अमृतं तु विद्या। विज्ञानं यज्ञ तनुते॥

Late Ku. Durga K. Banmeru Science College, Lonar

Global Conference Hub

Conference Proceedings

ICARD - 2023

Third International Conference on Advancements in Research & Development (ICARD) - Online

JOINTLY ORGANIZED BY

Late Ku. Durga K. Banmeru Science College, Lonar, Maharashtra

&

Global Conference Hub, KCT Tech Park, Coimbatore, Tamilnadu, India

29th & 30th APRIL 2023

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www.globalconferencehub.com

International Conference on Advancements in Research & Development (ICARD) 2023 is conducted by
Late Ku Durga K Banmeru Science College, Lonar, Maharashtra &
Global Conference Hub, Coimbatore, Tamilnadu, India
RSP SCIENCE HUB
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PROCEEDINGS OF

ICARD– 2023

Third International Conference on

Advancements in Research & Development

Organized by

Late Ku Durga K Banmeru Science College, Lonar, Maharashtra & Global Conference Hub, Coimbatore, Tamilnadu, India

Abstract Proceedings

(Special Edition)

About the College

Late Ku. Durga K. Banmeru Science College is located at Lonar Dist. Buldana in Maharastra. The College is run by Amrut Sevabhavi Sanstha Parbhani (M.S.). The main purpose of the society is to serve for the people and society through the social and educational activities. One main agenda is to raise the standard of education in this area. Buldana district is nominated as educationally backward district by the UGC. Amrut Sevabhavi Sanstha Parbhani has established it's science college in June-2000 at Lonar. Lonar is a world famous tourist place, well known for world's 3rd largest crater formed by meteorite impact in the basaltic rock. Fifteen years ago, there was no senior college for higher education in science at Lonar and surrounding 50 km premises. For higher education student have to migrate up to Washim, Chikhli, Jalna and Aurangabad. It was as expensive for the people of this area as most of the student belongs to farmers and workers people. One special benefit of the college is for the girls, as they got higher education facility in their own town.The main source of ideology and value frame work of the college is "ve`rarqfo|k !foKkua ;K ruqrs !!"(Knowledge is nectar, specialized knowledge promotes creativity). The main source of ideology and value framework of the college lies in the slogan "Be less curious about people and more curious about the ideas". Thus we are always curios about our ideas and vision i.e. "Build the youth to build the nation with the help of innovation"College goal is to achieve excellence in education, research and multy- dimensional development of student. It holds unique position in the rural area of Buldana district. Dr. Prakash K. Banmeru as founder president given direction to college staff to establish Quality Enhancement Programme inculcating quality and value based science education among students. It was begun in 2005, right from the beginning of the academic year so as to implement it for the full year. Under this program various curricular, co-curricularextra-curricular activities were held to give an overall development of the students. It proved right step towards attaining a promising future. Real fortitude of the college came with the recognition of the college by the affiliating university. As

Dr. Prakash K. Banmeru has joined as a principal from 1st June-2010, they have been playing a key role in for getting permanent affiliation to the college from SantGadge Baba Amravati University, Amravati and success of college. The college got the status of the permanent affiliations in 2012.College was on non granted basis for a long period due to state Government policy, only salaries of science faculty on 100% grant basis, started in academic year 2007-2008. Being Science College other than salary grants there is no other grants. In this respect within a short span of 7 years after facing many difficulties, the college has made a good progress. The college is recognized for its discipline and its regular involvement of academic activity. It aims at versatile development of students in academic, socio-cultural fields so as to make them responsible individual to contribute in the formation of better society. The college has received UGC 2(f) and 12(B) status on 24 April. 2014 from the U.G.C. New Dehli and become eligible to get funding from the Government agencies. The college got only three years in XIIth plan of U.G.C. and allocated a total budget of Rs. 53,00,000/-under various Schemes like GDA, Women's hostel and establishing IQAC in the college and received a total Rs. 32,70,000/- to the college.

About the Department

Department of Zoology started since the establishment of College took place. The Department of Zoology is running smoothly and students are getting subject knowledge in Department. The Department has been good result in Zoology subject. The faculties of the department are qualified and subject expert. The subject which is being taught in this particular department is "ZOOLOGY" as this subject is related to life sciences having varied values in jobs such as Animal keeper, Museum Curator, Animal Trainer. Apart from this in Indian Forest Services like forest rangers etc. In research, the Zoology subject and its related factors are quite interesting carrier as scientific and social field. The carrier in this field can be achieved as Naturalist, Biologist, and wild life

Photographer.This particular subject is much beneficial for those who come across for competitive examinations like M.P.S.C. and U.P.S.C. as their main subject.

About the Global Conference Hub

Global Conference Hub organizing an international peer reviewed conference dedicated to the Research & Development in Science, Engineering, Management and Technology. It promotes collaborative excellence between academicians and professionals from academics. The objective of the Global Conference Hub is to provide an opportunity for academicians and industrialist from various fields with cross- disciplinary interests to bridge the knowledge gap, promote research esteem and the evolution of pedagogy. This conference is an amalgamation of industrialists, academia where they can gear up knowledge. Our gratitude towards people who are concerned about advancements in hub of research and we cordially invite them to gear up and make the congress an unforgettable successful event

About the Conference ICARD– 2023

ICARD-2023 is the debutant International Conference hosted by Global Conference Hub, Coimbatore. Academic Research is a type of systematic analysis of a problem or situation aiming at discovery of thoughts and evidence that will be beneficial in fixing the challenges of investigating the situation. Novel research can have a significant impact on academia, the economy and society by contributing to capacity building: technical and personal skill development. The objective of the Conference on Research & Development in Science, Management ,Engineering and Technology (ICARD-2023) is to bring together entrepreneurs, academicians, research scholars and post-graduate students from around the world to encourage, acknowledge and support research in all these areas by providing opportunity for them to exchange and share their experience, fresh concepts, research findings and discuss the pragmatic challenges encountered and solutions adopted in the aforementioned interdisciplinary areas through a wide range of research activities and publication.

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- Dr. R. Ranjith – Editor in Chief, RSP Science Hub, Coimbatore

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-

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- Mrs. Anussha Hari Prassad, Technical Manager, RSP Science Hub, Coimbatore, India

Technical Session – I

Keynote Speaker: Dr. Bd. Rismawati Munthe, S.Psi., M.Psi.

Assistant Professor , Faculty of Psychology, Potensi Utama University, Indonesia

Topic: "Perspective of women Psychology Based on Developmental Tasks"

Technical Session – II

Keynote Speaker: Dr Sheetal Sharma

Professor of European Studies, School of International Studies ,

Jawaharlal Nehru University, New Delhi

Jaipur

Topic: "**National Education Policy 2020**"

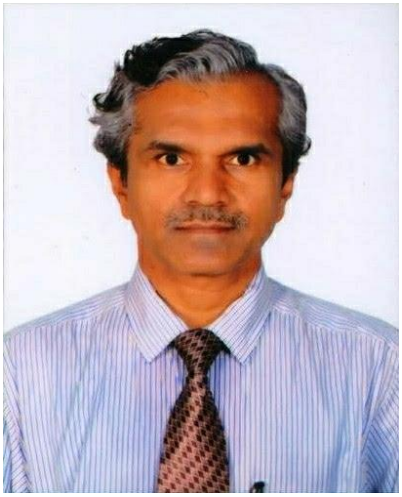
Technical Session – III

Keynote Speaker: Prof.Pandit Vidhyasagar

Former Vice Chancellor , swami Ramanad Teerth Marathwada university, nanded, Maharastra

Topic: "**Research contribution**"

Technical Session – IV



Keynote Speaker: Dr. T.C.Manjunath, Ph.D. (IIT Bombay)

Prof. & Head, ECE Dept.,

Dayananda Sagar College of Engg.,

Bangalore

Topic: "**Recent advances in nanotechnological concepts in nanobots**"

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Assistant Professor
Faculty of Education
Integral University, Lucknow

Dr. Lingaraj A. Hadimani
Associate Professor and Head , Computer Science and Business Systems, Kolhapur Institute of Technology, Kolhapur, Maharashtra

Dr.P.Gowtham
Assistant professor, Dept. ECE,
Entrepreneurship Development Cell Coordinator,
Jansosns Institute of Technology,
Coimbatore

Dr.B.Sachuthananthan
Professor , Department of Mechanical Engineering, Sree Vidyanikethan Engineering College, Tirupati,
Andhra Pradesh

Dr. Murthy. M,
Assistant Professor , Department of ECE, Nagarjuna College Of Engineering and Technology Mudugurki, Venkatagiri Kote Post, Devanahalli, Bengaluru

Dr.A.Karthikeyan
Assistant Professor
Department of ECE
SNS College of Technology
Coimbatore

Dr.R.SABITHA
Professor,ECE, Hindusthan College of Engineering and Technology, Coimbatore

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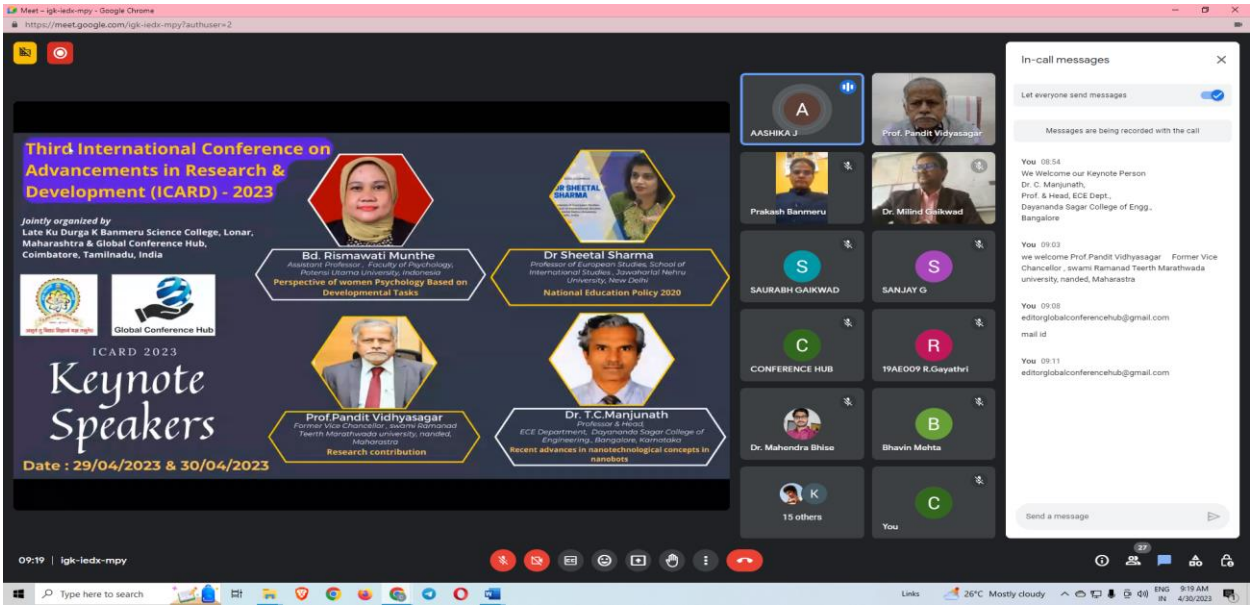

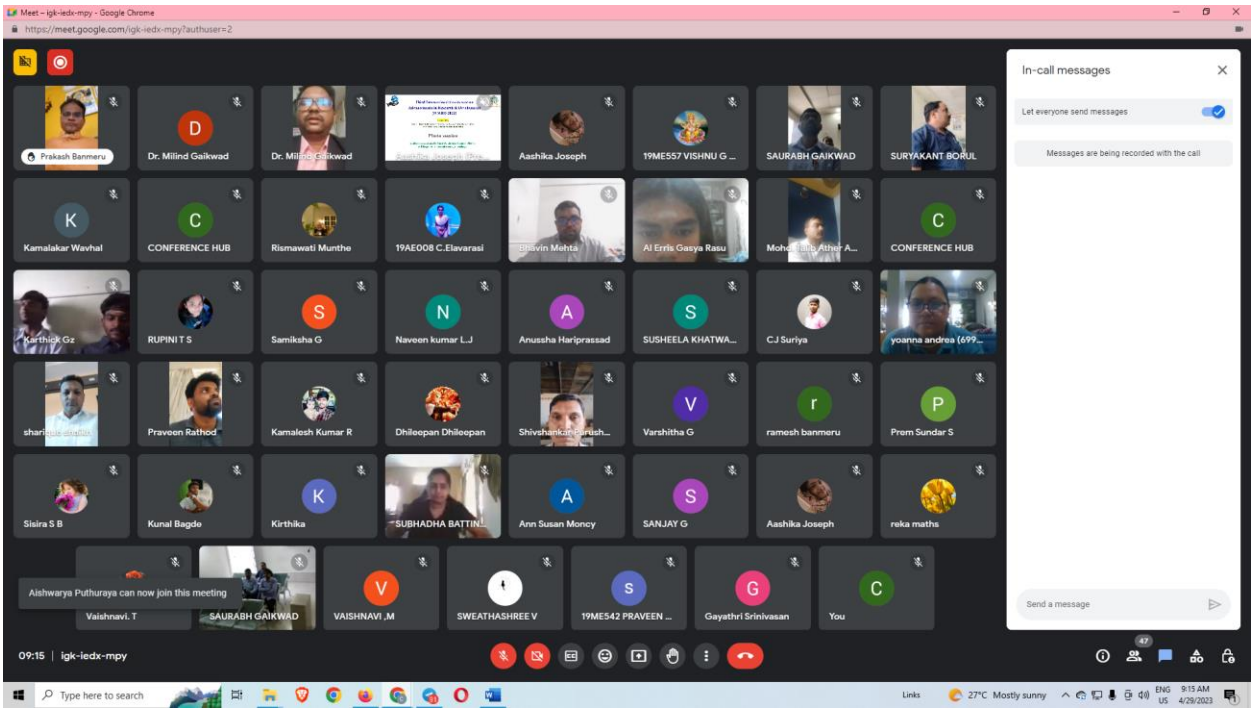


Rismawati Munthe is presenting
In-call messages
Let everyone send messages
Messages are being recorded with the call
You 09:18
please wait
due to technical error ppt stopped
You 09:37
we welcome Dr. Bd. Rismawati Munthe, S.Psi., M.Psi.
Assistant Professor ,
Faculty of Psychology,
Potensi Utama University, Indonesia
You 09:42
voice is audible
please continue mam
Send a message
Dr. Milind Gaikwad
Nived Sravan
SURYAKANT BORUL
19ME557 VISHNU G sn...
SAURABH GAIKWAD
Aashika Joseph
Dr. Milind Gaikwad
Prakash Banmeru
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54 others
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Rismawati Munthe
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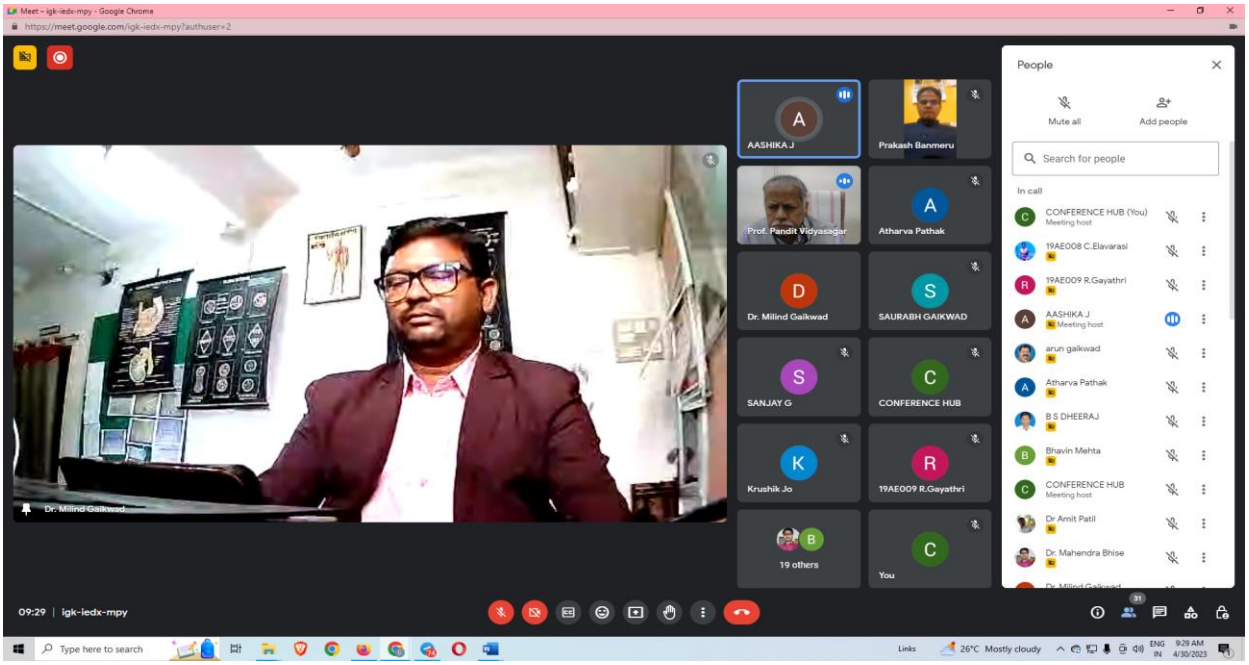
People
Mute all
Add people
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In call
CONFERENCE HUB (You)
19AE008 C.Elavarasi
19AE009 R.Gayathri
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Atharva Pathak
B S DHEERAJ
Bhavin Mehta
CONFERENCE HUB
Dr Amit Patil
Dr. Mahendra Bhise
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Prakash Banmeru
Prof. Pandit Vidyasagar
Atharva Pathak
Dr. Milind Gaikwad
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Dr. Milind Gaikwad
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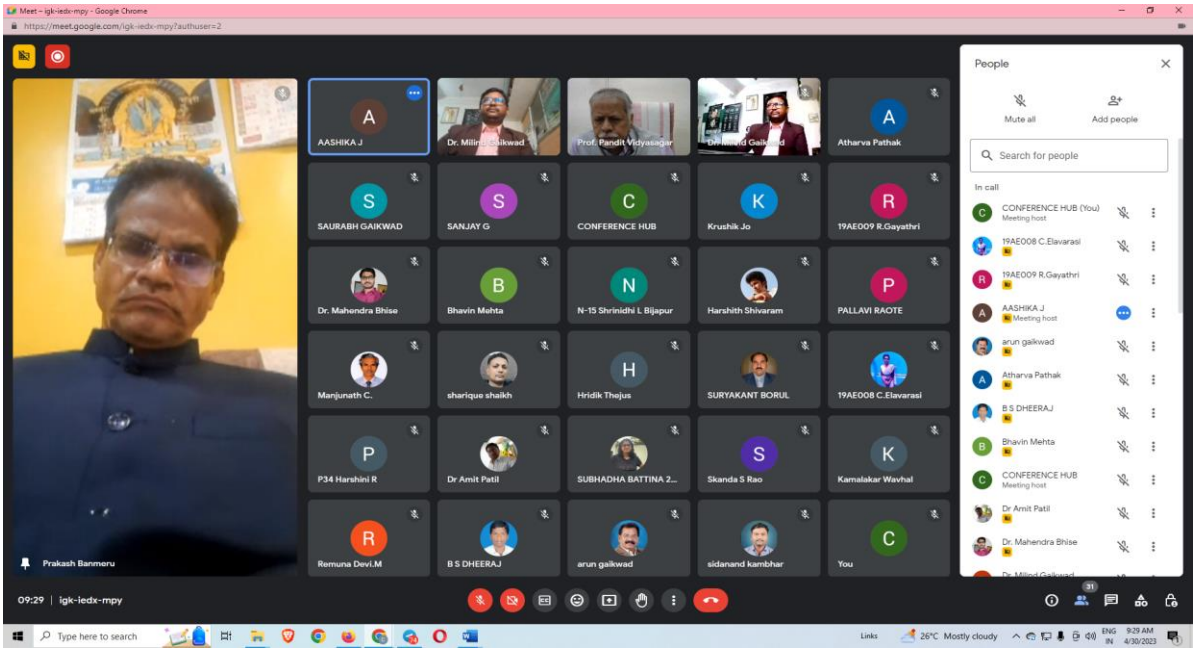
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Dr. Mahendra Bhise
Bhavin Mehta
N-15 Shrinidhi L Bijapur
Harshith Shivaram
PALLAVI RAOTE
Manjunath C.
sharique shaikh
Hridik Thejus
SURYAKANT BORUL
19AE008 C.Elavarasi
P34 Harshini R
Dr Amit Patil
SUBHADHA BATTINA 2...
Skanda S Rao
Kamalakar Wavhal
Remuna Devi.M
B S DHEERAJ
arun gaikwad
sidanand kambhar
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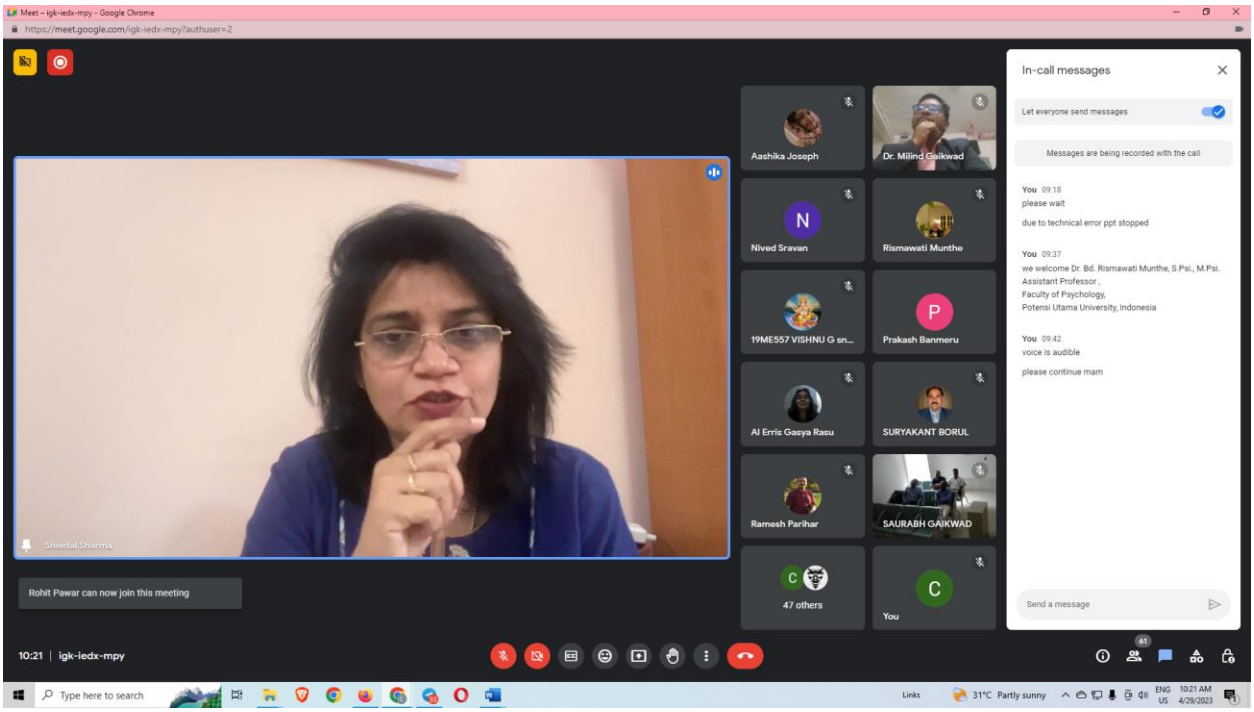
Prakash Banmeru
09:29 | igk-iedx-mpy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You 09:42
voice is audible
please continue mam
Send a message
Aashika Joseph
Dr. Milind Gaikwad
Nived Sravan
Rismawati Munthe
19ME557 VISHNU G sn...
Prakash Banmeru
Al Erris Gasya Rasu
SURYAKANT BORUL
Ramesh Parihar
SAURABH GAIKWAD
47 others
You
Sheetal Sharma
Rohit Pawar can now join this meeting
10:21 | igk-iedx-mpy

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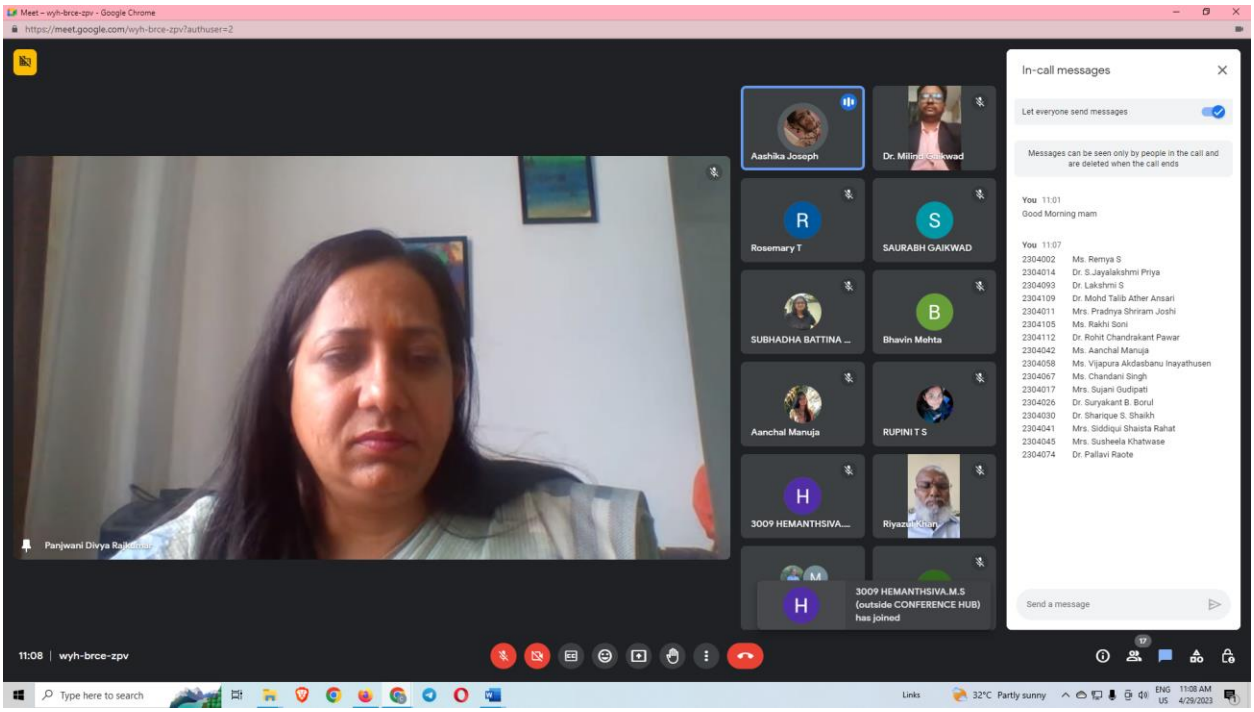
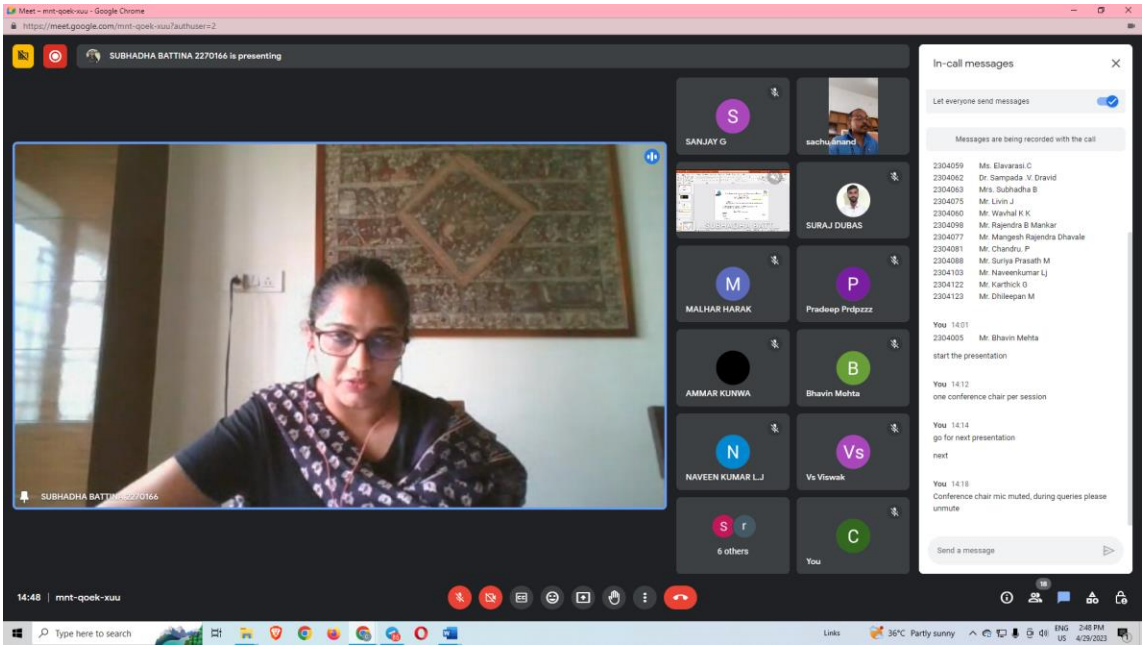
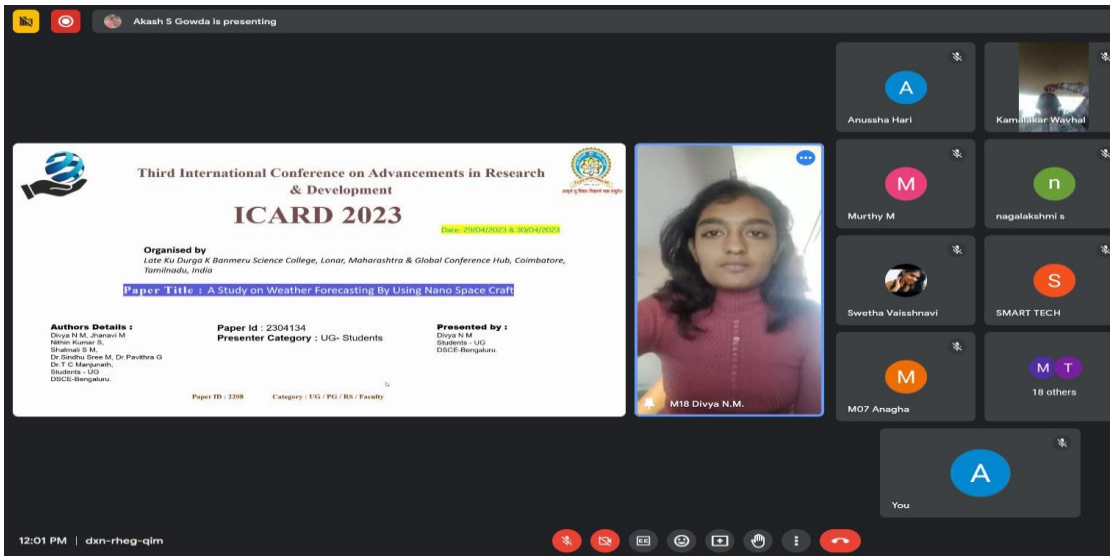
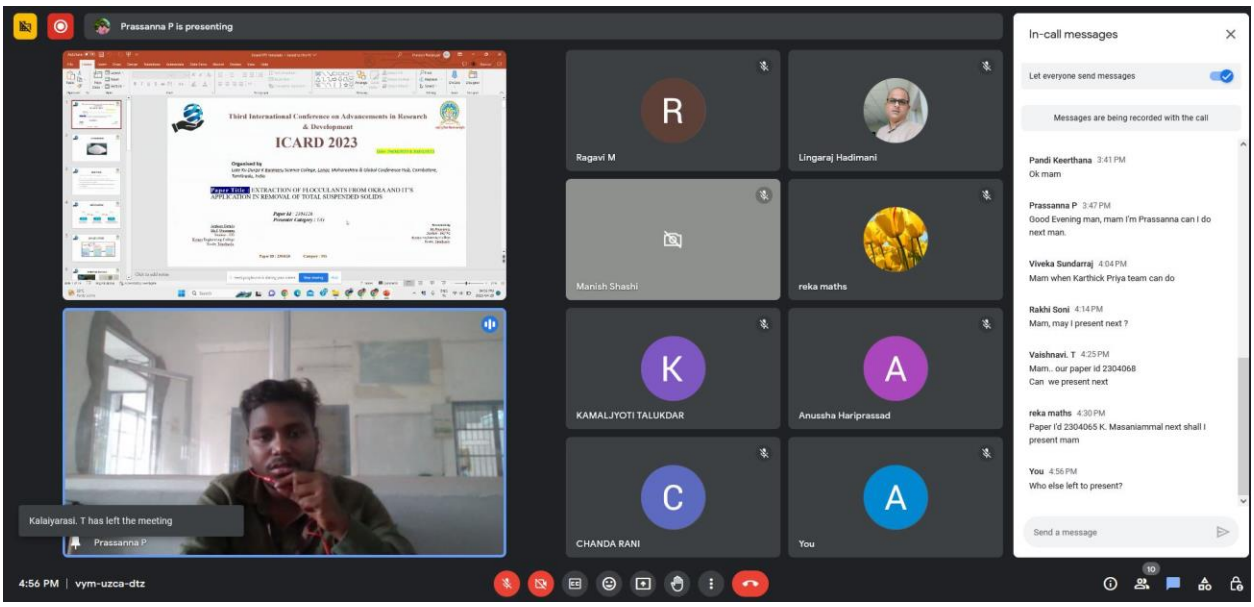
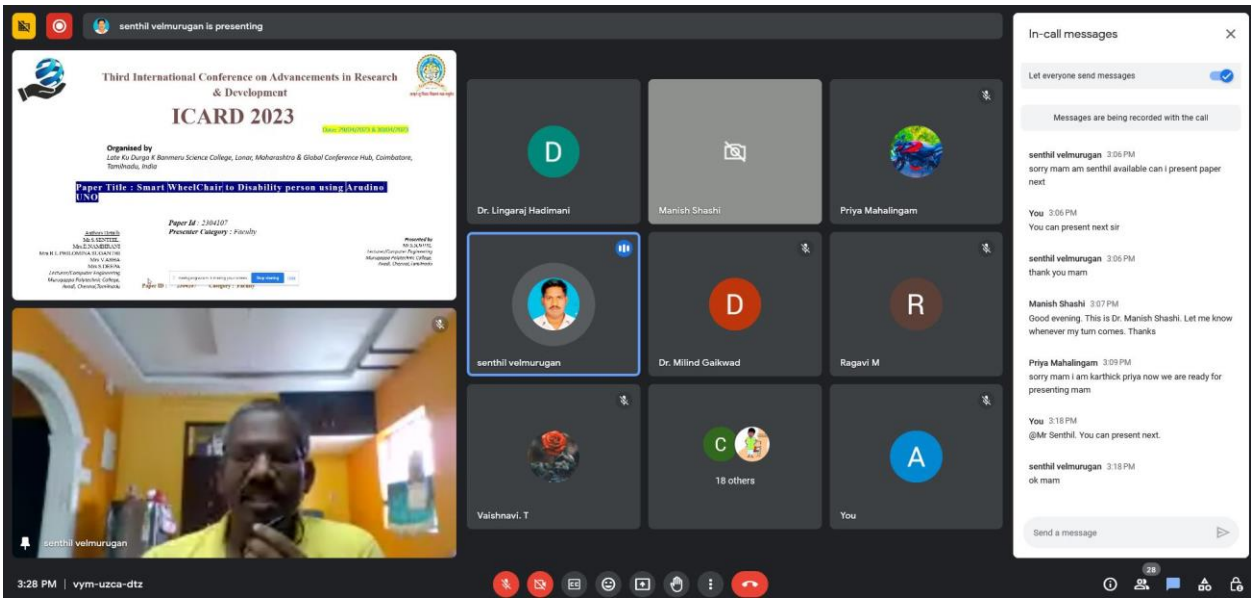


A Sample Presentation ICARD– 2023

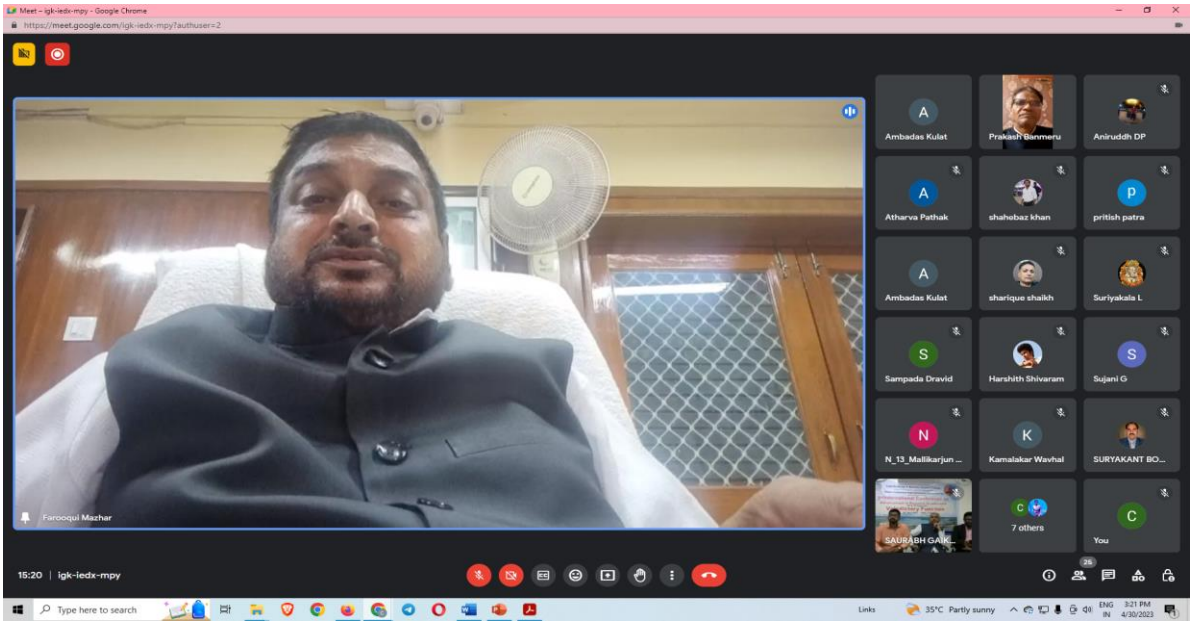


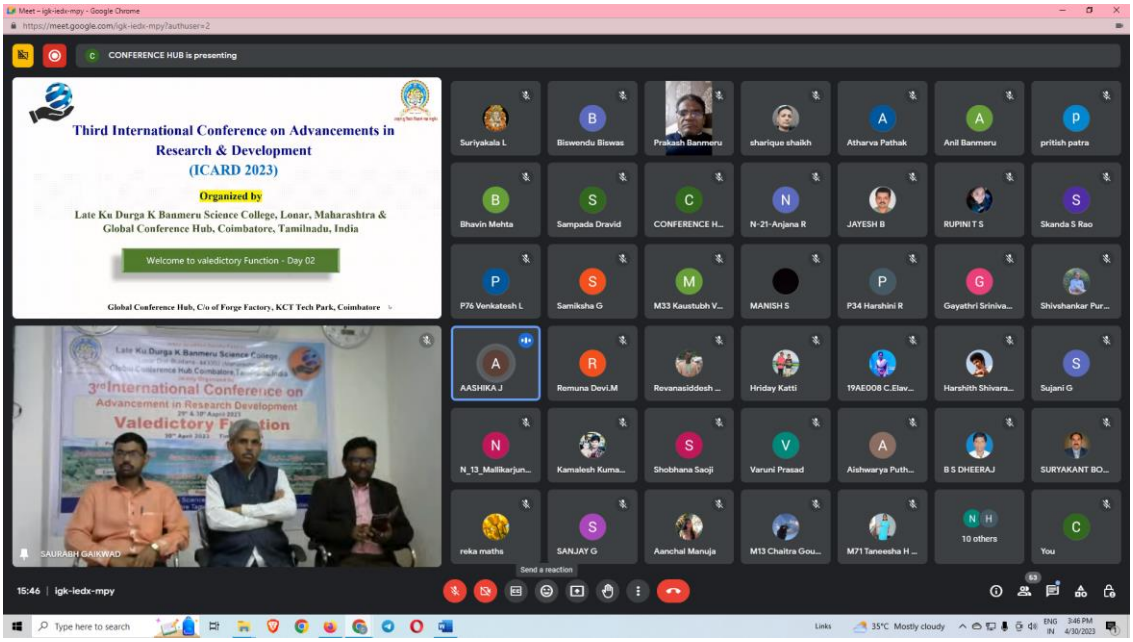



Prassanna P is presenting
Third International Conference on Advancements in Research & Development
ICARD 2023
Kalaiyarasi. T has left the meeting
Prassanna P
4:56 PM | vym-uzca-dtz
Ragavi M
Lingaraj Hadimani
Manish Shashi
reka maths
KAMALJYOTI TALUKDAR
Anussha Hariprassad
CHANDA RANI
You
In-call messages
Let everyone send messages
Messages are being recorded with the call
Pandi Keerthana 3:41 PM
Ok mam
Prassanna P 3:47 PM
Good Evening man, mam I'm Prassanna can I do next man.
Viveka Sundarraj 4:04 PM
Mam when Karthick Priya team can do
Rakhi Soni 4:14 PM
Mam, may I present next ?
Vaishnavi. T 4:25 PM
Mam.. our paper id 2304068
Can we present next
reka maths 4:30 PM
Paper I'd 2304065 K. Masaniammal next shall I present mam
You 4:56 PM
Who else left to present?
Send a message


senthil velmurugan is presenting
Third International Conference on Advancements in Research & Development
ICARD 2023
Paper Title : Smart WheelChair to Disability person using Arudino UNO
senthil velmurugan
3:28 PM | vym-uzca-dtz
Dr. Lingaraj Hadimani
Manish Shashi
Priya Mahalingam
senthil velmurugan
Dr. Milind Gaikwad
Ragavi M
18 others
Vaishnavi. T
You
In-call messages
Let everyone send messages
Messages are being recorded with the call
senthil velmurugan 3:06 PM
sorry mam am senthil available can I present paper next
You 3:06 PM
You can present next sir
senthil velmurugan 3:06 PM
thank you mam
Manish Shashi 3:07 PM
Good evening. This is Dr. Manish Shashi. Let me know whenever my turn comes. Thanks
Priya Mahalingam 3:09 PM
sorry mam i am karthick priya now we are ready for presenting mam
You 3:18 PM
@Mr Senthil. You can present next.
senthil velmurugan 3:18 PM
ok mam
Send a message

Valedictory ICARD– 2023

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Third International Conference on Advancements in Research & Development
(ICARD 2023)
Organized by
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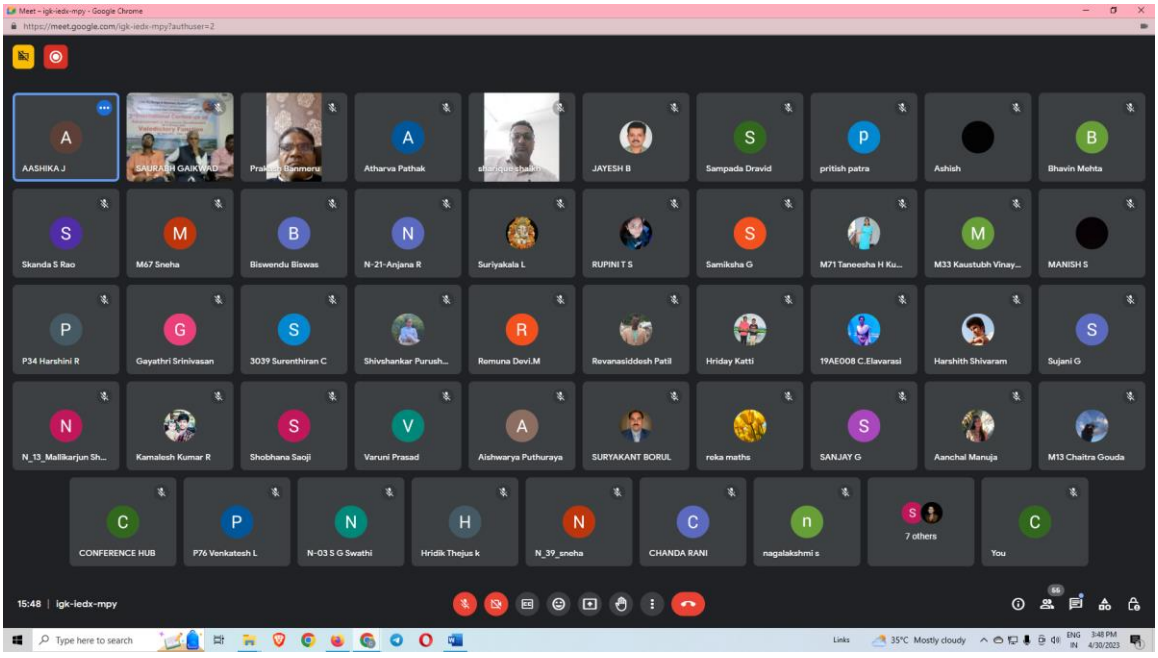
Global Conference Hub, Coimbatore, Tamilnadu, India
Welcome to valedictory Function - Day 02
Global Conference Hub, C/o of Forge Factory, KCT Tech Park, Coimbatore
3rd International Conference on Advancement in Research Development
Valedictory Function
SAURABH GAIKWAD
15:46 | igk-iedx-mpy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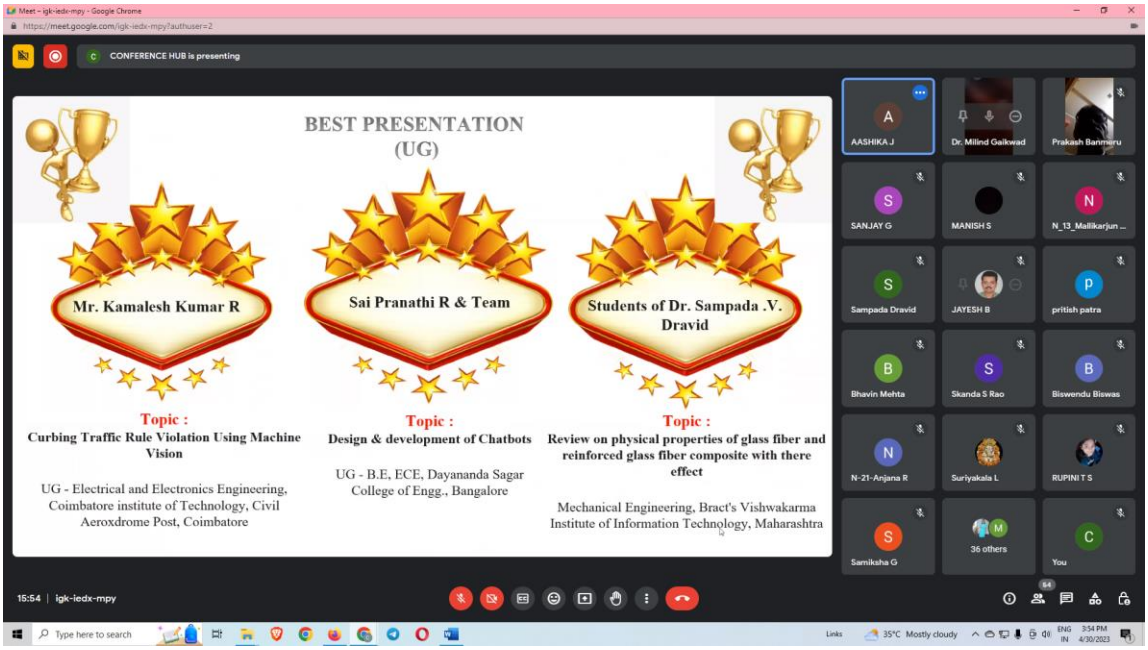
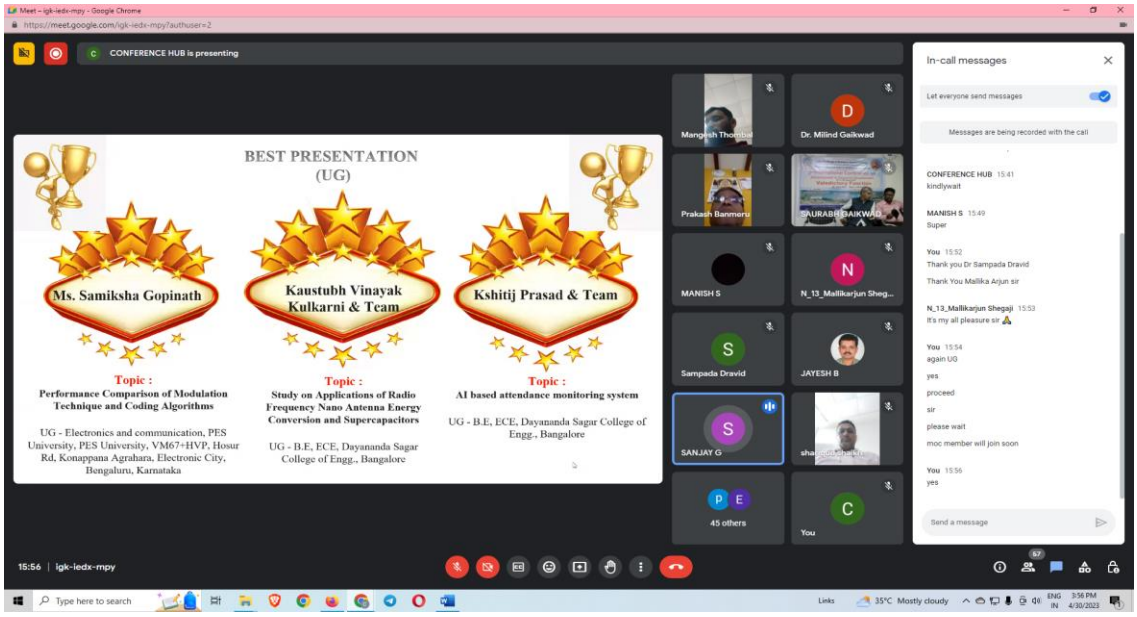
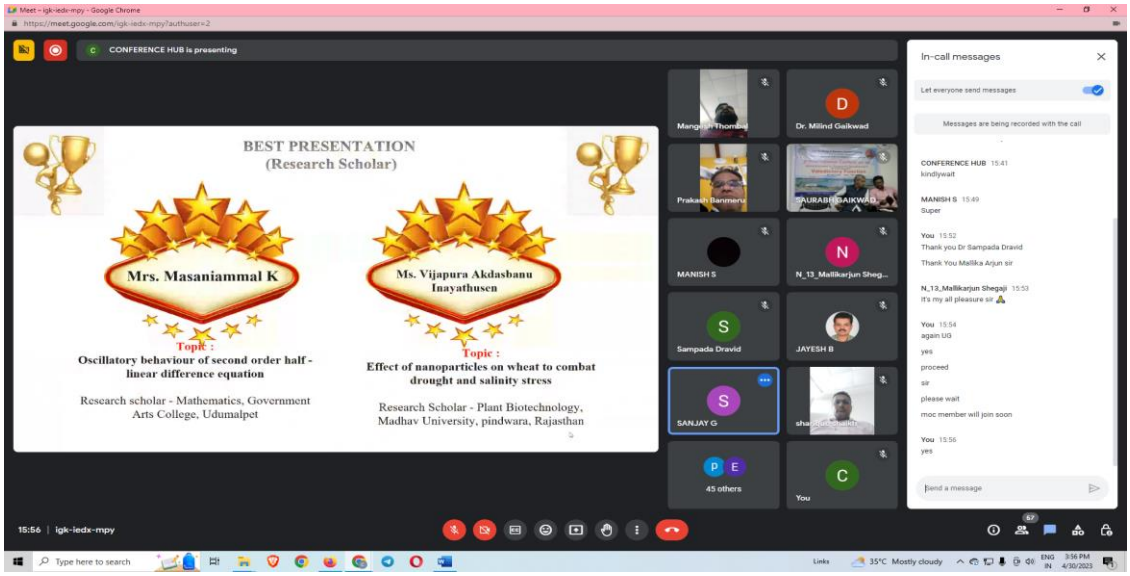
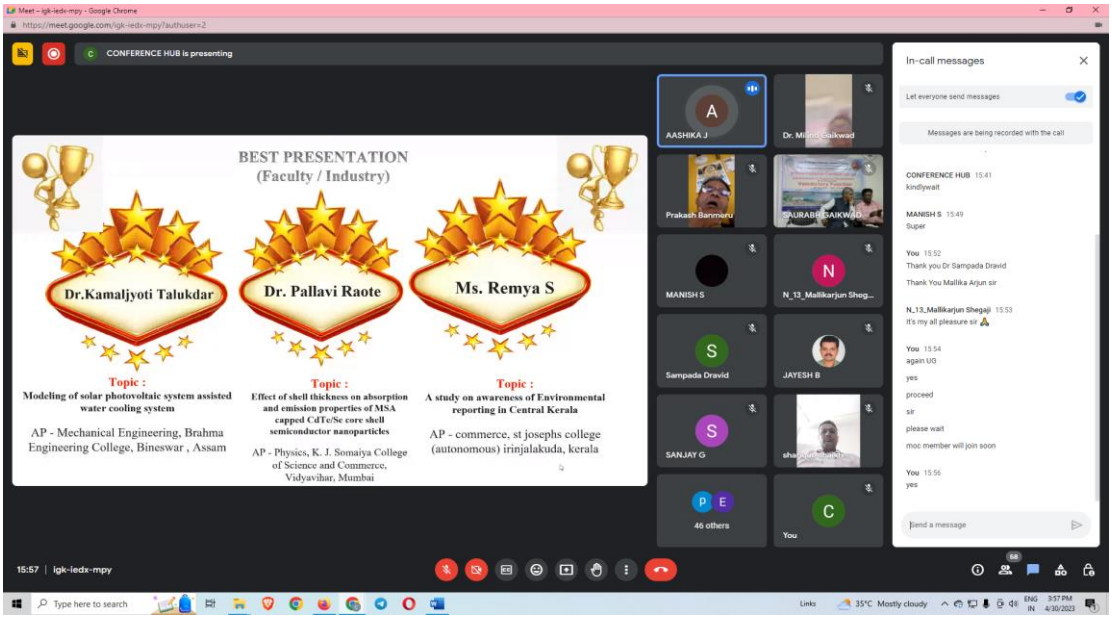
Best Presentation of ICARD-2023






CONFERENCE HUB is presenting
BEST PRESENTATION
(Research Scholar)
Mrs. Masaniammal K
Topic :
Oscillatory behaviour of second order half - linear difference equation
Research scholar - Mathematics, Government Arts College, Udumalpet
Ms. Vijapura Akdasbanu Inayathusen
Topic :
Effect of nanoparticles on wheat to combat drought and salinity stress
Research Scholar - Plant Biotechnology, Madhav University, pindwara, Rajasthan
In-call messages


CONFERENCE HUB is presenting
BEST PRESENTATION
(Faculty / Industry)
Dr.Kamaljyoti Talukdar
Topic :
Modeling of solar photovoltaic system assisted water cooling system
AP - Mechanical Engineering, Brahma Engineering College, Bineswar , Assam
Dr. Pallavi Raote
Topic :
Effect of shell thickness on absorption and emission properties of MSA capped CdTe/Se core shell semiconductor nanoparticles
AP - Physics, K. J. Somaiya College of Science and Commerce, Vidyavihar, Mumbai
Ms. Remya S
Topic :
A study on awareness of Environmental reporting in Central Kerala
AP - commerce, st josephs college (autonomous) irinjalakuda, kerala
In-call messages

INDEX

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ICARDAP1001

A Study on Awareness of Environmental Accounting and Reporting with Special Reference to Employees of Thrissur District

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ABSTRACT

Green Accounting is a popular term for environmental and natural resource accounting. It is an expanding field focused on factors like resource management and environmental impact, in to company's revenue and expenses. An attempt has been made to analyse the importance of Environmental accounting and reporting. The awareness level of Environmental accounting and Reporting was also examined. Green accounting will help organisations to identify the resource utilization and incurred cost. Practically for developing countries like India, it is a twin problem about saving environment and economic development. This method records costs and benefit of a business concern.

Keywords - Environmental Accounting-Environmental Reporting-Environmental Impact

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ICARDAP1002

Effect of Oxygen Enrichment of Intake Air on the Performance and Emission Characteristics of Diesel Engine

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ABSTRACT

The main purpose of this study is to investigate the effects of using oxygen enriched combustion (OEC) technology with diesel fuel on an experimental four stroke single cylinder diesel engine. In this experiment the effect of oxygen enrichment of air is checked at various loads. From the experimental results it is clear that with increase in oxygen enrichment of air, the brake thermal efficiency is increased 22% and brake specific fuel consumption is reduced by 18% for 20% additional oxygen supply at full load. With oxygen enrichment there is a considerable reduction in exhaust emission of the engine.

Keywords - Oxygen enriched combustion, Emission, Brake thermal efficiency

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ICARDAP1003

Leaf Spring Eye Thickness Optimization Using Solid Works and Ansys Performance Analysis

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ABSTRACT

Comparison Analysis of Leaf Spring with Eye Thickness of 18mm and 17mm Using Solid works, and Performance Analysis Using ANSYS " was the subject of a study. The specific load and Unladen load were used to compare the eye thicknesses of 17 mm and 18 mm. The leaf springs in the vehicles make the passengers more comfortable by reducing vertical vibration caused by the unevenness of the road geometry. When a spring loses its shape over time, the life of the spring decreases, which can cause the weight distribution on four wheels to change and make it difficult to handle. The cause of leaf spring failure is truck driving conditions such as braking, cornering, and path hole striking, which will exert tensional forces on the spring. Designing a suitable eye with increased thickness for a leaf spring can increase the life, and Static Structural analysis is performed to understand the life of the Steel leaf spring

Keywords - Leaf Spring, Static Structural, Thickness

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ICARDAP1004

Modeling of Solar Photovoltaic System Assisted Water Cooling System

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ABSTRACT

The main objective of this paper is to cool a definite amount of water pumped from underground to a definite temperature throughout the day in Guwahati city, Assam, India. 5 kg/s of water present at a depth of 10m, 18^{o}C is pumped to earth's surface by centrifugal pump and passed through evaporator of vapour compression refrigeration system with R-134a as refrigerant to obtain water of 4^{o}C. The study is made for January having lowest temperature, lowest solar radiation and May having highest temperature, highest solar radiation because if the system performs well in lowest and highest conditions, it will perform well throughout the year. Evaporator temperature for both January and May is maintained at 8^{o}C, condenser temperature at 22^{o} C, 30^{o}C in January and May respectively. The power requirement for centrifugal pump and compression refrigeration's compressor are supplied by 315 SW280 photovoltaic modules combined in parallel and 2 SW280 photovoltaic modules combined in series with 4117.015 Ah capacity batteries as backup during non-sunshine hours and night time.

Keywords - Centrifugal pump, Condenser, Compressor, Evaporator

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ICARDAP1005

IEEE 802.3 Performance Evaluation Under Dual Stack Environment

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ABSTRACT

As more IPv6 networks are deployed, approaches for dealing with issues concerning coexistence and interoperability between existing IPv4 networks and lately developed IPv6 networks have become increasingly significant. In this research work an ethernet network based on IPv4, IPv6 and Dual-Stack protocols has been designed. But because the IPv4 and IPv6 headers are incompatible, Interoperability between IPv4 and IPv6 has been advocated using a variety of approaches. The Dual-Stack method in IEEE 802.3 Ethernet is examined in this study. In an IPv4/IPv6 context, this study will examine performance of various protocols such as IPv4, IPv6, and Dual-Stack (IPv4/IPv6) in IEEE 802.3. The simulative comparisons have been used for IEEE 802.3 network modelling and testing its performance. The collected test results demonstrate the necessity of IPv6 in supporting the IEEE 802.3 on the Internet in terms of Ethernet Delay, Email Traffic, point-to-point throughput and other performance parameters taken into account in this research.

Keywords - IEEE 802.3, Ethernet, IPv4, IPv6, Dual Stack Environment

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ICARDAP1006

Analysis of Rainfall, Humidity and Temperature During the Year January 1990 To December 2020 In Solapur District, Maharashtra State, India

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ABSTRACT

Climate change has become a global issue that is taking a toll on the agricultural sector. This study has focused on climate change in the Sholapur area of Maharashtra State, India. It is necessary to investigate the local meteorological characteristics using various statistical techniques to verify or regulate such a situation. To check the trend, meteorological data from the Solapur district, including rainfall, humidity, and temperature data, were analysed by using the Man-Kendall test, and regression analysis was used to check the positive or negative trend. The result from an analysis of trends reveals that there is an increasing trend in both the annual average maximum temperature and the annual average humidity. There is no significant trend in the average yearly rainfall pattern.

Key words: Climate Change, humidity, rainfall, Solapur district, temperature.

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ICARDAP1007

Curbing Traffic Rule Violation using Machine Vision

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ABSTRACT

According to a 2017 report of the Bureau of Police Research there are 20 crore registered vehicles for 72,000 traffic police. Though the number of traffic police have not changed much the number of vehicles has gone up to nearly 30 crore in 2022. Many drivers know that the probability of getting caught is very less. So, traffic rules like speed suggestions are taken more as a suggestion than a rule to be followed. This leads to many road accidents. The National Crime Record Bureau data on the accidental deaths in India shows the number has increased from 3,54,796 in 2020 to 4,03,116 in 2021.the fatalities have increased by 16.8 percent. The Cause-wise analysis reveals that most of the road accidents were due to over speeding accounting for 2,40,828 out of 4,03,116 cases (59.7%) causing 87,050 deaths and injuring 2,28,274 people. This project aims to reduce these over speeding violations by processing the CCTV camera footage to identify the violators and warn them and to fine the repeat violators. With the ever-increasing number CCTV cameras being installed across India and knowing that they are constantly monitored by the authorities will push the drivers to follow the rules more strictly

Keywords - YOLO, Image Processing, Open CV13.

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ICARDAP1008

Rural Poverty and Small land holdings in Gudibanda

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ABSTRACT

Gudibanda a small town in Chickkaballapur district has been selected to study whether small land holdings can remove rural poverty. Five villages were earmarked and 200 samples collected from these villages where simple random sampling was carried out to find if the relation between rural poverty and farmers with small fragmented lands.Most of these small farmers grew vegetables such as brinjals, cowpeas, tomatoes, potatoes and beans. Also commercial flowers such as jasmine, roses, tuberoses and yellow crysanthamums were also cultivated. They earned a very small income of Rs 500 per month for vegetables and around 2000Rs to 2300Rs per month for flower sales that too during the festival months of January to April 2023.Their earnings depended mainly on the market prices that's the selling rate of the main vegetable market in Gudibandasanthe or village fair. They also sold outside their villages in small groups and also tried transporting to Gudibanda main market. Can cultivating all these small vegetable farms bring income and sustain these flower and vegetable cultivators? Water scarcity coupled with lack of rural employment measures like MNREGA were the root cause of their problems. It was also the main reasons for rural urban migration.The main objective was to see if the cultivation of small farms could fetch moderate income for the farmers. The main suggestion was to adopt cooperative farming minus the problem of middlemen, how to solve the problem of selling in vegetable markets and finally to tackle the problem of rural unemployment and water scarcity.

Keywords: rural poverty land reforms act middlemen unemployment fragmented land holdings.

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ICARDAP1009

AQUA PHYTOBIOTICS
…….THE AQUA HERBALS….

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ABSTRACT

The platform utilized for buying, selling, and exchanging crypto currencies for other currencies is known as a crypto currency exchange. Conventional techniques of processing the details and storing them is done using block chain. Via a separate and collective platform for transactions, record-keeping, and data management, block chain technology can play a crucial part in company workflows. Existing frameworks use a single block to store the user and transaction details, but these methods lack the aspect of dependability. In this project proposal, two block chains were used to create a framework for a transaction management system and block chain-based smart contract. This suggested system seeks to separate contract deployment and transaction details and store it in separate block chains. Along with that, the use of k-anonymity property can help to further increase the security of transaction and storing details.

Keywords - Blockchain, Smart contracts, Transaction

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ICARDAP1010

Performance Comparison of Modulation Technique and Coding Algorithms

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ABSTRACT

Transforming information-carrying signals from source to destination is called the process of communication. We carry out modulation for long-distance transmission by transmitting the message signal after modifying the carrier wave's phase, frequency, or phase. Channel coding is used for error detection and repair. In this project, we use MATLAB to model the modulation methods M-PSK and M-QAM and compare them to bit error rates (BER). We model channel equalization strategies such as Maximum Likelihood (ML) beamforming, Minimum Mean Square Equalizer (MMSE), and Zero Forcing Equalizer (ZFE). To increase the reliability of communication in the presence of fading we simulated a multiple input multiple output system with diversity using MATLAB. We compare the capacity of multiple input multiple output (MIMO), single input multiple output (SIMO), single input single output (SISO) and multiple input single output (MISO) and capacity of a MIMO system for a different number of transmit and receive antennas. We simulate the performance of MIMO with Alamouti coding in presence of Rayleigh fading. We also simulate the performance of various multiple access techniques orthogonal frequency division multiple access (OFDMA), single carrier frequency division multiple access (SCFDMA), code division multiple access (CDMA) using gold codes.

Keywords - BER, CDMA, MIMO, ML, MMSE, MISOM-PSK, M-QAM, OFDMA, SIMO, SISO, SCFDMA, ZFE

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ICARDAP1011

Quality Assessment of Water of the Lonar Crater in Rainy Season

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ABSTRACT

Lonar crater is the natural water body and unique ecosystem with its own feature in Buldhana district of Maharashtra state in India. It is the crater formed by hyper velocity two million-ton meteorite the impacted on the earth. It was formed by hyper velocity meteorite impact and situated in the basaltic terrine. Lonar crater is the third largest natural saline-water lake in the world. The crater possesses the smallest forest sanctuary with great biological diversity. The crater is 150 meter in depth and is absolutely confined from all sides by the walls of the crater. There is not a single channel of water draining away from it, there by leaving the crater waters stagnant from thousands of years. Now a day's many human activities creates the pollution in and around the water body, due to which natural status of this crater may come in the danger zone of water pollution. In this connection the study were carried out in which water of Lonar crater were collected and analyzed for their physico-chemical characteristics in rainy season to report the status of water quality of Lonar crater.

Keywords - Lonar crater, Crater Water, Physiochemical analysis.

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ICARDAP1012

Bianchi Type-III Cosmological Model in $f(R,T)$ Theory of Gravitation

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ABSTRACT

In this paper, we have studied the Bianchi type-III cosmological model in the within the framework of $f(R,T)$ theory of gravity. Field equations are solved using relation between the metric potentials. Some important cosmological parameters like Hubble parameter, Anisotropy parameter, shear scalar etc. are deduced. The physical and geometrical aspects of the model are also studied. The main objective behind this paper is to investigate some physically significant aspect the universe using this model.

Keywords - Cosmology, Gravity, Bianchi, Hubble

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ICARDAP1013

Diversity of Fresh Water Fishes from the Khadkpurna Reservoir of Maharashtra, India.

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ABSTRACT

Fish is a significant source of nourishment for mankind. The primary goal of the study is to understand the area's fisheries potential and edible wild fishes. The information gleaned from the current study is valuable in a number of other ways, too, such as helping researchers and fishermen alike understand the tolerance and diversity of fish found in the Khadapurna Reservoir and selecting the precise mix of fish species for culture in order to maximise yield. Six different sites were chosen for fish collection, all of which are regularly used for fish farming by farmer societies. Present study finds 22 species of fishes belonging to 06 orders, 11 families and 19 genera from the study area. *Cypriniformes* like the *Labeo rohita*, *Catla catla*, *Cirrhinus mrigala*, *Cyprinus carpio, Labeo boggut, Garra mullya,* and *Puntius sophore* Most prevalent species included *Cirrhinus reba, Rasbora daniconius* (*Hamilton Crossocheiluslatius Hamilton*), and *Salmostoma sp.* This paper discusses the diversity of the aforementioned species in detail.

Key words: Fish Diversity, Fresh water, Khadkpurna, Maharashtra, India

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ICARDAP1014

Phishing Website Detection Using Machine Learning

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ABSTRACT

Phishing website detection is a critical problem in cyber security. Machine learning approaches have been successfully employed to automatically identify and classify phishing websites. In this context, the main challenge is to select and engineer effective features that capture the relevant characteristics of phishing websites. Various machine learning algorithms have been explored for this task, including decision trees, random forests, support vector machines, and deep learning models. This approach involves the use of historical data to train a model that can then be used to classify new, unseen websites as phishing or legal.

Keywords - Phishing websites, Machine learning, Feature Extraction, Cyber security, Detection

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ICARDAP1015

A Study on the Gamma-ray Attenuation coefficient Parameters for Potassium Carbonate

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ABSTRACT

The linear attenuation coefficient (LAC) and mass attenuation coefficient (MAC) are most important while studying of radiation, radio-isotopes in dosimentry and irradiation of materials. In the present work to calculate linear attenuation coefficient (LAC) and mass attenuation coefficient (MAC) values of different salts samples by using Gamma-ray spectrometry with Photo-Multiplier Tube (PMT) and Multi-Channel Analyzer (MCA). The 0.123, 0.511, 0.662, 1.17, 1.28 and 1.33MeV gamma energy rays used for the experiment in the interaction of Potassium carbonate salt samples and compared the Mass attenuation coefficient (MAC) values of salt samples. The obtained gamma-ray spectra were analyzed using computer software.

KEYWORDS - Gamma-ray attenuation parameters, Gamma-ray spectrometry, Potassium Carbonate.

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ICARDAP1016

Polar Coding in 5G Systems

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ABSTRACT

Polar Coding is a type of line coding that offers good error correction performance across a range of coding rates and block lengths. In the case of enhanced mobile broadband communication service (eMBB) for uplink and downlink control information, polar codes are used as channel coding scheme. Two other frameworks foreseen by 5G include massive machine-type communications (mMTC) and ultra-reliable low-latency communications (URLLC). Successive cancellation decoder is most commonly used in the decoding of 5G polar codes. After generating the bit sequence, the process of polar encoding starts, and Successive Cancellation Decoding or Successive Cancellation List Decoding algorithm can be used for decoding the bits. Repetition, puncturing and shortening are the different rate matching techniques that can be used. This paper presents the encoding and decoding chain in 5G systems using MATLAB.

Keywords - Polar codes, Successive Cancellation decoder, Successive Cancellation List Decoder, repetition, puncturing, shortening

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ICARDAP1017

Plagiarism Detection for Project Report using Machine Learning

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ABSTRACT

Plagiarism is an unethical act of using someone else's work or ideas without giving them credit, which is a growing problem in various fields. However, the current systems for plagiarism detection require revealing the full content of input documents and document collections, which can raise procedural and legal concerns regarding data confidentiality, limiting or prohibiting the use of plagiarism detection services. To address these issues, we aim to create a plagiarism detection approach that doesn't need a centralized provider or expose any content as clear text. Our research has produced initial results showing that our content-protecting method achieves the same detection effectiveness as the original method while making it practically impossible to reveal the protected content through common attacks. Various techniques, such as manual detection, text similarity analysis, and automated plagiarism detection using machine learning, have been developed to prevent plagiarism. This paper focuses on machine learning techniques for plagiarism detection and discusses different approaches, algorithms, and datasets used in detecting plagiarism, along with their advantages and limitations. The paper also presents some future research directions in this area.

Keywords - Plagiarism, Confidentiality

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ICARDAP1018

A Fire Detection System Using Deep CNN for Effective Disaster Management

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ABSTRACT

A fire detection system is an essential component of any building's safety system. Its primary function is to detect the presence of a fire in its early stages and alert the occupants of the building, allowing them to evacuate safely and quickly. Fire is one of the dangerous events which can result in great losses if not controlled on time. The project mainly is based on image processing and Depp CNN. The model uses images that contain both fire and non-fire elements as a dataset for training. Fire spreads quickly, hence detection of fire events in early phases and alerting the same is very essential. The traditional system typically consists of several components, including smoke detectors, heat detectors, and alarms, that work together to provide reliable and timely detection of a fire. Modern fire detection systems use advanced technologies, such as intelligent algorithms and machine learning, to improve their accuracy and reduce false alarms. Additionally, some systems can integrate with other building systems, such as sprinklers and ventilation, to provide a comprehensive fire safety solution. A well-designed and properly maintained fire detection system can save lives and prevent property damage in the event of a fire. In our proposed system we have created a fire detection System based on Image Processing. The system uses the CNN algorithm which detects the fire from the Images and videos and for live fire detection, we have used the Haar cascade algorithm

Keywords - Fire Detection, Image Processing, CNN algorithm, Haar cascade algorithm

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ICARDAP1019

Smart Energy Meter Using IOT

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ABSTRACT

The wireless monitoring system of energy meter using Blynk application via smart phone. In addition, the over consumption of energy notification as an optional Features embedded in this system. Due to the advance recent technology in tandem with the Internet of Things (IoT) can be also applied in advance as an application of Artificial Intelligence (AI)into a manual device, transitional to an automated device such as smart meter that helps the smart cities to have an efficient energy management system as an ewconcept. This system used ESP32 as a micro- controller board with WiFi module to provide IoT communication with IoT platform such as Blynk application. The prototype designed intends to monitor daily energy consumption in the smart phone application interfaced with Blynk server and also provide awareness to save electricity through notification using Blynk features by the smart phone application. We need to select the current sensor as well as the voltage sensor so that the current & voltage can be measured and thus, we can know about the power consumption & total power consumed.

Keywords - Energy meter, Internet of Things (IoT), WiFi, Blynk application

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ICARDAP1020

Reuse of Hazardous Wastes in Construction Materials

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ABSTRACT

Production and consumption of goods and services has been leading to the generation of various kinds of wastes and these wastes are usually dumped in landfills. It is damaging to human and environment as the dumped wastes can contain harmful chemicals. Hence, we have to switch to other ways for the management of these wastes. It is possible for some waste to reduce their toxicity levels to a safer level after undergoing some treatments and are dumped later. Scientists are also working on some wastes to reuse in various applications. In this work of study, we tried to give an overview on what kind of wastes can be reused in construction industry. If experiments are successful, construction industry can provide a large scope for the reuse of hazardous wastes. It also helps to reduce the consumption of natural resources such as aggregates, sand, rocks, coal etc. In this review work, we also discussed about the products manufactured from hazardous wastes and their potential in reuse as construction material.

Keywords - Hazardous waste, reuse, construction material

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ICARDAP1021

A Study on the Gamma-Ray Attenuation Coefficient Parameters for Potassium Carbonate

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ABSTRACT

The linear attenuation coefficient (LAC) and mass attenuation coefficient (MAC) are most important while studying of radiation, radio-isotopes in dosimentry and irradiation of materials. In the present work to calculate linear attenuation coefficient (LAC) and mass attenuation coefficient (MAC) values of different salts samples by using Gamma-ray spectrometry with Photo-Multiplier Tube (PMT) and Multi-Channel Analyzer (MCA). The 0.123, 0.511, 0.662, 1.17, 1.28 and 1.33MeV gamma energy rays used for the experiment in the interaction of Potassium carbonate salt samples and compared the Mass attenuation coefficient (MAC) values of salt samples. The obtained gamma-ray spectra were analyzed using computer software.

KEY WORDS - Gamma-ray attenuation parameters, Gamma-ray spectrometry, Potassium Carbonate.

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ICARDAP1022

Analysis of Zooplankton Diversity in Purna River Aurangabad Maharashtra

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ABSTRACT

The present study was undertaken to study the zooplankton diversity of the Purna River. The Purna River is a major left-bank tributary of the Godavari River originating in the Ajanta Range of hills in Aurangabad District, Maharashtra. The zooplankton community is an important element of the aquatic food chain. These organisms serve as intermediary species in the food chain. The present investigation was carried out for 6 months i.e., from June 2021 to December 2021. Three major groups of zooplankton were studied (Rotifera, Copepoda, Cladocera). A total of five species of zooplankton were recorded, among these three species belonging to Rotifera (*Asplanchna priodonta*, *Brachionus bidentata*, *Filinia terminalis*) one species of Copepoda (*Mesocyclops hylanus*) and one of Cladocera (*Ceriodahnia cornuta)*.

Keywords - Rotifera, Copepoda, Cladocera, zooplankton diversity, Purna River

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ICARDAP1023

Eco-Printing: Domestic Technique of Textile Printing using the Leaves of Rose Indica

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ABSTRACT

Clothing is one of the basic needs of human being; it has many functions like protection, identification, modesty, status and adornment. Human beings always loved to adorn their body and clothes by various techniques of value addition. Printing their clothes with colours are one of them. There are many printing techniques which can be used to print the clothes at domestic level like block printing, screen printing, stencil printing, hand printing etc. One of the latest techniques is eco printing. It is a technique of printing clothes by putting various parts of plants into the layers of fabric and steaming them for specific time period. Rose Indica (Rose flower) have many medicinal property, petal of rose flower is used in various edible and cosmetic products, but almost in all cases the leaves of this plant is discarded. In this experimental study an effort has been made to develop botanic print of rose leaves on silk and cotton fabric, standardizing the process and testing the colourfastness of the prints. Developed prints were tested for colourfastness to washing, dry cleaning, perspiration, rubbing, and sunlight exposure by following various ISO and AATCC standards, as no harmful chemicals were used, the developed products are also considered as eco-friendly. Results shows that the rose leaves printed cotton fabric develop clear print on fabric with bright colours; it also produces excellent colour fastness to washing, perspiration, dry cleaning and crocking but it exhibit poor colourfastness to exposure to sunlight.

Keywords - Eco-Printing, Rose Indica, ISO-Standards, AATCC Standards, Eco-Friendly.

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ICARDAP1024

Wireless EGG Deploy Brain Computing Interface using Miniature Wheelchair

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ABSTRACT

Brain–computer interfaces (BCIs) or mind machine interface (MMI) is the direct communication path between brain and external devices. Currently it is difficult for the persons suffering from stokes amyotrophic lateral sclerosis (ALS) lead to complete paralysis and cannot communicate with the real world. Therefore the BCI system may be used to improve the quality of life of such patients. In this paper we overcome this challenge by introducing a BCI system which helps the patient to navigate the wheelchair from one place to another based on motor imagery model to control a brain actuated wheelchair. This allows the user to control the direction for four movements left turn, right turn, forward and backward movement, of the simulation or real wheel chair. The wheel chair also learns to navigate inside the house and user can select the destination by his eye blink which was detected by using EEG signals of the brain and the users confirm one target through a P300-based BCI. Three different machine learning algorithms are used to classify human intention to move to the desired direction, K-nearest neighbour algorithm, support vector machine algorithm, and artificial neural network. The highest accuracy achieved is 79.2% for support vector machine algorithm. The results prove that the system can be used for medical purposes successfully and the concept can be extended for other applications.

Keywords: Wireless EEG, Brain impulses, Human Intenss, Help paralysis, Machine Learning Algorithm

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ICARDAP1025

A Review on Medicinal Plant Extract as an Antimicrobial, Antibacterial and Antifungal

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ABSTRACT

Systemic bacterial and fungal infections have increased in recent years as a result of an increase in the amount of disabling disorders that affect the immune system, such as AIDS, blood cancers, overdose, corticosteroid medications, and broad-spectrum antibiotics. Acute and subsequent candida infections with drug-resistance features, such as fluconazole, are common. Because of the frequency and spread of fungal and bacterial illnesses, the search for remedies is more intense than ever. Because of their unique biocompatibility and bioavailability, plant chemicals are beneficial in the treatment of fungal and bacterial infections. The market for new antifungal and antibacterial drugs remains tiny, although resistance to many antibiotics is growing, particularly in patients receiving long-term treatment. Given the vast antibacterial potentials of natural chemicals derived from plants and endophytes, as an alternate source remains poorly unexplored. Endophytes and medicinal plant species have primary and secondary compounds that can hinder or inactivate infections. Many researches on the antibacterial and antifungal properties of these metabolites have recently been published.

Key words: Antimicrobial, Antibacterial, Antifungal, Phytochemical, Secondary metabolites

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ICARDAP1026

Review on Manufacturing and Testing Processes of Wood-Plastic Composites

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ABSTRACT

Now-a-days everyone is aware of the disadvantage of Plastic and its various products. Around 300-400 tonnes of plastic waste is generated every year. This also results in man environmental pollution as well as human health issues. But, this doesn't mean that we completely don't need plastic. It has much application in the field of composites which is trending as well as a good alternative of wood. Composite materials have significant strength as well as stiffness. They are also light in weight and long lasting. But, its application is limited to some fewer areas. On the other hand, wood have high straight compare to composite materials but come with disadvantage like hydrophobic material, on-fireproof, on-termite resistant. But when you mix plastic and wood we get wood-plastic composite eliminating many disadvantages of plastic as well as wood. Here, we have manufactured WPC considering different composition of composite as well as wood (60-40%, 70-30%, and 80-20%). Composites used are High-Density Poly-Ethylene (HDPE), Low-Density Poly-Ethylene (LDPE), Polyvinyl Chloride (PVC).Further after manufacturing of WPC testing of WPC was carried out. Different Types of Mechanical, Physical and chemical test were carried out.

Keywords - Composite Materials, wood-plastic composites, HDPE, LDPE, PVC, Natural bamboo fibres, On-termite resistant**.**

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ICARDAP1027

Design and Development of S-Scheme Visible Light Active Nano Photocatalysts for Decomposition of Toxic Dyes and Kinetic Studies

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ABSTRACT

A visible light active S-scheme nano photocatalyst g-C_3N_4/ZnO/CdS was prepared using a two-step method. First graphitic carbon nitride(g-C_3N_4) was synthesized by pyrolysis method, a simple method that included heating urea in a muffle furnace at 500 °C for two hours at air-tight conditions. The temperature was reduced to obtain graphitic carbon nitride(g-C_3N_4) and it was characterized by XRD. In the second step, the calculated quantity of g-C_3N_4, $ZnCl_2$ and $CdNO_3.4H_2O$ in presence of Thiourea, ground well and heated in a crucible at 300 °C for four hours at atmospheric conditions. The desired product g-C_3N_4/ZnO/CdS was obtained. The obtained photocatalysts were characterized through XRD, FTIR, SEM and UV-DRS. The composite obtained is a promising nano photocatalyst in the degradation of toxic dyes which are disposed mainly from textile industries into environments that are carcinogenic in nature. The degradation of Indigo Carmine dye was carried out under the action of UV light and the time of degradation was observed. The results were recorded and kinetic studies were carried out by observations recorded using UV-Visible Spectrophotometer. The kinetic study indicated that the photodegradation process was best described by the pseudo-first-order kinetics and adsorption followed Langmuir–Hinshelwood model.

Keywords: S-scheme photocatalyst, Indigo carmine dye, Visible light, Photocatalysis, Kinetics.

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ICARDAP1028

Design and Fabrication of Indoor Air Purifier & Humidifier in Food Industry

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ABSTRACT

In 2021, air pollution has gone beyond all limits. According to the WHO, 7 million people die annually as a result of air pollution. A whopping 91 percent of the world's population is now exposed to air pollution due to its wide distribution. This also implies that the air within your home is contaminated. In order to address this problem, we have developed a small air purifier that employs water as an air filter rather than pricey filters. Additionally, it functions as an air humidifier. The design and development of the next-generation indoor air purifier is the subject of this thesis. The project was carried out using a human-cantered design process, and a patient was the end outcome. The system uses two high performance, low noise centrifugal fans to draw air through a safety mesh. At the bottom of the purifier, there is a water tank through which the air is pushed and subsequently passed. Water catches dust, fungi, germs, and other contaminants, which causes the air it passes through to be automatically cleansed. If you suffer from asthma or another breathing difficulty, you may find a HEPA (sometimes defined as "high-efficiency particulate air," sometimes as "high-energy particulate arresting") air purifier (or a vacuum with a HEPA filter) well worth the investment.

Keywords— Air purifier, Air Humidifier, Water filter, Air pollution, Air quality

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ICARDAP1029

Design & Fabrication of Quad Processing Machine

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ABSTRACT

In this project, the quad processing machine for cutting, shaping, grinding and drilling machines is kept to be in same attachment. This eliminates the risk of material handling and to the machine table. This unit is driven by 0.25 H.P. three phase motor of 1440 rpm. This is linked with the cast-iron (CI) slider. This enables the slide to get the rotation movement into reciprocating motion having a stroke length of 75mm. The head of the slotting can be tilted to be getting the shaping machine at a desired angle. The head is welded to the slider at the bottom edge. In this machine there can be one operation will be done which is slotting or shaping operation. In the tool head, a slot & tapped holes are provided for holding the tool. According to the height of the job the head can be moved up or down by means of column and can be fixed using a clamp provided. If a table with a machine vice having longitudinal moment is attached to the machine, the setup can be used for machining slots and shaper in small jobs like pulleys etc. Instead of MS sheet, if CI is used for body and other parts it will have longer life, less friction, better lubrication and the production cost will also be low. This machine can also be used for production of small washers by punching if suitable dies and brake arrangement are fixed.

Keywords - Quad Processing Machine – Drilling, Cutting, Grinding, Shapping

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ICARDAP1030

Li-Fi Based Health Monitoring System for Infants

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ABSTRACT

The objective of the project is to design an infant health monitoring system based on LI-FI Technology. In this project we are continuously monitoring an infant through LI-FI Technology, it transmits data faster than WI-FI. The patient parameters are quickly transmitted via LI-FI transmitter, and it is received by LI-FI Receiver. For each parameter different sensors are used to monitor patient health in real time. We are transmitting and receiving data via LI-FI Technology. The sensors like SpO2 sensor for monitoring patient's blood oxygen saturation and pulse level, temperature sensor is used to monitor patient body temperature, All these parameters are stored in Arduino microcontroller and then it will be uploaded and Receiver receive a data from LI-FI transmitter and it will be displayed, In case of emergency doctor can provide treatment for the particular infant based on the parametric value. This method is efficient than conventional systems. The main advantage of this project is implementation of LI-FI technology for faster data transmission and to avoid the presence of electromagnetic radiations.

Keywords – Blood Oxygen Saturation level, Light Fidelity, Global System for Mobile communication

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ICARDAP1031

IOT Based Pregnant Woman Health Monitoring System

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ABSTRACT

The developing countries such as India has more population in the rural areas than urban areas. The people in those areas are not aware of new health issues, and they are not amalgamated for sharing their medical information. In some rural areas the pregnant women are unable to do their normal check-ups during their pregnancy time. This can cause risk in the life of both mother and the child. Due this inefficiency, the number death count of new are more compared to the urban areas. As a remedy for this a situation we are suggesting a system, that contain a accelerometer sensor is designed to measure the kike/force by the fetus and it is transfer to the ARDUINO UNO controller. Movement of the baby and some vital parameter such as Blood pressure, Heartbeat rate, temperature of the mother is measured using various types of sensors. The measured parameters are transmitted by IoT and is displayed. This system is a portable system and can be used in home by the women by their self. Another implementation way in the rural area is by giving the system to the nurse who work in the primary health centre in that particular area. Ultra sound scanning is used now a day, which is expensive which cannot be affordable for the poor in the rural areas. The parameter are recorded and can be used for future medical examination. We use IoT module to calculate the normal and abnormal rate and also enable the gynaecologist to access the date from the cloud

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ICARDAP1032

Effect of Nanoparticles on Wheat to Combat Drought and Salinity Stress : Review

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ABSTRACT

A significant obstacle to maintaining global crop productivity and food security is drought stress (DS). With the current rapid climate change and intensifying drought, nanoparticles (NPs) have become a fantastic instrument to increase crop productivity. DS interferes with cellular membranes, nutrient and water uptake, the photosynthetic system, and antioxidant activities, which have a negative impact on plant development and physiological and metabolic processes. When NPs are applied, the membranes are protected, the water relationship is maintained, and the nutrient and water intake is improved, which significantly increases plant development under DS. NPs shield the photosynthetic machinery and enhance photosynthetic efficiency, osmolyte, hormone, and phenolic accumulation, antioxidant activities, and gene expression, giving plants more tolerance to DS. Due to the ability to be applied by both seed soaking and seedling foliar application at various growth stages of the plant, chemical treatment is one of the encouraging methods to improve the drought tolerance of wheat. In this study, the effects of different chemical treatments on wheat physiology and drought production were assessed. Continuous climate change has a negative impact on crop productivity, especially wheat farming. It has been determined that chemical treatment can stabilise the effects of drought on wheat by enhancing the activity of hormones and enzymes that are responsive to drought, as well as by increasing the production of stress proteins and antioxidant enzymes to prevent the generation of reactive oxygen species. In order to maintain wheat's typical physiology in response to changing climates, drought resistance has been improved by the application of various chemicals with pre- and post-emergence treatment. For a successful treatment strategy, it is also important to explore potential priming chemicals and assess molecules with various development phases, chemical combinations, and treatment modalities.

Key words - Nano- Particles, Drought Stress, Photosynthesis, Salinity

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ICARDAP1033

Fabrication of Pneumatic Powered Automatic Sugarcane Bud Cutting Machine

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ABSTRACT

In India, the traditional system of sugarcane cultivation uses 6 to 8 tons of seed cane per ha, which is made up of about 32,000 pieces of stalk with 2 to 3 buds. Cane sets, or cuttings with one, two, or three buds, are used as seed. The current (traditional) equipment used for sugar cane bud cutting are dangerous, untidy, and need expertise and training. A sugar cane bud cutting machine must be developed since the risk of harm is too great. The fast proliferation of new cane kinds offers enormous potential for the bud chip technology. When the prototype was put to the test, the first findings showed that, in comparison to conventional tools, the equipment had decreased the amount of physical labour needed to produce sugar cane buds. The entire apparatus is straightforward with added safety precautions by automatic tool motion. This machine has also utilized to produce tapioca chip for plantation and multiple purpose of bud cutting work cassava bud cutting.

Keywords: Sugarcane, Bud Chips, Chipper Machine, Automation.

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ICARDAP1034

Application of Polyaniline - Manganese Nano-composite for Water Pollution Control

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ABSTRACT

Water resources are currently being contaminated as a result of the rapid rise of industrialization, urbanization, population growth, and climate change. The biggest risk for many nations is a lack of clean, fresh water. The focus and attention of numerous scientists and governmental organizations have recently turned to water purification techniques. For efficient and effective sanitization of water bodies, academics from all over the world are focusing on water purification technologies centered on nanotechnology. Due to their great surface area, high chemical reactivity, excellent mechanical strength, and low cost, nanoscale composite materials offer a significant potential to cleanse water in a variety of ways. Polymer nano-composites (Polyaniline-Mn) have been selected as an effective and economical solution for wastewater pollution treatment. An effectiveness of polymer nano-composites for water purification is provided in this research.

Keywords- Nanocomposite, pollutant, permeability, SEM, TEM.

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ICARDAP1035

Review on Physical Properties of Glass Fiber and Reinforced Glass Fiber Composite with Their Effect

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ABSTRACT

This paper offers a literature review in the area of GF reinforced composites from the literature survey of various authors. GF reinforced with polymers and natural fibers results in lowering density, enhanced strength, and ease of manufacturing over the base-material are some of the beneficial characteristics of GF composites. Because of these advantages of GF-composites, over others it is used in many fields such as aerospace, automotive, marine, dental treatment and construction. In this paper we are going to review how the GF is use in above mention industries. We also have reviewed some hybrid reinforced composites of GF and mentioned their advantage over GF.

Keyword - Glass Fiber, composite, glass fiber-reinforced polymer

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ICARDAP1036

AI and Digital Twin Applications in 3D Information Models for Heritage Buildings: A Systematic Review

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ABSTRACT

The recent emergence of technology as digital tools has provided architects with possibilities for 3D modelling and simulation of built environments. Currently, the "digital twin" and Building Information Management (BIM) techniques enable analytical tools like connection analysis and energy performance modelling in tandem with the ideation of realistic 3D illustrations. These methods are now seen emerging in managing and documenting heritage structures. A Heritage Building Information Management (HBIM) platform is a multi-disciplinary process and a valuable tool to automate, manage, and document heritage structures. However, making the final product in an HBIM platform involves several laborious steps of processing, segmenting, and integrating raw data from different sources, such as laser-scanned point data and image data. Hence, an expedited, streamlined platform is necessary to facilitate conservation architects and other agencies involved in documenting, maintaining and interpreting heritage buildings and structures.

Newer technologies like Artificial Intelligence can enhance previously unavailable opportunities to automate specific tasks and uncover paradigms through predictable simulations. For this, the researchers reviewed the literature on two fronts:

Investigating process flow and identifying the issues and challenges in gathering digital data of the existing building effectively.

Reviewing the literature to understand the models and tech solutions that revolutionized building heritage building information models for practical use.

This study unravels workflow patterns and challenges based on these two sections of this literature review. Further, this research explores and analyses the trends and techniques employed in a typical heritage Building Information Management (HBIM) platform. The focus is on AI's capabilities as a digital tool in different stages of documentation and interpretation, performance measurement and simulation of heritage buildings, such as energy performance modeling, 4D (3D+Time) for projects planning, cost solutions, and simulating the historical significance to propagate the importance of HBIM. This study referred to the progress in the scientific literature on HBIM after the initial studies of C. Dore, and M. Murphy (2009). **Keywords -** AI, Digital Twins, Design Process and Workflow, Heritage Buildings, 3D modeling

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ICARDAP1037

Oscillatory Behavior of Second Order Half - Linear Difference Equations

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ABSTRACT

We study the oscillatory properties of the second order half-linear difference equation

$$\Delta(g(t)\Delta|u(t)|^{\tau-2}\Delta u(t)) + s(t)|\Delta u(t)|^{\tau-2}\Delta u(t) - h(t)|u(t+1)^{\tau-2}|u(t+1) = 0,$$

$$\tau > 1 \text{ (HL)}$$

The core ideas of oscillation theory for this equation will be shown to be quite similar to those for the linear equation.

$$\Delta(g(t)\Delta u(t)) + s(t)(\Delta u(t)) - h(t)u(t+1) = 0.$$

We establish some sufficient conditions related to the oscillatory behaviour of the equation(HL). Examples are provided to illustrate the importance of the main results.

Keywords - half-linear difference equation, Riccati technique, disconjugacy, conjugacy

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ICARDAP1038

Modeling & Analysis of Cylinder Block for V8 Engine

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ABSTRACT

Loss of heat is a significant factor in the performance of internal combustion engines. In addition, a heat transfer phenomenon causes mechanical stresses that are thermally induced, compromising the efficiency of engine components. In engine design, the capability to determine heat transfer in engines plays a vital role. Today, the simulations are progressively being made at a much earlier stage of engine production with numerical simulations In the current research V type multi-cylinder assemblage is modeled. This design is introduced to ANSYS and completed the consistent state thermal and constructional investigation for anticipating heat stress, heat transference, heat flux in contrasting and two distinct materials (FU 4270, FU 2451) from presented material (Aluminium). Heat transfer is the significant part of power change in internal ignition engines. Finding problem areas in a strong wall is utilized as a driving force makes a plan a superior chilling system. Quick transitory heat fluxes with the ignition chamber and the strong divider have to be explored to comprehend the impacts of non-consistent temperatures.

Keywords - Cylinder block, V8 engine, design, analysis

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ICARDAP1039

Detection of Pancreatic Cancer Using Ai

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ABSTRACT

Pancreatic cancer is a highly aggressive malignancy with a low survival rate, primarily due to its late stage diagnosis. Early detection of pancreatic cancer is critical for improving patient outcomes,As it allows for timely intervention and treatment. In recent years, there has been growing interest in utilizing biomarkers and imaging techniques for early detection of pancreatic cancer. The use of data science in predicting the outcome of pancreatic diseases is a rapidly growing field of research. This study aims to use data science to develop a predictive model to better understand the prognosis of pancreatic diseases. The data used for this study will be from medical records, laboratory test results, and imaging exam results.. The model will be evaluated based on its accuracy, sensitivity, specificity, and overall predictive performance.

Keywords - biomarkers,datascience,prognosis,diagnosis

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ICARDAP1040

Drinking Water Quality Monitoring &Enhancement

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ABSTRACT

Drinking water quality is a vital concern for public health and environmental sustainability. This paper discusses the importance of monitoring and enhancing drinking water quality to ensure that it is safe and potable. The paper explores the sources of drinking water contamination and the various methods used to monitor water quality. These methods include physical, chemical, and biological analysis through the IOT. The paper also discusses the use of advanced technologies such as nanotechnology and remote sensing in water quality monitoring. Furthermore, the paper highlights the importance of water treatment to enhance the quality of drinking water. This includes the use of various technologies. The paper also emphasizes the need for community involvement in drinking water quality monitoring and enhancement. The paper proposes a cost-effective and efficient IoT-based smart water quality monitoring system that monitors the quality of water. To make certain the supply of pure water, the quality of the water should be examined in real-time. To overcome the problem, we developed a model that tested the water.

KEYWORDS: IOT, AUDINO, ESP32, WEB Application, Cloud, PH sensor, Turbidity sensor

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ICARDAP1041

Effect of shell thickness on absorption and emission properties of MSA capped CdTe/Se core shell semiconductor nanoparticles.

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ABSTRACT

Core shell nanoparticles are multi-layer 3-D nono-structures comprise of two or more materials where a core material is enveloped by an outer layer of shell material. This is a special class of nanomaterials where fine tuning of band energy and hence properties of semiconductor nanoparticles is possible by varying the thickness of shell.

This paper presents the effect of shell thickness on optical properties of Type II (CdTe/Se) core shell nanoparticles.Optical absorption and emission wavelengths were obtained for various samples taken at different time intervals during the reaction through stranded spectroscopic methods. The continous red-shift of the absorption and emission spectra was observed for the samples collected with increasing time intervals which can be attributed to band engineering due to increasing shell thickness. In this paper, the relation between the variation of absorption and illuminance peak wavelength in relation with shell thickness is discussed in detail. The study reveals that the fine tuning of optical properties is more easily possible by core shell systems with better quantum efficiency. Hence by optimizing the synthesis parameters highlly illuminating core shell nanoparticles can be engineered based on the requirement of different applications. These types of highly illuminating particles in visible regions can play a significant role in biolabeling/ bioimaging techniques in future.

Keywords -core shell nanoparticles, CdTe/Se, Type II , band engineering of NC.

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ICARDAP1042

IOT Based Design and Development of Solar Assisted Pesticide Sprinkler

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ABSTRACT

Pesticide spraying is an important agricultural task that preserves crops from pests, diseases, and insect infestation and controls weeds. This conventional sprayer causes user fatigue because of its huge and bulky construction. We make this design and fabrication of a model that is a solar sprinkler, this will ergonomically eliminate the back attachment of the sprayer, reducing the user's fatigue level. Solar panels generate electricity by converting sunlight into electrical energy. This energy is used to power the entire system and the energy is stored in a battery which can be used to power the devices when sunlight is not available. The fuel-powered spray pump's engine will be eliminated resulting in reduced vibrations and noise. Our technique is going to be less harmful to the environment as we eliminate the fuel that is used. The NODE MCU contains an ESP8266 Wi-Fi module connected to the BTS7960 motor driver module which controls all motors via an application created using the Internet of Things (IoT) application called blynk. The Blynk application is used to control and monitor the entire assembly.

Keywords—- NODE MCU, Wi-Fi module ESP8266, Pesticides, Sprinkler, Solar panel, Motor driver module.

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ICARDAP1043

Automated Water Pump System

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ABSTRACT

Automated water pump systems are becoming increasingly important as they can regulate water pumps based on current data and conditions, reducing energy use and water waste while ensuring efficient water distribution. Research shows that automated water pump systems have several advantages over traditional manual systems, including increased efficiency, lower energy consumption, better water management, and improved pump performance. However, there are also some drawbacks to using these systems, such as higher upfront costs due to advanced equipment and technology requirements, complex installation and design demands, and the need for a reliable power source. The choice of automated water pump system depends on the particular application and requirements, as each type has its own strengths and weaknesses. The article's methodology involves connecting the solid-state relays, ESP32, power supply, and water pump to enable automated operation. The Arduino IDE software is used to program the system, allowing the user to specify when the water pump should be triggered. The system is then controlled by the ESP32 microcontroller, which turns on the relay module to power the water pump until the user-specified threshold level is reached. This ensures that the plants receive the correct amount of water for optimal growth without the need for manual assistance. The article also discusses the hardware used, including the ESP32 microcontroller and relay module.

Keywords - Automation, Water Pump System, ESP32.

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ICARDAP1044

Prediction of Crime Hotspots

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ABSTRACT

Research into crime prediction and prevention relies heavily on applied sciences, such as data mining and machine learning. Crime is a major, worrying problem in modern society, making it difficult to keep it out of civilization. Most places keep daily records of the majority of the events. It is desired to maintain a database because so many occurrences have been recorded for potential use in the future. The current issue is maintaining through the use of the allowed crime dataset, examining the records and keeping close the issues that may also be useful for future use to catch the past and present crimes. Computer analytic algorithms are utilized to forecast criminal behaviour using the crime dataset. Required datasets are available on websites like Kaggle. The types of crimes, descriptions, times and dates, latitudes and longitudes are all combined into data. Datasets are collected and then pre-processing is done to remove noise and complete gaps in archives, resulting in high accuracy. Predictable and thus completely the algorithm that provides excessive accuracy is chosen for evaluating the output. The algorithms utilized are using Deep learning Regression model techniques. This project's primary goal is to identify the crimes occurring in various locations and predict the crimes occurring frequently. To categorize the crimes, several clustering techniques, such as using Deep learning Regression model algorithms, are used. The outcome of this project would give us a prediction about the areas which are crime infested. They could be widely used for safety and protection reasons.

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ICARDAP1045

Hot Tensile Properties of Inconel 706 Alloy

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ABSTRACT

INCONEL 706 is a high-strength nickel-based super alloy that is commonly used in high-temperature applications such as gas turbines and nuclear reactors. In this study, the hot tensile properties of Inconel 706 were investigated to better understand the material's behavior under high-temperature and high-stress conditions. Tensile tests were conducted at temperatures ranging from 740°, 860°, 940°, 1020°1080°and strain rates ranging from 0.001/s to 1/s. The results showed that the ultimate tensile strength and yield strength of Inconel 706 decreased with increasing temperature, while the elongation increased. The strain rate had a negligible effect on the mechanical properties. Microstructural analysis revealed that the deformation mechanism changed from dislocation slip to dynamic recrystallization as the temperature increased. The activation energy for deformation was calculated to be 421 kJ/mol, indicating that diffusion-controlled mechanisms play an important role in the deformation process. Overall, the hot tensile properties of Inconel 706 were found to be highly dependent on temperature and microstructure, which should be considered in the design and operation of high-temperature components made of this alloy. The output from the tensile testing machine is used for the data in analysis software like MATLAB, Ansys. The aim of investigations conducted in this project is to study the change of the mechanical properties, especially the high temperature mechanical properties of HTPI, at elevated temperatures.

Keywords - INCONEL 706, Temperature, Stress, Strain, Analysis

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ICARDAP1046

RFID BASED TRAFFIC CONTROL SYSTEM FOR EMERGENCY VEHICLE

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ABSTRACT

In developing nations like India, the development of the population and the number of cars has increased traffic congestion and the number of traffic accidents. However, by identifying crowded locations and enhancing traffic flow, a smart traffic control system that makes use of RFID sensors has the ability to alleviate these problems. By giving emergency vehicles precedence, this approach also makes it possible for them to get to their destination quickly. Drivers can also gain from the real-time data offered by RFID sensors, which can help decrease idling and save time. This data can be used to recommend other routes to drivers so they can avoid crowded regions and cut down on the amount of time they spend stuck in traffic. In addition to enhancing traffic flow, this also aids in lowering fuel consumption and emissions, creating a cleaner and greener environment. To manage the growing traffic flow and lower traffic accidents, emerging nations like India can use a smart traffic control system using RFID sensors. Overall, an RFID-based smart traffic control system has the potential to significantly improve the environment, the economics, and the welfare of road users in emerging countries like India.

Keywords - Traffic congestion, Traffic density estimation, Traffic management, Traffic Control, RFID, Radio Frequency, Emergency.

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ICARDAP1047

Solar Powered Smart Agriculturing

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ABSTRACT

The greater usage of fossil fuels and increased carbon emissions, which hasten their rapiddepletion, induces consumers to switch to renewable energy. Traditional irrigation techniques may be expensive or environmentally harmful. In light of this, conversion to renewable energy sources, like solar energy, can resolve this problem. Solar energy is widely used in a wide range of applications since it is user-friendly and environmentally friendly. Yet, many rural areas of India continue to use conventional irrigation systems, such as diesel pumps, for irrigation. They are neither economical nor environmentally favourable. It releases a significant amount ofhazardous gases, such as carbon dioxide. Farmers can operate a water pump effectively and sustainably by adopting a solar photovoltaic-based water pumping system. With the use of moisture sensors, scientific irrigation methodology is implemented, making irrigation moreefficient. In comparison to current technologies, this system is reliable, economical, and capable of increasing agricultural productivity levels. The requirement for labour is also decreased by irrigation automation and wireless control .In this, a permanent magnet DC (PMDC) motor-drivepowers the water pump. Outside in the field plains, moisture sensors are being installed to keep track of the wetness in the soil. The microcontroller uses the information from the sensors to regulate the pump's operation.

Keywords - solar photovoltaic, moisture sensors, permanent magnet DC (PMDC) motor- drive

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ICARDAP1048

Design and Fabrication Of BLDC Electric Cycle

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ABSTRACT

The main aim of this review paper is to present the idea of harnessing the various energy and use it in today's existence of human life. Now- a-days there are so many vehicles on road, which consumes more fuel and also hazards our environment. It is our responsibility to reduce the consumption of fuel and its hazardous emission products. Taking this into consideration it is our small step towards reducing the use of more fuel consuming vehicles and attracts the eye of people towards its alternatives i.e. Electric bicycle. So we intend to design a cycle which would run on an alternative source and also reducing human efforts called as Battery Operated Cycle. In this paper we design an alternative mode of transport for betterment of social and environment.

Keywords— Recycle cells, Fuel consumption, Alternative source, Electric bicycle

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ICARDAP1049

Smart Stent for Autonomous Post Endovascular Aneurysm Improvement

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ABSTRACT

Abdominal aortic aneurysm (AAA) is one of the important pathologies involving the abdominal aorta, as it can have adverse consequences if it goes unnoticed or untreated. AAA is defined as an abnormal dilation of the abdominal aorta 3 cm or greater. Endovascular abdominal aortic aneurysm repair (EVAR) has recently emerged as a treatment modality for AAA. It does have a few inherent complications that include endoleak, endograft migration, bleeding, ischemia, and compartment syndrome. This case report discusses a patient who came in with abdominal pain and a pulsatile mass, which raised concerns regarding endoleak. The patient had a 9.9-cm AAA, which was repaired in the past, as was made evident by computed tomography findings of the stent graft in the aneurysmal segment. This case stands out because it highlights the importance of comparing the size of the AAA at the time of the EVAR to the current scenario where the patient presents with abdominal pain of unknown etiology. Also, this case report highlights the importance of computed tomography and other imaging forms in following-up with patients who have EVAR for AAAs.

Keywords: Ultrasonic Wave, Electrical Vibration, Normal Bloodflow to the Heart.

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ICARDAP1050

Eye – Controlled Mouse Cursor

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ABSTRACT

The system described here presents a hand-free interface between human and computer. It uses various image processing methods such as face detection, eye extraction, interpretation of sequence of eye blinks in real time for controlling anon-intrusive, human-computer interface. It uses atypical webcam to capture an input image. Mouse cursor control can be done by facial movement by moving the face towards left and right, up and down, mouse events are controlled through eye blinks. A high number of people, affected with neuron loco motor disabilities can use this technology in computers for basic tasks such as sending or receiving messages, browsing the internet, watch their favourite TV shows or movies. This algorithm is used to give the best possible outcomes of the eye position using the decision tree algorithm so that the eye movement is detected and the mouse moves accordingly. It also enables the user to open and close the applications by blinking the eye

KEYWORDS – Mouse, eyes gesture control system; eye tracking systems; mouse cursor; eye mouse; webcam; eye movement.

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ICARDAP1051

Different Current Commutation of Three-Phase AC-to-DC Matrix Rectifiers Using Space Vector Modulation

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ABSTRACT

Matrix converter is emerging to be an alternative topology for power converters, drive by persistent cost reduction of silicon devices and the development of reverse blocking IGBTs. One of the major obstacles towards commercial acceptance of this topology has been the commutation of the bi directional switches. A detailed study has been made here to understand the limitations and possible improvement of the existing current commutation techniques in this paper. A universal and synchronous commutation scheme for all the IGBTs is devised so that commutation can smoothly take place as and when required within the minimum possible time depending on the switching time of the IGBT used. The different aspects of this commutation are verified through MATLB simulink. Possibility of step less current commutation is explored.

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ICARDAP1052

A Study of Corporate Social responsibility practices by Indian Companies

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ABSTRACT

Our country is a developing economy, where Corporate Social Responsibility (CSR) plays a vital role in organizations. Today one can easily notice a paradigm shift from profit orientedto being socially responsible. The CSR has been implemented in last two decades, when Indian companies have realized the importance of sustaining this cutthroat competition era. CSR plays a crucial role in sustainable development which is only possible where there is proper balance between profit and social responsibility. The problem with Corporate Social Responsibility is nobody is very clear about what exactly it means. The Indian government as been trying to make it mandatory for companies to spend at least 2% of their net profits on CSR. Today, Some companies provide lunch to their employees or tackling global warming issues and claim it has CSR initiative. The purpose of this study is to explore the provisions of the Companies Act 2013 and CSR initiatives taken by the Indian companies.

Keywords: Corporate Social Responsibility, Corporate Society relations, Company initiatives

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ICARDAP1053

Digital Enablers in Industry 4.0 and Beyond

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ABSTRACT

Industry 4.0 is a methodology to combine digital technologies to connect processes, people, and products in the value chain. Intelligent assets, factories, products, and empowering people are some of the key benefits of adopting Industry 4.0 digitalization. Digital enablers such as cyber-physical systems (CBS), the Industrial Internet of Things (IIoT), Bigdata analytics (BDA), digital twins, and artificial intelligence (AI) are some of the key components of Industry 4.0. It helps everything in the value chain become intelligent, from smart warehousing and smart logistics to smart manufacturing. In the process, it provides companies with unprecedented control and visibility in the digital transformation journey. World is looking beyond now by aiming to place human well-being at the center of the smart manufacturing system. This is now part of Industry 5.0, and social goals are achieved beyond employment through sustainable development for all humanity. This paper investigates the utility of various digital enablers in the Industry 4.0 framework and the approach to implement it.

Keywords - Industry 4.0, Digitalization, Sustainability.

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ICARDAP1054

Implementation of Three-Phase AC-to-DC Matrix Rectifiers Using Space Vector Modulation: A Review

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ABSTRACT

Matrix converter is a versatile scheme consisting of controlled semiconductor devices that has a command in delivering input of constant amplitude and frequency to the output of three phase with adjustable amplitude and frequency and it is able to produce multiple output frequencies with single input frequency. In the recent trends of power electronics, the use of these converters is increased vastly due to its versatile behaviour. During the past years the utilization of these converters are increased rapidly as they have several applications in industries. This paper presents the literature assessments of matrix converter and configurations discussed in the early stages of research. Also, the performance indices like power factor improvement, harmonic content in the output voltage, absence of energy storage elements and DC link between input and output stages of the system has been clearly discussed.

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ICARDAP1055

Virtual Doctor Robot

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ABSTRACT

In this research, a robotic medical assistant is introduced that monitors patients via the Internet of Things. Because of this, a virtual doctor robot was developed that would enable a doctor to freely walk around a strange setting and engage with the locals and patients. Furthermore, we take a look at some earlier investigations that helped develop systems that are comparable. The significant impact that robotic technology has had on enhancing medical care and preventing the spread of illness. These robots are best used in hospital settings where there is a need for backup and to minimise patient-doctor contact. This will make it possible to guarantee that only people who have a genuine need to be in the hospital or quarantine facility at any given moment are exposed. In addition, a smartphone software is used to build the robot. The Raspberry Pi camera on this camera-equipped QR-scanning robot can capture sharp, high-resolution images that are then sent to a nearby screen and controlled by a smartphone software. The robot is placed in a remote area. The results of the early tests indicate that data transmission and reception are reliable, and it is demonstrated that battery drain is a restriction.

Keywords - Medical assistant, Virtual Robot, Smartphone, controller.

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ICARDAP1056

Nanocrystalline $SmFeO_3$ – a novel sensing material for detection of ethanol

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ABSTRACT

Ethanol is toxic gas and its heavy exposure or consumption leads to cancer. Therefore detection of ethanol is essential. So far, semiconductor metal oxides showing n-type semiconductivity were reported as ethanol sensor. $SmFeO_3$ is one of the rare earth orthoferrite having perovskite structure of type ABO_3 (A: rare earth, B: transition metal). Its conductivity increases in presence of oxidizing gases and decreases when exposed to reducing gases. Being p-type semiconductivity, $SmFeO_3$ have been typically studied for detection of oxidizing gases such as ozone, oxygen and NO_2 only. But its properties such as ionic and electronic conductivity, chemical stability can be tuned by partial substitution at A-site and/or the B-site. Greater reduction stability with improved conductivity is possible with a bigger A-cation. Literature survey reveals that $SmFeO_3$ doped with cobalt, cerium has shown great potential to as ethanol sensor. Therefore there is a possibility to used surface modified nanocrystalline $SmFeO_3$ for detection of ethanol gas.

Keywords - $SmFeO_3$, Surface modification, Perovskite, Gas sensor

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ICARDAP1057

Design and Fabrication of Flour Sieving Machine

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ABSTRACT

Sieve is a device for separating wanted elements from unwanted material or for characterizing the particle size distribution of a sample, typically using a woven screen such as a mesh or net. A lot of the sieve product that are in the market are money consuming. Skilled workers are also required to operate the product. Other than that, it is also required big space to install the product. A higher maintenance for the product is also one of the problems that a lot of the user faces. The aim of this study is to design a product that are compact and less space consuming. Price of the product also must be affordable especially for small industries. Finally, a low maintenance that can equal with less money consumption. The first part for our methodology of research is to compare the entire product that is in the market. Second, create a design that satisfies the objective. After finalizing the design, search material that is suitable for the spec of the product. Finally, create the product and run test on small industry to collect data and analysis. All the data and the analysis that are obtained are used to write a report. The finding that can be gain after the test is that the flour sieving machine is suitable for small industry to use because it satisfies their requirements without exceeding the need. There are lot of improvement that can be done on this product such as make it portable, upgrade the motor and larger capacity.

Keyword: Small and Compact, Portable, Affordable

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ICARDAP1058

Single Inductor Multi Mode Converter for Switched Reluctance Motor Drive Application

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ABSTRACT

Conventional fuel cell powered motor drive system consists of fuel cell (FC) and battery as sources connected to motor load. Here, the fuel cell and battery are connected to the output load via two different converters. Specifically, a bidirectional converter for battery regeneration and a unidirectional converter for fuel cells. Conventional converter is simple to construct and achieves specific functioning modes that are required in various driving modes. When both fuel cell and battery are feeding load, it necessitate more number of switches and inductors in the conventional system. In addition, each switch experiences significantly high voltage stress. Due to these problems, the overall power density and efficiency deteriorate. In this paper, a multi mode converter (MMC) is discussed which uses a single inductor and reduced number of switches. Moreover, the voltage stress across various switches are reduced to the input voltage level. In turn, it reduces the voltage rating of the operational switches. Thus the converter attains a high power density and minimal core and conduction losses. The performance of multi mode converter is evaluated by conducting simulation analysis. Therefore, this multi-mode converter can be employed in fuel cell electric vehicles assisted with batteries.

Keywords - Switched reluctance motor (SRM), Electric vehicle, Motor drive, Multi mode converter, Voltage boosting

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ICARDAP1059

Kota Doria Handloom Cluster: A Textile Heritage of Rajasthan

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ABSTRACT

Kota doria is also a very important and world-famous fabric among the major handloom clusters of India, which is in great demand in India as well as abroad. This fabric, woven in the surrounding areas of Kota district of Rajasthan, is a unique fabric in the whole world in itself. The history of this fantastic fabric made of two types of yarn is equally interesting. It is a royal garment that worn only by royalty. This heritage has been kept alive even today by the weavers who weave Kota Doria fabric. The Rajasthan government has also taken several necessary steps to keep Kota Doria alive and promote it. Many world-famous designers have also worked to promote Kota Doria more and more all over the world.

Keywords: Cluster, Heritage, Unique, Kota, Promote, world-famous, Royal

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ICARDAP1060

Effect of Mind Mapping on Achievement in Accountancy

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ABSTRACT:

This study was carried out to investigate the effect of Mind Mapping on Achievement in Accountancy. Multistage random sampling technique was used to collect the data from 240 students (120 experimental group and 120 control group) of class XI students having commerce stream from Ambala District of Haryana (India). A Pre-test post-test equivalent group design was used for this study. Achievement test in Accountancy developed by the investigator was used to test the achievement of the experimental and control group. The experimental group was taught through Mind Mapping while the control group through Conventional teaching. The result of the present study revealed that the achievement of the group taught through mind mapping was significantly better than conventional teaching.

Keywords: Mind mapping, Conventional teaching, Achievement, Accountancy.

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ICARDAP1061

Smart Wheelchair to Disability person Using Arudino UNO

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ABSTRACT

In the design of a smart, motorized, voice and app-controlled wheelchair using embedded system. Proposed design supports voice activation system for physically differently abled persons incorporating manual operation. The “Voice-controlled Wheel chair” for the physically differently abled person where the voice command controls the movements of the wheelchair. The voice command is given through a cellular device having Bluetooth and the command is transferred and converted to string by the BT Voice Control for Arduino and is transferred to the Bluetooth Module HC -05 connected to the Arduino board for the control of the Wheelchair. For example, when the user says „Go“ then chair will move in forward direction and when he says „Back“ then the chair will move in backward direction and similarly „Left“, „Right“ for rotating it in left and right directions respectively and „Stop“ for making it stop. This system was designed and developed to save cost, time and energy of the patient. Ultrasonic sensor is also made a part of the design and it helps to detect obstacles lying ahead in the way of the wheelchair that can hinder the passage of the wheelchair. On addition to this an IOT device was integrated using NodeMCU where relay was connected to the microcontroller, using the application we can control the device using web application anywhere around the world.

Keywords - Arduino UNO, NodeMCU, Bluetooth, Relay, Ultrasonic Sensor, Motor Drive circuit, Battery & Robot Wheel Chair

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ICARDAP1062

High Voltage Gain DC-DC Boost Converter for Fuel Cell Application with PI controller

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ABSTRACT

The use of renewable energy sources in modern electrical applications is growing. Despite the widespread usage of solar energy, other unconventional sources including wind, fuel cells, and tidal energy are also popular. However, fuel cell and solar energy has quite low output voltage. Therefore, a boost DC-DC converter is needed to increase the voltage output of a fuel cell or solar panel. In this paper a ultra-high gain boost converter with a closed loop control using Proportional Integral is proposed. Simulations in both open loop and closed loop are carried out using MATLAB.

Keywords - Boost converter, high voltage gain, fuel cell, PI controller

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ICARDAP1063

New Trends in Higher Education with "Nano-Learning

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ABSTRACT

According to the findings, the COVID-19 epidemic not only harmed higher education and all of its stakeholders but opened new doors for higher education as well. The main trends in higher education in the following year may be continued by online certification courses, ed-tech expansion, upskilling workplace competencies, and the emergence of metaverse education models. However, as millennials and young professionals strive to improve their competencies and learning in more efficient, effective, and time-consuming ways, 'Nano-learning' will likely be the scene stealer in the coming years. India has the world's biggest higher education system, with 1,000 universities and 40,000 institutes of higher education. The higher education settings in India are about to undergo a dramatic upheaval, and the New Education Policy (NEP) 2020 will play a critical role in defining higher education in India. This paper aims at assessing the disruptions of Covid-19 as well as post covid new trends in Indian higher education sector. For this purpose, present study employed the use of available literature related to covid-19, NEP-2020 and Nano learning trends in higher education in India. This paper will also look at some of the forthcoming trends in higher education that we should be aware of.

Keywords: Nano-Learning, ed-tech, upskilling, Covid-19, higher education, NEP-2020.

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ICARDAP1064

Qualitative Research: Issues and Recommendations for Indian Academic Colleges

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ABSTRACT

Academic research in India is expanding rapidly, but its quality is not increasing. Many educational professionals have highlighted concerns about the quality of research, particularly in social science. Data sciences is a rising discipline in which accurate predictions may be generated via data analysis. Qualitative data, like quantitative data, is extremely significant and falls primarily under the purview of social science. By conducting a focused group discussion, the researcher attempted to identify the issues encountered by college lecturers when doing a qualitative research. The report will also provide steps to improve the quality of qualitative data and its analysis.

Key words: Qualitative research, Social Sciences,Data Collection, Data Analysis

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ICARDAP1065

Recognizing Tamil Characters in Palm Leaf Manuscripts (Deep Learning)

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ABSTRACT

Tamil is an ancient language that has a vast collection of literature written on palm leaves and other materials. Palm leaf manuscripts have been used as a versatile medium to record information on medicine, literature, theatre, and other subjects. Despite the need for digitization and transcription, recognizing cursive characters in palm leaf manuscripts remains a challenging task. This study introduces a novel Convolutional Neural Network (CNN) technique to train the characteristics of palm leaf characters, enabling CNN to significantly classify palm leaf characters during the training phase. Pre-processing of the input image is done using morphological operations to remove noise. Connected component analysis is a technique used in image processing to identify and label the individual connected regions, or components, in a binary image. Connected component Analysis is then used to segment the palm leaf characters, with feature processing including text line spacing, spacing without obstacle, and spacing with an obstacle. Finally, the extracted cursive characters are input into the CNN technique for final classification. Experiments are conducted using collected cursive Tamil palm leaf manuscripts to validate the performance of the proposed CNN with existing deep learning techniques in terms of accuracy, precision, recall, etc.

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ICARDAP1066

Attribute-Based Proxy Re-Encryption with Keyword Search on Personal Health Record

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ABSTRACT

Personal health records (PHRs) contain sensitive health information that needs to be protected from unauthorized access. At the same time, patients may need to share their PHRs with healthcare providers or researchers to receive appropriate care or participate in medical studies. Attribute-based proxy re-encryption with keyword search (ABPRE-KS) is a what cryptographic technique that enables secure and controlled sharing of encrypted PHR data while preserving the privacy and confidentiality of sensitive patient information. ABPRE-KS works by encrypting the PHR data using a key derived from the patient's attributes and allowing the patient to delegate access to the data to third parties using a proxy re-encryption scheme. To enable keyword search on the encrypted PHR data, an additional searchable encryption scheme can be used. ABPRE-KS provides a powerful tool for securely sharing and searching personal health records and can be used to facilitate better healthcare outcomes and medical research while protecting patient privacy.

Keywords – PHR, ABPRE, access control

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ICRDAP1067

Cyber Sleuths: Strengthening Digital Defenses through Malware Detection and Prevention

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ABSTRACT

Malware propagation is a significant threat to the security and privacy of individuals and organizations worldwide. To combat this ever-evolving threat, a collective effort is required to identify and report instances of malicious activities. In this project, we propose a novel approach to reporting and tracking the propagation of malware in real-time. Leveraging the power of artificial intelligence and machine learning, our system will analyze data from various sources to identify potential threats and alert users before the malware has a chance to spread. Our approach also includes a user-friendly reporting mechanism that encourages individuals to report suspicious activity, contributing to a shared database of threat intelligence. By pooling resources and expertise, we aim to create a collaborative network that can effectively identify and neutralize malware attacks, safeguarding the digital landscape for all.

Keywords - Cyber security sensor networks, indicator distribution, malware information sharing platform

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ICARDAP1068

Chemical Modification of Bitumen for Stable Road Construction

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ABSTRACT

Nitric acid has been found to be an effective additive for bitumen modification to enhance its performance and make it more appropriate for road construction purposes. This paper aims to provide an overview of the effects of nitric acid on bitumen properties, its application in road construction, and the benefits it offers. The paper explores the various methods of modifying bitumen with nitric acid, such as pre-treatment of bitumen, addition during mixing, and surface treatment of aggregates. The effects of nitric acid on the properties of bitumen, such as viscosity and stability, are discussed. Nitric acid improves the adhesion of the bitumen to the aggregates, enhancing the mixture of asphalt and aggregates, leading to improved stability and durability of the road surface. The paper also highlights the potential benefits of using nitric acid in road construction with bitumen. These benefits include improved resistance to moisture and temperature variations, reduced deformation under heavy loads, increased rutting resistance, and longevity of the bitumen pavement. The use of nitric acid with bitumen also facilitates the use of recycled bitumen products, which is more environmentally sustainable.

Key words: Bitumen, longevity, deformation, modification, aggregate

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ICARDAP1069

Design and Development of a Smart Rover with Computer Vision for Navigation Assistance for Visually Impaired Individuals

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ABSTRACT

This paper reports the consequences of a global review in a few distinct nations on the mentalities, prerequisites and inclinations of visually impaired and outwardly weakened individuals for a mechanical aide in air terminals. A brief synopsis of previous research on robotic travel aids and other mobile robotic devices serves as the survey's introduction. The survey involves three segments on private data about respondents, existing utilization of portability and route gadgets, and the capabilities and different elements of a mechanical aide. The study discovered that respondents were exceptionally keen on the mechanical aide having various capabilities and being helpful in a large number of conditions. They didn't like any of the designs that were suggested, but they thought the robot's appearance was very important. According to their comments, respondents desired the robot to be discreet and inconspicuous, lightweight, portable, easy to use, long-lasting, resistant to damage, and requiring little upkeep.

KEYWORDS - Robotic Guide, Obstacle avoidance, low cost, Raspberry pi.

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ICARDAP1070

Design of SMES for Load Frequency Control in Power Systems with Renewable Integration

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ABSTRACT

With the increased use of renewable energy resources and the rising demand for electricity, ensuring the safety and reliability of interconnected power systems has become an increasingly difficult task. Renewable energy sources are intermittent, because of that maintaining frequency within acceptable limits is crucial for ensuring reliable operation and control of power systems. Reducing the frequency deviation within limit is a challenging task. This paper presents the automatic load frequency control of an interconnected power system using superconducting magnetic energy storage system to improve the stability of the system frequency. The control goal is to control the load frequency error of the power system in the existence of different load changes. Superconducting magnetic energy storage system on two-area interconnected power system with reheat and non- reheat turbine. The simulation is carried out with external disturbances and uncertainties. And the results shows that the parameters like settling time, overshoots, undershoots etc are reduced significantly.

KEYWORDS - Interconnected power system, Automatic Load Frequency Control (ALFC), Superconducting Magnetic Energy Storage System (SMES)

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ICARDAP1071

Design and Analysis of Longitudinal Seam Welding Fixture for Nozzle Cone

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ABSTRACT

The manufacturing process of the divergent cone of a rocket nozzle involves welding of the cone structure. During the welding of the cone structure of the nozzle the work piece must firmly held together accurately to prevent any misalignments and errors in the manufacturing process. This process of welding the cone structure requires a specialized welding fixture. Today there are wide variety of welding fixtures available, but our aim is to design a welding fixture by considering the various dimensions and weight of the divergent cone. The errors and time taken for the manufacturing process can be reduced by the new design.

The modelling of the Longitudinal Seam Welding Fixture is done in SOLIDWORKS and a technical analysis is made with various material for the components used for the Welding Fixture and their properties are studied. The design of the welding fixture is made in such a way that it well suitable for TIG welding method which is widely used for the welding of the Nozzle cone structure. As of the today's technological advancement a manufacturing company to remain competitive in the current market it must produce a high-quality product at the highest possible efficiency. The fixture is based on the modular concept of the design. The tools can be efficiently used in other similar processes and would make a reduction in the cost of the fixture.

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ICARDAP1072

Design and Development of a High Fidelity RC Flight Simulator for Multi Rotor Drones and Fixed Wing Aircraft

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ABSTRACT

Human spatial cognition involves various frames of reference. Generally, while navigating to destinations, people refer to spatial information both from the first-person view and the third-person view. The first-person view (egocentric view) includes a pilot's point of view from the cockpit. Landmark knowledge (i.e., navigating with reference to a notable landmark in the area of interest) and route knowledge (i.e., navigating with procedural routes to a destination) are egocentric (Wickens, Hollands, Banbury, & Parasuraman, 2015). A third-person view (allocentric view) is the flying bird's viewpoint. From this view, ownship (one's own vehicle) is seen as only an object within the area of interest. The allocentric orientation refers to the elements and features of an area of interest independent of the actor's viewpoint (Ruggiero, Iachini, Ruotolo, & Senese, 2009). Survey knowledge (i.e., high-level navigational information, such as traffic conditions or shortcuts) is allocentric (Wickens et al., 2015). For spatial navigation, people depend more on the egocentric view (Fabroyir & Teng, 2018; Kallinen, Salminen, Ravaja, Kedzior, & Sääksjärvi, 2007; Filimon, 2015; Kosslyn, 1996; Millar, 1994). The allocentric view offers its own intrinsic advantages of projecting future situations for navigational information (Milner & Goodale, 2008).

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ICARDAP1073

Implementation a System for Waste Management Utilization with Efficient Coordination Using IOT

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ABSTRACT

As we seen that in present scenario, the world generate tremendous amount of waste and dustbins are placed at public places in the metro cities. Due to increase of waste every day, the cities are overflow with the garbage. It creates bad smell surroundings & unhygienic condition in area causes human illness, various diseases. Therefore this paper performs a review of existing IoT-enabled solution to avoid such a situation that is Waste Management System using IOT which maintain healthy environment in the environment. In this proposed system there are multiple smart dustbins located throughout the campus. These smart dustbins are provided with low cost embedded device which helps in tracking the level of dust inside the dustbins. The area wise unique ID will provide for each dustbin that is easy to find identify which dustbin is full. The device will transmit level along with ID it means that the garbage level reaches at threshold limit. Then message transmit to the concern authorities from there area using internet and immediate action can be made to clean the dustbins..

Keywords - Intel Galileo Gen-2, RF Module, RF Receiver, RF Transmitters, IR Sensors, 8051 Micro-controller.

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ICARDAP1074

Rural Poverty and Small land holdings in Gudibanda

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ABSTRACT

Gudibanda a small town in Chickkaballapur district has been selected to study whether small land holdings can remove rural poverty. Five villages were earmarked and 200 samples collected from these villages where simple random sampling was carried out to find if the relation between rural poverty and farmers with small fragmented lands.Most of these small farmers grew vegetables such as brinjals, cowpeas, tomatoes, potatoes and beans. Also commercial flowers such as jasmine, roses, tuberoses and yellow crysanthamums were also cultivated. They earned a very small income of Rs 500 per month for vegetables and around 2000Rs to 2300Rs per month for flower sales that too during the festival months of January to April 2023.Their earnings depended mainly on the market prices that's the selling rate of the main vegetable market in Gudibandasanthe or village fair. They also sold outside their villages in small groups and also tried transporting to Gudibanda main market. Can cultivating all these small vegetable farms bring income and sustain these flower and vegetable cultivators? Water scarcity coupled with lack of rural employment measures like MNREGA were the root cause of their problems. It was also the main reasons for rural urban migration.The main objective was to see if the cultivation of small farms could fetch moderate income for the farmers. The main suggestion was to adopt cooperative farming minus the problem of middlemen, how to solve the problem of selling in vegetable markets and finally to tackle the problem of rural unemployment and water scarcity.

Keywords: rural poverty land reforms act middlemen unemployment fragmented land holdings.

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ICARDAP1075

Adsorption Studies of an Activated Carbon (Prosopis Juliflora) to Remove Dye

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ABSTRACT

This study explored the effect of activated carbon preparation conditions on their adsorption performance. Activated carbon prepared from Wood chips of prosopis juliflora has been utilized as the adsorbent for the removal of Eriochrome Black T from an aqueous solution. Prosopis juliflora was used as source material to prepare activated carbon by pyrolysis process using H_3PO_4 activation. The Iodine number and carbon yields were determined to evaluate the adsorption properties of activated carbon. The effects of various H_3PO_4 impregnation ratios, temperature and time on physical characteristics of the activated carbon were investigated. The Iodine number and SEM images were used to characterize the activated carbon. The best activated carbons were obtained at a temperature of 300◦C with the impregnation ratio 1:2, In which the value of Iodine number is 917.12 mg/g which infers that it has high Micro Pores when compared to others ratios. Prosopis juliflora based activated carbon could be employed as a low cost alternative to commercial activated carbon in the removal of Eriochrome Black T dye from wastewater.

Keywords - Chemical Activation, Adsorbent, Color Removal.

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ICARDAP1076

Investigation of Machining Parameter On Ti6al4v- A Review

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ABSTRACT

Electrochemical machining (ECM) is a non-traditional process that has gained popularity for producing a high-quality surface finish with a crack-free mechanical surface. Unlike traditional machining methods that rely on physical wear, ECM uses an electrochemical reaction to remove material from the workpiece. Therefore, it is suitable for a wide range of applications without being affected by the hardness of the processed material. The method involves passing an electric current through an electrolyte solution to dissolve the workpiece material, typically a conductive metal or alloy. ECM process performance is affected by many factors, including: B. Electrolyte solution concentration, applied voltage, electrode movement speed, and percentage of enhancement. These parameters can be fine-tuned to achieve desired results based on material removal rate, surface roughness, and radial overcut. ECM's ability to machine complex geometries and high-precision parts has made it a popular choice in the aerospace, medical, and automotive industries. Common ECM applications include turbine blades, medical implants, and fuel injector machining. With many advantages, such as the ability to produce crack-free, high-quality surfaces, ECM is expected to continue to be a valuable machining process for various industries.

Keywords: EMM, L9 orthogonal array, RSM, SEM, and SS316L.

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ICARDAP1077

Innovative Wearable Device for Tracking Symptoms of Parkinson's Disease And Varicose Veins - A Review

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ABSTRACT

A novel sensor-based wearable monitoring system designed to monitor patients with Parkinson's disease and varicose veins. The system is concealed within the sole of a shoe, making it discreet and easy to use, and has the potential to revolutionize patient treatment by continuously tracking and recording a range of symptoms associated with these diseases. The wearable monitoring system is equipped with sensors that can detect changes in gait, balance, posture, and changes in the temperature and pressure of the foot. The collected data is transmitted to a server through a Bluetooth module for analysis, providing real-time data to track the progression of the disease, monitor the effectiveness of treatment, and provide early warning signs of potential complications. Additionally, the system can be used to identify patients who are at risk of developing these conditions. Overall, this wearable monitoring system has the potential to improve patient outcomes by providing continuous monitoring and management of Parkinson's disease and varicose veins.

Keywords: Wearable technology, Parkinson's disease, Varicose veins, Sensor-based monitoring, Shoe sole sensors.

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ICARDAP1078

The Generation of Scanner QR Bar Code for Security Access

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ABSTRACT

In this paper, the generation of QR codes for biomedical engineering applications is presented. QR codes are two-dimensional barcodes that can be easily scanned and decoded using a smartphone or other image capture device. In biomedical engineering, QR codes have a wide range of potential applications, including drug authentication, patient identification, and medical device tracking. The process of generating QR codes for biomedical engineering applications involves selecting an appropriate QR code generator software or library, determining the data to be encoded, selecting an appropriate error correction level, and generating the QR code. Various factors such as size, resolution, and contrast must also be considered during QR code generation to ensure that the code can be easily scanned and decoded in the intended application. Overall, the generation of QR codes for biomedical engineering applications has the potential to improve patient safety and streamline healthcare operations. In conclusion, the generation of QR codes for biomedical engineering applications is a useful tool that can enhance patient safety and streamline healthcare operations. QR codes can be easily scanned and decoded using a smartphone or other image capture device, making them an ideal option for applications such as drug authentication, patient identification, and medical device tracking. Generating QR codes for biomedical engineering applications involves selecting an appropriate QR code generator software or library, determining the data to be encoded, selecting an appropriate error correction level, and ensuring that the code can be easily scanned and decoded. As the field of biomedical engineering continues to evolve, the use of QR codes is likely to become more widespread, providing additional benefits for patients and healthcare providers alike.

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ICARDAP1079

Sol-Bot The Next Generation Solar Farm Maintenance Solution

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ABSTRACT

Solar energy is one of the most sustainable and efficient sources of renewable energy available. However, solar panels located in dusty environments can be less efficient due to the accumulation of dust particles on their surface. This reduces the amount of sunlight that reaches the solar cells, decreasing the panel's power output by up to 50%. To address this issue, a solar panel cleaning system has been proposed that utilizes advanced technology. The solar panel cleaning system employs an LDR sensor to detect whether it is day or night, and a voltage measurement to detect the presence of dust on the solar panel's surface. If the voltage output decreases due to dust accumulation, the wiper unit attached to a robotic arm is automatically activated. This robotic arm is equipped with two servo motors, enabling it to move in all directions, and the wiper unit attached to the arm helps clean the surface of the solar panel. An AGV robot is also used to clean hard-to-reach areas on the solar panel. Using this solar panel cleaning system, solar panels can operate at their best power generation state, even in dusty environments. The system ensures that the solar panels are kept clean, allowing for maximum sunlight absorption and increased power output. This innovative solution showcases how technology can be utilized to create a more sustainable and efficient future for renewable energy.

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ICARDAP1080

Target Tracking Nano Drones using Artificial Intelligence

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ABSTRACT

The development of a target tracking nano drone using AI technology has emerged as an exciting area of research in recent years. The aim of this project is to design and develop a miniature drone that can autonomously track and follow a moving target using artificial intelligence (AI) algorithms. The proposed system comprises a small quadcopter drone equipped with a high-resolution camera and an AI-based tracking system.

The tracking system uses computer vision algorithms to identify and track the target in real-time. The system also incorporates machine learning algorithms to improve the accuracy of the tracking and prediction of the target's future movements. The drone's flight control system is designed to adjust its position and orientation to maintain a fixed distance and angle with respect to the target.

The proposed target tracking nano drone has potential applications in various fields such as surveillance, search and rescue, and monitoring of wildlife. The miniature size of the drone enables it to navigate through narrow spaces and operate in difficult terrains. The AI-based tracking system provides high accuracy and reliability in tracking moving targets, making it an effective tool for various applications.

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ICARDAP1081

Review: Using Machine Learning to Study Rheumatoid Arthritis

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The smaller joints in the hands, foot, and wrists are affected by the auto immune illness rheumatoid arthritis (RA). The person may lose their normal life and experience further suffering if the RA disease worsens. But rheumatoid arthritis (RA) pre-diagnosis is a challenge nowadays. Rheumatoid arthritis can be treated earlier in the course of the illness by receiving a pre-diagnosis. Several studies have been conducted using artificial intelligence and machine learning technologies to generate automatic RA illness pre-diagnosis with greater accuracy. X-ray and ultrasound images of patients are used as input data to train the model. In this study, we evaluated information on RA illness diagnosis and contrasted it with previous

Keywords: *Rheumatoid Arthritis; Machine learning; Medical images*

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ICARDAP1082

Tunnel Rescue Pick and Place Robot

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ABSTRACT

The tunnel rescue robot with pick and place is a specialized robot designed to assist in search and rescue operations in tunnel environments. The robot is equipped with a pick and place mechanism that allows it to pick up and move debris, as well as manipulate objects such as doors and levers, making it highly effective in the search and rescue process. Its compact size and rugged design allow it to navigate through tight spaces and harsh terrain. The robot is controlled remotely and can transmit live video and audio to the operator, enabling them to have a clear view of the rescue site. The tunnel rescue robot with pick and place has the potential to greatly improve the speed and efficiency of search and rescue operations in tunnel environments while also reducing the risk to human life. The robot is designed to have a compact and sturdy build that can withstand harsh tunnel environments. It is equipped with a pick and place mechanism that can be used to manipulate objects or move debris out of the way. The robot is also fitted with cameras to provide a live feed of the search and rescue operation.

Keywords: Light Weight Design, Communication System, Mapping and navigate System, Emergency Response Robot, Hazardous Environment Robot

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ICARDAP1083

Mars Exploration Perseverance Rover

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ABSTRACT

In this paper, the development of chronologies for the mass exploration rover is presented in a nutshell. Over the last twenty years, a "New Space" revolution has quietly unfolded in the domain of space exploration. Previously, only select countries, space agencies, and large industries were able to design, launch, and operate satellites and spacecraft. However, this has changed with the introduction of the "CubeSat" standard in 1999, which has allowed universities and research institutes to join in the space race. In 2013, the commercial Earth Observation sector took off, with two companies launching 100+ CubeSat constellations for optical imaging and weather prediction, featuring very low revisit times. Today, a similar transformation is taking place in the fields of telecommunications and astronomical scientific missions. This chapter reviews the evolution of the space sector up until the arrival of the CubeSats, followed by a discussion of the CubeSat's intrinsic limitations, which are crucial in understanding the development and current status of the CubeSat sector. The strategies of NASA and ESA are also presented. Finally, the chapter concludes with a summary of the technology roadmap required to enable the next generation of CubeSat-based missions, including satellite constellations or federations, formation flying, and synthetic apertures.

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ICARDAP1084

Nano Antenna for Energy Harvesting

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ABSTRACT

In this paper, the design & development of a Nano Antenna for Energy Harvesting is presented in a nutsell. The ever-increasing demand for energy in today's world has compelled us to seek alternative energy sources. While photovoltaic devices are being researched and developed to improve their efficiency, they can only extract energy from the visible region of the electromagnetic spectrum. Consequently, a new device called a Nano antenna has been developed that can convert thermal energy from the infrared region of the spectrum into electricity. In the near future, it is expected to contribute significantly to various fields, including space communication, broadband wireless links, wireless optical communication, mobile communication (5G), radar detection, and higher-order frequency applications. Nano antennas can be fabricated using different techniques such as electron beam lithography, focused ion beam, and nanoimprinting lithography. This paper focuses on the nanoimprinting lithography technique, as it is a cost-effective and high-throughput method. Additionally, the issue of material selection for nano antennas is a significant challenge, and the paper will discuss strategies for overcoming it.

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ICARDAP1085

Nano Antenna for Energy Harvesting

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ABSTRACT

Nanoantenna design for energy harvesting is presented in this paper. Untethered, wirelessly interconnected devices are becoming pervasive in today's society forming the Internet of Things. These autonomous devices and systems continue to scale to reduced dimensions at the millimeter scale and below, presenting major challenges to how we provide power to these devices. This article surveys existing approaches to harvest energy from the ambient or externally supplied sources including radio-frequency, optical, mechanical, thermal, nuclear, chemical, and biological modalities to provide electrical power for micro- and nano-systems. The outlook for scaling these energy conversion approaches to small dimensions is discussed in the context of both existing technologies and possible future nanoscience developments.

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ICARDAP1086

Nano Self - Cleaning

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ABSTRACT

Nano self-cleaning system review is presented in this paper. To achieve superhydrophobicity on a surface, it needs to be both rough and possess low surface energy. In this study, paraffin wax nanoparticles were used to create a hierarchically structured surface on cotton fabric, resulting in a superhydrophobic surface. Candle soot nanoparticles were also used to deposit superhydrophobic coatings onto smooth and micro-rough steel surfaces, demonstrating significant promise for use in high-temperature and corrosive environments. The coatings exhibited outstanding chemical and thermal stabilities, as well as effective self-cleaning abilities, making them ideal for industrial applications. Results from testing showed that the coatings created with 100 mg of candle soot nanoparticles in suspension were stable when hit by water jets, and demonstrated strong water repellent and self-cleaning qualities. This study provides an affordable and efficient technique for creating superhydrophobic coatings with a wide range of potential applications.

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ICARDAP1087

Molecular Modeling

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ABSTRACT

In this paper, the modelling of molecule is presented. Chemistry, as the central science, utilizes models in virtually every aspect of the discipline. Integral to the progress of chemistry has been its ability to draw from physics, mathematics, statistics, and computer science to develop new sub disciplines, such as computational chemistry. As computing hardware has become faster and more accessible, so to have techniques to perform modelling and simulations of molecular systems. Software systems today assist researchers in the study of molecular systems and provide mechanisms for deriving a rigorous and consistent explanation for the chemical or biological behaviour observed or help the researcher to develop a model for predictions. Molecular modelling is a field that encompasses a wide range of theoretical and computational methods used to represent the structure and behavior of molecules, ions, and particles. These models can be classified based on their length and time scales, ranging from electronic-level models to continuous-level models. One of the main applications of molecular modelling is in drug discovery, where it can be used to predict the activity and behavior of molecules in the body, aiding in the design of new drugs. Additionally, molecular modelling plays a crucial role in materials science, where it can be used to design new materials with specific properties, such as strength, flexibility, and conductivity. With advances in computing hardware and software, molecular modelling has become an increasingly powerful tool in the fields of chemistry, physics, biology, and materials science, allowing researchers to gain a deeper understanding of the behavior of molecules and particles at the molecular level.

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ICARDAP1088

Revolutionizing Cancer Treatment : The Role of Nanoparticles in Drug Delivery

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ABSTRACT

In this paper, the role of nanoparticles which is revolutionizing the cancer treatment is presented in briefNanoparticles have become a popular choice in drug delivery due to their unique physicochemical properties, which offer various advantages for drug solubility improvement, specific cell targeting, controlled drug release, protection against degradation or elimination, and reduced toxicity to healthy cells. These properties have made nanoparticles a valuable tool in drug delivery for a wide range of diseases. Nanoparticles can be engineered to specifically target cells or tissues, which can increase drug efficacy while reducing side effects. Nanoparticles can also improve drug solubility in water, leading to better delivery and efficacy of poorly soluble drugs. Controlled drug release from nanoparticles provides sustained drug delivery, reducing the need for frequent dosing and improving patient compliance. Additionally, nanoparticles can protect drugs from degradation or elimination, enhancing their effectiveness. Overall, the use of nanoparticles in drug delivery systems has immense potential for improving patient outcomes and revolutionizing the field of medicine. This abstract provides an overview of the potential applications of nanoparticles in drug delivery systems.

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ICARDAP1089

Nano Hydrophobic Coatings

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ABSTRACT

In this paper, the nano hydrophobic coatings is presented along with the design concepts. This paper explores the potential of nanocomposite coatings to replicate the self-cleaning properties of the nano-roughened lotus leaf surface. The study focuses on the use of nanosilica and clay-based coatings produced through dip coating and layer-by-layer self-assembly techniques. By developing nanosized surface roughness, these particles can create a super-hydrophobic surface on cotton fabrics, mimicking the lotus leaf effect. Nanosilica is found to be particularly effective at creating nano roughness, with a contact angle of greater than 150◦. When pretreated with a 0.5 wt% nanosilica emulsion, the water contact angle of cotton fabric treated with 2 wt% fluoro emulsion increases from 115◦ to 155◦. Moreover, the water repellency rating of fabric treated with 0.16 wt% nanosilica and 2 wt% Nuva HPU is comparable to that of 4 wt% Nuva HPU treated cotton fabric. The layer-by-layer technique requires 40 bilayers of nanosilica to achieve uniform nano-roughening and a water repellency rating of 4. The super-hydrophobic nanostructured coating does not adversely affect the air permeability of the L-b-L nanocoated cotton fabric.

Keywords: Super hydrophobic, nanocomposite coating, layer-by-layer, nanoclay, nanosilica.

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ICARDAP1090

A Study on Weather Forecasting By Using Nano Space Craft

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ABSTRACT

In this paper, the study on weather forecasting by using nano space craft is presented. In the past two decades, a silent revolution has taken place in the space domain, leading to what today is known as “New Space.” We have passed from a selected group of countries, space agencies, and big industries building, launching, and operating satellites and other spacecrafts, of a scenario in which many universities and research institutes can do it. The key of this was the definition of the “CubeSat” standard, back to 1999. In 2013, it all took off on the commercial Earth Observation sector with the first launches from two companies that are now running 100+ CubeSat constellations for optical imaging or weather prediction, with very low revisit times. Today, the same revolution is taking place in the fields of Telecommunications, and Astronomical Scientific missions. In this chapter, the evolution of the space sector is briefly revised until the arrival of the CubeSats. Then, the CubeSat intrinsic limitations are discussed as they are key to understand the development and current situation of the CubeSat sector. NASA and ESA strategies are also presented. The chapter concludes with a summary of the technology roadmap to enable the next generation of CubeSat-based missions, including satellite constellations or federations, formation flying, synthetic apertures

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ICARDAP1091

Construction of a Molecule using Molecular Modelling Software

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ABSTRACT

In this paper, the construction of a molecule using molecular modelling software is presented. This paper gives a brief review on the construction of a molecule using molecular modelling software. Molecular modelling encompasses a broad range of theoretical and computational techniques used to represent the structure of molecules, ions, and particles. These techniques can be categorized based on the length and time scale of the matter being modelled, ranging from electronic to continuous levels. Molecular modelling can be applied to solute / solvent systems and classified into three main categories: implicit methods, integral equations, and classical density functional theory, and explicit methods. In this study, the main idea of each class of methods used in chemical engineering is presented, focusing on three methods: Poisson Boltzmann equation, classical density functional theory, and molecular dynamics simulation. Additionally, the concept of scale integration is introduced as a strategy for efficient modelling and simulation.

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ICARDAP1092

Nanotechnology Conceptual Reviews in Delivering of Drug to Patients

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ABSTRACT

In this review paper, the nanotechnology conceptual reviews in delivering of drug to patients is presented. The potential of nanotechnology in drug delivery systems has garnered significant attention in recent years. Nanoscale materials, including nanoparticles, can modify drug properties, resulting in improved efficacy and safety. The design of nanoparticles can be tailored to target specific cells or tissues in the body, protect drugs from degradation or elimination by the immune system, and utilize nanosensors and nanorobots to deliver drugs to precise locations or monitor their activity. This review provides an overview of various methods and applications of nanotechnology in drug delivery systems, while also discussing the potential benefits and challenges associated with their use.

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ICARDAP1093

Nanosatellite Temperature & Humidity Sensor

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ABSTRACT

In this paper, the development of nanosatellite temperature & humidity sensor is presented. Nanotechnology has emerged as a significant field of science and engineering with potential applications across multiple fields, including medicine, electronics, and energy. By studying materials at the nanoscale level, researchers have discovered unique properties that can be harnessed for innovative solutions to real-world problems. Nanotechnology is an area of ongoing research and development with efforts to explore its possibilities and challenges. This paper provides an overview of nanotechnology and its applications, with a particular focus on its use in space exploration. Over the past two decades, the rise of "New Space" has democratized access to space, allowing for the development of small and cost-effective satellites known as nanosatellites or CubeSats. These nanosatellites have revolutionized space exploration, enabling new approaches to space missions and facilitating creative solutions to space-related challenges. Nanosatellites have demonstrated their potential for Earth observation, climate monitoring, scientific research, and commercial applications such as space-based logistics and internet coverage. By using sensors, nanosatellites can collect valuable data and monitor their environments, making them an effective tool for space exploration and research.

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ICARDAP1094

Study on Applications of Radio Frequency Nano Antenna Energy Conversion and Supercapacitors

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ABSTRACT

In this paper, the study on applications of radio frequency nano antenna energy conversion and supercapacitors is presented. Radio Frequency (RF) signals are a form of electromagnetic radiation with wavelengths greater than 3 meters. Initially used in wireless communication devices like radios and walkie-talkies, RF signals have found their way into energy conversion and storage applications. When RF signals are received by an antenna with coupled capacitors and a rectifier circuit, they generate a potential difference of a few millivolts. This potential difference can be used as a stable source of energy to power low-voltage applications through ambient RF radiation, and excess energy can be stored in electrochemical storage systems like supercapacitors and lithium-ion batteries. While this technology is currently limited to low-power applications, it has immense potential in various fields such as medicine, automotive industry, military applications, and more. Researchers are currently working to improve the energy density of supercapacitors by modifying their electrode materials using nanotechnology. One promising material is lignin, derived from wood fibers, which has shown great performance in tests and is expected to be a low-cost solution for high-performance batteries and supercapacitors. As the renewable energy sector continues to advance, we can expect to see more useful applications based on RF nano antennas and micro/nano-sized supercapacitors.

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ICARDAP1095

Fabrication of CNTFET Simulation using Cadence Virtuoso

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ABSTRACT

In this paper, the fabrication of CNTFET with the help of simulation using cadence virtuoso is presented. The process of fabricating Carbon Nanotube Field-Effect Transistors (CNTFETs) is a sophisticated task that demands great attention to detail. To aid in the design and optimization of CNTFET fabrication processes, simulation tools are often utilized. CNTFET fabrication simulations generally involve modeling the physical and chemical processes of creating the carbon nanotube channel, as well as the device's metal contacts and other components. Simulation tools such as COMSOL Multiphysics or Lumerical are used to model the mechanical, thermal, and electrical properties of the materials involved, and to predict how they will behave during fabrication. An essential challenge in CNTFET fabrication is obtaining precise control over the nanotube placement and orientation, which can be addressed through modeling the nanotube growth and optimizing the growth parameters to achieve the desired properties. Furthermore, simulations can assist in optimizing the process parameters for depositing metal contacts on the nanotubes, which is critical for achieving good device performance. Overall, simulation tools play a vital role in the CNTFET fabrication process, enabling researchers to optimize the device design and fabrication parameters for improved performance and yield.

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ICARDAP1096

Design & Development of a Nano Wind Turbine

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ABSTRACT

In this paper, the design & development of a Nano Wind Turbine is presented. Small-scale wind turbines have received less attention compared to their large-scale counterparts, prompting the need for studies in this area. This research focuses on the dynamic properties of "Glass reinforced fiber composite" blades in a nano wind turbine, providing both experimental and analytical results. The study investigates crucial parameters such as the natural frequency and mode shapes of the turbine, which are necessary for determining its performance and lifespan. Additionally, the results are used to set safe blade rotation speeds. Using Creo Parametric software, a detailed ANSYS Workbench 14.0 model is developed for simulation, incorporating the material properties of Glass reinforced fibre composite. The mathematical and experimental results are compared, and the first four modes are found to be within acceptable limits, verifying the dynamic properties of the Glass reinforced fiber composite.

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ICARDAP1097

Nanotechnology in Drug Delivery System

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ABSTRACT

This paper examines research on how nanotechnology has influenced drug delivery system in medicinal field. The article discusses the history of drug delivery systems and their mechanism, as well as the advantages and disadvantages of using nanomaterials in drug delivery. It also explores the developments that need to be made to advance this technology in the future. Nanotechnology has revolutionized the field of drug delivery by providing a platform for the development of nanoscale drug delivery systems. This review article provides an overview of the history of nanotechnology in drug delivery, its mechanisms of action, and how nanomaterials have been both beneficial and problematic in drug delivery. The article also discusses the recent developments and challenges that need to be addressed for the advancement of nanotechnology in drug delivery.

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ICARDAP1098

Nano Antenna and Energy Harvesting

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ABSTRACT

In this paper, the development of nano antenna and energy harvesting is presented. Wirelessly interconnected devices are becoming increasingly common in today's society, forming the Internet of Things. These devices are often autonomous and continue to scale down to millimeter and even smaller dimensions, presenting major challenges for how to power them. To address this challenge, various approaches to harvesting energy from ambient or externally supplied sources have been developed, including radio-frequency, optical, mechanical, thermal, nuclear, chemical, and biological modalities. This article provides a comprehensive survey of existing approaches for energy harvesting, discussing their potential for scaling to small dimensions in the context of current technologies and possible future nanoscience developments. The article also provides an outlook on the advancements that need to be made to address the challenges of powering small-scale devices and systems.

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ICARDAP1099

Design & Development of Nanosatellites

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ABSTRACT

In this paper the design & development of nanosatellites is presented. Over the last twenty years, the space industry has undergone a significant transformation, resulting in the emergence of "New Space." Previously, the building, launching, and operation of satellites and spacecraft were limited to a select group of countries, space agencies, and large industries. However, the introduction of the "CubeSat" standard in 1999 changed this. This standard enabled universities and research institutes to develop and launch their own satellites and spacecraft, leading to a democratization of the space industry. In 2013, two companies launched the first commercial Earth Observation CubeSat constellations for optical imaging and weather prediction. Today, the revolution is spreading to the fields of telecommunications and astronomical scientific missions. This paper provides a brief overview of the evolution of the space sector until the emergence of CubeSats. The article then delves into the intrinsic limitations of CubeSats, which are critical to understanding the current state of the CubeSat industry. The paper also presents the strategies of NASA and ESA in this regard. Finally, the article concludes by summarizing the technology roadmap to enable the next generation of CubeSat-based missions, including satellite constellations or federations, formation flying, synthetic apertures, and more.

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ICARDAP1100

Molecular Modeling of Nanotubes

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ABSTRACT

In this paper the molecular modelling of molecules is presented. Molecular modeling is a powerful tool used to study the behavior and properties of nanotubes, which are widely used in a range of applications, including electronics, energy storage, and biomedicine. This paper presents an overview of molecular modeling techniques used to simulate the behavior of nanotubes, including quantum mechanical simulations and classical molecular dynamics simulations. The advantages and limitations of each approach are discussed, along with examples of how they have been used to study various aspects of nanotube behavior, such as their electronic and mechanical properties, as well as their interactions with other materials. Finally, future directions and challenges in the field of molecular modeling of nanotubes are discussed, highlighting the need for continued advancements in computational methods and the integration of experimental data to further enhance our understanding of these important nanomaterials.

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ICARDAP1101

Chatbot Design using ML and Python

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ABSTRACT

In this paper, the Chatbot design using ML and Python is presented. Conversational interfaces, commonly known as chatbots, provide a new way for users to interact with software programs using natural language processing (NLP). The rise of chatbots can be attributed to recent advances in machine learning, which have greatly improved their accuracy and effectiveness. Chatbots can be easily created by integrating frequently asked questions (FAQs) into chatbot software, and their functionality can be improved by integrating them into an organization's enterprise software. Most commercial chatbots rely on natural language processing platforms developed by technology giants. Chatbot design using ML and Python is a project focused on building a chatbot with the help of machine learning and Python programming language. The use of natural language processing (NLP) and machine learning algorithms can greatly improve the chatbot's accuracy and effectiveness in answering user queries. This project aims to demonstrate how to create a chatbot that can be integrated into an organization's enterprise software, allowing for more personalized interactions with users. By utilizing ML and Python, this project shows how chatbots can be designed to become a valuable tool for businesses and organizations to enhance their customer service capabilities.

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ICARDAP1102

Design & Development of an Automatic Water Supply System

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ABSTRACT

In this paper, the Automatic Water Supply System is presented. This paper suggests an IoT device for automatic plant watering when the soil moisture level drops below a threshold value. The proposed system can be implemented in various projects like green buildings, roof farming, etc. The IoT device is connected to the internet, enabling the user to receive moisture level updates. The paper aims to address the need for an efficient plant watering system by providing an automatic solution using IoT technology. This paper presents the design and development of an automatic water supply system using IoT technology. The system detects the soil moisture level of plants and automatically waters them when the moisture drops below a certain threshold value. The proposed system is suitable for use in green building projects and roof farming. The device is connected to the internet, allowing the user to receive real-time updates on moisture levels. The paper details the development process and the key components of the system, including sensors, actuators, and the microcontroller.

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ICARDAP1103

Design & Development of an Air Pollution Monitoring using Smartphone

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ABSTRACT

In this paper, the design & development of a Air Pollution Monitoring Using Smartphone is presented. This project proposes a low-cost air pollution monitoring system that uses the sensors in smartphones to detect different air pollutants such as particulate matter, carbon monoxide, and nitrogen oxides. The system provides a real-time air quality index by analyzing the collected sensor data. The proposed system has been tested and demonstrated to be accurate and reliable in detecting air pollution in different environments. This project proposes a low-cost air pollution monitoring system that uses sensors in smartphones to detect and measure different air pollutants. The system analyses the data collected from the sensors and provides a real-time air quality index. The results have shown that the system can provide accurate and reliable information about air quality in different environments. This paper concludes that smartphone-based air pollution monitoring can be a viable solution to the rising issue of air pollution, provided that further research and development are undertaken to ensure the accuracy and reliability of the system. Integrating smartphone-based monitoring into existing air pollution monitoring systems can provide a more comprehensive understanding of air pollution levels and help to inform public health policies and urban planning.

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ICARDAP1104

A Brief Study on Soil Moisture Sensors

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ABSTRACT

A brief study on soil moisture sensors is discussed in this survey article. The objective of this research was to assess the efficacy of capacitive soil moisture sensors in precision agriculture. The study involved testing various types of sensors in soil with varying moisture levels, placed at a depth of 10 cm, and monitoring changes in soil moisture over time. The findings revealed that all types of sensors had a high level of accuracy, averaging 95%. However, some sensors exhibited greater sensitivity to changes in soil moisture than others. Additionally, the study discovered that soil type impacted sensor accuracy, with lower clay content yielding better performance. Overall, the results suggest that capacitive soil moisture sensors are a valuable tool for precision agriculture, enabling farmers to accurately track soil moisture levels and optimize irrigation practices.

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ICARDAP1105

Wireshark Data Monitoring Using Cloud Computing

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ABSTRACT

Wireshark data monitoring using cloud computing concepts are presented in this paper. In the modern world, effective data monitoring is crucial in ensuring data security, compliance, and efficiency in any organization. However, conventional data monitoring methods are becoming inefficient and challenging to manage due to the increasing complexity of network infrastructures and the vast amounts of data generated. Cloud computing provides a promising solution to this problem by offering scalable and flexible resources that can handle large data volumes. This study presents an investigation into wireshark data monitoring using cloud computing. The proposed system captures network traffic using wireshark and sends the data to the cloud for processing and analysis. The cloud-based system facilitates real-time monitoring, data storage, and analysis, enabling network administrators to detect and resolve issues efficiently. The system architecture is designed to be scalable and flexible, making it adaptable to changing network requirements. Results show that the proposed system is effective in monitoring network traffic and can help organizations achieve a more secure and efficient data monitoring system.

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ICARDAP1106

A Study on the Car Parking System using Arduino

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ABSTRACT

The study on the car parking system using Arduino is presented. The car parking using Arduino system is a parking solution that leverages technology to offer drivers an efficient and convenient parking experience. The system comprises an Arduino microcontroller, sensors, and other components that work together to detect the presence of a vehicle in a parking space and communicate this information to a central control unit. The system provides real-time feedback to drivers on parking space availability, reducing the time and frustration of finding a parking spot. This system is adaptable to different settings, including parking lots, garages, and other public areas. It is also beneficial for parking lot owners as it helps them manage parking spaces effectively and efficiently, increasing revenue. The use of Arduino microcontrollers enables customization and flexibility in designing the system, allowing it to be easily modified to suit specific needs and integrated with other systems. Overall, the Car parking using Arduino system is an efficient and effective parking management solution that benefits both drivers and parking lot owners.

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ICARDAP1107

AI Based Attendance Development System

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ABSTRACT

AI Based Attendance Development System is presented in this paper. Ensuring staff attendance is crucial for the success of any business or industry. As such, most organizations require a system to track attendance. Cloud computing technology is increasingly being utilized in the human resource management sector to store attendance information, as it offers an excellent option for processing and storing large amounts of data and improving management effectiveness in a feasible manner. This paper explores the use of cloud infrastructures for managing employee attendance, which is categorized into three groups. The study shows that cloud infrastructure has a significant and positive impact on managing employee/staff/student attendance systems. Artificial intelligence is also used to monitor and maintain attendance by capturing motion pictures of students when present to analyze the student data, including the time they entered class. When implemented correctly, these systems improve workplace efficiency, effectiveness, and safety, benefiting both the people involved and society as a whole.

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ICARDAP1108

AI Trained Object Recognition using Google Teachable Machine

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ABSTRACT

AI Trained Object Recognition using Google Teachable Machine is presented in this paper. Computer vision and artificial intelligence heavily rely on object recognition, a critical task for many applications such as robotics, autonomous vehicles, and surveillance systems. This paper provides an overview of object recognition using AI Trained models through Google Teachable Machine, a web-based platform that requires no coding or programming skills to train machine learning models. The steps involved in training an object recognition model using Google Teachable Machine are explored, and the model's performance is evaluated on a real-world dataset. The study finds that Google Teachable Machine is a user-friendly and powerful tool for training object recognition models with high accuracy. In conclusion, our study has demonstrated the effectiveness and ease of use of Google Teachable Machine for training object recognition models using AI. The web-based platform allows users to train models without any coding or programming skills, making it accessible to a wide range of users. Our evaluation of the model's performance on a real-world dataset showed high accuracy, indicating the potential of Google Teachable Machine for use in various applications such as autonomous vehicles, surveillance systems, and robotics. With the continuous advancements in AI and computer vision technologies, we believe that Google Teachable Machine will continue to be an important tool for object recognition in the future.

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ICARDAP1109

TCP /IP Protocol Data Monitoring

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ABSTRACT

NodeMCU is a popular open-source platform for the Internet of Things (IoT), which includes firmware that runs on the ESP8266 WiFi system-on-a-chip (SoC) and hardware based on the ESP-12 module. The firmware is written in Lua and is built on the Espressif Non-OS SDK for ESP8266, utilizing various open-source projects such as Lua-cjson and spiffs. The NodeMCU board is an open-source hardware board that is breadboard-friendly, includes a CP2102 TTL to USB chip for programming and debugging, and can be powered through its micro USB port. Overall, NodeMCU provides an accessible and customizable solution for IoT development. This paper discusses TCP/IP Protocol Data Monitoring, a critical task in network management that ensures network security, compliance, and performance. Traditional data monitoring methods are becoming increasingly inefficient and difficult to manage due to the growing complexity of network infrastructures and the large volume of data generated. Cloud computing provides a scalable and flexible solution to this problem, and this paper explores the feasibility of using cloud resources for TCP/IP Protocol Data Monitoring. We present a study that uses Wireshark to capture network traffic, and the captured data is sent to the cloud for processing and analysis. The cloud-based system enables real-time monitoring, data storage, and analysis, allowing network administrators to detect and resolve issues efficiently. Our proposed system is designed to be scalable and flexible, and the results demonstrate its effectiveness in monitoring network traffic. This system can help organizations achieve a more secure and efficient data monitoring system. In conclusion, TCP/IP protocol data monitoring is a crucial task for ensuring network security, compliance, and efficiency. The proposed system in this study provides an effective solution for monitoring network traffic by using Wireshark and cloud computing. The results demonstrate that the system is scalable and flexible, allowing it to adapt to changing network requirements. By utilizing cloud resources, the system enables real-time monitoring, data storage, and analysis, helping network administrators to detect and resolve issues efficiently. Overall, the study shows that TCP/IP protocol data monitoring using Wireshark and cloud computing can help organizations achieve a more secure and efficient data monitoring system.

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ICARDAP1110

Development of a Heart Rate Monitoring System

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ABSTRACT

Development of a Heart Rate Monitoring System is presented in this paper. This paper presents a heart rate monitoring system that utilizes a MAX30102 sensor and an Arduino Uno microcontroller to accurately measure heart rate. The system is designed to be low-cost, portable, and user-friendly with a graphical user interface that displays real-time heart rate and allows for alarms and long-term tracking. Results from testing the system on volunteers showed an average error rate of 1.7 bpm, indicating its potential to improve personal health tracking, sports performance monitoring, and medical diagnosis. The proposed system provides an accessible and affordable option for heart rate monitoring. Heart rate monitoring is crucial for personal health tracking, sports performance monitoring, and medical diagnosis. This paper proposes a low-cost, portable, and easy-to-use heart rate monitoring system using a MAX30102 sensor and an Arduino Uno microcontroller. The system includes a graphical user interface that displays real-time heart rate and allows the user to set alarms and track their heart rate over time. The accuracy of the system was tested on a group of volunteers and showed an average error rate of 1.7 bpm. This heart rate monitoring system has the potential to improve personal health tracking, sports performance monitoring, and medical diagnosis.

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ICARDTAP111

Generation of QR Codes for Communication Applications

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ABSTRACT

In this paper, the generation of QR codes is presented. A QR code, short for Quick Response code, is a type of 2D barcode that can be read by a smartphone or QR code reader. It contains encoded information in the form of black and white squares arranged on a square grid. The process of generating a QR code involves encoding the data into a binary format using an algorithm, dividing it into codewords based on error correction level, adding error correction codes, arranging the codewords into a specific pattern with synchronization patterns, alignment patterns, and quiet zones, and finally converting the pattern into a black and white image. This image can be printed or displayed on a screen and read by a smartphone or QR code reader to retrieve the encoded information.

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ICARDAP1112

A Study on AI-based Face Recognition

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ABSTRACT

A Study on AI-based face recognition is discussed briefly in this paper. Facial recognition technology is a biometric system that identifies a person by analyzing their facial features. The process involves capturing facial images, which are then automatically processed by recognition equipment. This paper provides an overview of face recognition research from various perspectives. It outlines the development stages and technologies of facial recognition and discusses research into real-life conditions. Additionally, it introduces the general evaluation standards and databases used for facial recognition. Finally, the paper provides a forward-looking view of the technology, which is expected to be a key direction of future development and has potential applications in various fields. This paper presents a comprehensive overview of AI-based face recognition technology, which is a biometric technology based on the identification of facial features of a person. The study covers the development stages, related technologies, research for real-world conditions, evaluation standards, and databases of face recognition. The paper also provides a forward-looking view of the potential application prospects of face recognition. Through this study, we aim to enhance the understanding of AI-based face recognition technology and its potential impact on various industries.

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ICARDAP113

Smart Door Lock System using Fingerprint Sensor

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ABSTRACT

In this paper, the smart door lock system using fingerprint sensor is presented. Security is a vital concern in modern society, and this study focuses on using a combination of fingerprint sensors, GSM modules, and Arduino microcontrollers to provide an effective and affordable security solution. The system stores authorized users' fingerprints in the microcontroller and uses a matching algorithm to determine whether they are allowed access. If the person is authorized, a one-time password (OTP) is sent to their registered mobile number using GSM. If an unauthorized person attempts to access the door, the buzzer sounds to alert the owner. This system can be applied in various settings, such as banks, offices, and other areas that require high levels of security. With the rise of smart buildings and the Internet of Things (IoT), security concerns are becoming even more critical. The proposed approach addresses security concerns in smart home technologies, specifically in the door lock system. This system enables the owner to monitor and control the buildings with a Smartphone-connected, Bluetooth-enabled system using an Arduino UNO microcontroller. The system can be accessed using an Android application, and if invalid login credentials are provided, the buzzer rings, and an SMS alert is sent to the owner. This approach has the potential to be implemented in other commercial sectors, such as ATMs and vending machines, using wireless communication.

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ICARDAP1114

Automatic Water Supply System and Water Level Monitoring Development

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ABSTRACT

In this paper the automatic water supply system and water level monitoring development is presented. In urban areas, fixed flow rates are provided for water supply to residences and commercial establishments. However, incidents of water theft have been reported where certain customers/users connect motor-pump sets to the waterlines to draw excess water. To prevent such theft, an embedded-based remote water monitoring and theft prevention system is proposed in this project. Each consumer will be provided with an embedded-based water flow monitoring system consisting of a microcontroller and a flow sensor to record the flow rate, and an electrically operated solenoid valve to supply water to the consumers. The valve will turn on/off to stop the water supply whenever the flow rate exceeds a predefined limit. The proposed system will use a GSM modem for wireless communication to transmit information to a responsible officer's cell phone for immediate action. This project aims to address the issue of water scarcity by managing and providing water resources using an automatic water management system with microcontroller and a python-based management software to handle user account details. This approach not only monitors consumption but also helps in finding water pollution, thus enhancing the overall efficiency of the water supply system.

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ICARDAP1115

Online Railway Ticket Reservation System

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ABSTRACT

In this paper, the online railway ticket reservation system is presented. An online railway ticket reservation system is a web-based platform that simplifies the process of booking railway tickets and managing bookings online. This system eliminates the need for customers to visit railway stations or travel agents to make a reservation, and instead provides a user-friendly interface for searching for trains, selecting seats, and making payments. The system also includes an administrative interface for railway staff to manage train schedules, ticket prices, and reservations. Using an online reservation system offers several benefits such as convenience, time-saving, and flexibility. Customers can book tickets from the comfort of their homes or offices without waiting in long queues at railway stations, and can check train schedules, seat availability, and prices in real-time. The system also benefits railway companies by reducing the workload on railway staff, improving the efficiency of the ticket booking process, and enabling them to collect and analyze customer data to make informed decisions about pricing, scheduling, and service offerings. In summary, an online railway ticket reservation system is an invaluable tool that enhances the booking experience for customers while improving the overall efficiency of railway companies.

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ICARDAP1116

Weather Reporting System using IOT

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ABSTRACT

In this paper, the weather reporting system using IoT is presented, i.e., this paper presents a brief information on the weather reporting system using the IoT concepts. The unpredictability of weather forecasts is due to drastic changes in climate. To monitor these constantly changing conditions in various areas such as homes, industries, and agriculture, a Weather Reporting System is commonly used. This system utilizes an Internet of Things (IoT) platform called ThingSpeak, which displays weather parameters and information worldwide. Two-way microcontroller communication via Wi-Fi hotspots enables display on an OLED. Although satellite weather reports provide information on certain locations, they do not always provide precise conditions. To obtain accurate current weather reports, a weather reporting system using ESP32 microcontrollers is employed. The sensors controlled by the microcontroller send data to a database accessible globally and displayed on an OLED, which uses a Wemos D1 mini as a client. The data collected is also saved in Google Sheets format for ease of analysis using the IFTT tool. This system continuously monitors changes in weather conditions and provides users with fast access to information from any location.

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ICARDAP1117

Arduino-Powered Heart Rate & Blood Oxygen Monitoring

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ABSTRACT

In this paper, the arduino-powered heart rate & blood oxygen monitoring is presented. A heartbeat sensor is an electronic device used to measure the heart rate, which indicates the speed of the heartbeat. Monitoring body temperature, heart rate, and blood pressure are essential for maintaining good health. To measure body temperature, thermometers are used, and a sphygmomanometer is used to monitor arterial or blood pressure. Heart rate can be monitored in two ways: by manually checking the pulse at either the wrists or neck or by using a heartbeat sensor. This project involves designing a heart rate monitor system using an Arduino and a heartbeat sensor. The principle of the heartbeat sensor, its working, and an Arduino-based heart rate monitoring system are explained using a practical heartbeat sensor.

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ICARDAP1118

Smart Home Automation by using IOT

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ABSTRACT

In this paper, the smart home automation by using IoT is presented. This paper discusses the implementation of smart home automation using IoT technology. The primary objective is to create a virtual assistant that performs basic functions such as displaying time, date, and temperature while also controlling electrical appliances that are connected to the system. The entire system is designed to be voice-operated, thereby eliminating the need for manual input. In addition to voice-activated commands, certain sensors will also be employed to automate specific appliances. The system's main goal is to simplify the user's daily life by completing tasks without requiring manual effort. Additionally, the system aims to improve electricity utilization efficiency through the use of IoT technology.

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ICARDAP1119

AI based Attendance Monitoring System

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ABSTRACT

In this paper, the AI based attendance monitoring system is presented. An Attendance Monitoring System is crucial for organizations to track student performance, as it is a daunting task to manually verify the presence of each student. Traditionally, attendance is taken by calling out students' register numbers or names and recording the attendance in registers provided by department heads as evidence. In some organizations, students sign these sheets to store them for future reference. However, this method is tedious, error-prone, and susceptible to students signing in for absent students or proxy attendance. Additionally, it becomes challenging to monitor individual attendance in a large classroom environment. This article proposes the use of face detection and recognition technology to automatically identify students and mark their attendance by comparing their faces with a database. This facial biometric system captures an image of the student using a camera and compares it with the image stored during enrollment. If it matches, attendance is marked, and the student's performance is continuously monitored. Artificial intelligence concepts can be applied to track student attendance, such as capturing motion pictures of students when present in class to analyze data on their attendance duration.

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ICARDAP1120

IP Address Based LED On & Off

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ABSTRACT

In this paper, the IP Address Based Led On & Off is presented. The IP address-based LED on and off system is a technology that enables users to control LED lighting devices remotely through the Internet Protocol (IP) address. Typically, the system involves a microcontroller or computer connected to the LED device and a network such as Ethernet or Wi-Fi. When the user sends a request to the device's IP address, the microcontroller or computer receives the request and activates or deactivates the LED accordingly. This technology finds applications in home automation, security systems, and other scenarios where remote lighting control is needed. The IP address-based LED on and off system is a technology that allows for the remote control of LED devices through the use of Internet Protocol (IP) addresses. This system involves a microcontroller or computer that is connected to the LED device and a network, such as Ethernet or Wi-Fi. By sending a request to the device's IP address, the microcontroller or computer can activate or deactivate the LED. This technology has numerous applications, including home automation and security systems. This abstract provides an overview of the IP address-based LED on and off system and its benefits for remote lighting control.

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ICARDAP1121

AI Trained Object Finding Using Google Teachable Machine

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ABSTRACT

In this paper, the AI Trained Object Finding Using Google Teachable Machine is presented. Artificial intelligence (AI) and machine learning (ML) teaching technology is crucial for improving the quality of basic education. Using AI and ML technology, teachers of young children can enhance the learning environment in the classroom and make learning more enjoyable. By integrating GTM student-trained models into lightweight and cellphone web apps, machine learning can be made accessible to a broader audience. Although students must understand fundamental concepts such as training set, prediction accuracy, and class labels, practical experience is necessary to solve complex real-world issues. AI Trained Object Finding, which uses Google Teachable Machine, is a project that explores the use of machine learning to detect and classify objects in images. The project trains a custom machine learning model to recognize specific objects using a set of labeled images. The trained model can then be tested on new images to determine its accuracy in object detection and classification. This project demonstrates the potential of machine learning in various fields such as e-commerce, security systems, and surveillance and provides an accessible way for individuals and small businesses to utilize this technology.

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ICARDAP1122

Mini - Temperature Sensor, Smoke Sensor, Video Data Transmission using Arduino

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ABSTRACT

In this paper, a mini - temperature sensor, smoke sensor, video data transmission using Arduino is presented. Arduino is a flexible and widely used open-source hardware and software platform that supports the development of various electronic projects. This platform can be employed to build three distinct projects: mini-temperature sensors, smoke sensors, and video data transmission. Mini-temperature sensors enable users to monitor temperature changes in a particular location by using digital or analog temperature sensors. Smoke sensors are capable of detecting smoke particles and toxic gases, making them suitable for fire prevention systems. Using either MQ-2 or MQ-135 smoke sensors, Arduino can trigger an alarm, send an SMS message, or notify the fire department when smoke is detected. Finally, Arduino can be used to transmit video signals wirelessly through a video transmitter and receiver module connected to its digital pins. Such signals can then be received by a video receiver module connected to a TV or a monitor. The possibilities of Arduino are endless, and these three projects serve as examples of the broad range of applications this platform can provide. With the necessary tools and resources, anyone can utilize Arduino to create their electronic projects.

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ICARDAP1123

OS Installation Using VMWare – A Survey

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ABSTRACT

OS Installation Using VMWare is elaborated in this survey article. In this paper, the installation of operating systems using VMWare is presented. The enterprise IT personnel commonly use VMware Workstation Pro, a popular desktop virtualization solution, to build and test virtual machines and network devices on their personal computers. This article aims to help readers create a fully functional virtual lab and master Python network automation basics using a single PC. The article also provides an introduction to VMware Workstation 15 Pro and basic virtualization concepts. By the end of the chapter, readers will have learned about Type-1 and Type-2 hypervisors, various IT vendors offering different desktop virtualization solutions, how to install and perform general administration on VMware Workstation, and the functioning of VMware Workstation's network adapters. Based on the survey conducted on OS installation using VMware, it can be concluded that virtualization technology has greatly simplified the process of setting up new operating systems for testing and evaluation purposes. With VMware, users can create multiple virtual machines on a single physical machine and run different operating systems simultaneously. This saves time and resources and eliminates the need for multiple physical machines.

The survey also showed that VMware is a popular choice among users for OS installation due to its ease of use, reliability, and flexibility. The ability to easily clone virtual machines, take snapshots, and roll back to previous states in case of errors or issues was also noted as a significant advantage.

Overall, the survey results indicate that VMware is a highly effective tool for OS installation and management, providing users with a cost-effective and efficient solution for testing and evaluating different operating systems.

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ICARDAP1124

A study on TCP/IP model development (data monitoring)

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ABSTRACT

In this paper, the study on TCP/IP model development for data monitoring is presented in a nutshell. The Transmission Control Protocol/Internet Protocol (TCP/IP) is a crucial set of communication protocols that enable computers to communicate and exchange data over the internet. To improve the security and reliability of the internet's communication infrastructure, a study on TCP/IP model development could be conducted, which involves monitoring data transmission and reception using the TCP/IP model and implementing measures to protect against cyber threats. This may include analyzing network traffic patterns, identifying potential vulnerabilities, and developing methods to ensure data accuracy and security. It is important to note that this report is simply a survey of existing literature and not a novel contribution. It is a collection of various articles presented as a part of the first semester mini-project for college students.

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ICARDAP1125

A Study on AI Based Facial Recognition Systems

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ABSTRACT

In this paper, we present a thorough study on the AI based facial recognition system. Facial Recognition technology utilizes biometric software to analyze and map an individual's facial features and store the data as a face print. Through the use of deep learning algorithms, the technology compares a live captured image to the stored face print to verify the person's identity. This technology has become a crucial component in various applications of security, such as criminal detection, airport surveillance, face tracking, and forensic investigation. Unlike other biometric traits, such as palm prints or iris scans, facial recognition is non-intrusive, making it more user-friendly. The process of face recognition involves capturing face images and comparing them with the stored database. These images are trained, classified, and stored, so when a test image is given to the system, it can be classified and compared with the stored database.

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ICARDAP1126

Smart Parking System Design Using Arduino Microcontroller

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ABSTRACT

This paper presents the design and implementation of a smart parking system using an Arduino microcontroller. The main objective of the proposed system is to address the challenges of finding parking spaces in crowded areas by utilizing a network of ultrasonic sensors to detect vehicle presence. The system is user-friendly and provides real-time updates on parking availability through a central control unit. Results from real-world testing have shown that the system is reliable and effective in managing parking spaces. The implementation of this system has the potential to significantly improve the efficiency of parking systems in urban areas, thereby reducing congestion and improving the overall user experience. This paper presents the design and implementation of a smart parking system using Arduino microcontroller. The system aims to provide a solution to the problem of parking space management in crowded areas. Ultrasonic sensors are used to detect the presence of vehicles in parking spots, and the information is transmitted to a central control unit. The system also includes a user-friendly interface for drivers to locate available parking spots. The design and implementation of the system are discussed in detail, along with the challenges faced during the process. The system was tested in a real-world scenario and the results indicate its reliability and effectiveness in managing parking spaces. Overall, the proposed system has the potential to improve the efficiency of parking systems in urban areas, reducing congestion and improving the overall user experience.

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Design & Development of Chatbots

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ABSTRACT

This paper presents an overview of the design and development process of chatbots. The paper examines the growing popularity of chatbots in various industries and discusses the components of chatbot design, such as natural language processing, dialog management, and user interface. The development process is outlined, including the selection of suitable platforms, programming languages, and tools. The paper also explores the challenges and considerations involved in designing and developing chatbots, such as user experience, privacy, and security. It concludes by highlighting the potential benefits of chatbots in various applications, including customer service, healthcare, and education. The design and development of chatbots is becoming increasingly popular in various industries. This paper explores the various components of chatbot design, including natural language processing, dialog management, and user interface. It outlines the development process, including platform selection, programming language, and tools. The challenges and considerations involved in designing and developing chatbots, such as user experience, privacy, and security, are also discussed. The paper concludes by highlighting the potential benefits of chatbots in various applications, such as customer service, healthcare, and education. Overall, the paper provides a comprehensive overview of chatbot design and development and its potential impact in the future.

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Smart Alarm System with Voice Control

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ABSTRACT

In this paper, a Smart Alarm System with Voice Control is presented. A Real Time Clock, or RTC, is a type of clock that uses battery power to keep accurate time even when there is no external power source or the microcontroller is reprogrammed. The DS1302 is an RTC that provides accurate measurement of seconds, minutes, hours, date, day of the week, and year, with leap-year compensation up to the year 2100. The Arduino Uno is an open-source microcontroller board that uses the Microchip ATmega328P microcontroller. It can be programmed to perform various tasks and interface with other hardware components. The Voice Recognition Module is a compact and easy-to-use speaking recognition board that is speaker-dependent and supports up to 80 voice commands. Any sound can be trained as a command, making it useful for voice-controlled applications. Together, these components can be used to build various projects such as voice-controlled clocks, home automation systems, and other projects that require accurate timekeeping and voice recognition capabilities.

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ICARDAP1129

Smart Plant Monitoring System

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ABSTRACT

In this paper, a smart plant monitoring system is presented. In today's world, only a limited number of devices such as PCs and mobiles are connected to the internet. However, the world is becoming increasingly dominated by the Internet of Things (IoT), which refers to the inter-networking of physical devices embedded with electronics, sensors, software, and network connectivity. The IoT enables devices to achieve greater value and services by exchanging data with the manufacturer. Agriculture is the backbone of many countries, and water scarcity is a significant issue in this field. To address this problem, the irrigation process can be automated using IoT. This paper proposes a system that captures details about the soil and temperature using different sensors, and uses IoT to monitor and maintain the appropriate moisture content in the soil, which reduces the wastage of water. The proposed system uses Arduino UNO as the microcontroller and temperature, moisture, and humidity sensors to measure the respective values in the soil. The system achieves greater accuracy, efficiency, and economic benefits while reducing human intervention. This paper examines the basic concepts of IoT and its scope for different applications, including revolutionary farming methods.

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ICARDAP1130

Speech Recognition using Python

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ABSTRACT

In this paper, the Speech Recognition using Python is presented. Speech recognition involves the conversion of spoken words into text and is utilized in various applications such as virtual assistants and speech-to-text dictation. Python is a favored programming language for developing speech recognition systems due to its flexibility, simplicity, and availability of libraries and tools. Various packages and libraries such as Speech Recognition, Py Audio, and Pocket Sphinx are used for implementing speech recognition in Python. Recording audio and converting it into text using a speech recognition engine are the basic steps involved in building a speech recognition system using Python. Natural language processing (NLP) can then be employed to further process the text. The ease-of-use and wide-ranging applications make speech recognition using Python an exciting field.

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ICARDAP1131

A Study On Air Pollution Monitoring Systemcx

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ABSTRACT

Air pollution is a harmful phenomenon caused by the introduction of gases, dust particles, fumes, and odours into the atmosphere. This problem poses a serious threat to the health of both humans and other living beings on the planet. Air pollution leads to the formation of smog and acid rain, causes cancer and respiratory diseases, depletes the ozone layer, and contributes to global warming. While it may not be possible to completely eliminate air pollution in this industrial age, efforts can be made to control and reduce it. Governments have developed guidelines and ordinances to restrict emissions and improve air quality. On an individual level, we can reduce our contribution to air pollution by carpooling or using public transportation, buying energy-efficient appliances and light bulbs, and reducing our electricity consumption.

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Wireshark Data Monitoring in Cloud Computing

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ABSTRACT

In this paper, the Wireshark Data Monitoring in Cloud Computing is presented in brief. Wireshark is a widely used network protocol analyser tool used for troubleshooting, analysis, and development of network protocols. It captures the traffic flowing through a network interface and displays it in a user-friendly format that allows users to easily analyse network traffic. Wireshark is a powerful network protocol analyzer tool that can be used for monitoring and analyzing network traffic in cloud computing environments. With the increasing popularity of cloud computing, it has become essential to monitor and optimize network performance to ensure the efficient functioning of cloud-based applications and services. This paper explores the use of Wireshark for monitoring network traffic in cloud computing environments, including the various features and capabilities of Wireshark that make it an effective tool for data monitoring and analysis. The paper also discusses the benefits of using Wireshark for cloud computing monitoring and provides practical examples of its application in real-world scenarios.

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ICARDAP1133

Design and Fabrication of Smart Energy using Piezoelectric Material in Automobile

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ABSTRACT

Humans have relied on **fossil** as their main source of **energy** for their daily purpose ever since the dawn of modern civilization. Due to the population's exponential growth, the reliance on these traditional energy sources has resulted in their **depletion** and negative effects on the **environment**. **Energy harvesting** has become the need for the different energy harvesting technologies has been the prime area of research to lessen the burden and if possible, minimize to zero. Piezoelectric materials stand out among them in this comfort of energy harvesting solutions and have the potential to efficiently capture the waste energy for use in the future. In this document, a method of applying piezoelectric material for energy harvesting, such as around the circumference of the tire's inner lining, has been developed. Average guess calculations have been taken to project the amount of energy harvested and how it would be used. The current work describes a sample crystal arrangement, although several new arrangements may be created based on maximum power output.

Power harvesting is the process of acquiring the energy around a system and transforming it into usable **electrical energy**. Vibration, repetitive strikes, and structural bending have all been used to harvest energy using piezoelectric materials in various forms. The Matlab/Simulink simulation results are used to discuss the use of **piezoelectric material** with in commercial vehicles tire and to harvest power that can be used to run onboard devices or to recharge the electric vehicle. In this paper's review of **power generation** using piezoelectric pulse generator. Both bike and car **tyres** are investigated for power harvesting, with each having a different force acting on the area of contact with the tyre and result is the weight of the vehicle acting on the tyre.

Keywords - Fossil, Energy, Depletion, Environment, Energy Harvesting, Piezoelectric material, Tyres, Power generation

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ICARDAP1134

Design and Fabrication of Electric Bicycle with Solar

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ABSTRACT

The interest in using electric power for personal transportation has returned due to the growing demand for non-polluting mechanized transportation, which has also led to a decrease in the usage of automobiles. A bicycle is an affordable alternative to a car. Bicycle use, however, has typically just been for leisure or extremely short distances. The concept of an electric-assisted bicycle with solar that will increase the riding distance for the average rider is described in this study. Despite the fact that the electric bicycle with solar is a notion that has been extremely practical for years but has not been thoroughly explored, the rate of technological advancement is exponential.

The human electric bicycle is made to give a bicycle electromagnetic propulsion, sparing the rider from having to generate the energy needed to power the vehicle. The bicycle's main power source, a dc motor, is physically coupled to the system, and the motor is electrically connected to a dc rechargeable battery with effective transmission from the source to the motor.

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