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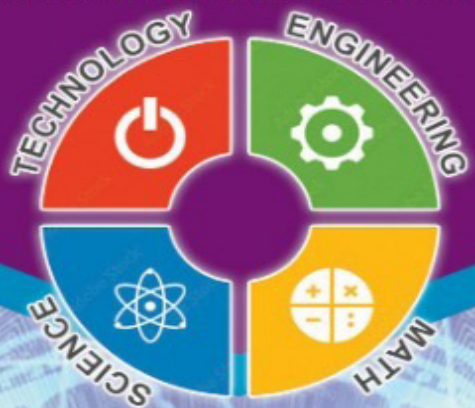

A Conference Proceedings for International Conference on Recent Developments in Science, Engineering and Technology - 2024 (ICRDSET 2024)

on 15th September 2024

Editors

Dr Dickson Adom | Mr Nagababu Abbaraju
Mr Nazeer Shik | Mr N. Naveen Kumar
Dr Aruna Nakkella

A Conference Proceedings for

International Conference on Recent Development in Science, Engineering and Technology-2024

[ICRDSET - 2024]

Date: 15th, September 2024

on the Eve of National Engineer's Day

ONLINE MODE

Edited By

Dr. Dickson Adom | Mr. Nagababu Abbaraju
Mr. Nazeer Shaik | Mr. N. Naveen Kumar
Dr. Aruna Nakkella

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Hyderabad - 500084, Telangana

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Title: A Conference Proceedings on International Conference on Recent Development in Science, Engineering and Technology-2024

Editors: Dr. Dickson Adom, Mr. Nagababu Abbaraju, Mr. Nazeer Shik,
Mr. N. Naveen Kumar, Dr. Aruna Nakkella

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Welcome Address by Chief Guest- Dr. Dickson Adom

International Conference on Recent Developments in Science, Engineering and Technology, 2024.

Greetings and a very good morning from Ghana. I send you warm greetings from the Kwame Nkrumah University of Science and Technology in Kumasi and from the Pangasinan State University, Philippines as well as INTI International University, Malaysia. I am very much excited to welcome all of you our dear participants to the International Conference on Recent Developments in Science, Engineering and Technology, 2024. Special thanks to the hardworking scholar and visionary, Dr. Aruna Nakkella, Founder and Chairperson of Sidvi Foundation who idealized and chaired the organization of this conference. I thank all the distinguished personalities whose great efforts and sacrifices made this conference possible. I send my warm regards to the hardworking chief guests like myself, Distinguished Prof. Srinivasa Rao and Respected Sri Prakash Rao. Special thanks goes to our hardworking distinguished guests, Dr. Vamseedhar Annam, Dr. D. Jayarajan, Dr. Vikas Kumar and Dr. Bir Abhimanyu Kumar. A very hearty welcome to our three special guests of honor, Dr. N. Baratha Jyoti, Mr. Nazeer Shaik and Dr. Sirajuddin M. Horaginamani.

Engineering as a field of study, is the art of problem-solving, science of change and the foundation of technological process. Around 1250, the word 'engineer' born out of the latin word 'ingenium' which means 'clever invention'. Since then, the field of engineering has been a leading edge of innovation and plays apivotal role in shaping society and its future. The field provides meaningful solutions to problems involved with everything ranging from climate change, to clean water to clean technology to communications and many more.

Engineers play an important role in pushing the boundaries of Applied science, solving problems identified in the fields of construction, manufacturing, industrial automation, industrial design, supply chain management, material sciences, process control and instrumentation, energy and utilities, medicine or healthcare, and many others. They use their knowledge, skills and creativity to design, build and maintain systems, structures and technologies that improve our quality of life. The safety and structural integrity, efficiency/functionality, and the sustainability of these structures are of top priority to engineers. Today, engineers use the BIM (Building Information Modeling) technology in creating virtual models of construction projects that allow for better collaboration and visualization before the actual project is executed. Today, the field of engineering has expanded to the embrace and use of Artificial Intelligence, robotics, Internet of Things, and Cybersecurity. The significant contribution of the broad field of Engineering is overwhelming such that it is no surprise that every 15th of September is used in recognizing the significant contribution of engineers in India. Of course, the first of this day was marked in September 15, 1968 after the death of Sir M. Visvesvaraya to celebrate the numerous contributions of this industrious first civil engineer in India. Following the footsteps of Sir Visvesvaraya, we are happy to listen to four very enlightening presentations from seasoned professors in the field of engineering and over twenty other scholarly research presentations in diverse fields of engineering. These include the use of sound technology in developing an automated home control system, development of a novel approach

to water quality control system, using Arduino for designing a danger zone detector, biotech revolutions in aquaculture, innovations in realtime remote control monitoring system using ESP 32 and IP-Based camera technology, using 555 Timer IC for developing a novel traffic light design for an optimized traffic management, Using machine learning for predicting product demands, development of energy efficient routing protocols in wireless sensor networks, development of automatic smart plant watering system, Using technology in teaching English literature, an assessment of the effectiveness of Agricultural financial schemes on farmer welfare, Development of a fire detection system based on Arduino UNO, a novel approach to wireless data transmission, the impacts of digitization on the education system in India, Using Arduino UNO and sensor in developing a smart blind stick and finally, a method development and validation for the quantification of Genotoxic Impurity Rimegepant related Compound using LC-MS.

As we listen to these educative presentations, let us all be determined to diligently marshall our efforts into solving the problems of society to make our world a better place. Please, don't forget to share your rich insights during the Q and A sessions of the conference so that all of us can tap into your rich experiences in your distinctive fields of study. Thank you so much and a very warm welcome to you all. Thank you.

Engineer's Day Speech

A Very good Afternoon one I all Present here, All eleginotories Guest of honor & participate A happy Engineer's day,

I would like to thank to speak at international conference on "Recent Development in science Engineering & technology -2024 (ICRDSET- 2024)

I am honored & thrilled to accept The opportunity to contribute to such prestigious event today celebrating "national Engineer's DAY" on 15th sep, 2024 .

Engineer are the nation builders Engineering & Technology is too important to leave life & solve the real problems in our ways.

By applying knowledge, skills, idea, techniques, attitude & Innovation , it is very easy to design & build products to Solve problems which improves quality of our life .

Technology has been given new meaning to education now a days. In order to enhance Learning & implementing the education system to improve our lives, technology plays vital role.

Students are young minds, young innovation & nation builders, so by participating in various competions, communication skills, development in research, wone online learning enhancement & excellence in academics benefits to our society & nation

Last but not the least I would like to thanks Dr. Aruna kumari ma'am & her organizing terms for conducting such a wonderful on engineers' day ICRSET-24.

All paper presentorted in conference were highly appreciated.

Thank you

Key Notes Lecture

Agricultural Export; Opportunities and Government Initiatives

Vikas Kumar

Senior Scientist,
ICAR- National Institute of Agricultural Economics and Policy Research,
Pusa, New Delhi

Introduction

Agricultural sector has played an important role in the economic development of the country not only by earning precious foreign exchange by exporting agricultural commodities but also for achieving the goal of an Aatmanirbhar Bharat. India ranks second in global agriculture production, but its share in global agricultural exports is only 2.4 percent in 2021, placing it eighth in the world (WTO's Trade Statistical Review, 2022). The share of agricultural exports in India's total merchandise exports was 11.90% in 2021-22. Major destinations of exports for India's Agri and Allied commodities were Bangladesh, United States of America, China, Vietnam, United Arab Emirates, Indonesia, Saudi Arabia, Malaysia, Nepal, Egypt, Sri Lanka, Netherlands, Iran, Iraq, United Kingdom, Japan and Thailand.

Objectives of Indian agri-exports:

The important objective is to improve the income of farmers by providing them fair price for their produce. Another objective is to ensure food security for domestic consumers, specially the weaker sections of society. Efficient and sustainable use of scarce resources is a necessary for successful and long-term export. The diversity of agri-export in terms of produce and exporting destination is necessary to reduce the risk in export.

Status of Agri-Export from India in last five years

The total agricultural export was from Indian is regularly rising both in physical and monetary terms from 2017-18 to 2022-23. In 2017-18, It was Rs 250743.69 crores and reached to Rs 426693.20 crores in 2022-23. In physical terms, it was 33068.88 thousand MT in 2017-18 and increased to 63887.31 thousand MT.

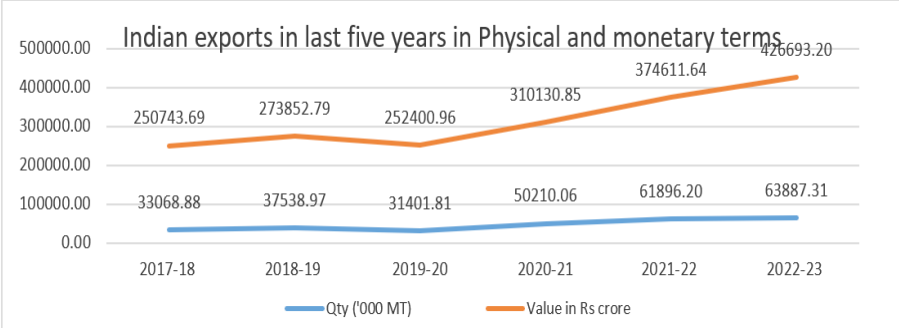

Figure: Indian exports in last five years in Physical and monetary terms, source: Ministry of Agriculture and Farmers welfare

Share of 10 important export items in total agri-exports: The lead items in agri-exports in total agri-exports in 2022-23 are Marine products, Rice other than Basmati, Sugar, Rice Basmati, Spices, Buffalo meat, oil meals, wheat, miscellaneous processed items, castor oils. In 2022-23, the marine products have highest share as 15.21 percent followed by 11.97 percent share of Rice other than basmati, 10.85 percent for sugar, 9.03 percent for rice basmati, spices (7.13%), Buffalo meat (6.01 %), 3.03 % for oil meals, wheat (2.77%, miscellaneous processed items (2.67%) and castor oils (2.37%).

Table: Share of 10 important export items in total agri-exports

S.no	Items	2022-23
1	Marine Products	64,902.13
2	Rice(Other Than Basmati)	51,088.81
3	Sugar	46,309.42
4	Rice -Basmati	38,524.11
5	Spices	30,433.08
6	Buffalo Meat	25,639.86
7	Oil Meals	12,948.49
8	Wheat	11,826.90
9	Misc Processed Items	11,407.98
10	Castor Oil	10,133.38
	Total	4,26,693.20

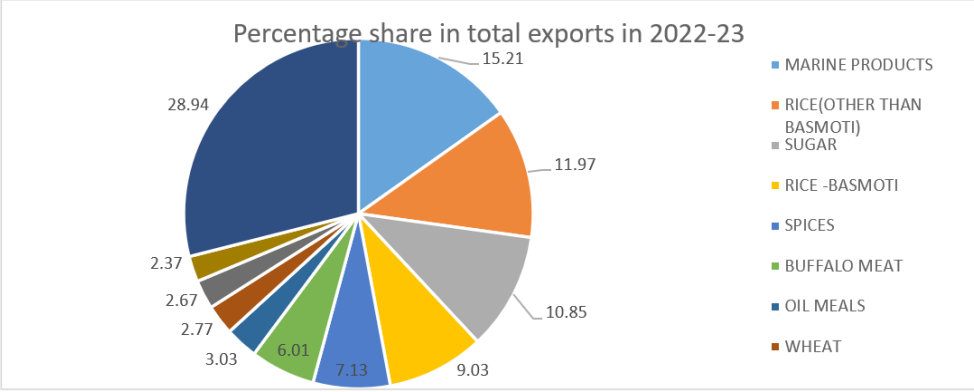

Fig: Share of lead agri-export items in Indian agri-export in 2022-23.

Government schemes to promote agri-Export:

In order to provide, big push to agri-export, Government of India has started number of schemes to increase the competitiveness of Indian exports.

APEDA support: APEDA (Agricultural and Processed Food Products Export Development Authority) It is a statutory body under the Ministry of Commerce and Industry responsible for promoting export of agricultural and processed food products from India.

Agri Export Zones (AEZs) scheme: AEZs are established in different parts of the country to promote the export of specific agricultural commodities.

SAMPADA support: SAMPADA (Scheme for Agro-Marine Processing and Development of Agro-Processing Clusters) aims to modernise infrastructure for agro-processing clusters, which helps reduce post-harvest losses, increase the shelf life of agricultural products, and enhance the export competitiveness of Indian agri-products.

Export-oriented agricultural produce processing and storage facility: State-owned Jawaharlal Nehru Port Authority (JNPA) plans to build it in Maharashtra.

GI Tag to Agri-Food Items: 158 food and agri Geographical Indications (GIs) and the identification of 708 unique food items across districts under the One District One Product (ODOP) initiative.

Agri-Cells: Agri-cells in Indian embassies across 13 countries have also been set up to provide inputs on a real time basis to improve Indian exports at these destinations. Ex- Vietnam, USA, Bangladesh, Nepal, UAE, Iran, Saudi Arabia, Malaysia, Indonesia, Singapore, China, Japan and Argentina.

Sea Protocols for Agricultural Exports: India is developing sea protocols for various fresh fruits and vegetables like bananas, mangoes, pomegranates and jackfruit to promote their exports through ocean routes.

One District One Focus Product (ODOFP) programme under Pradhan Mantri Formalisation of Micro Food Processing Enterprises Scheme cover products of agriculture and allied sectors for 728 districts of the country to reap the benefits of scale in terms of procurement of inputs, availing common services and marketing of products.

Way forward:

For a stable agricultural export, there should be dynamic, responsive, and adaptive policy to ensure sustained growth in the global agricultural trade market. It should prioritize the long-term sustainability of agriculture, environmental responsibility, and the welfare of farmers while promoting India's role as a significant player in world agricultural trade.

References:

- Food and Agricultural Organisation of the United Nations (FAOSTAT): Trade Database
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International Conference on Recent Developments in Science, Engineering and Technology-2024 (ICRDSET 2024)

on 15th September 2024
on the Eve of **NATIONAL ENGINEER'S DAY**

ONLINE MODE

About SIDVI Foundation

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SIDVI aims to promote high-quality of Research Publications. Hence we select a board committee under the name of SSRD with subject experts and distinguished scholars to reach the emerging competency of modern methodologies and approaches.

We cover a wide range of Science & Technology, Engineering & Technology and Social Sciences topics. We give preference to different disciplines: Nano-Technology, Aquaculture Material Science, General Science, Engineering Sciences, Environment and Earth, Computer Science, Agricultural Science, Medical Science and Public Health, Energy and Power, Crop Sciences, Food Technology, Plant Genetics, Agricultural Technology, Horticulture and Forestry, Economics and more. In terms of subjects, we do not restrict disciplines.

About Conference

The main aim and objective of ICRDSET is to present the latest research and results of scientists related all domains of Science and Engineering and their allied Branches. This conference provides oppor unities for the different areas delegates to exchange new ideas and application experiences face to face, to establish business or research relations and to find global partners for future collaboration. We hope that the conference results constituted significant contribution to the knowledge in these up to date scientific field. The organizing committee of conference is pleased to invite prospective authors to submit their original manuscripts to this forum to get their documentation in an Edited Book and Journal.

About Engineer's Day

National Engineers' Day in India is celebrated every year on September 15 to commemorate the birth anniversary of Sir Mokshagundam Visvesvaraya, a renowned Indian engineer and statesman. In the field of engineering, Sir Visvesvaraya was a pioneer who significantly influenced the growth of India's infrastructure. Engineers' Day is a day to celebrate the Achievements of Engineers and their Contributions to Society. It is a day to thank them for their hard work and dedication and to inspire the next generation of engineers.

Publication Opportunities

All full paper submissions will be peer reviewed and evaluated based on originality, technical and/or research content/depth, correctness, relevance to conference, contributions, and readability. The conference is going to make tan ideal platform for people to share views and experiences in Science, Engineering and Technology related areas.

Journal/Paper Publication :

All registered conference papers will be published Conference proceedings (Having ISBN Number) and the extended versions of the papers will be published in a peer reviewed international journal IJSEAM.

Goals and Objectives

- Promote Healthy and Abundant Lives for All People.
- Provide Workplace Environments that Enable All People to Participate Actively.
- Help to Mitigate and Adapt to Climate Change.
- Invest to Help Build a Sustainable Society.

Purpose

To examine how analytics, innovations and sustainability affecting business and management practices. It aims to discuss new ideas, concepts and models in general; realworld problems faced, and solutions chosen in specific in regard to various management functionalities. This conference is an attempt to provide a place for academicians, researchers industry practitioners and students to exchange ideas and research findings, in order to address current concerns and difficulties in business and industry.

We also welcome submissions for ICRDSET 2024 in the following areas (but not limited to)

Latest Innovations and Current Technologies in all Branches of Engineering and Technology.

Humanities and Basic Sciences, Engineering Mathematics, Applied Mathematics, Engineering Physics, Applied Physics, Engineering Chemistry, Applied Chemistry, Technical English, Skill Development, Professional Skills, Human Professional Skills, Human Values and Professional Ethics all streams of Arts & Management.

Conference by Topics

- Architecture
- Artificial Intelligence
- Bioinformatics
- Biomedical Engineering
- Biotechnology
- Computer Software and Applications
- Computing
- Data Mining
- Electrical & Electronics
- Energy
- Engineering
- Forestry
- Image Processing
- Information Technology
- Internet and World
- World Wide Web
- Manufacturing
- Military
- Mining
- Nano Technology and Smart Materials
- Networking
- Polymers and plastics
- Renewable Energy
- Robotics
- Space Environment and Aviation

Agriculture and Life Sciences

- Agriculture
- Aquaculture
- Archaeology
- Astronomy
- Biodiversity
- Biology
- Botany
- Chemistry
- Discourse
- Earth Sciences
- Ecology
- Environment
- Gentics
- GIS
- Meterology
- Oceanography
- Physics
- Soil
- Waste Management
- Water

Benefits of Conference

This will be to the facilitate by sharing of the knowledge and techniques among Reseacher and Academia.

Access to Expertise

Sharing of tasks, pooling of specialised teams to complement each other while achieved a project that could not be carried out by a single indivdual.

Pharmacy and Nursing

Microbiology, Biotechnology Medical Lab Technology, Biophysics and Bionano technology, Toxicology.

Current, multidisciplinary research has become the most viable and efficient way to solve the problem. In this era of rapidly changing society, many kinds of Socio-economics problems, related to other disciplines such as politics, anthropology, psychology, have arisen which require a holistic approach to find their solution.

When we speak of a multodispilinary, transdisciplinary or interdisciplinary research team, we imply collaboration between people from different diciplines. Thus, the concept of a multidisciplinary reserach team can be considered as subset of the concept of collaborative research.

Formal Division of Labour

Collaboration is even more intriguing when the knowledge is implied and isn't already published.

Transfer and knowledge & Skills

Collaboration leads to a mixing of ideas and a confrontation of points of view which should in turns stimulate creativity.

Stimulates Out-of-the-Box Thinking

Researchers increase their respective network of contacts in the scientific community through collaboration.

Collaboration Reduces the Isolation of Researchers

This will be made possible through dissemination actions on both sides of each Employee.

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Senior S&T Scientist at AYR Studios, Bethesda, MD 20817 USA, Life Time Achievement Awardee, SIDVI Foundation

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Important Dates

Last Date of Abstract Submission	13th September, 2024
Full Length Paper Submission	13th September, 2024
Last Date of Registration	8th September, 2024
Participation	14th September, 2024

Fee for Conference

INR 300	for UG Students (For Registration and Participation)
INR 1000	for PG Students & Research Scholars (For Registration, Participation, Paper Presentation and Publication).
INR 1500	for Faculty & Industrial Persons (For Registration, Participation, Paper Presentation and Publication).
USD 100	for Foreign Delegates (For Registration, Participation, Paper Presentation and Publication).

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conferences@sidvifoundation.com
(Indicate the conference name in subject Column of the mail)

Link for Registration

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Link of joining in WhatsApp

https://chat.whatsapp.com/KdZHZfBXC1yDNuDtvdro2v

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MEETING LINK https://calendar.app.google/MLF7adC6UcpbPM9g6			
Session Name with Date **15/09/2024**	**Time**	**Resource Person**	**Topic**
Inauguration	**9.30 AM**	**Lightening the lamp**	**By Honorable Guests**
		Prayer Song	**By** **Mrs A Madhavi Latha**
		Welcoming the Guests	**By** **Organizing Team**
		Chief Guests	**Prof A Srinivasa Rao,** **Senior S&T Scientist at AYR Studios, Bethesda, MD 20817 USA** **Life Time Achievement Awardee, SIDVI Foundation** **Dr Dickson Adom** **Educational Innovations in Science and Technology** **Kwame Nkrumah University of Science and Technology, Ghana** Sahiti Sri **Prakash Rao Kollaram Garu** USA **Mr Nagababu Abbaraju** **Director, VECO Labs Pvt. Ltd., Hyd.,** **President, SSRD, SIDVI Foundation**
		Special Invitees and Distinguished Guests	**Dr. Vikas Kumar** **Senior scientist, ICAR- National Institute of Agricultural Economics and Policy Research, Pusa, DPS marg, New Delhi**

			Dr Bir Abhimanyu Kumar **Associate Professor** **(Environmental Education)** **DEE, National Institute of Education, NCERT, New Delhi** **Dr. Syed Sumera Ali** **Associate Professor** **& Head of Department E&C (Advanced Communication Technology), CSMSS Chh.Shahu College of Engineering, Aurangabad, Maharashtra, India**
		Guests of Honor	**Dr. D. Jayarajan** **Head, Dept. of Medical Lab Technology, Divine Mother College, Korkadu, Puducherry, TN** **Dr. Vamseedhar Annam** **PROFESSOR & HOD,** **DEPARTMENT OF PATHOLOGY,** **Sapthagiri Institute of Medical Sciences & Research Centre, Bangalore** **Dr. Sirajuddin M Horaginamani** **Environmentalist & Director, Hi Learn Edutech Institute, Bijapur/Vijayapur, Karnataka** **Dr. N. Baratha Jyoti** **Assistant Professor, Dept of Zoology, Maris Stella College (A), Vijayawada**
		Publishing Partner	**SIDVI PUBLICATION HOUSE & IJSEAM**
	9.45 AM - 10.00 AM	**Presidential Speech and About SIDVI FOUNDATION**	**Mr Nagababu Abbaraju** **Director, VECO Labs Pvt. Ltd., Hyd.,** **President, SSRD, SIDVI Foundation**
	10.00AM – 10.15AM	**Addressing the gathering With Special Talk**	Sahiti Sri **Prakash Rao Kollaram Garu** USA
	10.15AM – 10.30AM	**Special Talk**	**Dr Dickson Adom** Educational Innovations in Science and Technology Kwame Nkrumah University of Science and Technology, Ghana
	10.30 AM – 11.00AM	**Distinguished Speech**	**Prof A Srinivasa Rao,** Senior S&T Scientist at AYR Studios, Bethesda, MD 20817 USA Life Time Achievement Awardee, SIDVI Foundation

TECHNICAL SESSION - 1			
	11.00 AM-12.30 PM	**Chairperson** **Co-Chairperson**	**Dr Dickson Adom** Educational Innovations in Science and Technology Kwame Nkrumah University of Science and Technology, Ghana **Mr Nagababu Abbaraju** Director, VECO Labs Pvt. Ltd., Hyd., President, SSRD, SIDVI Foundation
	11.30AM – 11.40AM	**ICRDSET202409001** Digital India and Its Impact on Education System	**Dr. Kotra Balayogi,** Assistant Professor, Unity College of Teacher Education, Dimapur, Nagaland, India
	11.40AM – 11.50AM	**ICRDSET202409002** A Novel Approach To Smart Blind Stick Using Arduino Uno And Sensor	**N. Naveen Kumar[1], N. Swathi[2], P. Akhila[3], A. Chandana[4], M. Manoj Kumar[5], B. Soujanya[6], O. Naga Venkata Sreya[7]** [1,2]Assistant Professor of ECE Department, [3,4,5,6,7] UG Students of ECE Department [1,2,3,4,5,6,7]Anantha Lakshmi Institute of Technology and Sciences, Anantapur, Andhra Pradesh, India.
	11.50AM – 12.00PM	**ICRDSET202409003** Method Development and Validation for the Trace Level Quantification of Genotoxic Impurity Rimegepant Related Compound-A in Rimegepant using LC-MS	**V. Nagasurendra Reddy[1*], N. Devanna[2]** [1*]Research Scholar, Dept. of Chemistry, Jawaharlal Nehru Technological University Anantapur, Andhra Pradesh.
	12.00PM – 12.10PM	**ICRDSET202409004** A Novel Approach To Wireless Data Transmission	**Dr. C. Aruna Bala[1], N. Naveen Kumar[2], K. Likhitha[3], R.Yaswanthi[4], Y. Sireesha[5], K.Mounika[6], G.Navya[7]** [1]Professor of ECE Department, [2]Assistant Professor of ECE Department, [3,4,5,6,7] UG Studentsof ECE Department [1,2,3,4,5,6,7] Anantha Lakshmi Institute of Technology and Sciences, Ananthapuramu, AndhraPradesh
	12.10PM – 12.20PM	**ICRDSET202409005** A Novel Design for a Fire Detection System based on Arduino UNO	**Dr. Y.L. Ajay Kumar[1] , K. Babu[2] ,Vadde Akhila[3], Binnari Hemanth Sai[4], Mallelakonda Sreevalli[5], Rajavath Shireesha[6] , Chelimi Vinay Kumar[7]**

			[1]Professor & Head, Department of ECE, Anantha Lakshmi Institute of Technology and Sciences, Ananthapuramu, India. [2]Assistant Professor of ECE, Anantha Lakshmi Institute of Technology and Sciences, Ananthapuramu, India. [3,4,5,6,7] UG Students of ECE Department, Anantha Lakshmi Institute of Technology and Sciences, Ananthapuramu, India.
	TECHNICAL SESSION - 2		
	12.20 PM – 12.50 PM	**Key Note address By Dr. Vikas Kumar Senior Scientist, ICAR- National Institute of Agricultural Economics and Policy Research, Pusa, DPS marg, New Delhi**	
BREAK FOR 10 MINUTES			
	1.00 PM – 2.00 PM	**Chairperson** **Co-Chairperson**	**Dr. Vikas Kumar** Senior Scientist, ICAR- National Institute of Agricultural Economics and Policy Research, Pusa, DPS marg, New Delhi **Mr Nazeer Shaik** Asst. Prof. Dept. of CSE Srinivasa Ramanujan Institute of Technology., Anantapur.
	1.10PM – 1.20PM	**ICRDSET202409006** Assessing the Effectiveness of Agricultural Finance Schemes on Farmer Welfare: Evidence from Rayagada District, Odisha	**Mr. P.Narasimha Murty[1], Dr.N.V.Jagannadha. Rao[2], Mr. Karteek Madapana** [1]Research Scholar, School of Management Studies, Gandhi Institute of Engineering and Technology University, Gunupur, Odisha [2]Professor, School of Management Studies, Gandhi Institute of Engineering and Technology University, Gunupur, Odisha [3]Assistant Professor, School of Management Studies, Gandhi Institute of Engineering and Technology University, Gunupur, Odisha.
	1.20PM – 1.30PM	**ICRDSET202409007** An Automatic Smart Plant Watering System	**Dr. Y.L. Ajay Kumar[1], P. Chandana[2], K. Shireesha Gangothri[3], S. Sravani[4], P. Bhavana[5], Y. Nirosha[6], G. Sruthi[7]** [1]Professor of ECE Department, [2]Assistant Professor of ECE Department, [3,4,5,6,7] UG Students of ECE Department [1,2,3,4,5,6,7]Anantha Lakshmi Institute of Technology and Sciences, Anantapur,

	1.30PM-1.40PM	**ICRDSET202409008** Energy Efficient Routing Protocols In Wireless Sensor Networks	**[1]Amit Kumar Jain** Research Scholar, Poornima University, Jaipur, Rajasthan, India **[2]Sushil Kumar Jain** Associate Professor, Poornima University, Jaipur, Rajasthan, India **[3]Garima Mathur** Professor, Poornima College of Engineering, Jaipur, Rajasthan, India
	1.40PM – 2.00PM	**Key Note address** **By** **Dr. TELKAPALLI MURALI KRISHNA,** **ASSOCIATE PROFESSOR in Department of CSE, Ashoka Women's Engineering College, Kurnool**	
	2.00PM – 2.10PM	**ICRDSET202409009** Use Of Technology In English Literature Teaching	**K.Grace Evangeline** II B.A English literature Maris Stella college, Vijayawada.
	2.10PM – 2.20PM	**ICRDSET202409010** Product Demand Prediction Using Machine Learning	**Miss.S.Tabbasum[1], P.Venkata Divya[2], B.Swathi[3], U.Vaishnavi[4], A.Vaishnavi[5]** [1]Assistant Professor in the Department of CSE, Annamacharya Institute of Technology and Sciences (Autonomous), Rajampet, Andhra Pradesh, India [2,3,4,5]Department of Computer Science and Engineering, Annamacharya Institute of Technology and Sciences (Autonomous), Rajampet, Andhra Pradesh, India
	TECHNICAL SESSION - 3		
	2.20PM – 2.50PM	**Key Note address** **By** **Dr Bir Abhimanyu Kumar** **Associate Professor** **(Environmental Education)** **DEE, National Institute of Education,** **NCERT, New Delhi**	
	2.50PM – 4.00PM	**Chairperson** **Co-Chairperson**	**Dr Bir Abhimanyu Kumar** Associate Professor (Environmental Education) DEE, National Institute of Education, NCERT, New Delhi **Dr. Syed Sumera Ali** Associate Professor & Head of Department E&C (Advanced Communication Technology), CSMSS Chh.Shahu College of Engineering, Aurangabad, Maharashtra

	2.50PM-3.00PM	**ICRDSET202409011** A Novel Traffic Light Design using 555 Timer IC for Optimized Traffic Management	**P. Chandana[1], N. Naveen Kumar[2], Y. Rupa Rekha Rani[3], B. Ganitha[4], N. Nusrath[5]** [1,2] Assistant Professor of ECE Department, [3,4,5] UG Students of ECE Department [1,2,3,4,5]Anantha Lakshmi Institute of Technology and Sciences, Ananthapuramu, Andhra Pradesh, India
	3.00PM – 3.10PM	**ICRDSET202409012** Real-Time Remote Control and Monitoring of a Wi-Fi-Connected Car Using ESP32 and IP-Based Camera Technology	**N. Naveen Kumar[1], T.G. Tejaswini[2], P. Sai Nikhitha[3], S. Shabreen[4], S. Jayavardhan[5], U. Nageswari[6], S. Amrutha[7]** [1,2] Assistant Professor of ECE Department, [3,4,5,6,7] UG Students of ECE Department [1,2,3,4,5,6,7]Anantha Lakshmi Institute of Technology and Sciences, Ananthapuramu, Andhra Pradesh, India.
	3.10PM – 3.20PM	**ICRDSET202409013** From Hatcheries to High-Tech: The Biotech Revolution in Aquaculture	**K. Sailaja** III B.Sc.[CBZ] Maris Stella college (Autonomous) Vijayawada
	3.20PM – 3.40PM	**ICRDSET202409014** A Novel Design Of Danger Zone Detector By Using Arduino	**Dr. Y.L. Ajay Kumar[1], Dr. N. Khadar Basha[2], K. Sreeja Reddy[3], V. Goipka[4], P. Usman Gani[5], K.M. Ajay Kumar[6], B. Lakshmi Hemanth Reddy[7]** [1]Professor of ECE Department, [2]Associate Professor of ECE Department, [3,4,5,6,7] UG Students of ECE Department [1,2,3,4,5,6,7]Anantha Lakshmi Institute of Technology and Sciences, Anantapur, Andhra Pradesh, India.
	3.40PM – 4.00PM	**Key Note address** **By** **Dr. Syed Sumera Ali** **Associate Professor** **& Head of Department E&C (Advanced Communication Technology),** **CSMSS Chh.Shahu College of Engineering, Aurangabad, Maharashtra**	
	4.00PM-4.10PM	**ICRDSET202409015** A Novel Approach To Water Quality Monitoring System	**N. Naveen Kumar[1], K. Sajida[2], P.Varsha[3], K.Sowmya[4], S. Yesaswari Bai[5], J. Mahima Reddy[6]** [1,2]Assistant Professor of ECE Department, [3,4,5,6] UG Students of ECE Department

			[1,2,3,4,5,6] Anantha Lakshmi Institute of Technology and Sciences, Ananthapuramu, Andhra Pradesh, India
	4.10PM-4.20PM	**ICRDSET202409016** An Automatic Home Control System Using Sound Technology	**Dr. Y.L. Ajay Kumar[1], Y. Nirmala[2], G. S. Joya Tabassum[3], S.Mahaboobjan[4], M. Ayesha Banu[5], R. Divya[6], K. Vasanthi[7]** [1]Professor of ECE Department, [2]Assistant Professor of ECE Department, [3,4,5,6,7] UG Students of ECE Department [1,2,3,4,5,6,7]Anantha Lakshmi Institute of Technology and Sciences, Anantapur, Andhra Pradesh,
ANY OTHER DISCUSSIONS WITH THE PERMISSION OF CHAIR AND CO CHAIR			
	4.30PM – 4.45PM	**VOTE OF THANKS** **by** **Dr. N. Baratha Jyoti** Assistant Professor, Department of Zoology, Maris Stella College (A), Vijayawada, A.P	
	NATIONAL ANTHEM		

ICRDSET202409001

DIGITAL INDIA AND ITS IMPACT ON EDUCATION SYSTEM

Dr. Kotra Balayogi

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Dimapur, Nagaland

Abstract

Digital India is a flagship program of the government of India with a vision to transform India into a digitally empowered society and knowledge economy. The vision of Digital India program is to transform India into a digitally empowered and to make India as Aatmanirbhar Bharat. As digitalization has brought a revolutionary change in all the sectors it has also had a great impact on our education system. Now online education has become a trend in almost every part of the country where students can learn and discover their potential and abilities and make their own knowledge in order to accomplish all the domains and overall development of themselves. Traditional method of teaching has been replaced by the amalgamation of online education. Now students have become smarter and sharper as their level of curiosity is vast which cannot be catered by just traditional methods of teaching. It is the need of hour that technology must be inculcated in teaching-learning process so that students can fulfill their thrust for knowledge while the teachers are playing the role of facilitator and guide them with the help of new technologies and trends emerging in education sector and makes it user friendly for themselves as well as for students. The present study will analyze various programs and new technologies used in 21st century education system and its impact on students, teachers, parents as well as a whole on education system.

Keywords: *Digital India, Education System, Impact, Students, Technologies, Teachers.*

ICRDSET202409002

A NOVEL APPROACH TO SMART BLIND STICK USING ARDUINO UNO AND SENSOR

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Abstract

TThis project proposes a Smart Blind Stick to assist visually impaired individuals in safely navigating their surroundings. The system integrates an Arduino Uno microcontroller, ultrasonic sensor, buzzer, vibrator, and LED. The ultrasonic sensor detects obstacles and relays this data to the Arduino Uno, which processes it and provides feedback through various outputs. The buzzer produces audible alerts, the vibrator offers tactile feedback, and the LED indicates obstacle proximity visually. This combination of components aims to enhance the independence and mobility of visually impaired users, ensuring safer and more efficient navigation.

Keywords: Smart Blind Stick, Arduino Uno, Ultrasonic Sensor, Visually Impaired, Buzzer, Vibrator, LED, Navigation Aid, Assistive Technology.

ICMIRPSD 202407003

METHOD DEVELOPMENT AND VALIDATION FOR THE TRACE LEVEL QUANTIFICATION OF GENOTOXIC IMPURITY RIMEGEPANT RELATED COMPOUND-A IN RIMEGEPANT USING LC-MS

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N. Devanna

Professor, Dept. of Chemistry, Jawaharlal Nehru Technological University Anantapur, Andhra Pradesh

Abstract

In Rimegepant drug Tert-butyl4-((2-aminopyridin-3-yl)(nitroso)amino)piperidine-1-carboxylate) has been detected using a technique that combines liquid chromatography, a mass spectrometer, with a single mass analyzer (LC-MS). For Rimegepant Impurity separation and quantification attain by using Hypersil BDS (C18, 100 x 4.6 mm, 3 m) column at the threshold of toxicological concern levels, no acceptable approach has yet been developed. According to the standards of the International Council for Harmonization, a sensitive and trustworthy liquid chromatography-mass spectrometry method was created and validated in this work for the quantitative detection of impurity in Rimegepant (ICH). The correlation coefficient of fitting for impurity exceeded 0.998, and the calibration curves displayed satisfactory linearity within the examined range. The proposed method's sensitivity was between 0.6 and 10.0 ng/mL. This method can be used to identify the impurity in rimegepant drug substance during manufacturing.

The study establishes the robustness of the method in detecting trace levels of genotoxic impurities, essential for ensuring drug safety. The method demonstrated effective separation and quantification of impurities without interference, showing stability over time and consistency in repeated tests. It offers a reliable analytical tool for pharmaceutical quality control, particularly in monitoring genotoxic impurities in Rimegepant during manufacturing. The method's simplicity, precision, and cost-effectiveness make it a suitable choice for routine quality control in pharmaceutical applications.

Keywords: Anti-Migraine drug, Genotoxic impurity, Liquid chromatography, Rimegepant.

ICRDSET202409004

A NOVEL APPROACH TO WIRELESS DATA TRANSMISSION

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Abstract

Li-Fi (Light Fidelity) technology, proposed by Harald Haas, utilizes visible light for data transmission, achieving speeds up to 1000 times faster than traditional Wi-Fi. Unlike radio waves used in Wi-Fi, Li-Fi leverages the modulation of LED light intensity to transmit data, offering benefits such as higher efficiency, increased bandwidth, and improved security. This paper explores Li-Fi technology's architecture, operation, applications, and its potential to surpass existing wireless technologies.

Keywords: Li-Fi, Light Fidelity, Visible Light Communication, LED, Optical Wireless Technology, Data Transmission.

ICRDSET202409005

A NOVEL DESIGN FOR A FIRE DETECTION SYSTEM BASED ON ARDUINO UNO

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Chelimi Vinay Kumar
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Abstract

This project proposes an automated Fire Detection System using Arduino Uno to enhance fire safety by leveraging flame and smoke sensors for early detection. The system activates an alarm and water pump when fire is detected, providing an affordable and effective solution. Built using an Arduino Uno microcontroller, this system ensures real-time fire detection and rapid response. It is scalable and suitable for various environments.

Keywords: Fire Detection, Arduino Uno, Flame Sensor, Smoke Sensor, Microcontroller, Safety, Early Warning.

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ICRDSET202409006

ASSESSING THE EFFECTIVENESS OF AGRICULTURAL FINANCE SCHEMES ON FARMER WELFARE: EVIDENCE FROM RAYAGADA DISTRICT, ODISHA

Mr. P.Narasimha Murty

Research Scholar, School of Management Studies, Gandhi Institute of Engineering and Technology University, Gunupur, Odisha, India

Dr. N. V. Jagannadha. Rao

Professor, School of Management Studies, Gandhi Institute of Engineering and Technology University, Gunupur, Odisha, India

Mr. Karteek Madapana

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Abstract

This study evaluates the effectiveness of agricultural finance schemes on farmer welfare in Rayagada District, Odisha. Agricultural finance is vital for rural farmers, offering the necessary capital to boost productivity, invest in modern techniques, and improve livelihoods. Despite various government and private initiatives, the actual impact of these credit facilities on farmer welfare is still debated. Using a mixed-methods approach, the research analyses financial schemes such as Kisan Credit Cards (KCC), crop loans, and subsidy programs. Data was gathered through field surveys, farmer interviews, and secondary sources, focusing on access to finance, fund utilization, repayment issues, and improvements in income and productivity. Findings reveal that while these schemes have positively influenced crop yields and household income, gaps in financial literacy, timely access to credit, and insufficient funds persist. External challenges such as market volatility and infrastructure deficiencies further limit the long-term impact. The study recommends policy improvements, including better credit delivery systems, enhanced financial literacy, and stronger market linkages. These findings from Rayagada District could guide other regions facing similar challenges in boosting farmer welfare through agricultural finance.

Keywords: Agricultural Finance, Farmer Welfare, Kisan Credit Cards (KCC), Financial Literacy, Credit Access.

ICRDSET202409007

AN AUTOMATIC SMART PLANT WATERING SYSTEM

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Abstract

Smart plant watering solutions utilize sensors, automation, and IoT technologies to optimize irrigation by monitoring soil moisture, temperature, and environmental conditions. These systems automate watering schedules, ensuring plants receive the right amount of water, reducing waste, and promoting efficient water use. By integrating real-time data and weather forecasts, they offer a sustainable approach to plant care for both home gardens and agricultural applications, contributing to water conservation and improved plant health.

Keywords: Smart irrigation, plant care automation, soil moisture sensors, IoT in agriculture, water conservation, automated watering system, precision irrigation, environmental monitoring, sustainable gardening, smart gardening solutions.

ICRDSET202409008

ENERGY EFFICIENT ROUTING PROTOCOLS IN WIRELESS SENSOR NETWORKS

Amit Kumar Jain
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Sushil Kumar Jain
Associate Professor, Poornima University, Jaipur, Rajasthan, India

Garima Mathur
Professor, Poornima College of Engineering, Jaipur, Rajasthan, India

Abstract

One of the most significant uses of wireless technology is Wireless Sensor Networks (WSN). However, because wireless nodes have extremely low energy reserves, wireless sensor networks have relatively short network lifetimes. Consequently, reducing power consumption is the primary barrier preventing wireless sensor network implementation. The most energy-intensive part of wireless sensor networks is data forwarding. Therefore, improving energy efficiency is the most efficient strategy to lower energy consumption in wireless mesh networks. The primary component of LEACH and one of its innovative approaches is Low Energy Adaptive Cluster Hierarchy, which is the subject of this study. This method is potentially similar to single hop or multi hop communication based on a number of criteria. Furthermore, three approaches were simulated in comparison with LEACH.

Keywords: Energy Efficient Routing, Hierarchical Protocol, LEACH, Wireless Sensor Networks.

ICRDSET202409009

REAL-TIME REMOTE CONTROL AND MONITORING OF A WI-FI-CONNECTED CAR USING ESP32 AND IP-BASED CAMERA TECHNOLOGY

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Abstract

Wi-Fi technology has revolutionized how we control devices remotely, offering low-power consumption options and vast potential in various fields. This project demonstrates the development of a Wi-Fi-controlled car, utilizing an ESP32 microcontroller, Node MCU, and L298N motor driver. The car connects to a local network and can be operated through a web interface hosted on the Node MCU, allowing for remote control via a mobile device. The project highlights the growing role of Wi-Fi in IoT (Internet of Things) applications and explores its potential in areas like surveillance, rescue missions, and navigating hazardous environments. It also incorporates an IP camera for real-time live streaming, enhancing remote control capabilities.

Keywords: Wi-Fi Controlled Car, ESP32, L298N Motor Driver, Internet of Things (IoT), Surveillance, Remote Control, Node MCU, DC Motor, Live Streaming, IP-based Webcam, Automation.

ICRDSET202409010

PRODUCT DEMAND PREDICTION USING MACHINE LEARNING

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A.Vaishnavi

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Abstract

A novel machine learning approach is introduced for managing retail supply chains and forecasting client demand. By analyzing historical store data and employing various techniques like K-Nearest Neighbor and Gaussian Naive Bayes, the model estimates product demand accurately. Real-time market data, including geography and store position, is considered to enhance forecasts. This aids merchants in maximizing revenues, optimizing product placement, and boosting sales while minimizing losses. Gaussian Naive Bayes exhibits high accuracy, making it a valuable tool for retail demand estimation.

Keywords: Knn, GuassianNB, and decision tree classifiers

ICRDSET202409011

A NOVEL TRAFFIC LIGHT DESIGN USING 555 TIMER IC FOR OPTIMIZED TRAFFIC MANAGEMENT

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Abstract

This work presents a simple yet effective traffic light control system using the 555 Timer IC. The system is designed to control traffic at intersections by seamlessly transitioning between red, yellow, and green lights, helping to manage traffic flow efficiently. The system is built using basic components like LEDs, capacitors, resistors, and the 555 Timer IC. While this version operates on a fixed timing cycle, future enhancements could include traffic sensors to adjust the light based on traffic conditions. This could even save energy by turning off the lights when no vehicles are present. The current setup uses two 555 Timer ICs and three LEDs, which give clear stop, wait, and go signals. Overall, it's a practical and essential tool for traffic management

ICRDSET202409012

USE OF TECHNOLOGY IN ENGLISH LITERATURE TEACHING

K. Grace Evangeline

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Abstract

The integration of technology in the teaching of English literature has revolutionized the way students engage with texts and educators deliver content. This shift from traditional methods to technologically enhanced learning offers numerous opportunities to deepen literary comprehension, foster critical thinking, and increase student engagement. Technology facilitates access to a vast array of digital resources, including e-books, literary databases, online journals, and multimedia tools such as podcasts and videos, which can enrich the study of literature beyond the printed text. Innovative approaches, such as the use of online discussion forums, blogs, and digital annotation tools, allow students to collaborate and exchange ideas in real-time, fostering a more interactive and inclusive learning environment. Virtual reality (VR) and augmented reality (AR) are emerging technologies that immerse students in historical and cultural contexts, bringing literary settings to life and enhancing their understanding of complex themes and characters. Similarly, social media and digital storytelling tools allow students to create and share their interpretations of literary works, blending creative expression with analytical skills. However, the use of technology also presents challenges, such as the risk of distraction, the need for digital literacy, and the potential for superficial engagement with texts. Educators must balance the benefits of technology with thoughtful pedagogical strategies to ensure that students develop a deep, nuanced understanding of literature.

In conclusion, the use of technology in English literature teaching offers significant potential for transforming the learning experience. By harnessing digital tools and platforms, educators can make literature more accessible, interactive, and engaging for 21st-century learners.

Keywords: Technology in education, English literature teaching,Digital resources, E-learning,Interactive learning, Virtual reality , Augmented reality.

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FROM HATCHERIES TO HIGH-TECH: THE BIOTECH REVOLUTION IN AQUACULTURE

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Abstract

Aquaculture has evolved significantly with the introduction of advanced biotechnology, transforming traditional fish farming practices. This study explores the key technological advancements that have reshaped the industry, from early hatcheries to today's high-tech systems. It focuses on several important innovations, including genetic engineering, which has produced fish with enhanced growth rates and resistance to diseases. Molecular diagnostics have improved our ability to detect and manage diseases early, reducing losses and improving fish health. Automation and smart technologies now play a crucial role in monitoring water quality, feeding, and overall farm management, leading to more efficient and sustainable operations.

By examining case studies from around the world, the study highlights the practical benefits of these biotechnological advancements. For example, genetically modified fish have shown faster growth and better survival rates, while automated systems have reduced labor costs and minimized environmental impact. These innovations not only help in meeting the growing demand for seafood but also address challenges like resource management and environmental sustainability.

This paper concludes by exploring future trends in aquaculture biotechnology, such as the potential for further genetic improvements and the integration of new technologies. Overall, the biotech revolution in aquaculture represents a significant leap forward in creating more efficient, productive, and sustainable fish farming practices.

Keywords: Aquaculture, Biotechnology, Genetic Engineering, Molecular Diagnostics, Automation, Sustainable Seafood, Fish Farming, Technological Advancements.

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A NOVEL DESIGN OF DANGER ZONE DETECTOR BY USING ARDUINO

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Abstract

Arduino programming that was detected any potential danger coming in target range. The system operated by sending signals based on the sensor reading. The purpose of the safety system was to increase the safety procedure and precaution for maintenance workers that currently doing their job at the emergency lane of the highway. In certain range of radar sensor detection, when the potential danger or accident was detected to approach, the sensor send the signal to the system and carried out the duty as medium of sending alarm caution in three ways, which were through sound, vibration and visual.

Keywords: Arduino, Sensors, Safety, Danger zone, Detector, Electronics safety, Automatic alarm, Reducing risks.

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A NOVEL APPROACH TO WATER QUALITY MONITORING SYSTEM

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Abstract

Ensuring access to clean and safe water is critical for public health and environmental sustainability. Real-time water quality monitoring is essential for early detection of contaminants. This study presents a low- cost, portable water quality monitoring system using the Arduino Uno microcontroller. The system integrates sensors to measure key water quality parameters including turbidity, temperature, and dissolved oxygen levels. The Arduino Uno serves as the central processing unit, enabling data acquisition from the sensors and managing overall system operation. The system's affordability, portability, and ease of use make it suitable for deployment in various environments, including drinking water sources, wastewater treatment facilities, and natural water bodies. This project highlights the feasibility of using Arduino Uno for cost-effective and efficient water quality monitoring, contributing to the broader goal of ensuring safe and clean water resources.

Keywords: Water Quality Monitoring, Arduino Uno, Turbidity Sensor, I2C LCD Module, RGB Module, Real-Time Monitoring, Portable System.

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AN AUTOMATIC HOME CONTROL SYSTEM USING SOUND TECHNOLOGY

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Abstract

This project presents an innovative automatic home control system utilizing sound technology to manage household appliances. The system enables users to control devices such as lights, fans, and other electrical equipment through sound commands, specifically claps or voice cues. By incorporating a microphone for sound detection, a sound sensor for differentiating relevant commands from background noise, and a microcontroller for processing, the system translates sound signals into control actions. This approach provides a convenient, hands-free solution that enhances accessibility, particularly for individuals with limited mobility. The project demonstrates the effectiveness of sound-based control in smart home environments and highlights areas for future development, including improved accuracy and integration with advanced voice recognition technologies.

Keywords: Sound Technology, Home Automation, Clap Switch, Smart Home Control, Sound-Based Control System, Microcontroller, Sound Sensor, Hands-Free Operation, Accessibility, Voice Activation, Electrical Appliances.

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BEYOND THE BATTERY: INNOVATIVE ENERGY STORAGE SOLUTIONS FOR ELECTRIC VEHICLES

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Abstract

Electric vehicles (EVs) have emerged as a promising solution to reduce greenhouse gas emissions and promote sustainable transportation. However, their widespread adoption hinges on advancements in energy storage technology. While lithium-ion batteries have dominated the market, limitations such as energy density, charging time, and cost have spurred research into alternative storage solutions. This paper explores innovative energy storage technologies that could revolutionize the EV industry. We delve into the potential of solid-state batteries, metal-air batteries, flow batteries, and supercapacitors, highlighting their advantages, challenges, and current development status. Additionally, we discuss the integration of these technologies with regenerative braking and intelligent energy management systems to optimize EV performance and efficiency.

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THE FUTURE OF ELECTRIC VEHICLES: BEYOND BATTERIES AND FUEL CELLS

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Abstract

The electric vehicle (EV) industry is undergoing a transformative evolution, with traditional batteries and fuel cells acting as primary enablers. Despite their pivotal role, these technologies face critical challenges, including energy density limitations, long charging times, and unsustainable material sourcing. New energy storage and management solutions are needed to enhance EV efficiency, sustainability, and integration into smart energy systems as the world moves toward decarbonization. This paper explores advanced alternatives such as supercapacitors, solid-state batteries, wireless charging, and hybrid energy systems that promise to redefine the future of electric mobility. By addressing current technology gaps, these innovations can improve vehicle performance, range, and sustainability while integrating EVs into the broader energy infrastructure.

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ADVANCES IN RENEWABLE ENERGY INTEGRATION FOR ENHANCING ENERGY EFFICIENCY IN SMART GRIDS

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Abstract

The increasing demand for energy and the environmental concerns associated with fossil fuels have accelerated the global shift toward renewable energy sources. Smart grids, as a modern approach to power distribution and management, play a crucial role in integrating renewable energy into the electrical grid while enhancing energy efficiency. This paper discusses recent advances in renewable energy integration with a focus on smart grid technology, exploring methods to optimize energy efficiency, reduce carbon emissions, and increase the reliability of energy systems. Innovations such as distributed energy resources (DERs), energy storage systems, demand response, and machine learning algorithms for energy optimization are examined. Challenges such as grid stability, intermittency of renewable sources, and the need for advanced control mechanisms are also discussed, along with future research directions.

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AI AND MACHINE LEARNING FOR OPTIMIZING CLEAN ENERGY CONSUMPTION AND ENERGY EFFICIENCY

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Abstract

With growing global concerns about climate change, environmental sustainability, and energy efficiency, clean energy sources like solar, wind, and hydroelectric power are gaining prominence. However, maximizing the potential of these renewable energy sources requires advanced optimization techniques. Artificial Intelligence (AI) and Machine Learning (ML) have emerged as powerful tools for optimizing clean energy consumption and improving energy efficiency. This paper explores the applications, benefits, challenges, and future directions of AI and ML in the realm of clean energy systems and energy efficiency improvements.

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THE CHEMISTRY OF CLIMATE FOR UNDERSTANDING THE INTERACTIONS BETWEEN CHEMISTRY AND METEOROLOGY

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Abstract

Chemistry and meteorology, the study of weather and climate, are closely related fields. The atmosphere is a dynamic system that is made up of more than simply air, and chemical reactions are what really shape the climate and weather patterns. The fundamental knowledge required to examine and comprehend atmospheric processes, weather patterns, and climate dynamics is provided by chemistry. This chemical understanding is essential to meteorology in order to produce precise weather forecasts and evaluate the effects of climate change.

Keywords: Chemistry, Climate change, Meteorology, Weather Pattern.

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