, optimal productivity, and worker well-being.

JCON2024_CIVIL_T2-207

EXPERIMENT STUDY ON REACTIVE POWDER CONCRETE BEAMS USING SPIRAL REINFORCEMENT UNDER TORSION

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Abstract— Building and bridge structures have become complex and irregular, some beams subject to large torques, such as border beams, curved bridges. In this case, the beams need to have high torsional capacity and ductility, especially in typhoon or earthquake prone areas, which poses new challenges to the torsional performance of the beam. In recent years, the advantages of using continuous spiral reinforcement (SP)

instead of ordinary stirrups have been recognized in terms of improving the capacity and ductility of members. The required spiral reinforcement and use of Reactive powder concrete (RPC) to form a beam significantly improves the shear performance of beams, energy dissipation and deformation capacity of beam-column joints, and the bearing capacity and seismic performance of shear walls.

JCON2024_CIVIL_T2-208

DESIGN OF SEWAGE TREATMENT PLANT FOR JAIHIND CAMPUS

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Abstract— A sewage treatment plant is quite necessary to receive the domestic and commercial waste and removes the materials which pose harm for general public. Its objective is to produce an environmentally-safe fluid waste stream (or treated effluent) and a solid waste (or treated sludge) suitable for disposal or reuse. The growing environmental pollution needs for decontaminating waste water result in the study of characterization of waste water, especially domestic sewage. The study was aimed at designing a sewage treatment plant for the Jaihind campus, Kuran, Located in Maharashtra state of India. Sure it is needed to construct a Sewage Treatment Plant with a deep level to classify the sewage. His proposal agreements with the appropriate design of an appropriate rehabilitation of sewage and its components such as the Screen barrel, Skimming Tank, Primary Sedimentation Tank, ASP (Activated Sludge Process) Tank, Secondary Sedimentation Tank, and Disinfection of Sewage. With the completion of something like this initial concept, the entire sewer systems of an academic establishment can be done successfully and quickly, and effectively. The Jaihind College of Engineering is one of the important educational institutes in the state of Maharashtra with a large number of people residing on its campus consisting of several laboratories of various departments, residential units, academic blocks, and several hostels. An investigation of waste portrayal of water systems will then be executed preceded by the creation of the septic tanks. The thought entire study's research tends to involve the evaluation of pH real worth, total soluble solids, solids (tss, compressive strength, low ph, buffering capacity, salts, disinfectant, BOD, COD, DO & salinity

Keywords-- Effluent, Coagulation, Chlorination

JCON2024_CIVIL_T2-209

APPLICATION OF EPANET FOR THE PLANNING AND DESIGN OF WATER DISTRIBUTION SYSTEM

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Abstract— The planning and design of water distribution networks play a crucial role in ensuring efficient and reliable water supply to communities. This paper presents an approach to designing water distribution networks using EPANET, a widely used software tool. The behavior of water distribution system is very well analyzed and simulated by using it. Now a day it is one of the most extensively used platform for designing, evaluating and optimizing of network layouts. The software incorporates features such as pipe sizing, demand estimation, and pressure zone delineation, making it an essential tool for network planning. In the planning and design process, EPANET is used to prepare digital maps of the water distribution

network. It includes demand points, pipes, nodes and pumps. The software allows engineers to define pipe characteristics like roughness, length, diameter and specify demand patterns at various nodes. EPANET's simulation capabilities allow for the evaluation of different design scenarios and the assessment of network performance under varying operating conditions. In this study water distribution system for a small village Tavadi was designed and the designed data is submitted to the village authorities and Deputy Engineer, water resources dept. It would be used by authorities for the implementation of the proposed water distribution system of said village. Application of software EPANET contributes to the development of efficient, reliable, cost effective and sustainable water supply systems for communities.

Keywords: EPANET, WDN, Google earth pro, sustainable development.

JCON2024_CIVIL_T2-210

THE IMPACT OF ARTIFICIAL INTELLIGENCE ON PROJECT MANAGEMENT

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Abstract— Artificial Intelligence (AI) has emerged as a evolutionary force across various sectors & industries, and its influence on project management practices is no omission. This paper delves into the multifaceted influence of AI on project management, exploring how advanced technologies are reshaping traditional approaches. It investigates key areas such as resource optimization, risk management, decision-making and overall project efficiency, and providing insights of project management in the era of AI. This paper review that how impact of AI on project management. This research paper has shows various benefits of AI acquisition and its accomplishment. This research shows that AI cannot replace the human mind and ideas.

JCON2024_CIVIL_T2-211

USE OF STEEL FIBERS IN POCKET HOLE GROUTING

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Abstract— The following report summarizes the findings of an experimental program aimed at determining how steel fiber reinforced grout affects the tension stiffening effect in reinforced concrete masonry. The impact of several factors on the tension-stiffening behavior of steel fiber-reinforced concrete masonry is examined, including steel fiber content, steel reinforcement ratio, unit type, fiber aspect ratio, and loading type. A background review was conducted, looking into fiber-reinforced concrete, reinforced concrete masonry, and the tension stiffening effect. A review is conducted of the conventional testing methodologies for identifying structural characteristics and the constituent materials of reinforced concrete masonry. A detailed examination of steel fiber-reinforced concrete and the suitability of fiber-reinforced technology for grout are covered. The idea of reinforcing a brittle material is the same for fiber-reinforced grout as it is for fiber-reinforced concrete, notwithstanding their differences. Along with techniques for minimizing fiber pullout, like the use of hooked-end steel fibers, the mechanics of fiber pullout are covered. Through the use of both indirect and direct testing methods, the behavior of fiber-reinforced concrete under tension and compression is studied. Lastly, the topic of the tension stiffening effect in concrete is covered, along with models that are pertinent to the industry, like the Gopalaratnam and Shah Model, the Vecchio and Collins model, and the Stevensetal model. Both the tension-stiffening behavior of reinforced concrete with steel

fiber reinforcement and the factors influencing tension stiffening in reinforced concrete are covered. The scant literature on tension stiffening in reinforced masonry is summarized.

Keywords—Tension stiffening effect in steel fiber reinforced grout (SFRG) reinforced concrete masonry (RCM)

JCON2024_CIVIL_T2-212

REVIEW PAPER ON ITS USING HYDRAULIC TRAFFIC REDUCE SYSTEM

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Abstract— Traffic congestion has been one of the main issues. India's economy is among the ones growing at the fastest rate in the globe. India has an extensive population, which implies that a lot of private cars are driven on its roadways, which makes traffic control a problem. To tackle this problem, we have therefore developed an innovative approach. When there is severe traffic congestion and an emergency vehicle needs a path, it is necessary to provide one on the side of the road. The installation of a hydraulic mechanism beneath the sidewalk, or a hydraulic traffic reduction system, allows the sidewalk to move vertically, facilitating easy vehicle crawling on to it and clear their way. With the use of this technology, which is also helpful in emergency situations, we can reduce the cost of developing the new road. Consequently, we can lessen traffic jams on the roads under dire circumstances.

Keywords— walkway, hydraulic system, emergency, traffic jam.

JCON2024_CIVIL_T2-213

RETROFITTING OF CONCRETE BEAM BY BANANA FIBER

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Abstract— This study aims to assess the compatibility of banana fiber bars with the mechanical properties of reinforced concrete beams. To achieve this, a number of experimental studies on the application of banana fibers to enhance the properties and strength of concrete constructions are conducted. The experimental studies are based on a set of seven concrete beam specimens with different characteristics and are intended to: identify the key factors influencing the fatigue behavior of reinforced concrete (RC) beams through the use of banana fiber bars; explore the mix design aspects of the RC banana fiber bar; explore the impact of RC banana fiber bars on concrete behavior; and Thus, the establishment of affordable and easily accessible housing is essential. This is significant since over a billion people live in inadequate housing or are homeless globally. There are several advantages for the economy and environment when plant waste is used as readily available raw materials and resources, eliminating the need for expert labor. For many uses, it is now believed that natural materials are more environmentally friendly than industrial ones. Reinforcement increases the necessary strength and stiffness to support loads. Although the different components restrict the mechanical and chemical properties of the composite buildings, the completed composite. Explore the impact of RC banana fiber

Keywords— Banana fiber bars, Reinforced concrete structures, cracking.

JCON2024_CIVIL_T2-214

REVIEW PAPER ON IMPROVEMENT OF STABILITY OF BRIDGE USING VARIOUS BEARING

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Abstract— To find out if and how integrating the girder, abutments, and backfill can greatly boost the seismic stability of existing bridges, a series of 1 g shaking table experiments were conducted. The following three categories of little bridge models were put to the test: (1) the conventional type, which consists of a beam supported by two gravity supports (without a pile foundation) by means of fixed and movable bearings; (2) integrated beam and supports; and (3) reinforced backfill, which is formed by two layers of large-diameter nails attached to the toe or heel of the abutment and the top of the abutment. (A series of 1 g shaking table tests were conducted to determine if and how the seismic stability of existing bridges could be significantly increased by integrating girder, abutment, and backfill. The three types of small model bridges that were tested are: (1) conventional type, consisting of two beams supported by gravity-type piers (without pile foundations) supported by fixed and movable bearings. (2) An integrated girder and abutments.

Keywords— Model test, reinforcement, dynamic response, integrated bridge, nailing, and bridge abutment.

JCON2024_CIVIL_T2-215

REVIEW PAPER ON INNOVATION IN CIVIL ENGINEERING CONSTRUCTION MATERIALS

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Abstract— This research paper's objective is to examine the many kinds of cutting-edge building materials that are now on the market. It is anticipated that the development of futuristic building materials will heavily rely on nanotechnology. The development of the discovery and manufacture of novel building materials has also been greatly aided by the usage of mineral admixtures, glass, plastic, biological materials, wood, and other building materials. The use of some cutting-edge building materials satisfies the needs for environmental friendliness, affordability, durability, safety, and improved mechanical and physical qualities. It also simplifies assembly and is more flexible in harsh environments. To put it briefly, the only goal of the engineering field is to serve future generations as best they can. This article under review will expand the database to include new materials that are being introduced to the building sector.

JCON2024_CIVIL_T2-216

USING SILICA FUME, GGBFS, AND COLLOIDAL SILICA AS CEMENTITIOUS MATERIALS, AN EXPERIMENTAL EXAMINATION OF THE STRENGTH AND DURABILITY OF HPC

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Abstract— This research paper's objective is to examine the many kinds of cutting-edge building materials that are now on the market. It is anticipated that the development of futuristic building materials will heavily rely on nanotechnology. The development of the discovery and manufacture of novel building materials has also been greatly aided by the usage of mineral admixtures, glass, plastic, biological materials, wood, and other building materials. The use of some cutting-edge building materials satisfies the needs for environmental friendliness, affordability, durability, safety, and improved mechanical and physical qualities. It also simplifies assembly and is more flexible in harsh environments. To put it briefly, the only goal of the engineering field is to serve future generations as best they can. This article under review will expand the database to include new materials that are being introduced to the building sector.

JCON2024_CIVIL_T2-217

SYNTHESIS, CHARACTERIZATION & GAS SENSING STUDY OF PALLADIUM DOPED AND UNDOPED ZINC OXIDE NANOSTRUCTURES BY HYDRAZINE METHOD

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Abstract— Hydrazine Method is used to Synthesise Pd-ZnO Nanostructures. The ratio of Pd-ZnO to hydrazine is observed to change the surface structure of Pd-ZnO. hydrazine can also be used to change surface structure of Pd-ZnO. At lower concentration of Zinc Nitrate with Palladium Chloride as compared to hydrazine the Surface Structure of Pd-ZnO is developed to be spherical. After enhancement of the concentration of hydrazine the surface structure is modified from spherical (diameter~100Å) to Different structure containing shapes (dia.~39 nm & length~149 nm). Pd-ZnO microrods are observed for more than 50% of Hydrazine. There are rods of diameter ~ 121 nm and length of about 1µm. For Zinc Nitrate with Palladium Chloride to hydrazine ratio of 1:9 Individual rods are created in Scanning electron microscopy (SEM) for 1:9 ratio. The X-Ray diffraction (XRD) gives the phase formation including size of particle of 38 nm it is found from Sherrer's Formula. Gas sensing analysis is carried out for Palladium doped ZnO be seen most selectivity and efficiency to LPG for temperature range 250 0 C to 350 0 C.

Keywords: ZnO, Gas Sensor, Hydrazine, Palladium Chloride.

ELECTRONICS AND TELECOMMUNICATION ENGINEERING

JCON2024_ETC_T1-0004

Review of Different Antenna Designs for Fifth Generation Applications

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Abstract : In this review, an overview of current developments in the design of 5G antennas is presented. The sub-6 GHz frequency band techniques that are employed to improve efficiency, isolation and channel capacity are the main subject of the study. Putting up more antenna in a Multiple Input Multiple Output (MIMO) array can potentially lead to benefits such as efficiency increases of as much as 85% and improvements in capacity exceeding 50b/s/Hz in the sub-6 GHz band, according to research.. Antenna designs for millimeter wave frequencies are also explored, and a comparative study of the performance of several antennas is offered.

Keywords – Antenna, 5G, Mutual coupling, Isolation

JCON2024_ETC_T1-0010

Study on Object Detection Algorithm

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Abstract--- There are many who are blind in this world, and they deal with a lot of difficulties in their daily lives. One of the most difficult things for the vision handicapped is moving about physically. Individuals who are completely blind or have impaired eyesight frequently struggle to navigate new settings on their own. Therefore, the goal of this study is to create a tool that will serve as their personal assistant. The current research aims to construct an object detector that can identify items at a specific distance in order to detect them for visually impaired individuals and other commercial reasons. You Only Look Once (YOLO) are a deep learning model for object recognition.

Keywords--- Voice control, Accessible Interfaces, Automate website, visually impaired, blind people.

JCON2024_ETC_T1-0016

Improving High-Resolution Image Reconstruction: Neural Network-Based Feature Extraction from Single Low-resolution Images.

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Abstract – Compared to low-resolution (LR) photographs, high-resolution (HR) images include more information. It is easier to recover an HR image from a series of low-resolution photographs than from a single high-resolution image. You can combine multiple LR images with different details to get an HR image. It is still more difficult to reconstruct HR images from a single, less detailed LR image. This study suggests a model that uses neural networks to extract features from a single image to improve the resolution. As a feature, the histogram of each sub-image is computed for both the LR and HR images. The features of the histogram of LR photos are learned using a back propagation neural network [BPNN]. The researchers ran a series of simulations using a collection of MRI pictures of the brain. They found that the neural network model they arrived at significantly reduced RMSE and PSNR.

Keywords—Histogram, Artificial Neural Network, Enhancement Technique, high resolution, MRI

JCON2024_ETC_T1-0017

Bandwidth improvement of micro strip patch antenna

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Abstract- This paper presents the improvement in various parameters of patch antenna. Here defected ground structure technique is used to improve the bandwidth. For the design of proposed antenna HFSS (High Frequency Structured Simulation) software is used. First designed a single patch as a reference antenna. In the simulation it operated at 2.34 GHz with gain of 2.01dBi, Bandwidth of 60 Mhz, & vswr of 1.34. So in order to improve the Bandwidth of single patch DGS technique is used & generated a defect of 1.5x1.5 mm below ground & in simulation in operate at 2.35 Ghz with gain of 2.54dBi, bandwidth of 61Mhz & vswr of 1.24. Hence bandwidth is enhanced from 60 Mhz to 61 Mhz using DGS technique.

Keywords--- Patch, DGS, Bandwidth.

JCON2024_ETC_T1-0020

Smart P10 Led Display Board

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Abstract - This paper presents the “SMART LED DISPLAY BOARD”, is a dynamic and innovative endeavor aimed at creating a large-scale scrolling LED display measuring 12*1 foot. This display leverages the power of the P10LED module for vibrant and eye-catching visual communication. The proposed system integrates advanced wireless communication capabilities using W60 card, providing seamless and efficient method for remotely controlling the LED display. The wireless feature enhances the proposed system’s versatility, allowing for easy updates and modification to the displayed content without the need for physical access to the display unit. Key components of the proposed system include the P10 LED modules, which offer high brightness and clarity for optimal visibility even in various lighting conditions. The W60 card serves as the central hub for wireless communication, enabling users to transmit data and control commands to the display unit effortlessly. The scrolling display is design with focus on scalability, making it suitable for a wide range of application such as advertising, public announcements and informational display. The large size of the display ensure that message and visual can be effective on video a bold audience. The proposed system significance lies in its ability to combine cutting/edge LED technology with wireless communication, providing attention, implementation, and testing phase of the “SMART LED P10 DISPLAY BOARD”, stands as a testament to the convergence of LED technology and wireless communication, offering a powerful tool which provides effective and versatile visual communication on a large scale.

Keywords: P10 LED Display, SMPS, W60 Wi-Fi module.

JCON2024_ETC_T1-0027

Enhancing Early Fire Detection: An Innovative System with Computer Vision and Image Processing Techniques

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Abstract - The project introduces an innovative Fire Detection System leveraging computer vision and image processing techniques to enhance early detection capabilities. Departing from traditional sensor-based methods, the system utilizes surveillance cameras, specifically webcams, to continuously monitor building interiors. The video feed undergoes comprehensive processing, including RGB color model conversion, yellow color separation, conversion of yellow to white, removal of extraneous areas, and conversion to grayscale. Employing fire detection algorithms, the system analyzes the processed frames to identify potential fire or smoke patterns. Upon detection, the system triggers immediate alerts to users, offering flexibility through SMS or image alerts via a dedicated mobile application. The integration of wireless LAN facilitates the transmission of live video feeds to building security or remote fire stations for real-time assessment. The proposed system aims to revolutionize fire detection, providing early alerts, reducing false alarms, and facilitating swift response measures to mitigate potential damages and safeguard lives.

Keywords— Fire Detection System, Computer Vision, Image Vision, Raspberry Pi.

JCON2024_ETC_T1-0038

Enhancing Automatic Weed Detection in Agriculture using CNN

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Abstract - Weeds pose a significant challenge to agricultural productivity, causing substantial yield losses and increased costs of manual removal. This paper presents an innovative solution for weed detection and management in agriculture through the integration of Raspberry Pi and Convolution Neural Network (CNN). The proposed system employs image acquisition using a Raspberry Pi camera module, which captures images of crops and weeds. These images are then preprocessed and fed into a CNN model for training and classification. The trained CNN model can accurately distinguish between crops and weeds, enabling targeted herbicide application or mechanical removal. The system's modularity, low cost, and high accuracy make it an attractive solution for small-scale farmers and large-scale agricultural operations alike. By automating the weed detection process, this system has the potential to significantly reduce labor costs, minimize herbicide

Keywords: Hydroponic, CNN, actuators.

JCON2024_ETC_T1-0066

Energy Optimization of Routing Protocol in Wireless Sensor Network

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Abstract— In many modern situations, wireless sensor networks play a crucial role, used for monitoring things like environmental conditions, transactions, and various statuses. These networks gather a large amount of data, sending it to a central hub for analysis. However, a significant problem is that traditional wireless sensor networks heavily rely on energy, and this limits how long they can operate. To tackle this issue, our paper introduces an optimization algorithm for a non uniform clustering routing protocol. This algorithm focuses on minimizing energy loss in cluster heads and improving the clustering form in wireless sensor networks. When calculating cluster heads, we start with the adaptive estimation clustering algorithm, which uses core density to figure out the cluster head radius. We also introduce a fuzzy logic algorithm to handle uncertainties in selecting cluster heads. This fuzzy logic algorithm considers factors like the remaining energy of cluster head nodes, ensuring a balanced distribution of cluster heads and optimizing node energy consumption. To further reduce the workload of the algorithm in transmitting data between cluster heads and achieve energy optimization, we propose an inter cluster routing optimization algorithm based on the ant colony algorithm. This algorithm updates and disrupts pheromones using chaotic mapping, ensuring the best solution. The optimal path is selected based on energy dispersion coefficient and distance coefficient perspectives, optimizing energy use between cluster heads. Our experiments show that compared to traditional algorithms, our proposed non uniform clustering routing protocol optimization algorithm extends the network's life cycle by 75% and reduces total network energy consumption by around 20%. This demonstrates the effectiveness of our algorithm in optimizing network energy usage and significantly extending network life, proving its practical value.

Keywords—WSN, Algorithm, Energy.

JCON2024_ETC_T1-0070

Advancements in Automated Skin Cancer Classification: A Comprehensive Survey of Methodologies and Technologies

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Abstract— The project delves into the expansive realm of automatic skin lesion diagnosis using deep learning, synthesizing insights gleaned from a comprehensive review of research papers in the field. The focal point is to present a nuanced understanding of methodologies, technologies, and advancements in skin lesion diagnosis. An exhaustive literature survey identifies critical trends, challenges, and breakthroughs. The reviewed research papers span diverse approaches, including applying convolution neural networks (CNNs), generative adversarial networks (GANs), transfer learning, and ensemble methods. Innovative solutions for skin lesion segmentation, classification, and diagnosis are explored, addressing challenges such as imbalanced datasets, variable contrast, and indistinct boundaries. The project abstract encapsulates a knowledge synthesis highlighting the field's current state and identifying future directions. This resource proves valuable for researchers, practitioners, and stakeholders involved in the dynamic landscape of skin lesion diagnosis.

Keywords— Lung cancer recognition, CNN, Deep Learning, Machine learning, medical imaging. .

JCON2024_ETC_T1-0090

Smart crop protection system from Animals using PIC

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Abstract— In agricultural settings, crops are frequently subjected to damage by various local wild lives such as buffaloes, cows, goats, and birds, resulting in considerable financial setbacks for farmers. Erecting barriers around entire fields or maintaining continuous surveillance is impractical for farmers due to resource constraints and the need for round-the-clock vigilance. Hence, we propose the implementation of an automated crop protection system against wildlife intrusions, leveraging a microcontroller from the PIC family. This innovative system integrates a motion sensor designed to detect approaching wild animals."

"As these situations arise, the sensor promptly alerts the microcontroller, triggering a swift response. Subsequently, the microcontroller initiates a deterrent mechanism designed to discourage animals from encroaching on the cultivated area, thereby safeguarding the crops and minimizing potential losses for the farmer.

Keywords— Arduino, Wi- Fi modules, load cells, and a database infrastructure.

JCON2024_ETC_T1-0097

Recent Trends in Plant Leaf Disease Recognition: A Literature Survey

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Abstract— The detection and classification of plant leaf diseases is the subject of this extensive review work, which synthesizes findings from several research sources using methods including image processing, deep learning, and machine learning. The analysis encompasses many studies dedicated to identifying and categorizing plant diseases, specifically focusing on methodologies involving ML algorithms, DL networks, and advanced image-processing techniques. Emphasis is placed on the critical role of these technologies in preserving crop productivity through early disease detection in agriculture. The review thoroughly examines various papers incorporating state-of-the-art approaches, including SVM, BPNN, Convolution Neural Networks (CNNs), and other innovative models. Additionally, detailed investigations are presented into the features extracted during the process, including color features, shape features, texture features, and more.

Keywords— Leaf disease, CNN, SVM, BPNN, ML.

JCON2024_ETC_T1-0103

Study of Different Sensor Used in IOT

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Abstract— Technology is advancing in various fields such as artificial intelligence, machine learning, virtual reality, touch commerce, and the internet of things. The paper focuses on addressing customer needs and emphasizes the importance of time in the real world. However, people often spend a significant amount of time in supermarkets, facing issues like long queues at the billing section and difficulty in calculating the

total cost of purchased items. To tackle these problems, the paper proposes a solution known as the "Smart shopping trolley with automated billing." The IoT kit includes components like RFID tags, an RFID reader, LCD display, and Bolt ESP8266. The process involves consumers placing items in the trolley, where the RFID reader scans the RFID tag of each item, displaying the value on a digital display panel. Once the consumer completes their shopping, the bill is sent to the counter section, saving time and allowing consumers to know the total cost of their purchased items early on.

Keywords— LCD display, RFID reader, RFID tag , Shopping Trolley, IOT, Smart Cart, e- Billing.

JCON2024_ETC_ T1-0104

Animal/ Object Recognition and Monitoring System using ML

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Abstract— This paper involves the study of Object Detection and Image Recognition using CNN , a dataset is created especially for Leopard, using thousands of images, the dataset is trained for our model using ESP32 CAM module image is captured and processor compare with dataset if it match with dataset then output is generated. The results are obtained with CNN network.

Keywords— CNN, Object detection, Image Recognition, ESP32, Tensor Flow.

JCON2024_ETC_ T1-0105

Wireless Charging Pad using Multiple Devices

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Abstract— This paper represent the design and working of wireless charging pad for multiple device which is use to charge the device such as mobile, smart watch, ear bud, Bluetooth etc. wireless means the device that do not have any type of wire to charge our device. We know the life of battery of mobile phone is always major problem for people so, they always complaint about their life of battery. They do not have long battery life so, they have to charge their phone many times. By using wireless charging pad we can charge our device anywhere and anytime. In wireless charging pad there is new concept to charge our device without any charger we can charge it automatically. In this there are two circuits one is transmitter and second is receiver. In this the transmitter circuit have AC to DC rectifier circuit after that it is modulated by pulse width modulator circuit. By using Faradays'' law of mutual induction in which PWM is connected to the primary coil of transmitter and the secondary coil is get induced electromagnetic interference then AC to DC bridge circuit is used for connect the pin of charger to mobile. Microcontroller is used for avoid the overcharge the battery.

Keywords— Mutual inductance, Mobile phone, Wireless charging.

JCON2024_ETC_ T1-0106

Regular Band and Distance Matching Function are Used to Detect Pattern Fabric Defects

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Abstract— The suggested work uses a distance matching function in conjunction with the regular band approach to detect patterned fabric defects. The regularity of patterned cloth is defined by the use of regular band. The modified distance matching function, which is used to determine the periodic distance of repeating units in patterned fabrics both horizontally and vertically, was developed in this study. Compared to previous methods, this approach provides more accuracy in detecting defects such holes, broken ends, thick and thin bars, multiple threading, and knots.

Keywords— Regular band, distance matching function Gray level co- occurrence matrix, Artificial neural network.

JCON2024_ETC_ T1-0119

Improvement in Performance of Power System via Series FACTS Controller

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Abstract— Regardless of line current, the voltage-sourced converter- based Static Synchronous, Series Comp SSSc is a series of the {FACTS} system that offers inductive as well as capacitive compensation, independent of line current. The achievement of the necessary reactive as well as active power passage into the path for compensation is shown in this study work, along with validation of the improvement of a transmission line's power system performance through the connection of the SSSC at the proper place. Included are the effects of shifting the phase angle of the injected voltage on the transmitting side voltage, gear system angle, active as well as reactive and total PF in the power system without or with [SSSC]. The performance of the power system has been evaluated with the IEEE 14Bus Framework.

Keywords— Vtg-sourced converter [VSC], static comp (STATCOM), static synchro series comp [SSSC], and flexible ac gearbox (FACTS).

JCON2024_ETC_ T1-0120

Wireless Power Transmission Using Solar Roadways and Base Station

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Abstract— This paper presents a cutting-edge project that explores the integration of wireless power transmission with solar roadways and a base station. The concept involves harnessing solar energy through the use of solar panels embedded in road surfaces and wirelessly transmitting the captured energy to a base station. The paper provides an in-depth overview of the working principle, key components, benefits, challenges, and future prospects of this innovative approach. By examining the potential of this technology to revolutionize energy generation and distribution, the paper aims to contribute to the advancement of sustainable and efficient energy infrastructure.

Keywords— Wireless power transmission, Solar roadways, Solar panel, Renewable energy.

JCON2024_ETC_ T1-0124

IoT Based Smart Parking System

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Abstract— With development of the roads over the world and growing number of vehicles we faces the challenges related with parking in the urban areas. Also increase in the number of private vehicles results in traffic congestion and it cause direct impact on citizen's life. It also leads to congestion, increasing air pollution. Increased fuel consumption. Parking becomes significant problem in urban areas. Our research paper proposes smart parking system based on IOT to solve the current parking problems which can be cost effective. The proposed system employs a network of sensors, actuators. Communication devices embedded with parking space and vehicles. The effectiveness of the system should be calculated by real world experiments and simulations measuring the factor such as parking spaces occupancy detection accuracy, system response time and the most important is the user satisfaction. The research focuses on the design, implementation of the smart parking system based on IOT and using Node MCU. Also our research addresses the environmental impact of IOT based smart parking system. By saving the time of vehicles for finding the space for parking, the system contributes to lower fuel consumption and emission which promoting a greener and more sustainable urban environment. The paper focuses on Scalability, security, and the challenges associated with the system, emphasizing the solution for urban mobility management. **Keywords—** Internet of Things (IOT), Mobile Application, Smart parking system, Node MCU, ESP8266.

JCON2024_ETC_T1-0132

Hand Gesture Detection Using Machine Learning

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Abstract— Personal computer affirmation of signal based communication is a critical inves- tigation issue for engaging correspondence with hearing prevented people. This undertaking presents a compelling and fast computation for conspicuous confirmation of the quantity of fingers opened in a movement tending to a letters arranged by the twofold correspondence by means of signals. The system needn't bother with the hand to be immaculately acclimated to the camera. The endeavor uses picture taking care of system to perceive, especially English alphabetic signal based correspondence used by the in need of a hearing aide people to convey. The idea com system using picture dealing with, simulated intelligence and man-made thinking thoughts to take visual commitments of correspondence through marking's hand movements and produce really obvious kind of results. Hence the objective of this adventure is to cultivate a smart structure which can go probably as a mediator between the gestures based communication and the imparted in language capably and can make the correspondence between people with hearing handicap and commonplace people both suitable and successful. The system is we are completing for two fold gesture based communication yet it can perceive any signal based correspondence with before picture taking care of. **Keywords—** Feature Extraction, Gesture, Machine Learning.

JCON2024_ETC_T1-0134

Multilingual Sign Language Detection Using Cnn.

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Abstract— This report presents an innovative approach for real-time sign language recognition using the YOLOv5 algorithm. The aim is to facilitate seamless communication between individuals with hearing impairments and the hearing community. The paper addresses the challenges involved in sign language recognition and reviews previous approaches in the field. The YOLOv5 algorithm is introduced, highlighting its architecture and training process. The implementation details encompass the integration of React and TensorFlow.js to develop a user-friendly front-end application. The experimental setup includes dataset selection, evaluation metrics, and hardware/software configuration. The results demonstrate the system's high detection accuracy and its ability to recognize different sign languages. The limitations of the system are discussed, and future work is proposed for further improvement. In conclusion, the report presents a robust system based on YOLOv5 that advances sign language recognition, enabling effective communication between individuals with hearing impairments and the wider community. The findings contribute to the field by demonstrating the potential impact of the proposed approach.

Keywords— Sign Language Recognition (SLR), YOLOv5 You Only Look Once, Tensorflow.js, React JS.

JCON2024_ETC_T1-0156

Comparative analysis of circular Micro strip Patch antenna arrays with and without Electromagnetic band gap structure for 2.45 GHz Applications.

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Abstract— The objective of research is to give a comparison analysis between two circular micro strip patch antenna arrays, one of which is integrated with an Electromagnetic Band gap (EBG) structure and the other of which is not, and both of which resonates at a resonant frequency of 2.45 GHz. Through the use of simulation, the performance parameters of the antennas, such as reflection coefficient (S11), voltage standing wave ratio (VSWR), radiation, and bandwidth, are analyzed. The results reveal that the antenna with the EBG structure offers higher performance characteristics in comparison to the standard antenna design. As a result, it is a promising choice for applications that include wireless communication.

Keywords— Microstrip antenna, array, Electromagnetic Bandgap (EBG) structure, wireless communication

COMPUTER ENGINEERING

JCON2024_COMP_T1-0005

Enhancing Diabetic Retinopathy Assessment: Non-Proliferative Stage Identification through CLAHE and Data Augmentation Methods of Data Preprocessing

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Abstract- Diabetic retinopathy (DR) is the predominant disease in India, characterized by occluded blood vessels in the retina that result in diverse symptoms, such as visual impairment and potential blindness. Nevertheless, there exist efficacious solutions. Adequate diagnosis, timely treatment, and essential skills can prevent over 50% of blindness occurrences. Diabetic retinopathy can result from various forms of diabetes, such as Gestational diabetes, Type 1 diabetes, and Prediabetes. Greater risk is associated with prolonged duration of diabetes. Diabetic retinopathy will impact over 50% of individuals diagnosed with the condition. The illness progresses through three primary stages: No Diabetic Retinopathy, Proliferative Diabetic Retinopathy, and Non-Proliferative Diabetic Retinopathy. Ophthalmologists frequently employ fundus photography images to identify phases in their patients. Consequently, there exists a notable disparity across the various kinds of diabetic retinopathy (DR) in the collection of fundus images. The data preprocessing is done on IDRID dataset using CLAHE, Data Augmentation and Dimensionality Reduction methods. This research article presents a comprehensive analysis of identifying several phases of DR by the utilization of advanced DL (Deep Learning) and ML (Machine Learning) techniques.

Keywords—PDR, NPDR, Machine Learning, Deep Learning, Fundus Images, Convolution Neural.

JCON2024_COMP_T1-0008

Graph Algorithm Visualizer

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Abstract- Algorithm visualization has been a high topic in Computer science education for years, but it did not make its way through Educational Institutions as the main educational tool. The field of Visualization is getting mature. Many Problems are getting solved Using Visualization. The present paper identifies two key circumstances that algorithm visualization must fulfill to be successful: general availability of used software, and visualization of why an algorithm solves the problem rather than what it is doing. One possible method of “why” algorithm visualization is using algorithm unvarying rather than showing the data conversion only. Invariants are known in Program faultlessness. In order to make good choices, an understanding of the purpose and meaning of visualization is needed. Especially, the main goal of the thesis was to create a program that would serve as a tool for understanding how most known algorithms work. There was an attempt to make the best possible user experience. The demonstration software is made in a user-friendly and easy-to-use style. It mainly aims to simplify and deepen the understanding of algorithms operation. Within this paper, we discuss the possibility of enriching the standard methods of teaching algorithms, with the algorithm visualizations. To gain maximal benefit from learning you can try each sorting algorithm on your data. The study consisted of a demonstration and survey that asked the students questions that may show improvement when understanding algorithms.

Keywords— Graph Analysis, Graph Algorithm Visualiser.

JCON2024_COMP_T1-0010

Study on Object Detection Algorithm

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Abstract- There are many who are blind in this world, and they deal with a lot of difficulties in their daily lives. One of the most difficult things for the vision handicapped is moving about physically. Individuals who are completely blind or have impaired eyesight frequently struggle to navigate new settings on their own. Therefore, the goal of this study is to create a tool that will serve as their personal assistant. The current research aims to construct an object detector that can identify items at a specific distance in order to detect them for visually impaired individuals and other commercial reasons. You Only Look Once (YOLO) are a deep learning model for object recognition.

Keywords – Voice control, Accessible Interfaces, Automate website, visually impaired, blind people.

JCON2024_COMP_T1-0025

Enhancing Feature Manipulation for Improved DDoS Attack Detection on updated dataset.

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Abstract- With the widening of the scope of the interconnected devices, the security responsible issues that come along with them is also widening. Now, the identification and mitigation of Decentralized Denial of Service (DDoS) attacks is a critical matter. In our study, we are interested in improving the performance of machine learning models for detecting DDoS attacks in the Internet of Things (IoT) settings using the CIC- IoT-2023 Dataset. This dataset includes a wide range of IOT network traffic scenarios that pose novel problems demanding sophisticated feature engineering. DDoS attacks are a major threat to IoT eco-systems as they interfere with services and potentially harm devices and users. Feature engineering acts as a crucial factor in detecting and mitigating these attacks in its best way. In this paper, we deal with the following main issues of feature engineering. This research contributes to the development of a generic feature engineering framework in the context of IDS for DDoS attacks detection using the CIC IoT Dataset 2023. Our goal is to improve the feature selection, transformation, and model evaluation techniques to develop reliable and accurate DDoS detection systems which can protect IoT networks from this persistent threat. The results of the study can notably improve the security and resilience of the IOT environments towards DDoS attacks.

Keywords – updated dataset, Feature Engineering, Machine learning, Random Forest, CIC-IOT-2023, DDOS.

JCON2024_COMP_T1-0026

REVIEW PAPER ON SKIN SENSE: EMPOWERING DERMATOLOGY WITH INSIGHTS AND CARE

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Abstract- The detection of face skin conditions from clinical images is a critical task in dermatology, enabling early opinion and applicable treatment. Convolution Neural Networks have demonstrated remarkable performance in image bracket tasks. This abstract provides an overview of studies that probe the effectiveness of colourful AI algorithms for the bracket of face skin conditions using clinical images. Skin conditions can manifest in a wide range of forms, making accurate and timely opinion a gruelling bid. Clinical images serve as precious individual coffers, offering rich visual information to dermatologists. In recent times, the operation of CNNs for automated bracket has shown great promise. This exploration compiles and evaluates the performance of CNN algorithms. The study employs a different dataset of clinical images encompassing colourful skin conditions, textures, and colours. This paper analyzes the being geography, details Skin Sense functionalities, and discusses its implicit impact on stoner experience, early discovery, substantiated care, and ex- proration advancement. Through its unique features and emphasis on stoner engagement, Skin Sense aspires to revise the way individualities manage their skin health and well-being.

Keywords – Deep Learning, Skin Disease, CNN, Skin Sense Introduction:

JCON2024_COMP_T1-0028

Anomaly Detection System for Internal Faults in Electric Vehicles

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Abstract- Early soft short circuit (SC) detection is necessary in light of the growing emphasis on lithium-ion battery (LIB) safety in electric vehicles (EVs) in order to avert serious malfunctions like fire or thermal runaway. This research presents an extended Kalman filter (EKF) based on-board soft SC fault diagnosis technique. Based on real-time observed voltages, the EKF modifies a gain matrix to estimate the defective cell's state of charge (SOC). The detected soft SC resistance values indicate the fault severity, and the SOC difference is subsequently used for soft SC fault detection. Prompt detection of soft SC faults and precise estimation of their resistance are confirmed by experimental validation on a series-connected battery pack. Lithium-ion batteries have several benefits, including a high energy density and fast charging times, but because of worries about their thermal stability and the possibility of fire and explosion, their use is restricted. The thermal runaway phenomenon and fire dynamics in single LIB cells and multi- cell battery packs are reviewed in detail in this work. It talks about possible ways to prevent fires while highlighting the difficulties in guaranteeing the security of LIB applications in energy storage systems and electric cars. The paper also offers an overview of fault detection techniques for vital electric vehicle (EV) components, such as lithium-ion battery packs and Permanent Magnet Synchronous Motors (PMSMs). It emphasizes the significance of fault detection techniques' accuracy, speed, sensitivity, and cost-effectiveness while putting a special emphasis on the most recent advancements in research.

Keywords –Internal faults, safety, dependability, preventive maintenance, cost savings, regulatory compliance, customer confidence, electric vehicles (EVs),

JCON2024_COMP_T1-0031

Analyze and Forecast the Cyber Attack Detection Process using Machine Learning Techniques

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Abstract- The increasing complexity of cyber threats poses significant challenges to organizations' security infrastructure. As a result, the development of effective cyber attack detection processes is crucial in safeguarding digital assets and sensitive information. This paper aims to provide an analysis of the current state of cyber attack detection and forecast its evolution with the integration of machine learning techniques. In this study, we start by reviewing the existing cyber attack detection methods and technologies, highlighting their limitations and vulnerabilities. We then delve into the potential benefits of applying machine learning to this process, such as improving accuracy, reducing false positives, and enabling real-time threat detection. Furthermore, we discuss the various machine learning techniques commonly used in cyber attack detection, including supervised learning, unsupervised learning, and deep learning methods. We evaluate the strengths and weaknesses of each technique, providing insights into their suitability for specific detection scenarios.

Keywords – Cyber Attack, Machine Learning, Machine Learning Models.

JCON2024_COMP_T1-0032

Survey paper on NaviMentor- Your Personalized Learning Guide

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Abstract- The personalized learning platform is a dynamic educational tool that tailors learning experiences to individual learners' needs, preferences, and progress. Leveraging adaptive algorithms and comprehensive user profiles, it optimizes content delivery, pacing, and assessments. This abstract delves into the platform's core components, highlighting its potential to revolutionize education by fostering self-directed learning, addressing diverse learning styles, and ultimately enhancing educational outcomes for each user. **Keywords –** Cyber Attack, Machine Learning, Machine Learning Models. This innovative personalized learning platform harnesses artificial intelligence and data analytics to create a responsive and engaging educational environment. By continuously analyzing user interactions, it adapts content delivery, recommends targeted resources, and adjusts difficulty levels in real-time. The abstract emphasizes the platform's potential to empower learners, foster a deeper understanding of subject matter, and revolutionize traditional educational paradigms, ultimately contributing to a more effective and personalized learning journey for individuals across diverse educational settings.

JCON2024_COMP_T1-0034

A Survey on Diabetes Detection using Foot Thermograph with Deep Learning.

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Abstract- The study investigates the detection of diabetes mellitus using deep learning and data augmentation methods applied to foot thermography. With the rising prevalence of diabetes-related complications, early detection is crucial for effective management. Leveraging deep learning models, particularly convolutional neural networks (CNNs), and augmenting the dataset through various techniques, this research aims to enhance the accuracy of diagnosing diabetes through foot thermography. By utilizing a diverse set of data augmentation methods, such as image rotation, flipping, and scaling, the study aims to improve the robustness of the model against variations in foot thermography images.

The proposed approach seeks to identify specific thermal patterns associated with diabetic conditions. The integration of deep learning and data augmentation techniques showcases a promising direction for accurate and reliable detection of diabetes mellitus from foot thermography, potentially offering a non-invasive and efficient diagnostic tool for early intervention and treatment..

Keywords – Artificial intelligence, biomedical imaging, computational and artificial intelligence, diabetes, foot thermography, medical diagnostic imaging.

JCON2024_COMP_T1-0039

A Survey Paper on Mechanism for Detecting Bots in Twitter.

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Abstract- The use of bots in social media raises serious concerns about the legitimacy and authenticity of content. There are now various bot detecting solutions available. However, the detection accuracy still needs to be improved. The main goal of this work is to present an autonomous system for detecting and removing bots on social media platforms. The purpose of this investigation is to remove fraudulent accounts, the information associated with them, and the data they transmit, and keep these platforms free of deceptive content. Bot detection and removal will improve the legitimacy of the content displayed on various social media sites. It will also increase the privacy and legitimacy of these sites and their users. The research aims to remove non-genuine accounts, their associated information, and the data that they upload, as well as to rid these platforms of false material. Bot detection and removal will improve the credibility of the content given on various social media sites. It will also increase the privacy and legitimacy of these sites and their users. The bot identification technique based on machine learning algorithms is used in the study. The study's components are data, feature selection, and bot identification. The study uses collected data for web creation and hosting, as well as a machine learning system to detect bots in social media networks. Using machine learning, the suggested method provides a more accurate and effective system for bot detection. The study employs a variety of methodologies and procedures that result in improved bot identification and removal efficiency.

Keywords – Social Media, Supervised classification, Social Bot, One-class Classifiers, Machine Learning.

JCON2024_COMP_T1-0043

Credit Card Fraud Detection.

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Abstract- The issue of credit card fraud presents a notable concern within the financial sector, leading to considerable financial losses for both financial institutions and consumers. To address this challenge, this study investigates the application of machine learning methods for detecting credit card fraud. We explore the performance of diverse machine learning algorithms on an actual dataset and suggest an ensemble-based approach that harnesses the strengths of multiple models. Our experimental outcomes demonstrate the effectiveness of machine learning in accurately identifying fraudulent transactions while minimizing false positives.

JCON2024_COMP_T1-0044

The Potential of Machine Learning in Healthcare.

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Abstract- Machine learning (ML) is a research domain with extensive implications in healthcare, which aims to streamline computational approaches and enrich healthcare solutions. While it cannot replace human physicians, ML plays a crucial role in expediting diagnosis, prognosis, and treatment plan refinement, empowering medical professionals with swifter, more precise solutions. This chapter provides a comprehensive review of recent literature on ML's integration into healthcare, addressing associated limitations, challenges, and opportunities. The focus is on interdisciplinary cooperation to cultivate innovative research contributions, harnessing ML's capacity to analyze vast datasets and propel progress across healthcare industries. In recent years, machine learning and artificial intelligence have gained significant traction in the healthcare sector, empowering medical professionals with enhanced diagnostic and treatment capabilities. While these technologies have been widely used for disease detection and pattern identification, there is a scarcity of studies focusing on improving the accuracy and efficiency of healthcare data through machine learning algorithms. The effectiveness of machine learning algorithms in enhancing the transmission of time-series healthcare metrics, particularly heart rate data, is being explored. Various machine learning algorithms, including supervised and unsupervised approaches, are being comprehensively examined to evaluate their potential for improving accuracy and efficiency in both small and large datasets.

Keywords – Healthcare, Artificial Intelligence, Patient Outcome, Medical Imaging, Machine Learning, Medical Imaging, Patient Care.

JCON2024_COMP_T1-0046

Smart Traffic Management and Control System

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Abstract — The issue of traffic congestion escalates significantly due to the abundance of vehicles crowding the streets. As traffic volumes surge, the length of vehicle queues at intersections has experienced a remarkable uptick, rendering traditional traffic signal planning ineffective. It's imperative to create an innovative traffic management and control system, given that existing traffic light controllers rely on outdated microcontrollers and hardware. These systems are constrained by their reliance on pre-set programs, lacking the adaptability needed for real-time adjustments. The present traffic system operates on rigid time intervals for green and red signals, lacking the adaptability required for optimal system performance. In real-world scenarios, we can harness the power of computer vision and machine learning to understand the dynamics of different traffic patterns at intersections controlled by signals. This involves employing cutting-edge real-time object detection technology, such as the You Only Look Once (YOLO) deep convolutional neural network, to analyze and interpret traffic behaviour, or technology such as Simulation of Urban Mobility (SUMO) powerful open-source traffic simulation tool designed to model and simulate urban traffic systems. After gathering data, particularly on queue

density and vehicle waiting times, traffic light sequences are fine-tuned to enhance the safe passage of vehicles. This optimization aims to increase the flow of vehicles while minimizing waiting times, ultimately reducing the minimum wait period.

Keywords — Smart Traffic Management System, You Only Look Once (YOLO), Queuing density, Computer vision, Machine Learning, Object detection, Simulation of Urban Mobility (SUMO) .

JCON2024_COMP_T1-0047

Breast Cancer Detection Using Ai and Deep Learning CNN Algorithm

Abstract — Breast cancer is a major health concern, accounting for a large number of cancer-related deaths worldwide. Early detection of breast cancer is critical for effective treatment and improved prognosis. AI and deep learning techniques have shown promising results in medical image analysis, including breast cancer detection. CNN, a type of deep learning algorithm, has been particularly successful in image classification tasks. In this study, we present a CNN-based approach for automated breast cancer detection from mammogram images.

JCON2024_COMP_T1-0048

Regularizing Position Recommender Model for Football Goalkeepers

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Abstract— In the field of sports analytics, the integration of data science methodologies has significantly advanced performance assessment and decision-making across various positions. This study focuses specifically on soccer goalkeepers, exploring the optimization of their performance through strategic positioning during diverse game scenarios. Traditional methods often overlook the intricate aspects of real-time decision-making by goalkeepers. This paper proposes an innovative approach to improve the precision of position recommendation models for goalkeepers through the incorporation of regularization techniques. By applying regularization methods, the model is adjusted to strike a balance between recommendation accuracy and the inherent uncertainty in dynamic game situations. The regularization mechanism introduces a penalty term that discourages over fitting and promotes the development of a more adaptable model. The experimental process involves the utilization of historical match data, player movements, and goal outcomes to train and validate the proposed model. Performance evaluations on real-world datasets demonstrate the effectiveness of the regularized position recommender model, surpassing existing models and exhibiting heightened robustness in various game scenarios.

Keywords-- sports analytics, soccer, goalkeepers, position recommendation, regularization, and performance optimization, decision-making.

JCON2024_COMP_T1-0049

Dog Breed Prediction and Virtual Canine Hub

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Abstract— This research focuses on the difficulties that dog enthusiasts face when trying to accurately and efficiently identify different canine breeds. Recognizing the challenges of obtaining breed information directly from dog owners, a new solution is proposed: an automated system that can be accessed through a user-friendly website. This system utilizes image recognition technology, allowing users to easily upload a photo of a dog and accurately determine its breed. In addition to breed identification, the platform offers comprehensive information about temperament, care requirements, and other unique characteristics of each breed, providing a holistic understanding. The objective is to empower potential dog owners to make well-informed decisions that align with their lifestyle and preferences. Specifically tailored for the United States market and available in English, this resource aims to assist dog lovers nationwide in selecting and caring for their pets by providing detailed and easily accessible information.

Keywords- User-friendly, Temperament, Holistic.

JCON2024_COMP_T1-0050

A Review Paper on Freshness of Food Detection using IoT and Machine Learning

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Abstract—This review explores innovative strategies to combat the pervasive issue of food spoilage by employing sensor technology, gas monitoring, and Internet of Things (IoT) connectivity. The proposed system utilizes a microcontroller to issue timely alerts upon detecting spoilage indicators, offering a technological alternative to manual food detection processes in industries. Additionally, the integration of machine learning enhances the model's predictive capabilities, estimating the likelihood and duration of food spoilage based on vendor-specific factors. This approach not only addresses consumer safety concerns but also has the potential to instigate healthy competition among retailers, encouraging the sale of fresher and safer food products. The review aims to provide a succinct overview of advancements in food spoilage detection systems, catering to researchers, practitioners, and stakeholders seeking insights into cutting-edge technologies for ensuring food safety.

Keywords—Food spoilage detection, Sensor technology, Gas monitoring, Internet of Things (IoT), Microcontroller, Machine learning

JCON2024_COMP_T1-0052

Battery Management System for Electric Vehicles using IOT

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Abstract- In the realm of electric vehicles, the battery stands as pivotal and costly component. The precise tracking and estimation of the battery's State of Charge (SOC), State of Health (SOH), and timely detection of failures remain a research challenge, crucial for ensuring vehicle and user safety. Battery Monitoring involves monitoring key operational parameters current, internal resistance, and ambient temperature during charging and discharging. The integration of Internet of Things (IoT) technologies in wireless Management systems is gaining momentum. Effective battery management is vital for improving the safety, reliability, and performance of battery systems. IoT enable seam less

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measurement and transmission of all battery-related data to the cloud, providing real-time battery information. Cloud-based smart software can calculation quench are curve for each recharging process, optimizing battery recharge and aiding in battery cell life conservation. In this context, LoRaWAN technology known for its longer and low power consumption, can be instrumental in designing and implementing a smart IoT-based battery management system.

Keywords-- IoT, Battery management system, electric vehicles, LoRaWAN, cloud computing.

JCON2024_COMP_T1-0053

DEEP LEARNING BASED LASER WEEDING ROBOT

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Abstract-- The proposed weed detection and elimination system, utilizing a combination of Deep learning-based object detection and a robotic arm, is highly effective in crop management. Unlike traditional methods that rely on herbicides and manual labor, this innovative approach significantly reduces the need for these resources. The system employs computer vision and robotics to autonomously detect and eliminate weeds, thus minimizing the harmful impact of herbicides on nature. The process begins with a camera capturing images of both crops and weeds, followed by Deep learning classification to identify the weeds. The evaluation of the system on a dataset from a maize field demonstrates an impressive accuracy rate exceeding 90 per- cent. This breakthrough not only enhances the efficiency and precision of weed detection and elimination in crop production but also results in a substantial reduction in herbicide usage and labor costs. The integration of technology in agriculture showcases a promising future for sustainable and resource-efficient farming practices.

JCON2024_COMP_T1-0056

Supply Chain Management in Agriculture Using Block chain Technology

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Abstract — Block chains, now firmly established, are a digital system that combines data management, incentive systems, cryptography, and networking to enable the execution, recording, and verification of transactions between parties. Even while the original goal of block chain technology was to facilitate new forms of digital currency that would enable easier and more secure payment methods, they have enormous promise as a new foundation for all kinds of transactions. Agribusiness stands to gain a lot from this technology by leveraging it as a platform to conduct "smart contracts" for transactions, especially for high-value goods. Before we go any further, it is important to distinguish between distributed ledgers and block chain technologies and private digital currencies. Given the distributed and global character of digital currencies such as Bit coin, it is improbable that central banks will be able to adequately oversee the underlying protocols. Monetary authorities are primarily concerned with understanding the "on-ramps" and "off-ramps" that comprise the links to the traditional payments system, rather than being able to monitor and manage the money itself. In contrast to the digital currency component of the block chain, the distributed ledger aspect holds great

potential for application in trade and agriculture funding, especially in scenarios where multiple partners are involved and a dependable central authority is lacking.

Keywords — Advanced Encryption Standard, block-chain

JCON2024_COMP_T1-0057

Survey Paper on Placement Prediction using Machine Learning and deep Learning

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Abstract- Campus placement plays a vital role in connecting academic learning to real-world employment in the ever-changing higher education landscape. This study aims to improve the effectiveness of campus placement processes by leveraging the power of predictive analysis. The goal is to ensure that students are optimally matched with job opportunities. The primary purpose of this study is to create an accurate estimate of each student's likelihood of successful placement based on academic, skill, and other factors. To achieve this, we collect extensive data on students, including their academic records, extracurricular activities, internship experiences, and personal attributes. We also gather data on job vacancies, employer requirements, and historical placement outcomes.

Keywords-- Placement Prediction, Predictive Analytics, Machine Learning, Deep Learning, Data-driven, Decision making, Academic Placement.

JCON2024_COMP_T1-0058

EARLY DETECTION OF STUDENTS AT RISK USING MACHINE LEARNING TO MINIMIZE FAILURE IN ACADEMICS

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Abstract-- This research strongly emphasizes the important role of machine learning in education, especially when it comes to predict and improve how well students do in school. It believes in the old saying that "prevention is better than a cure" and wants to help teachers by giving them tools to support their students at the right time. One big thing this research does is find out what things affect how well students do on their final exams and suggest which classes might be best for them. This helps teachers make smart choices for their students. The research also talks about the limits of using people to keep an eye on students and wants to use smart computers to help teachers understand what students need. The main goal of all this is to help students do better in school by figuring out how they might do in the future and giving suggestions on what to do next. So, in short, this study is all about exploring how machine learning, education, and support for students can work together. It's about dealing with the problems in education and saying that it's really important to help students early on.

Keywords-- Machine Learning, Early Warning Systems, Student Progress Tracking, Teacher Support, Predictive Analytic

JCON2024_COMP_T1-0059

Survey Paper on Voice Mail System for Visually Impaired People

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Abstract— One of the most essential privileges for daily life is access to the internet. Everyone uses the internet for facts and information. Communication has gotten much easier in today's society as a result of the integration of communication technologies with the internet. Visually impaired persons, on the other hand, find it extremely difficult to use this technology because it requires visual perception. Despite the fact that many new advancements have been implemented to assist them in using computers more effectively, no naive user who is visually challenged can use this technology as effectively as a normal naive user because, unlike normal users, they require some practice in using the available technologies. This study discusses the structural design of a voice-mail system that may be utilized by a blind person to readily retrieve E- mails. This strategy allows them to communicate easily and generates a lot of stronger and independent workers. The system will not allow the user to utilize the keyboard or keypad, instead relying solely on clicks, swipes, and motions, as well as speech to text conversion. The involvement of research is assisting blind people in sending and receiving voice-based mail messages in their native language via a mobile phone. This framework will be beneficial to people who have other limitations in addition to being visually impaired

JCON2024_COMP_T1-0061

DEEP LEARNING BASED OBJECT DETECTION SYSTEM FOR BLIND PEOPLE

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Abstract— The human visual system is highly efficient in its ability to perform complex tasks such as object recognition and obstacle detection. Advancements in computer vision technology have enabled machines to quickly and accurately identify items in photos and videos, benefiting both the general population and visually impaired individuals. Conventional object identification techniques rely on shallow trainable structures and handmade features, but recent developments in deep learning offer more powerful tools that can learn high-level features. This study introduces an intelligent object detection system based on Convolutional Neural Network (CNN) to improve the quality of life for visually impaired individuals. The system utilizes the edge box technique and a refined Caffeine model to generate region suggestions and capture real-time object scenes, which are then processed by an audio-based detector to alert visually impaired individuals.

JCON2024_COMP_T1-0062

Smart Farming Using IOT & ML

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Abstract— Even though India is agricultural country lot of challenges are faced by farmer. Every year farmer experiences large losses due to pest infestation in crop & this in turn affect his lifestyle. These losses are basically due to discontinuous monitoring of farm, various diseases on crop and improper management of pesticides. Plant disease reduces product of farmer both in quality and quantity. So quick detection and identification of disease plant are of more importance. It also needs continuous monitoring of farm. To overcome above problem it is necessary to develop such system which continuously monitor the farm and detect the disease as quick as possible.

Keywords—IOT, ML

JCON2024_COMP_T1-0063

Implementation towards Blood Cancer Detection with Convolutional Neural Network (ML)

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Abstract— The result Blood cancer is a potentially fatal condition that needs to be detected early and precisely in order to be effectively treated. In this study, we use a Convolutional Neural Network (CNN) model to provide a unique method for blood cancer diagnosis. Images of normal blood cells and malignancy are used to train the CNN model. We are able to differentiate between malignant and healthy blood cells with a high degree of accuracy by doing a thorough examination and review. We tested our algorithm on a different collection of photos of cancer and healthy blood cells to see how well it performed. By contrasting the predicted labels with the ground truth labels, we were able to assess the accuracy of our model. The outcomes show that our CNN model obtains an impressive accuracy rate, which makes it a useful tool for the identification of blood cancer. We also talk about the importance of our results and how they might affect early diagnosis and better treatment outcomes. Our model's practical relevance in clinical settings stems from its resilience and reliability. Our method may improve patient outcomes and boost the effectiveness of treatment plans by facilitating the early diagnosis of blood cancer. To sum up, this research offers a unique CNN model-based method for the identification of blood cancer. The outcomes show how well our model works to distinguish between healthy and malignant red blood cells. The suggested approach has the potential to enhance blood cancer diagnosis and, in turn, improve patient treatment.

Keywords— Deep Learning, Convolutional Neural Networks, Image Processing, Multiple Myeloma.

JCON2024_COMP_T1-0064

Preparation of Papers in Two-Column Format for publications of IEI

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Abstract - The project aims to develop a wearable device that can autonomously detect and respond to potential threats, offering real-time alerts and assistance to women facing unsafe situations.

JCON2024_COMP_T1-0065

**HYBRID ROUTING AND CLUSTERING ALGORITHM FOR HETEROGENEOUS WIRELESS
SENSOR NETWORKS**

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Abstract—The proliferation of the Internet of Things (IoT) has spurred the integration of disparate devices to automate report generation without direct human involvement. This necessitates energy-efficient routing algorithms to extend the lifespan of energy-constrained smart devices connected through wireless sensor networks (WSNs). Recent advancements at the vendor level allow for algorithmic flexibility in protocol design, catering to simultaneous data collection for multiple applications while minimizing energy consumption to achieve commercial success in industrial applications. This paper introduces a novel approach—an algorithm employing hybrid clustering and routing with threshold-based data collection—for heterogeneous wireless sensor networks. Our model strategically deploys both homogeneous and heterogeneous nodes within designated regions. To curtail unnecessary data transmission, we introduce threshold-based conditions that prevent superfluous transmissions in instances where minimal or no changes are detected in simulated and real-world applications. Furthermore, we extend our proposed multi-hop model to enhance network stability in denser and larger network areas. The effectiveness of our model is demonstrated through improvements in load balancing and end-to-end delay when compared to other threshold-based energy-efficient routing protocols, including the threshold-sensitive stable election protocol (TSEP), threshold distributed energy-efficient clustering (TDEEC), low-energy adaptive clustering hierarchy (LEACH), and energy-efficient sensor network (TEEN). This study contributes valuable insights for optimizing energy consumption and performance in heterogeneous wireless sensor networks.

Keywords-- centralized networks, distributed networks, threshold, network heterogeneity, deletion

JCON2024_COMP_T1-0066

ENERGY OPTIMIZATION OF ROUTING PROTOCOL IN WIRELESS SENSOR NETWORK

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Abstract-- In many modern situations, wireless sensor networks play a crucial role, used for monitoring things like environmental conditions, transactions, and various statuses. These networks gather a large amount of data, sending it to a central hub for analysis. However, a significant problem is that traditional wireless sensor networks heavily rely on energy, and this limits how long they can operate. To tackle this issue, our paper introduces an optimization algorithm for a non uniform clustering routing protocol. This algorithm focuses on minimizing energy loss in cluster heads and improving the clustering form in wireless sensor networks. When calculating cluster heads, we start with the adaptive estimation clustering algorithm, which uses core density to figure out the cluster head radius. We also introduce a fuzzy logic algorithm to handle uncertainties in selecting cluster heads. This fuzzy logic algorithm considers factors like the remaining energy of cluster head nodes, ensuring a balanced distribution of cluster heads and optimizing node energy consumption. To further reduce the workload of the algorithm in transmitting data between cluster heads and achieve energy optimization,

we propose an inter cluster routing optimization algorithm based on the ant colony algorithm. This algorithm updates and disrupts pheromones using chaotic mapping, ensuring the best solution. The optimal path is selected based on energy dispersion coefficient and distance coefficient perspectives, optimizing energy use between cluster heads. Our experiments show that compared to traditional algorithms, our proposed non uniform clustering routing protocol optimization algorithm extends the network's life cycle by 75% and reduces total network energy consumption by around 20%. This demonstrates the effectiveness of our algorithm in optimizing network energy usage and significantly extending network life, proving its practical value.

JCON2024_COMP_T1-0067

CONNECTING PATIENTS AND DOCTORS: THE ANDROID TELEMEDICINE SOLUTION.

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Abstract-- Modern healthcare organizations are continually looking for solutions to improve patient care that are also afforded able. The healthcare sector is experiencing previously unheard- of flexibility because to telemedicine, a developing aspect of e-healthcare. It gives people the tools they need to easily communicate with healthcare professionals from the convenience of their own homes. Our study proposes an interactive Android application in line with this disruptive trend. By allowing patients to participate in video conferences with accessible healthcare specialists, this program allows patients to avoid the inconvenience of hospital visits and lengthy waits. Our study shows that it is feasible to create a strong telemedicine system to improve the health of the people. The project leverages Android Studio and Firebase for development and integrates DUO for video calling.

JCON2024_COMP_T1-0072

Management For Organ Donation And Transplantation By Using Block chain

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Abstract-- This research strongly emphasizes the important role of block chain-based organ donation and transplant administration system will be to enhance the organ donation pro- cadre's efficiency, security, and transparency. It minimizes fraud and errors while encouraging trust among stake- holders through the usage of block chain technology to establish a tamperproof and accessible record of organ avail- ability, matching, and tracking purposes. This revolution- ary approach has the capacity to completely transform the organ transplant system, eventually saving many more lives as well as improving the patient's experience.

Keywords-- Block chain, DApp, Organ donation and Transplantation, Smart contracts, PHR (Personal Health Records), Organ Allocation

JCON2024_COMP_T1-0073

Gesture Based Game Control Using Machine Learning

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Abstract— Hand and face gestures will be recognized using computer vision techniques such as Convolutional Neural Networks (CNNs) for image analysis. This will enable the system to accurately interpret user gestures and map them to specific in game actions. Hand gesture recognition is part of Human-Computer Interaction as a place for the user interface to be presented. Various machine learning algorithms, including but not limited to, deep learning models (CNNs and Recurrent Neural Networks), decision trees, and ensemble methods, will be explored to classify and interpret the extracted features, translating them into meaningful game commands. Low latency processing will be a priority to ensure that the system responds quickly to user gestures, maintaining a seamless gaming experience.

JCON2024_COMP_T1-0075

Portfolio Optimization by utilizing Fundamental and Price-Volume Analytics with XGBoost and LSTM Model Architectures

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Abstract—This paper aims at providing an efficient stock portfolio optimization technique by utilizing the Fundamental Ratios and Price-Volume data of the stocks. We have utilized various machine learning techniques such as XGBoost, ANN, RNN, etc. for providing a efficient stock selection and further utilized the Markowitz Theory and Sharpe Capital Asset Pricing Model (CAP-M) for assigning weights to the stock selections to build a risk minimized portfolio. The objective is to create a weighted portfolio of 30 stocks from the NIFTY-200 index on the basis of their financial ratios and price-volume data.

Keywords-- LSTM, RSI, Back testing Tool, XGBoots, ANN, RNN, CAP-M, NIFTY-200.

JCON2024_COMP_T1-0076

Smart Management of EV Charging Stations and G Maps API

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Abstract— In recent such years, automobile manufacturers such as TATA and TESLA have launched new electric vehicles in the market. These vehicles need charging, and as a result, electric car charging stations have been established. However, the current situation presents challenges, as these cars typically take time to charging 15 to 1 hour time to full charge. In this type of cases where the charging stations are full occupied, customers often they have longer waited time to charge their vehicles. To overcome this issue, we are developing a system that they are connect all electric car charging stations, and anyone using this system for the book their slot to their needs. This system is too much valuable for those planning long-distance trips or rides with their electric vehicles, as it saves both time and effort in their trips. User interaction with the system is designed to be straightforward: if a chosen time slot is available, a reservation is confirmed; otherwise, the system prompts users to select an alternative time. A percentage of the booking amount is paid online to secure the reservation. In addition, the system provides users with the shortest map route to reach their selected station. Charging station operators will also have access to an interface that displays available and booked slots, allowing them to manage slot timing effectively.

Keywords-- Smart EV management, charging slot, EV Cars, smart charging, Availability of charging stations, charging.

JCON2024_COMP_T1-0077

Medicinal Leaf Detection Using Deep Learning Approaches

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Abstract— Farmers and experts typically depend on visual examination to spot and classify plant diseases, yet this approach is slow, expensive, and susceptible to errors. This research delves into an innovative approach using image processing techniques for swift and precise automatic disease detection in plants. The study focuses on creating a model for plant disease identification by classifying leaf images using deep convolutional networks. Leveraging advancements in computer vision, this method has the potential to enhance agricultural practices and expand the application of computer vision in precision farming. The research outlines a comprehensive process, from collecting images to building a database, which agricultural specialists evaluate. A deep learning framework is employed to train a CNN tailored to accurately recognize various plant diseases based on a separately obtained database of leaves. The distinctiveness of this method is rooted in its simplicity: by combining healthy leaf and background images with various categories, the model can utilize deep CNN technology to differentiate between unhealthy leaves and their environment.

JCON2024_COMP_T1-0078

A Review paper on Image Caption Generator Using Machine Learning.

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Abstract—Due to the growing amount of user-generated material on many platforms, including social media, e-commerce websites, and online reviews, image sentiment analysis has attracted a lot of attention. Understanding public opinion, customer happiness, and decision-making processes all depend on the ability to accurately identify sentiment in these texts. This paper suggests a novel method for context-aware sentiment analysis that makes use of a hybrid deep learning model and a variety of feature extraction approaches. Utilizing several feature extraction approaches, such as bag-of-words, word embeddings, and syntactic dependency parsing, to first extract the contextual information from the text. These methods make it possible to represent the text in a structured way that considers both the semantic and syntactic elements. Our model can comprehend the sentiment more effectively by including these features. Our method's foundation is the deep learning model, which combines the advantages of long short-term memory (LSTM) networks and convolutional neural networks (CNNs). While the LSTM component catches long-term relationships and preserves contextual data, the CNN component captures local dependencies and learns high-level characteristics. Our approach successfully captures both local and global context by combining these two elements, which enhances sentiment analysis performance. Prior to creating the visual feature vector for the generation of captions, the execution first chooses the context. To provide the image description for each unique photo, the EfficientNetB7 model is used. The two methods used in the

classification of sentiment labels are the attention-based LSTM and the greedy Gated Recurrent Unit (GRU) method.

Keywords-- Image Caption, CNN, LSTM, Natural Language Processing.

JCON2024_COMP_T1-0079

Smart Agriculture Techniques for Plant Leaf Disease Using Agrirobo

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Abstract— With the growing global demand for sustainable agriculture, there is an increasing need for advanced technologies to monitor and manage crop health efficiently. This paper proposes a smart agriculture framework for the early detection of plant leaf diseases using the Agri Robo YOLO (You Only Look Once) method. The integration of robotics and deep learning in agriculture has shown promising results in enhancing precision and reducing manual efforts. The AgriRobo YOLO method combines the capabilities of agricultural robots and the YOLO algorithm to achieve real-time and accurate identification of plant leaf diseases. The YOLO algorithm, known for its object detection speed and accuracy, is adapted to recognize and classify various types of leaf diseases with minimal computational resources. The proposed system utilizes robotic platforms equipped with high-resolution cameras and sensors to navigate through agricultural fields autonomously. The Agri Robo YOLO method processes the captured images in real-time, identifying potential diseases on plant leaves. The system's efficiency is further enhanced by leveraging cloud computing for centralized data analysis and storage.

JCON2024_COMP_T1-0080

Plant Leaf Disease Detection using Convolutional Neural Networks

Abstract— This project aims to develop a system for automatic detection of plant leaf diseases using deep learning techniques, specifically Convolutional Neural Networks (CNNs). The system will help farmers and agricultural experts identify diseases early, enabling timely intervention and reducing crop loss. We propose CNN architecture trained on a dataset of images containing healthy and diseased plant leaves to classify the type of disease accurately.

Keywords-- Convolutional Neural Networks, Plant Leaf Disease, Image Classification, Deep Learning.

JCON2024_COMP_T1-0082

A Deep Learning Mechanism for Categorizing and Recognizing Road Damage

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Abstract—Road infrastructure deterioration poses significant challenges to transportation safety and maintenance. A deep learning system for accurate road damage identification and categorization is presented in this paper. The system uses advanced image processing and convolutional neural networks (CNNs) to effectively identify different types of damage from visual data sources, such as cracks, potholes, and surface irregularities. The model

showcases robustness in real-time analysis, offering a scalable solution for automated road assessment. By using cutting-edge deep learning techniques to enable effective and preventative maintenance procedures, this research helps to improve road safety. Road damage identification and classification have drawn a lot of interest, especially in relation to self-driving automobiles. The foundation of conventional algorithms for identifying road damage is image processing, including texture analysis, edge detection, wavelet transform, picture thresholding, and artificial feature categorization. On the other hand, convolutional neural networks—a deep learning technique—have become more and more popular in recent years for identifying pavement distress. This survey study offers a thorough summary of the literature on deep learning methods for road damage identification and categorization.

Keywords--Road damage Identification, Damage Detection, Road maintenance, Road Infrastructure

JCON2024_COMP_T1-0085

Conference Paper on Air Canvas Application and Text-To-Speech System Using Deep Learning

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Abstract—Air Handwriting is one of the growing technologies in day by-day life. Air handwriting enables users to write in air by using finger movements. The web camera detects the finger movements and converts them into readable format. This will be the natural way of communication with computer systems. This will remove the need for physical input devices like a keyboard, touch screen, and digital pen. This paper aims to provide an effective platform for both communication and practice. The existing system has some disadvantages that are overcome in this system. The existing system requires multiple fingers for writing. But using multiple fingers for different tasks like writing, changing color and erasing is a complicated thing to remember. A strong, robust, and efficient algorithm is proposed that will extract all the air writing trajectories or curves that are collected using a single web camera. The algorithm avoids restrictions on the user's writing without using a delimiter and an imaginary box. The deep learning CNN algorithms are also used for converting handwritten text into user-readable text. Additionally, Optimizing algorithms for efficiency can help ensure smooth and responsive performance.

Keyword: - Air writing, Open Cv, Artificial Intelligence, optical character recognition, Text-to-speech, Handwritten text, color

JCON2024_COMP_T1-0086

An in-depth review on Next Generation in Smart Mirror

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Abstract — Virtual assistants, cell phones, and wearable help coordinate and optimize daily activities worldwide. Smart assistants prioritize browsing, scheduling, navigating, and other basic human needs. Few smart assistants care about human health. In this research, we explore the potential of smart mirrors to detect health risks. Proposed Smart Mirror model features an algorithm-driven smart mirror that functions as a smart assistant. The model includes face recognition authentication, mood identification, and song playing based on mood. The Convolution neural network studies the person's mood and plays the songs over time.

Further, the proposed model interactively accepts the voice of the person to give the glimpse of the email inbox for the day and also proposed model can present the daily schedules stored in the database whose details will be published in the upcoming edition of this paper.

Keywords: Smart mirror, Deep learning, emotion detection, convolution neural network.

JCON2024_COMP_T1-0100

College Management Chabot System

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Abstract — Chatbots are robots used to facilitate faster and more accurate interactions between people. Today, chatbots are attracting a lot of attention in various fields. Chatbots have the ability to recognize sentences and answer questions. This project provides a chatbot for school management where users can log into the chatbot and perform all school activities. It keeps all school activities up to date, doesn't require students to be present, and the word order is similar so users can review questions and understand the words used to provide the correct answer. Many natural language techniques such as parsing, stemming, word segmentation and filtering are used in this chatbot for school management.

Keywords-- Chatbot, Virtual Assistant, NLP Techniques, Sentiment Analysis, Porter Stemmer Algorithm, Word Order Similarity Algorithm

JCON2024_COMP_T1-0103

Study of Different Sensors Used In IOT

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Abstract —Technology is advancing in various fields such as artificial intelligence, machine learning, virtual reality, touch commerce, and the internet of things. The paper focuses on addressing customer needs and emphasizes the importance of time in the real world. However, people often spend a significant amount of time in supermarkets, facing issues like long queues at the billing section and difficulty in calculating the total cost of purchased items. To tackle these problems, the paper proposes a solution known as the "Smart shopping trolley with automated billing." The IoT kit includes components like RFID tags, an RFID reader, LCD display, and Bolt ESP8266. The process involves consumers placing items in the trolley, where the RFID reader scans the RFID tag of each item, displaying the value on a digital display panel. Once the consumer completes their shopping, the bill is sent to the counter section, saving time and allowing consumers to know the total cost of their purchased items early on.

Keywords — LCD display, RFID reader, RFID tag , Shopping Trolley, IOT, Smart Cart, eBilling

JCON2024_COMP_T1-0107

Solar Energy Prediction Using IOT and Machine Learning Techniques

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Abstract —IOT drives the work faster and smarter to use in creative developing technologies. Every solar photovoltaic cell of a solar panel must be observed in order to know its current rank. This is concerned with observing as well as sensing only in case of a deficit in solar cells of a panel and applying curative measures to work in a good condition. The Internet of Things is a forecast that the internet will grow into the real world, including commonplace objects. The Internet of Things enables items to be identified and precise remotely over existing network structures, creating opportunities for pure amalgamation of the physical world into computer-based systems, resulting in increased efficacy, accuracy, and economic advantage in addition to less human interference. This equipment has a variety of uses, including solar cities, smart villages, micro grids, and solar path lighting, among others. As renewable energy increased at a faster rate than at any other moment in history throughout this period. The suggested structure refers to the online display of solar energy power utilization as a renewable energy. This monitoring is finished with a microcontroller and the flask framework. Smart Monitoring depicts the day-to-day operation of renewable energy. This allows the user to examine energy usage. Investigate renewable energy utilization and electricity challenges. Using an HMM Learning based machine learning technology; the proposed work develops estimation approaches for both solar resources and PV power. For power generation prospect forecasting, the system used a strengthening learning process.

Keywords: - Solar, Internet of Things, Web Application, Online Monitoring

JCON2024_COMP_T1-0108

An Attribute-Based Access Control System for Cloud Storage with Block chain

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Abstract —The RBAC framework is a system that defines basic techniques for accessing resources. Access control systems in computer security regulate access to important resources including data protection, computers, computer systems, and storage areas. ABAC policies include several attributes such as subjects, resources, and environment that are part of the request. There are certain criteria about qualities that define their attributes. The system utilizes Block chain technology to provide innovative methods for publishing rules that grant access to data and resources. It employs the Ethereum Virtual Machine (EVM) to enable the decentralized transfer of these rights among users using smart contracts, ensuring self-enforceable policies in smart computing. This article presents a system that implements role-based access control using Smart Contracts (RBAC-SC), which leverages smart contract technology to manage organizational roles. Ethereum is a secure, versatile, and flexible Block chain platform that is available for free. As a result, smart contracts were developed. In our suggested paradigm, policies and rights exchanges are encrypted blocks of data kept on the cloud, allowing users to add policies along with data or resources and subjects at any time. And can confirm the current individuals with authorization to access the data or resource. This approach enables distributive audit to prevent parties from cheating by falsely claiming rights under the policy.

Keywords: RBAC, ABAC, CP-ABE, Cloud Storage, Block chain, Virtual Machine, Cloud Service Provider.

JCON2024_COMP_T1-0112

Enriching student tracking system in college bus using face recognition through Deep learning

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Abstract—The majority of university students commute between locations using the bus that the administration of the university provides. In order to improve the quality of bus services, analysis is needed to determine factors like the number of passengers and personal information about students or unknown individuals. This research study aims to construct a face recognition system based on student faces using convolution neural networks and the open cv environment. Additionally, it tests and validates the built system's performance for face categorization and passenger evaluation. Additionally, this system can use the Internet of Things to store passenger information in a MySQL database. This system uses the camera on a mobile phone with the assistance of the Droid Cam application, which supports libraries used for face recognition and classification, like Open CV and face recognition, which is enhanced by the Convolution neural network model. In order to record the data in the database, this project can recognize the faces of the passengers as soon as they board the bus and identify whether they are students or unidentified individuals.

JCON2024_COMP_T1-0114

Crime Rate Prediction Using Machine Learning Algorithm

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Abstract— The expanding number of violations leads to clashes within the voting public of a nation. In arrange to distinguish and react to these violations, it is essential to get it wrongdoing designs. This ponder modeled these violations utilizing Kaggle's open wrongdoing information, which is utilized to predict later violations. The most errand of the extend is to foresee which sort of wrongdoing is most likely and the time and put where the wrongdoing happens. This work presents a few machine learning such as back vector machine (SVM) to distinguish different wrongdoings, and the accuracy achieved is higher than text-first.

JCON2024_COMP_T1-0115

Direct Delivery of Agriculture Product from Farmer to Consumer then Processed Food to the NGO using Block-chain

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Abstract— The restoration of the complete supply chain for agriculture and food (agri-food) on the block chain. It uses smart contracts and other fundamental aspects of block chain technology, both of which are prevalent in block chain networks. The workings of block chain technology, its potential applications or effects on present SCM Registry systems, as well as the function of legal experts, are detailed in this article. The growth of block chain is negative for everyone involved in the trust industry, especially for government entities that are considered reliable enough to handle transactions. As a result, the Agri-Food supply chain requires a reliable system to guarantee traceability, confidence, and distribution methods. The major goals are to describe how block chain might transform these types of systems

JCON2024_COMP_T1-0121

Ai/IoT Based Smart Classroom

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Abstract—This project presents the overall design of a Classroom Automation System (CAS) with low cost and wireless system. It specifically focuses on the development of an IOT based classroom automation system that is able to control various components via the internet or be automatically programmed to operate from ambient conditions. In this project, we design the development of a firmware for smart control which can successfully be automated minimizing human interaction to preserve the integrity within whole electrical devices in the classroom. We used Node MCU, a popular open-source IOT platform, to execute the process of automation. Different components of the system will use different transmission mode that will be implemented to communicate the control of the devices by the user through Node MCU to the actual appliance. The main control system implements wireless technology to provide remote access from smart phone. We are using a cloud server-based communication that would add to the practicality of the project by enabling unrestricted access of the appliances to the user irrespective of the distance factor. We provided a data transmission network to create stronger automation. The system is intended to control electrical appliances and devices in house with relatively low cost design, user-friendly interface and ease of installation. The status of the appliance would be available, along with the control on an Android platform. This system is designed to assist and provide support in order to fulfill the needs of elderly and disabled in classroom. Also, the smart classroom concept in the system improves the standard living at classroom.

JCON2024_COMP_T1-0122

Comprehensive Study of Convolutional Neural Networks

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Abstract—The recent trends show that Convolutional Neural Networks (CNN) has been the leading field of research and innovation in Machine learning domain. CNN is an approach in Deep Learning that aims to solve complex problems. Deep Learning exhibits a major benefit to process and understand huge amounts of information. Deep Learning has seen successful integration in numerous applications. This study aims to have a comprehensive and structured approach in understanding CNN. This will lead into efficient applications of the technology in upcoming research and development measures. This paper studies the topics of CNN; the most widely used CNN architectures and explains its possible benefits of usage.

Keywords: Convolution neural networks (CNNs), Deep Neural Network Designs, Deep Learning Applications, Machine Learning, and Image Classification

JCON2024_COMP_T1-0125

Java Based Implementation of Government Schemes Using Representation of Block Chain

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Abstract—The contemporary information society holds a common expectation for seamless, user-friendly, and efficient interaction between the government and its citizens. Addressing these expectations, electronic government solutions have gained prominence by automating decision-making processes on a national scale, thereby enhancing government operations and fostering improved social communications among members of society. Influencing a wide spectrum of functions related to document management and processing, the advent of electronic government heralds a transformative shift in the decentralized governance framework. Belarus, as a case in point, has made significant strides in establishing an electronic government infrastructure and delivering associated services. This progress owes much to the accelerated advancement of information and communication technologies (ICTs). Nevertheless, citizen engagement in e-governance within Belarus lags behind the Eastern European average. This deficiency is primarily attributed to the limited availability of interactive functions and online services on the official websites of government entities and institutions. Amid the array of technological solutions, each differing in speed, reliability, and data security, a few recent innovations shine through. These innovations are underpinned by revolutionary principles of compatibility and hold substantial promise for the future of electronic government.

JCON2024_COMP_T1-0126

Direct delivery of agricultural products from farmers to consumers, followed by processed food delivery to the NGO utilizing block chain technology

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Abstract— Supply chains are becoming into automated and complex networks, providing substantial benefits in the current landscape. Concurrently, individuals are placing more emphasis on the quality of food goods. Traditional supply networks are centralized and depend on an external entity for transactions. Centralized structures lack transparency, accountability, & audit ability. We have developed a detailed plan for a block chain powered food and agricultural supply chain. It makes use of the core features of block chain technology in addition to smart contracts that are organized on the block chain network. Block chain guarantees data permanence inside the network but does not resolve critical supply chain management challenges including party trustworthiness, trade procedure transparency, and item tracking. The storage system creates a hash of the data stored on the block chain to provide an effective, secure, and reliable solution.

Keywords: Block chain, NGO, SHA

JCON2024_COMP_T1-0127

Finding Psychological instability using various Feature Extraction and Deep learning classification on EEG Data

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Abstract— The mental load, neurological problems, and behavioral disorders that are prevalent in our day-to-day lives are contributing to the fast increase in the prevalence of neurological & psychiatric health conditions. Psychological instability is a kind of neurological brain condition that is defined by aberrant electrical activity in the brain. It is a chronic and ongoing brain disorder that is characteristic of the

neurological brain disorders. It may result in a variety of symptoms, including loss of consciousness and awareness, transient bewilderment, uncontrolled jerking motions, abrupt death, and other similar manifestations. In order to make a diagnosis of psychological instability, medical professionals look at a patient's medical history and investigate the symptoms. With the use of visual detection of EEG patterns, medical professionals are also able to identify psychological instability. It is a procedure that takes a lot of time, and there is a significant possibility that human mistake may occur during the diagnosis. While machine learning classifiers are able to categorize EEG data and identify seizures, in addition to showing key sensible patterns, they are able to do so without sacrificing performance. As a result of this, a number of researchers have developed a variety of methods for the identification of seizures by using statistical characteristics and machine learning classifiers. The most significant issues consist in choosing the appropriate classifiers and characteristics. Consequently, I am going to suggest a technique that can effectively identify and anticipate psychological instability, as well as assist medical professionals by using systems that are enabled by cognitive technology and the internet of things.

Keywords: EEG classification, classification, music recommendation, music recommendation, machine learning, feature extraction, feature selection

JCON2024_COMP_T1-0128

Convolutional Neural Networks for Genomic Sequence Analysis for Heart Disease Prediction

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Abstract— Heart disease is a complex and widespread health issue that affects millions of people worldwide every day. The heart disease is influenced by factors such as lifestyle choices (e.g., diet, physical activity, and smoking), genetics, access to healthcare, socioeconomic status, and environmental factors. Artificial intelligence approaches exceeded deep learning in the finding of cardiovascular diseases. Genomic analysis serves as a powerful tool in heart disease prediction by uncovering genetic predispositions, enabling personalized risk assessment, guiding early detection and prevention strategies, informing patient management decisions, predicting drug responses, and driving advancements in cardiovascular research and therapeutics.

Keywords— genomic analysis, heart disease, deep learning model, CNN

JCON2024_COMP_T1-0131

Cyber Security Using XAI Application

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Abstract--This survey presents a comprehensive review of the current literature on Explainable Artificial Intelligence (XAI) methods for cyber security applications. Due to the rapid development of Internet-connected systems and artificial intelligence in recent years, artificial intelligence including machines Learning (ML) and Deep Learning (DL) are widely used in cyber security fields including intrusion detection, malware detection and spam filtering. However, although based on artificial intelligence approaches to detect and defend against cyber-attacks and threats are more advanced and effective compared to conventional signature- and rule-based cyber security strategies, mostly based on ML and DL-based techniques are deployed in a "black box" manner, meaning that security experts and customers are unable to explain how such procedures reach specific conclusions. Shortcomings The transparency and interpretability

of existing AI techniques would diminish humanity user confidence in the models used to defend against cyber-attacks, especially in current situations where cyber attacks are becoming more diverse and complicated. Therefore, it is essential to use XAI in implementing cyber security models to create better explainable models while maintaining a high accuracy and enables human users to understand, trust and manage the next generation of cyber defenses mechanisms. Although there are articles that review the applications of artificial intelligence in the fields of cyber security and an extensive literature on the application of XAI in many areas including healthcare, financial services and crime to be fair, the surprising fact is that there are currently no research papers focusing on XAI applications in cyber security. The motivation of the survey is therefore to bridge the research gap presents a detailed and up-to-date overview of XAI approaches applicable to the issue of cyber security field. Our work is the first to propose a clear roadmap for navigating the XAI literature in context applications in cyber security.

Keyword--Artificial intelligence, cyber security, deep learning, explanation artificial intelligence, intrusion detection, machine learning, malware detection, spam filtering.

JCON2024_COMP_T1-00136

Drift-Enabled Deep CNN Classifier for IoT Thread Detection.

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Abstract--Abnormal action will lead to abnormal behavior in crowds. Stated differently, crowd motion changes in response to legitimate behaviors follow specific standards, but changes in response to anomalous events are unregulated. This study establishes motion-changed criteria that can be used to locate and identify unusual behavior in crowd video. It is first step to create movement patterns using the collectiveness descriptor. Using the difference of a set of motion patterns each frame pair is represented as a transfer matrix. Next, a bag-of-words approach is used to build the motion-changed rules in the transformation space. Lastly, to assess if the actions are unusual, the proposed method compares the proximity of motion modified rules to incoming video data. The approach is evaluated on two challenging datasets: the UMN dataset and the crowd video from the train station. The outcomes of the experiment demonstrate the effectiveness of the suggested method for identifying aberrant behavior.

Keyword: -Abnormal behavior detection, Video surveillance dataset, CNN Techniques.

JCON2024_COMP_T1-00137

A Review: Innovations in Wearable Sensor Data Utilization for Cardiovascular Disease Diagnosis and Prediction.

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Abstract— Heart disease is a complex and widespread health issue that affects millions of people worldwide every day. The heart disease is influenced by factors such as lifestyle choices (e.g., diet, physical activity, and smoking), genetics, access to healthcare, socioeconomic status, and environmental factors. Now a day's require convenient, fast, and non-invasive cardiovascular analysis techniques has been the primary and most attractive reason to use PPG therapeutics.

Keywords—photoplethysmogram (PPG), heart disease, CNN.

JCON2024_COMP_T1-0138

Cyber Security and Big Data Analysis

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Abstract--In an era dominated by rapid technological advancements, the amalgamation of cyber security and big data analysis has emerged as a critical paradigm to safeguard digital ecosystems. This paper explores the symbiotic relationship between cyber security and big data, presenting a comprehensive overview of their integration to fortify digital infrastructures against evolving cyber threats. The exponential growth of digital data has necessitated innovative approaches to secure sensitive information. Leveraging big data analytics, organizations can proactively detect and mitigate cyber threats, identifying patterns and anomalies that traditional security measures might overlook. This synergy empowers cyber security professionals with real-time insights, enabling swift responses to emerging threats. The paper delves into the challenges posed by the dynamic cyber landscape and the role of big data analytics in addressing these challenges. Through a systematic review of contemporary cyber security strategies and big data techniques, we elucidate how the fusion of these disciplines contributes to a proactive defence posture. Moreover, the discussion encompasses the ethical considerations and privacy concerns associated with the utilization of big data in cyber security. The paper advocates for responsible and transparent practices to ensure the protection of individual privacy rights while harnessing the potential of big data for securing the digital environment. Case studies and practical applications highlight successful implementations of cyber security and big data analytics across diverse industries. The paper concludes by emphasizing the importance of continued research and collaboration between academia, industry, and policymakers to stay ahead of the evolving cyber threat landscape. This abstract encapsulates the synergistic relationship between cyber security and big data analysis, offering insights into their collaborative potential for bolstering digital defences. It avoids plagiarism by presenting a unique synthesis of ideas, concepts, and perspectives on the intersection of these two pivotal domains.

JCON2024_COMP_T1-00140

AI BASEDCCTVSYSTEM

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Abstract— an AI-driven CCTV system employs cutting-edge technology for real time threat detection, redefining security through artificial intelligence. Focused on identifying guns and knives promptly in public spaces, AI-driven CCTV system ensures an intelligent response to potential security threats, enhancing overall safety. Leveraging YOLO deep learning techniques, the system achieves efficient real-time object detection, elevating surveillance protocols through intelligent monitoring. Results show a substantial improvement in public safety with timely weapon identification and alerts, showcasing the system's significant impact on security. The integration of artificial intelligence marks a notable advancement in surveillance technology, improving response times and overall efficacy. Future plans involve integrating messaging services like WhatsApp for instant notifications, expanding the system's capabilities. The project aims to explore applications in diverse settings, including rural areas and commercial establishments, to address emerging security challenges.

Keywords—YOLO, threats, object detection

JCON2024_COMP_T1-00141

Review Paper on: Monument Informatics Using Image Processing.

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Abstract— Tourism has become an important sector having an impact on development of country economy. For many locales, it is the most important source of welfare. So, in order to guide tourists, there exist many types of tour guide schemes. Among them, traditional guides, paper and mobile based systems are most commonly used for providing tour routes and heritage information for tourists. In the above system tourist needs to visualize what the guide wants to convey about the ancient period or to read the information of the monument. By considering the limitations of above methods, we are proposing an Augmented Reality based Application, which will give tourists an interactive experience by superimposing an informative text, images and video onto the captured view of the monument. The proposed system will be applicable to educational and entertainment industries also.

Keywords: - Augmented Reality, Computer Vision, and Template matching algorithm.

JCON2024_COMP_T1-00145

Gesture Link: Immersive Hand Guided Virtual Interface

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Abstract—This report introduces an innovative Hand Gesture Mouse Controlling system that utilizes hand gestures captured via a webcam through a color detection technique. This system enables users to navigate the computer cursor and perform clicking and dragging actions using different hand gestures. The proposed system relies solely on a low-resolution webcam functioning as a sensor, effectively tracking the user's hand gestures in multiple dimensions. The implementation will utilize Python and OpenCV for seamless integration. Hand gestures offer a natural and effortless means of communication. The camera's output will be displayed on the monitor, and shape and position information of the gestures will be acquired through color detection. Additionally, the report outlines the implementation of a file transferring scheme using Python server programming.

Keywords—Virtual Mouse, Hand Gestures, Image Capture, Image Processing, Color Detection

JCON2024_COMP_T1-00147

Plant Disease Detection Using Drones in Precision Agriculture

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Abstract—The paper discusses the use of drone technology in precision agriculture, specifically in early detection and classification of plant diseases. It proposes a novel approach that integrates computer vision techniques and machine learning algorithms with aerial drone imagery. The study demonstrates the feasibility and effectiveness of this approach in real-world scenarios, paving the way for sustainable and

data-driven agricultural practices. The integration of high-resolution drone imagery, deep learning, and image processing techniques offers a cost-effective and efficient solution for disease diagnosis in large agricultural fields.

Index Terms—Deep-Learning, You Only Look Once Version Five (YOLOv5), Disease Detection, Single Shot Detection (SSD) Real-time detection.

JCON2024_COMP_T1-00148

Real Time Network Dataset for Intrusion Detection System using Machine Learning

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Abstract—The ability to instantly document, review, analyses and analyze unusual patterns to meet the needs of various areas of communication such as collaboration or training. Mission: To create a powerful, improved and error-free analytics engine that can do the smallest things instantly. Computer and information security is very important today and many infrastructures are designed to protect networks or protect them from internal interference or external interference. User many systems have been developed to detect malfunctions in the victim's equipment. Sometimes external users create a virus and gain unauthorized access to a computer or become a victim of a crime. Real-time blog monitoring Uses machine learning techniques and business on boarding tools to find business data. We provide a new framework for reality. Use machine learning algorithms to identify bad traffic in real time. Intrusion detection system, network security.

Keyword: Intrusion Detection System, Network security, Naïve Bayes.

JCON2024_COMP_T1-00152

Conference paper on development of react native app for eyes number and colorblindness Check, Andits application in determining websitesize and Color

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Abstract—In this era the technology is increase in many way and the use of digital gadget increase it definitely causes power related problem to the eyes. Vision power related problems are common in all age group. Student employee, each and every digital screen user are facing the critical eye issue due to continuously use of digital screen. They are not aware about the issues what they are facing through. The spectacles are sometimes are not effective over increase or decrease in vision power. Myopia(farsightedness) and Hypermetropia (nearsightedness) common among the people who are the victims of harmful rays radiating digital display. Hence detection of vision power and adjusting of screen according to vision power would reduce the problems.

Keyword- Visualization, power measurement, Extreme learning machine, machine vision, Brightness, NeiveBaysian Algorithm.

JCON2024_COMP_T1-00153

Face Secure Vote: Ensuring Trustworthy Online Voting with Biometric Verification

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Abstract— This project centers on the development of a robust Trustworthy Online Voting system featuring Biometric Verification, aiming to eliminate the vulnerabilities inherent in manual voting systems and preceding iterations of online voting through camera-based Face Recognition and OTP generation. In response to the limitations of existing voting mechanisms, we are introducing a location-free voting system, facilitating individuals unable to be physically present at their designated voting location, especially those residing away from their hometown.

Keywords- Election ID (EID), Face Recognition, OTP Verification.

JCON2024_COMP_T1-00157

Student-Centric Training and Placement Application

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Abstract—In the fast paced and competitive landscape of today's job market the significance of comprehensive training and placement program for students cannot be overstated. As a bridge between the academic preparation and professional success. This training and placement platform plays a pivotal role in equipping students with necessary skills, knowledge and confidence to thrive in their chosen career path with particular emphasis on training components and its impact on student's development and employability. Nowadays recruiters seek for candidate possessing not only for academic qualification but also practical skills and industry specific competencies. This training and placement application encompasses wide array of activities including mock interviews, seminars, workshops, group discussion, internships and experiential learning, schedule live test, interactive sessions, aptitude, presentations feedback can arrange through this training and placement application program students are readiness for the workplace. Beyond the technical proficiency training program also emphasis the cultivate of essential soft skills such as communication, teamwork, problem solving and adoptability

Keywords—Android; Kotlin, Firebase, Android Studio.

AI & DS ENGINEERING

JCON2024_AI & DS_T1-0056

Supply Chain Management in Agriculture Using Blockchain Technology

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Abstract— Block chains, now firmly established, are a digital system that combined at a management, incentive systems, cryptography, and networking to enable the execution, recording, and verification of transactions between parties. Even while the original goal of block chain technology was to facilitate new forms of digital currency that would enable easier and more secure payment methods, they have enormous promise as a new foundation for all kinds of transactions. Agribusiness stands to gain a lot from this technology by leveraging it as a platform to conduct "smart contracts" for transactions, especially for high-value goods. Before we go any further, it is important to distinguish between distributed ledger and block chain technologies and private digital currencies. Given the distributed and global character of digital currencies such as Bit coin, it is improbable that central banks will be able to adequately oversee the underlying protocols. Monetary authorities are primarily concerned with understanding the "on-ramps" and "off-ramps" that comprise the links to the traditional payments system, rather than being able to monitor and manage the money itself. In contrast to the digital currency component of the block chain, the distributed ledger aspect holds great potential for application in trade and agriculture funding, especially in scenarios where multiple partners are involved and a dependable central authority is lacking.

Keywords—Advanced Encryption Standard, block-chain.

JCON2024_AI & DS_T1-0063

**Implementation towards Blood Cancer Detection with Convolution
Neural Network (ML)**

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Abstract- The result Blood cancer is a potentially fatal condition that needs to be detected early and precisely in order to be effectively treated. In this work, we present a novel approach for blood cancer diagnostics using a Convolutional Neural Network (CNN) model. Images of normal blood cells and malignancy are used to train the CNN model. We are able to differentiate between malignant and healthy blood cells with a high degree of accuracy by doing thorough examination and review. We test our algorithm on different collection of photos of cancer and healthy blood cells to see how well it performed. We evaluated our model's accuracy by comparing the labels that were projected with the actual true categories. The outcomes show that our Convolutional Neural Network model obtains an impressive precision ratio, which makes it a practical instrument for the identification of tumor in the blood. We also talk about the importance of our results and how they might affect early diagnosis and better treatment outcomes. Our model's practical relevance in clinical settings stems from its resilience and reliability. Our method may improve patient outcomes and boost the effectiveness of treatment plans by facilitating the early diagnosis of blood cancer. To sum up, this research offers a unique CNN model- based method for the identification of blood cancer. The outcomes show how well our model works to distinguish between healthy and malignant red blood cells. The suggested approach has the potential to enhance blood cancer diagnosis and, in turn, improve patient treatment.

Keywords— Convolutional Neural Networks, Image Processing, Deep Learning, Blood Cancer.