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अनुसंधान

(KIET Research Magazine)



Dr. Saad Mekhilef, *IEEE Fellow (USA), IET Fellow (UK), CEng (UK)*
Distinguished Professor
Swinburne University of Technology
John Street, Hawthorn, Melbourne
Victoria 3122, Australia

Research and Development
KIET Group of Institution
Delhi-NCR, Ghaziabad, Uttar Pradesh, India-201206

KIET – A GLANCE



Overview

KIET Group of Institutions (KIET) was established in 1998 at Ghaziabad (Delhi-NCR) with an annual intake of 180 students. It is an AICTE-approved Institution affiliated to Dr. A.P.J Abdul Kalam Technical University (AKTU), Lucknow (formerly UPTU). KIET offers UG & PG courses in four disciplines i.e., Engineering, MBA, MCA & Pharmacy. With the glorious legacy of 25 years, the Institute now has 6800+ students and is empowered with 350+ highly qualified full-time faculty to nurture our students. Institute credentials and Centers of Excellence can be viewed @ our website www.kiet.edu.

The Institute has NAAC accreditation status with an 'A+' Grade and all its eligible programs are NBA accredited. The effort of the institute in imparting technical education has been recognized in terms of achieving 88th rank in the Pharmacy discipline, Rank Band (151-200) for Engineering and Innovation (51-100) Rank band in the National Institutional Ranking Framework (NIRF) - India Ranking 2023 released by Ministry of Education, GOI. The Institute has to its credit QS-I GAUGE 'Diamond' rating and Scientific and Industrial Research Organization (SIRO) recognition by the Department of Scientific and Industrial Research (DSIR) etc. The Institute also has a Technology Business Incubator (TBI) set up in association with NSTEDB, DST, Govt. of India to promote Innovation and Entrepreneurship in the Institute and the adjoining areas. Since its inception 125 incubate companies have established their venture in KIET-TBI. Presently 36 nos. incubate are operational.

With a rich alumni base of 19000+ students spread in all the nooks and corners of the world, the KIET Group of Institutions is moving efficiently towards its vision of shaping young minds with skill-oriented & value-based education as these alumni serve the dual purpose of mentoring the present students, as well as opening new doors for them.



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Message from the Face of Cover Page



Dear Readers,

Dear readers of KIET Research Magazine,

Greetings!

It is a great pleasure to have the opportunity to connect with you through the pages of your prestigious KIET Research magazine, which is a symbol of intellectual exploration and technological innovation. As we look at the ever-evolving landscape of academic research, we find KIET at a leading position in technological advancements.

KIET stands as a testament to the pursuit of knowledge and excellence in academic and technical research. A constant curiosity drives KIET researchers to unravel the mysteries of the universe and create solutions that address the challenges of our time. This journal's current issue showcases the diverse spectrum of research efforts undertaken by the brightest minds at KIET, covering topics ranging from computer science to sustainable energy.

However, the research is not without its challenges. Pursuing knowledge is often accompanied by obstacles that demand flexibility, creativity, and collaboration. KIET embraces these challenges as opportunities for growth and exploration. Their researchers thrive in an environment that fosters interdisciplinary collaboration and encourages out-of-the-box thinking. Driven by a passion for discovery and a commitment to positively impacting society, KIET researchers are pursuing their efforts toward creating a better world.

I extend my support to take this exciting journey forward. The collective aspirations of its researchers shape KIET's future direction, and I envision a path that will lead KIET toward new frontiers of knowledge and technological innovation.

Finally, I invite you to immerse yourself in the inspiring, groundbreaking research and visionary approaches presented in this issue. Let us all celebrate the spirit of exploration and the transformative power of research.

With best wishes,

Dr. Saad Mekhilef, IEEE Fellow (USA), IET Fellow (UK), CEng (UK)
Distinguished Professor
Swinburne University of Technology
John Street, Hawthorn, Melbourne
Victoria 3122, Australia

Message from Chief Patron



Dear Esteemed Readers,

KIET Group of Institutions has always strived to be a beacon of knowledge, innovation, and progress in our ever-evolving world. Our commitment to excellence and dedication to fostering a culture of learning, discovery, and growth has remained unwavering. This magazine serves as a testament to our mission, and it is a privilege to share our stories, insights, and achievements with you.

In recent years, India has witnessed remarkable strides in various fields of research. Our nation's scientific and academic communities are working tirelessly to address some of the most pressing global challenges, from healthcare and environmental sustainability to cutting-edge technology and space exploration. These endeavors have not only propelled India onto the international research stage but also brought our scientists, scholars, and innovators well-deserved recognition.

The objective of this research magazine is to curate a collection of articles that encapsulate the diversity and dynamism of India's research landscape. Readers will have the opportunity to delve into the latest breakthroughs in fields such as artificial intelligence, renewable energy, biotechnology, space research, and many more. It is our commitment to bring you the most up-to-date, well-researched, and thought-provoking content that captures the spirit of innovation that defines research in India today.

In closing, I invite you to engage with us, to share your thoughts, feedback, and suggestions. This magazine is not just ours, it belongs to the community of knowledge seekers, innovators, and change-makers. I encourage you to share your thoughts and continue supporting the pursuit of knowledge and innovation. It is your enthusiasm and curiosity that propel our mission forward.

I also want to extend my heartfelt gratitude to all our contributors, editors, and the diligent team that works tirelessly behind the scenes to bring this magazine to life. Their dedication ensures that our message of progress and learning reaches you, our cherished readers.

Dr. Anil Ahlawat

Director In Charge

KIET Group of Institutions

Delhi-NCR, Ghaziabad

Message from Patron



Dear All,

It gives me great pleasure, in my capacity as Joint Director at the KIET Group of Institutions, to introduce this research magazine that focuses on the work that is being done at our institute and its future perspectives on knowledge and innovation. Our goal is to expand the horizons of both knowledge and innovation, and we have confidence that our researchers will unfold every stone and reach new heights.

By encouraging teamwork and open communication, we will be able to make progress in these areas. Our researchers will collaborate with industrial partners, government organizations, and other academic institutions to develop new technologies and solutions, share their findings, and disseminate their findings.

Our studies will ultimately result in scientific discoveries and technological advancements that are beneficial to society, and we intend to share these with anybody who could make use of them.

In closing, please accept my warmest regards for our researchers and partners. We are grateful for all the hard work and dedication you have shown in making our Institute a pioneer in research. Together, we can accomplish incredible things.

Dr. Manoj Goel

Joint Director KIET

KIET Group of Institutions

Delhi-NCR, Ghaziabad

Message from Editor-In-Chief



Dear Colleagues and Friends,

As Dean of Research and Development KIET, I am honoured to share the latest research and development activities with you. Our dedicated team of researchers, students, and faculties continue to progress significantly in various fields, from basic science to applied technology.

One of our major achievements this year has been the development of a new treatment for a rare genetic disorder. Our team discovered a novel therapeutic approach that has shown promising results in preclinical trials. We are now working to bring this treatment to the clinic and help patients suffering from this debilitating condition. It is a true example of how our research is not just limited to the lab but also can potentially make a real-world impact.

Another area where we have made significant progress is in the field of renewable energy. Our researchers have developed a new type of solar cell that has the potential to increase the efficiency and cost-effectiveness of solar energy significantly. This technology has already attracted the attention of several major companies, and we are currently transferring it to the industry for further development. It not only helps in protecting the environment but also in creating new job opportunities and economic growth. In addition to these specific achievements, KIET has progressed in several other areas. Our researchers have published numerous articles in top-tier journals, presented their work at international conferences, and received numerous grants and awards. It can showcase the quality of our research and our team's dedication and hard work. In addition to our ongoing research activities, we have also launched several new initiatives to support and promote research at our institute. We have also created a new seed funding program to support innovative and high-risk research projects that have the potential to make a significant impact. These initiatives help our researchers not just conduct research but also in developing their skills and knowledge.

I would also like to take this opportunity to express my gratitude to our researchers, scientists, engineers, and staff, who have worked tirelessly to make our institute a leader in research and development. Their dedication, passion, and hard work have been instrumental in our achievements, progress, and initiatives. I also want to thank our funding partners, collaborators, and supporters for their ongoing support and contribution. Lastly, I would like to extend my best wishes and blessings to all of you, your families, and your friends. May the upcoming year be prosperous, happy, and in good health. With our collective efforts, we will be able to continue making a positive impact on the world through our research and development activities.

Dr. Vibhav Kumar Sachan

Dean (Research and Development)

KIET Group of Institutions

Delhi-NCR, Ghaziabad

Foreword



Academic research and development related to the scientific investigation and experimentation undertaken by colleges, universities, and other higher education institutions aim to further enhance knowledge in a subject. Natural sciences, social sciences, and humanities are subjects in which academic academics can engage in research. Academic research and development aim to add to the corpus of knowledge and educate the next generation of scholars. Today, academic research collaboration may bring scholars from many institutions, fields, and nations to collaborate towards a single aim. Collaboration can take numerous forms, including co-authoring research articles, submitting joint funding applications, and conducting interdisciplinary research initiatives. Collaboration may give researchers access to new resources, such as specialized equipment or data sets, and the opportunity to share knowledge and get fresh views on a research subject. Collaboration also boosts the impact and exposure of research by enabling academics to reach new audiences and get acknowledgement for their work. In this sequence, research magazines play a significant role in academic research and development by providing a forum for scholars to disseminate their results to a larger audience. These periodicals focus on specialized disciplines of study, such as fundamental engineering, computer science, mathematics, and physics, and publish articles authored by subject matter experts. Technical journals may be an essential source of knowledge for researchers, presenting them with the most recent advancements and trends in their area. These publications can also act as a method for researchers to gain feedback from their peers. These periodicals are also excellent resources for students and scholars interested in recent advancements in their respective fields of study.

According to the above-mentioned factors, the publication "KIET Research Magazine" is being produced. It is envisaged that after reading this Magazine, a student or researcher will be aware of current research in his/her relevant subject and be able to identify a suitable partner if necessary. Most of the Magazine's material is drawn from KIET's research and development efforts.

The publication has endeavoured to provide as many study results as feasible while prioritizing reporting clarity. This publication is to report on KIET's research and endeavours, therefore increasing the global exposure of KIET's work. We are grateful to our colleagues for allowing us to present the mentioned research activity and their results in this publication. As appropriate, the names of each of these fellows are included in various sections of the Magazine.

We are deeply grateful to the Institute's Management, Director, Joint Director, Dean R&D, Heads, and all the associates for their support, blessings, and cooperation in publishing this multidisciplinary research magazine "अनुसंधान" .

Dr. Brijesh Singh

Editor

KIET Group of Institutions

Delhi-NCR, Ghaziabad

Foreword



“Sharing knowledge is a charity of knowledge that constitutes the ways of a beautiful life” – Ehsan Sehgal

To enhance the beauty of the research domain, the KIET research magazine plays a vital role through the knowledge sharing of different domains, which may enhance the quality of research at inter and intra-departmental scales in the KIET Group of institutions. The awareness and acknowledgment in the outer niche may enhance the collaborative research among the various disciplines like environment, sustainability, energy, chemistry, modelling, mechanical, management, pharmacy, etc. This initiation is also likely to give positive outcomes in collaborative research publications, joint project submissions, joint work on patents, technical bulletins, etc. The holistic growth in the social, economic, and ecological pillars of society may be achieved through sharing of the scientific research and incorporation of the same through research institutes. It gives me great pleasure to introduce this supplement dedicated to research upgrowth. As filling such gaps may lead to a paradigm shift in research networking and upliftment in the research domain.

We heartily thank our management, the Director, the Joint Director, the Dean of R&D, and the entire KIET family for their unconditional guidance and support.

Dr. Minakshi Karwal

Associate Editor

KIET Group of Institutions

Delhi-NCR, Ghaziabad



“Research is something that everyone can do, and everyone ought to do. It is simply collecting information and thinking systematically about it” - Raewyn Connell

The KIET research magazine contributes significantly to inspiring young researchers to augment knowledge and innovation. The magazine also disseminates awareness about technical innovation in the field of science, technology, and management to faculty and students.

The highlights of the notable research activities conducted by our institute over the past month are included in this magazine issue. This would help the research activities to get a better reach and new dimensions in terms of collaborative publications, research articles, project proposal submissions, patent filing, etc.

To achieve the goal of the KIET Institute to observe the year 2023 as an innovation and start-up year, we are confident that KIET Research Magazine will continue to contribute significantly to the inner and outer specialization for greater scientific research and innovation.

We would like to extend our deepest gratitude to the Research and Development Team of the KIET Group of Institutions for their tireless work in ensuring the success of all research initiatives.

We are extremely grateful to the leadership of the KIET Group of Institutions, the Director, the Joint Director, the Dean of R&D, and the entire KIET family for their generous support and leadership over the years.

Dr. Himanshu Chaudhary

Associate Editor

KIET Group of Institutions

Delhi-NCR, Ghaziabad

Overview of the Research and Development

Rapid growth in scientific knowledge is an indication of the quest for discovery and has a substantial impact on economic and societal development. Science, technology, and innovation are often initiated in an Institution's research environment. Research and developmental activities create and disseminate new knowledge in different fields, promote innovation, and motivate better learning and teaching among faculty members and students at our Institute, as these are often incorporated into the courses. Research is the foundation of knowledge that brings new energy builds state-of-the-art facilities, promotes research publications, develops collaborations, and becomes part of an active community that shares common objectives. Moreover, there is good evidence that research supports and improves teaching and helps to build excellence in this dimension as well. Research can have salutary effects on faculty members, on the nature of their teaching, and the undergraduate and postgraduate students.

Evidence is accumulating that students do benefit in significant ways from having researchers as instructors if, the institution balances resources spent, and rewards assigned between research and teaching. This positive view, which has been consistently detected in recent studies, sees the benefits of 'research-led teaching.' In this approach, the experience of the researcher is integrated into teaching.

Vision

To achieve excellence in research and create an outstanding climate of support for researchers, broadly enabling research advances to meet National and International needs.

Mission

- ❖ To motivate faculty members to concentrate on research-related activities, in addition to teaching, to publish research articles in reputed journals.
- ❖ To pursue efforts to write books and monographs for publication by – International and National publishers of repute.
- ❖ To evince interest among the faculty members so that they take efforts to establish collaborative research projects with their counterparts in reputed National and International Universities.
- ❖ To encourage faculty members to submit proposals and secure funded research projects from various funding agencies in India and Abroad.
- ❖ To undertake consultancy projects sponsored by the Government as well as Private, Industrial, and other organizations.

Contact

Office of Dean (R&D)

Department of Electronics & Communication Engineering

KIET Group of Institutions, Delhi-NCR, Ghaziabad, Uttar Pradesh, India-201206

e-mail: dean_rnd_office@kiet.edu, Contact No. +919718907912 (O)

Glimpses of Month



ECE department, KIET Group of Institutions has signed another MOU with a prototype designing and consulting company Spanda 3D, hopefully, this initiative will provide some good consultancy projects to our entire department as well as the institution. Oct 2023



The telecom giant NOKIA Bell Labs have signed the MOU with KIET Group of Institutions on 5G Technology. – 11 Oct 2023



The Department of CSE-AIML orchestrated a remarkable session on 'Generative AI'. This session served as a valuable opportunity for students to delve into the realm of cutting-edge artificial intelligence and explore its practical implications.

Throughout the session, attendees had the privilege of delving into the fundamentals of Generative AI, explored its real-world applications, gaining an understanding of how this transformative technology is reshaping industries and impacting the future in profound ways.

The keynote address was delivered by Mr. Upendra Tiwari, an accomplished Independent Trainer and Data Scientist with a remarkable 16-year career. Mr. Tiwari has left his indelible mark on the field, having collaborated with renowned organizations such as Synergistic Compusoft Pvt. Ltd.

The second Keynote session was delivered by Ikigai Labs, founder Mr.Nandan Mishra. The Ikigai Labs, stands as a beacon of innovation, offering a tech-enabled platformized hybrid approach that couples rigorous assessments with personalized learning outcomes. This session offered students an invaluable opportunity to not only gain knowledge but also to engage with a trailblazer in this field. It was a rendezvous with the future, where they could explore the endless possibilities of Generative AI, a technology that is propelling us into an era of unprecedented creativity and innovation.







KIET School of Pharmacy organized a 'Guest Talk' and 'Workshop' on 'Awareness of Pharmacovigilance and ADR Monitoring' on October 14, 2023. The aim was to strengthen the 'National Pharmacovigilance System' in the country.

The workshop was conducted by Mr. Rishi Kumar, a Scientific Associate from the Indian Pharmacopoeia Commission in Ghaziabad. Dr. Praveen K. Dixit, Assistant Head of the Skill Development Cell at KSOP, organized the workshop under the guidance of Prof. (Dr.) K. Nagarajan, the Principal of KSOP.

Statistics of KIET Research and Development Activities

Rankings & Accreditations

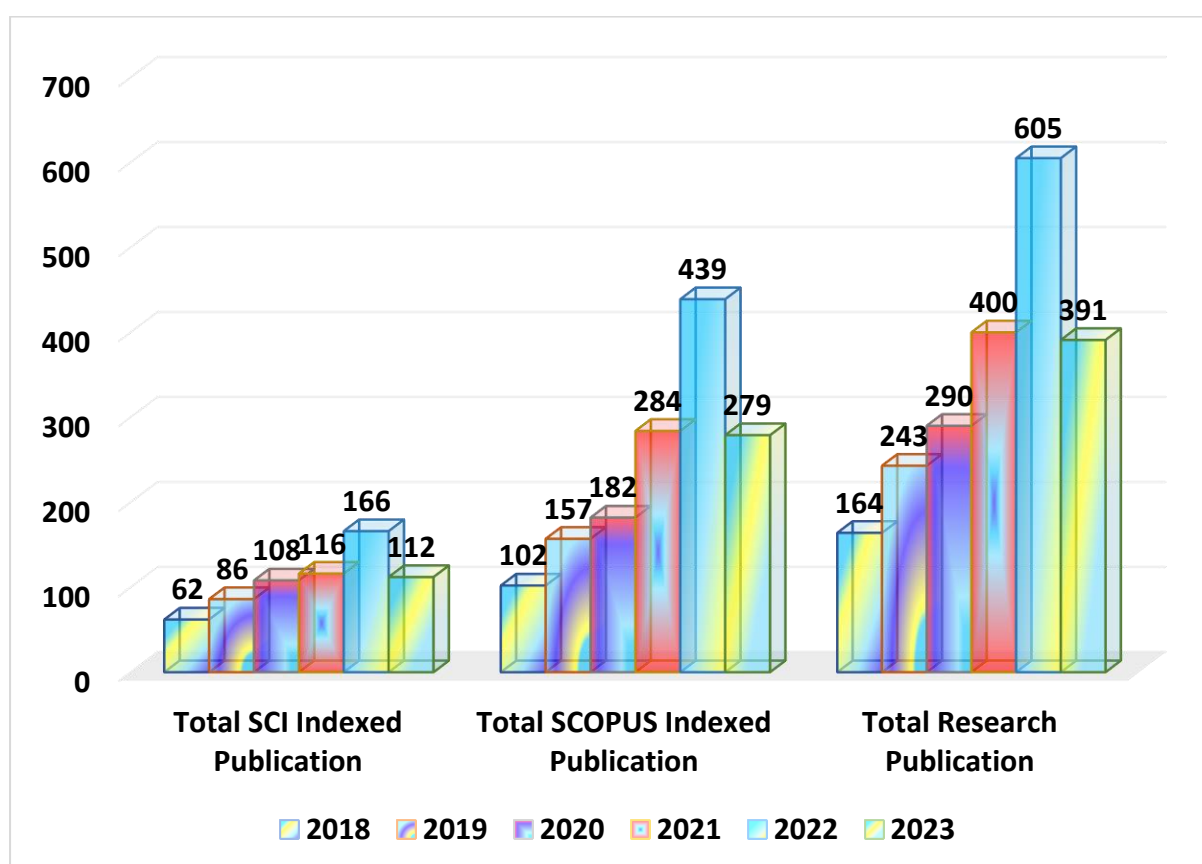
- NAAC - Grade 'A+' (Cycle 2 Assessment) - Accredited for 5 years till 03 Jan 2027.
- NIRF 2023 (Pharmacy – Rank 88 & Engineering - Rank Band (151-200)).
- NIRF 2023 Innovation Rank Band (51-100).
- QS-IGAUGE - 'Diamond' College Rating (till Feb 2024) & 'Institution of Happiness' Award.
- Innovation Hub, AKTU – Hon'ble VC AKTU Appointed KIET as Nodal Regional Centre
- NBA Accreditation - All eligible programs are NBA accredited.
- KIET Group of Institutions, Delhi-NCR, Ghaziabad (UP) recognized by the Scientific and Industrial Research Organization (SIROs) under Department of Scientific and Industrial Research (DSIR), Ministry of Science and Technology, Government of India. (Till 31 Mar 2025)

 <p>सूचना का अधिकार RIGHT TO INFORMATION</p>	<p>दूरभाष/TEL : 26962819, 26567373 (EPABX) : 26565694, 26562133 : 26565687, 26562144 : 26562134, 26562122 फैक्स/FAX : 26960629, 26529745 Website : http://www.dsir.gov.in</p> <p>(आयुर्विज्ञान 9001:2008 प्रमाणित विभाग) (AN ISO 9001:2008 CERTIFIED DEPARTMENT)</p>	 <p>सत्यमेव जयते</p>	<p>भारत सरकार विज्ञान और प्रौद्योगिकी मंत्रालय वैज्ञानिक और औद्योगिक अनुसंधान विभाग टेक्नोलॉजी भवन, नया महरौली मार्ग, नई दिल्ली - 110016 GOVERNMENT OF INDIA MINISTRY OF SCIENCE AND TECHNOLOGY Department of Scientific and Industrial Research Technology Bhavan, New Mehrauli Road, New Delhi - 110016</p>
			
F.No. 11/791/2018-TU-V		Date: 28 th April 2022	
<p>The Vice Chairman Krishna Charitable Society, 13 KM Stone, Ghaziabad-Meerut Road, Ghaziabad – 201206, Uttar Pradesh</p>			
<p>Subject: Renewal of Recognition of Scientific and Industrial Research Organisations (SIROs).</p>			
<p>Dear Sir,</p> <p>This has reference to your application for renewal of recognition of Krishna Charitable Society, Ghaziabad, Uttar Pradesh as a Scientific and Industrial Research Organisation (SIRO) by the Department of Scientific and Industrial Research under the Scheme on Recognition of Scientific and Industrial Research Organisations (SIROs), 1988.</p> <p>2. This is to inform you that it has been decided to accord renewal of recognition to Krishna Charitable Society, Ghaziabad, Uttar Pradesh from 01.04.2022 to 31.03.2025. The recognition is subject to terms and conditions mentioned overleaf.</p> <p>3. Receipt of this letter may kindly be acknowledged.</p>			
			<p>Yours faithfully,</p>  <p>(Dr. P.K. Dutta) Scientist - 'F'</p>

KIET Research Credentials

A total of 650 SCI Research Publications and 1445 Scopus Indexed Research Publications with an affiliation of KIET Group of Institutions, Delhi-NCR, Ghaziabad are listed in Web of Science and in Scopus Database till October 2023.

Year	Total Number of SCI Indexed Publications	Total Number of SCOPUS Indexed Publications	Total Number of Research Publications
2018	62	102	164
2019	86	157	243
2020	108	182	290
2021	116	284	400
2022	166	439	605
2023	112	277	391
Total	650	1445	2093



Category	Number of Publication for September 2023	Number of Publication for October 2023
SCOPUS Publications	29	2
Web of Science Publication	10	12

Details of Patents Published/Granted

Title of the Invention: IoT-Enabled Intelligent System for Precise Crop Disease Identification and Management

Application Number: 202311063778 A (Indian Patent Office)

Applicant(S): KIET Group of Institutions (CS)

Date of Filing: 22-09-2023

Date of Publishing: 13-10-2023

Field of the Invention: The field of image processing and data analytics in which crop diseases are analyzed using the Internet of Things. The answers provided by the current innovation apply to the field of image processing and data analysis with the Internet of Things.

Objects of the Invention: Some of the objects of the present disclosure, which at least one embodiment herein satisfies, are as follows.

It is an object of the present disclosure to ameliorate one or more problems of the prior art or to at least provide a useful alternative.

An object of the present disclosure is to provide a system that is used to determine from a crop sample both the kind of crop and the name of the disease.

An object of the present disclosure is to provide a system that enables early detection of crop diseases through image processing, allowing for prompt intervention and reduced crop damage.

An object of the present disclosure is to provide a system that enhances disease assessment accuracy by matching captured images with existing databases, ensuring precise identification of crop diseases.

An object of the present disclosure is to provide a system that offers real-time updates on the status of crop diseases and the location of affected fields, allowing for swift corrective actions by agricultural authorities.

Summary of the Invention: The following presents a simplified summary of the invention to provide a basic understanding of some aspects of the invention. This summary is not an extensive overview of the present invention.

It is not intended to identify the key/critical elements of the invention or to delineate the scope of the invention. Its sole purpose is to present some concept of the invention in a simplified form as a prelude to a more detailed description of the invention presented later.

An embodiment of the present invention provides an IoT-enabled intelligent system for precise crop disease identification and management. Farming is a particularly important occupation in developing countries like India, where food security is a major concern. The crop diseases have been spotted relatively regularly in a variety of locations across India. The system that has been developed will be applied to the sample crop to determine both the type of crop and the name of the illness that has affected it. Most of the time, the farmer does not have the financial means to pay for the expensive technology required to diagnose the illness affecting the crop.

However, the technology may be accepted by the agricultural ministry and used to monitor the crop that farmers are growing to find any diseases that may be damaging the crop. This would be done by deploying it over the fields. After it has been passed along to the relevant departments, this information will be archived via IOT.

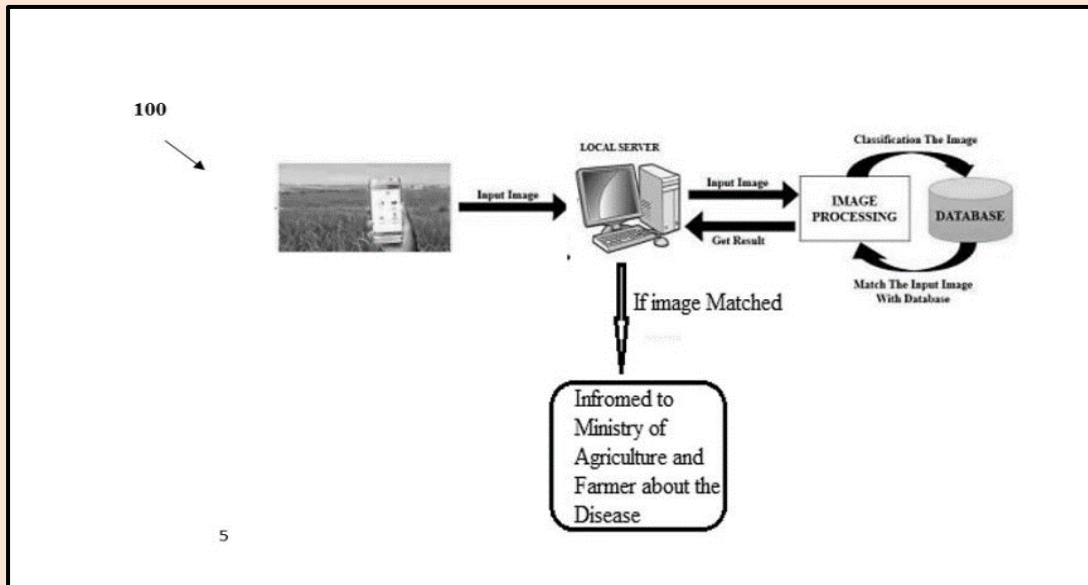


Fig. Illustrates the complete process of an IOT-enabled intelligent system for precise crop disease identification and management, by an embodiment of the present invention.

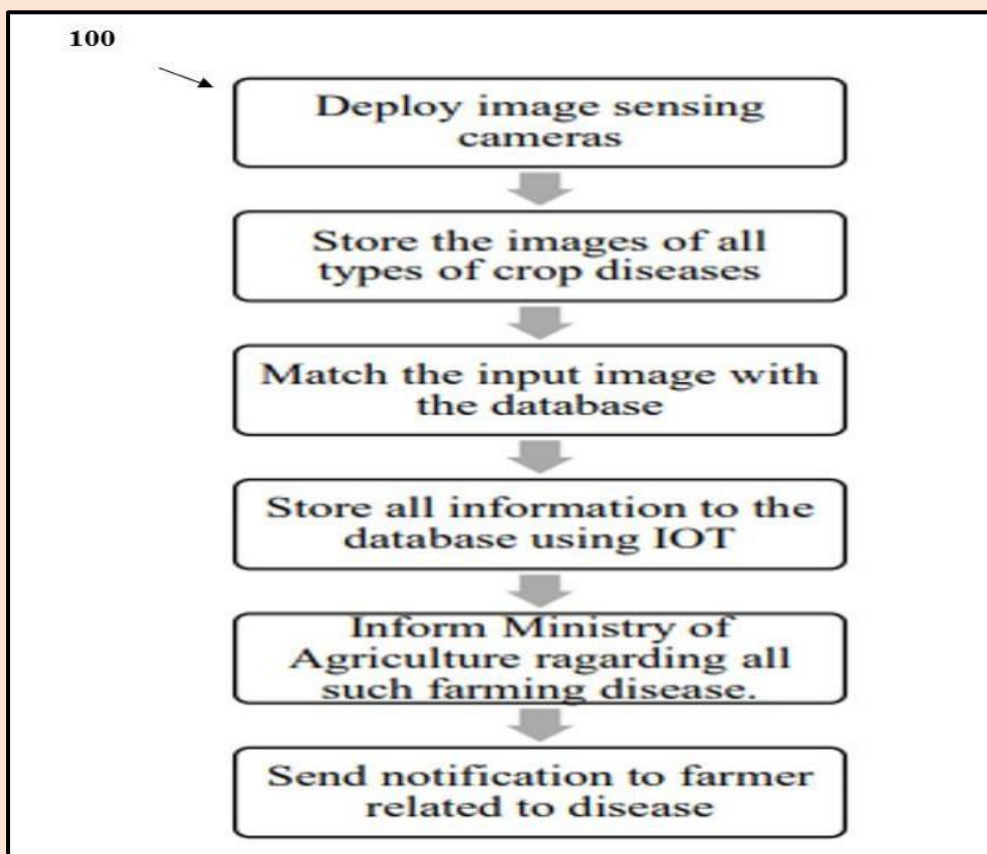


Fig. Illustrates the process of capturing the images of the crops using various high-definition cameras installed in the field, by an embodiment of the present invention.

Title of the Invention: Magic Vehicle Horn with Vibrating Seat

Application Number: 202311063971 A (Indian Patent Office)

Applicant(S): KIET Group of Institutions

Date of Filing: 23-09-2023

Date of Publishing: 13-10-2023

Field of the Invention: The present invention relates to the field of Electronics and Communication field.

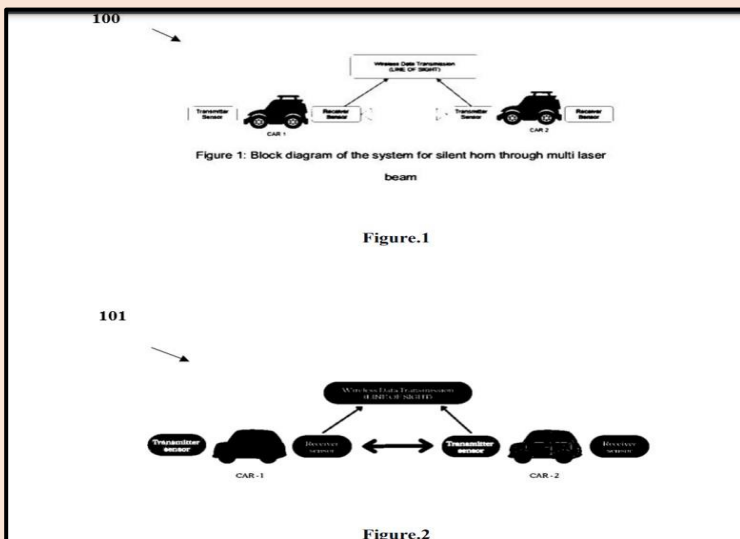
OBJECTIVES: Some of the objects of the present disclosure, which at least one embodiment herein satisfies, are as follows. It is an object of the present disclosure to ameliorate one or more problems of the prior art or to at least provide a useful alternative. An object of the present disclosure is to provide a magic vehicle horn with a vibrating seat that reduces noise pollution by substituting it with low-frequency sound waves followed by an indication to the driver. It is eliminating all the shortcomings and solving the problem fully. Magic Vehicle Horn provides a toggle button to the car driver, one of which toggles to the Magic Vehicle Horn for the vehicles ahead installed with the receiver and the other one to the normal horn for animals, vendors, etc.

An object of the present disclosure is to provide a magic vehicle horn with a vibrating seat that reduces noise pollution caused by traditional vehicle horns. By eliminating the need for loud and disruptive honking, the invention aims to create quieter and more pleasant urban and rural environments for both residents and pedestrians.

An object of the present disclosure is to provide a magic vehicle horn with a vibrating seat that seeks to establish a more effective and nuanced means of communication between vehicles and their surroundings. It aims to convey important information, alerts, and warnings to pedestrians, other drivers, and nearby vehicles in a clear and context-appropriate manner, promoting safer interactions on the road.

Another object of the present disclosure is to provide a magic vehicle horn with a vibrating seat that automates compliance with government regulations regarding horn usage, especially in designated quiet zones or areas with specific noise restrictions. By intelligently adapting to the situation and emitting appropriate signals, the invention ensures that drivers adhere to these regulations without requiring manual intervention.

Still, another object of the present disclosure is to provide a magic vehicle horn with a vibrating seat that aims to incorporate advanced technologies such as sensors, artificial intelligence, and contextual awareness systems. These 25 technologies enable



the invention to assess the environment, traffic conditions, and potential hazards, allowing it to dynamically adjust its communication methods and intensities based on real-time data

Fig. 1 and Fig. 2: Illustrates an exemplary process of the system, in accordance with an embodiment of the present invention.

Title of the Invention: Multimodal Gesture-To-Audio And Text Conversion System Using Machine Learning

Application Number: 202311063970 A (Indian Patent Office)

Applicant(S): KIET Group of Institutions

Date of Filing: 23-09-2023

Date of Publishing: 13-10-2023

Field of the Invention: The present invention pertains to the field of human-computer interaction and communication technology. More specifically, it addresses the domain of gesture recognition and conversion using advanced machine-learning techniques. The invention focuses on the development of a novel system that seamlessly translates gestures made by individuals into both auditory outputs and textual transcriptions.

Objects of the Invention: Some of the objects of the present disclosure, which at least one embodiment herein satisfies, are as follows.

It is an object of the present disclosure to ameliorate one or more problems of the prior art or to at least provide a useful alternative.

An object of the present disclosure is to provide a system that significantly improves the accuracy of converting diverse gestures into both audio outputs and textual transcriptions.

An object of the present disclosure is to provide a system that aims to create a gesture conversion system that adapts to a wide range of gestures, encompassing intricate and varied movements.

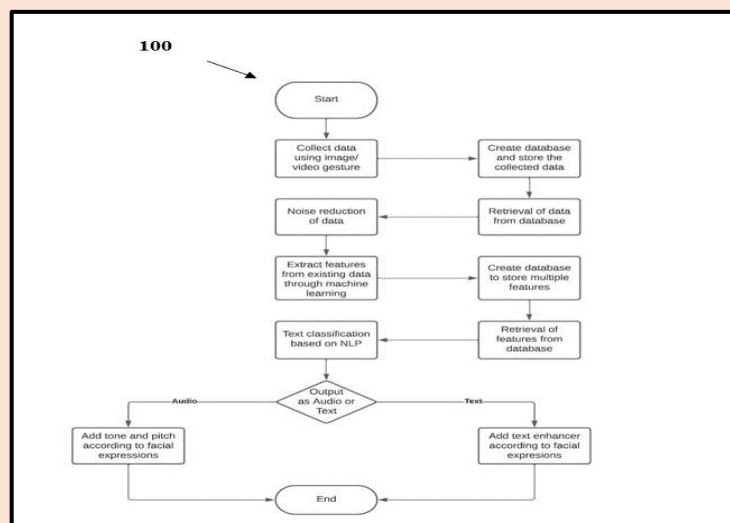
An object of the present disclosure is to provide a system that aims to reduce latency between gesture execution and the corresponding auditory output and text transcription, enabling seamless and instantaneous communication.

Another object of the present disclosure is to provide a system that aims to facilitate communication for individuals with disabilities by converting gestures into both 4 auditory and textual forms.

Still another object of the present disclosure is to provide a system that aims to advance these interdisciplinary fields. Still another object of the present disclosure is to provide a system that aim of enabling individuals with disabilities to access and engage with digital content.

Yet another object of the

present disclosure is to provide a system that aims to prioritize the user experience by



creating a system that is intuitive, user-friendly, and aligns with users' natural gestures and expressions.

Fig. Illustrate the Interaction Between Users and the Gesture Conversion System, Depicting the Intricate Integration of Sensors, Machine Learning Algorithms, and Communication Interfaces, in Accordance with an Embodiment of the Present Invention

Title of the Invention: Smart System and Method for Analysing Individual's Cognitive and Emotional States through Mind Activity Assessment

Application Number: 202311064325 A (Indian Patent Office)

Applicant(S): KIET Group of Institutions

Date of Filing: 25-09-2023

Date of Publishing: 13-10-2023

Field of the Invention: The field of Data Analytics in which Mind activities are analyzed using Smart Sensors, in Electronics and Computers.

Objects of the Invention: Some of the objects of the present disclosure, which at least one embodiment herein satisfies, are as follows.

It is an object of the present disclosure to ameliorate one or more problems of the prior art or to at least provide a useful alternative.

An object of the present disclosure is to provide a smart system and method for analyzing an individual's cognitive and emotional states through mind activity assessment that can provide idea is made up of sensors that perform continuous monitoring of an individual's mental activity as well as their level of stress.

The system that has been suggested will perform an analysis of the results to determine whether they follow a consistent pattern.

A warning will be issued to the user in the case that there is any kind of irregularity. When a set period has passed and the user has not responded, the SOS service will be triggered, and an alarm will be sent to the user's contacts.

Summary of the Invention: The following presents a simplified summary of the invention to provide a basic understanding of some aspects of the invention. This summary is not an extensive overview of the present invention.

It is not intended to identify the key/critical elements of the invention or to delineate the scope of the invention. Its sole purpose is to present some concept of the invention in a simplified form as a prelude to a more detailed description of the invention presented later. Everyone is occupied with their own lives and responsibilities in our fast-paced society. According to the World Health Organization (WHO), the levels of stress and diseases are increasing in humans at an extremely rapid speed. It is challenging to comprehend the thought pattern and the level of stress that a person is experiencing.

The thought is to make use of mind-analyzing sensors, which would continuously monitor the activities of the user's mind as well as their degree of stress. The outputs will be analyzed by the proposed system to determine whether the pattern is abnormal. If anomalous patterns are detected, the user will receive a message in the form of an alarm. If there is no answer received from the user's end, the SOS service will be activated, and the notification will be distributed to the users who have registered for it.

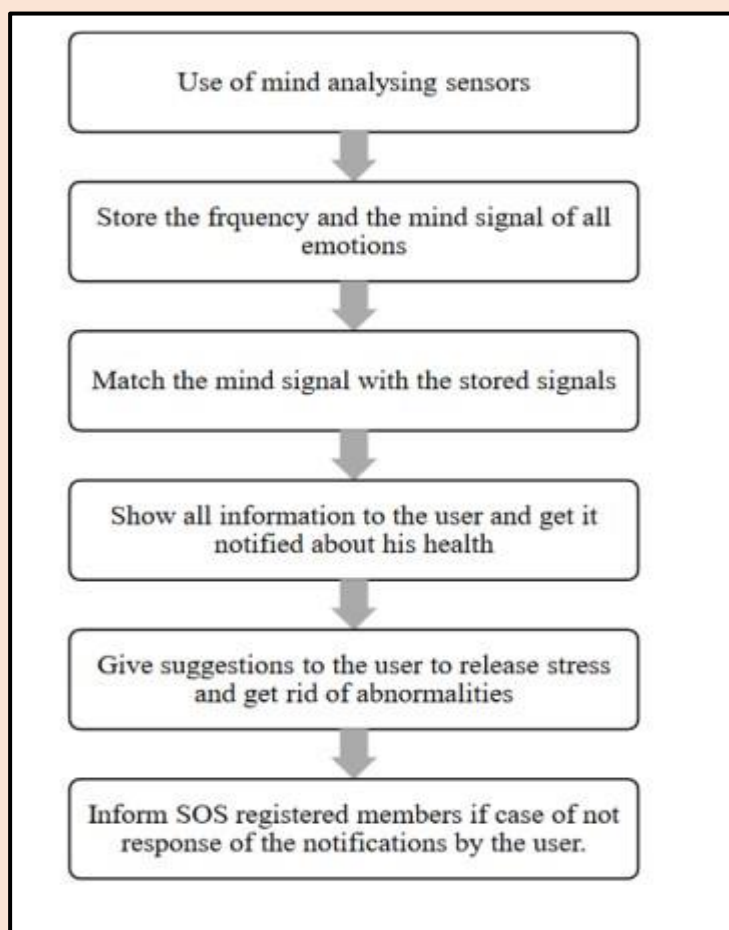


Fig. Illustrates step by step process flow of the smart method for analysing 5 individual's cognitive and emotional states through mind activity assessment, in accordance with an embodiment of the present invention.

Title of the Invention: A System and Method for Efficient Ambulance Dispatch and Tracking

Application Number: 202311064132 A (Indian Patent Office)

Applicant(S): KIET Group of Institutions

Date of Filing: 25-09-2023

Date of Publishing: 13-10-2023

Field of the Invention: The present invention relates to the field of Computer Science. Emergency medical services (EMS) play a critical role in providing immediate medical care and transportation to individuals in life-threatening situations. One of the key components of an effective EMS system is the efficient dispatch and tracking of ambulances. The goal is to minimize response times, ensure timely medical intervention, and improve overall patient outcomes.

Objects of the Invention: Some of the objects of the present disclosure, which at least one embodiment herein satisfies, are as follows.

It is an object of the present disclosure to ameliorate one or more problems of the prior art or to at least provide a useful alternative.

Dispatch Console Interface: This object consists of a user-friendly software interface that is accessible to emergency dispatchers. It displays real-time maps with the locations of available ambulances, emergency calls, and critical information about each incident. The interface allows dispatchers to assign the nearest ambulance, communicate with ambulance crews, and track the status of ongoing responses.

Ambulance Tracking Devices: Each ambulance is equipped with a tracking device that utilizes GPS technology. These devices continuously transmit the ambulance's real-time location data to the central system. The data is then used to determine the closest ambulance to an emergency and provide accurate routing information.

Algorithmic Resource Allocation Engine: At the core of the system, this object comprises a sophisticated algorithm that processes data inputs, such as ambulance locations, emergency call information, and traffic conditions. The algorithm calculates the optimal ambulance to dispatch based on proximity and urgency, ensuring efficient allocation of resources.

Emergency Call Integration Module: This object encompasses the technology that interfaces with the emergency call center's systems. It automatically extracts relevant information from incoming emergency calls, such as caller location, medical history, and nature of the emergency. This information is then integrated into the dispatch process for more informed decision-making.

Communication Platform: The communication platform serves as an interface for dispatchers and ambulance crews to exchange information. It allows for two-way communication through text and voice messages, enabling dispatchers to provide updates, receive status reports, and convey important details to the medical teams en route.

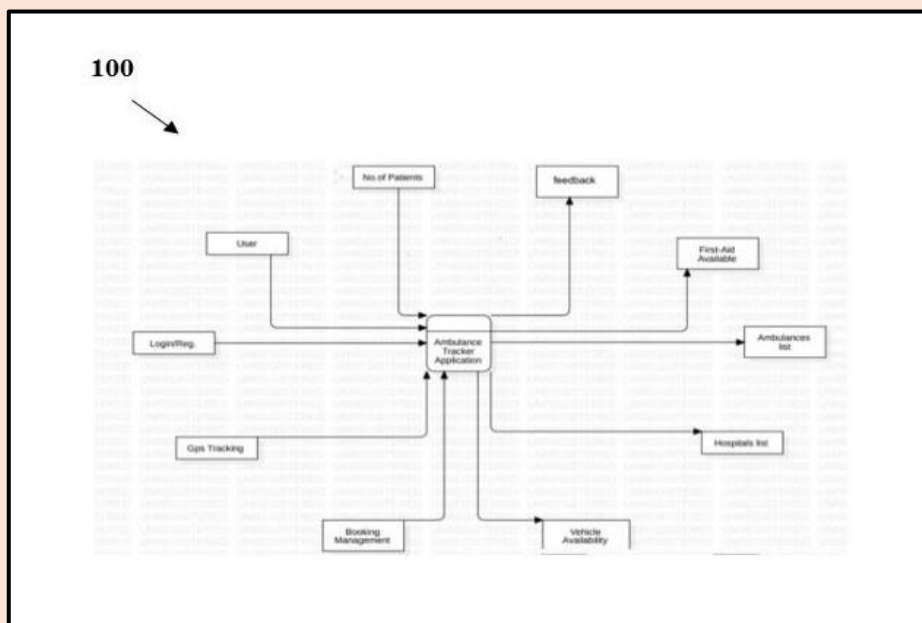


Fig. Illustrates An Exemplary Process of the System.

PATENTS Published - October 2023

S. No.	Title Of Patent	Dept.	Name Of Applicant	Date Of Publication	Status
1.	Intelligent Plant Health Monitoring Systematic Method Based on Machine Learning for Precision in Smart Agriculture	CSE	Dr. D. Revathi, SNS College of Technology, Coimbatore, Tamil Nadu	20.10.2023	Published
2.	An Online Voting System Using Blockchain	AS	Dr Neelam Sharma, KIET	06.10.2023	Published
3.	Sustained Release Formulation of Coriandrum Sativum L. Extract for Nephroprotective Action and Process for Preparation Thereof	KSOP	Monika Singh, ITS Muradnagar	13.10.2023	Published
4.	A Framework to Recommend Chronic Kidney Disease Prediction Models Using Multi-Criteria Decision Making	IT	Ajay Kumar, KIET	27.10.2023	Published
5.	Facial Movements Identification for Vehicle Drivers Using Machine Learning	CS, HSS	Vikas Kamra, Sirsa	13.10.2023	Published
6.	Intelligent Ai with Machine Vision For Reading Recognition System	CSE	Dr. Hansaraj Shalikram Wankhede, G H Raison College of Engineering, Maharashtra	06.10.2023	Published
7.	Intelligent Health Sector Automation Through One Card More Info (Ocmi) Technology	CS	KIET Group of Institutions	13.10.2023	Published
8.	IoT-Enabled Intelligent System For Precise Crop Disease Identification And Management	CS	KIET Group of Institutions	13.10.2023	Published
9.	Magic Vehicle Horn with Vibrating Seat	ECE	KIET Group of Institutions	13.10.2023	Published
10.	Multimodal Gesture-To-Audio and Text Conversion System Using Machine Learning	CS	KIET Group of Institutions	13.10.2023	Published

11.	Smart System and Method For analysing Individual's Cognitive and Emotional States Through Mind Activity Assessment	CS	KIET Group of Institutions	13.10.2023	Published
12.	A System and Method for Efficient Ambulance Dispatch and Tracking	CS	KIET Group of Institutions	13.10.2023	Published
13.	Neural Style Transfer For 3d Model	CS	KIET Group of Institutions	13.10.2023	Published
14.	Combined Pectin Hm and Time Dependent Double Coated Colon Targeted Delivery of Multi-Particulate Dosage Forms	KSOP	KIET Group of Institutions	13.10.2023	Published
15.	Design And Development of Innovative Quality Assessment Process of Environment	CSE-AI	KIET Group of Institutions	13.10.2023	Published
16.	System And Method for Recommending the Videos Based on The Events Planned	IT, CS	KIET Group of Institutions	13.10.2023	Published
17.	An Artificial Neural Network Method for Optimizing Mathematical Functions	AS	Dr. Ekata, KIET	13.10.2023	Published
18.	Easily Accessible Cloud Computing Resource Manager	CS	Himanshu Shekhar, Galgotia University, Greater Noida	20.10.2023	Published
19.	Efficient Distribution of Resources in Fog Computing	CS	Pooja Sharma, NIET	20.10.2023	Published
20.	Smart Agricultural System with IoT-Based Crop Monitoring and Machine Learning Predictive Analytics	CS	Ms Alka Singh, KNIT Sultanpur	20.10.2023	Published
21.	IoT Enabled Smart Agro-Sprayer Using Solar Energy	CSE	Swimpy Pahuja, REVA University, Bengaluru	06.10.2023	Published
22.	IoT Based Intelligent Dustbin for Waste Segregation and Dispensing Based on Lasso Regression	MCA	S. Balamurugan, , Coimbatore, Tamilnadu	06.10.2023	Published
23.	IoT Based Sustainable Agriculture for Smart Farming	CSE	Dr. Shantha Mary Joshitta, Periyakulam, Tamilnadu,	06.10.2023	Published

24.	Artificial Intelligence-Based Approaches for Automatic Question Paper Generation for The Digital Education	CSIT	Syeda Fatima Farheen, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, Andhra Pradesh	13.10.2023	Published
25.	Lyophilizer For Pharmaceutical Purpose	KSOP	Dr. N. G. Raghavendra Rao Professor, KIET	27.10.2023	Design

Details of Research Incentives for Journals

S. No.	Name of Faculty	Designation	Dept.	Title of Paper and Name of Journal	Impact Factor/Cite Score	Benefits/Incentives	Index in Journal
1.	Dr. Gaurav Sharma	Assistant Professor	ME	"Study on dislocation density, Microstructure and Mechanical Properties of P92 steel for different heat treatment Conditions. International Journal of Materials Science and Engineering Technology	1.1	11000	SCIE
2.	Dr. Sourav Diwania	Assistant Professor	EN	"Performance enrichment of Hybrid Photovoltaic thermal collector with different nano-fluids" International Journal of " Energy & Environment"	4.2	11000	SSCI
3.	Dr. Abhas Kanungo	Assistant Professor	ECE	"Design of an intelligent wavelet based fuzzy adaptive PID control for brushless motor" Multimedia Tools and Applications	3.6	11000	SCIE
4.	Dr. Preeti Garg	Assistant Professor	CSE	" A robust and secured adaptive image watermarking using social group optimization" The Visual Computer	3.5	11000	SCIE
5.	Dr. Anil Kumar Ahlawat	Prof. & Dean	CSE	" Fuzzy Local Information C - Means based clustering and Fractional Dwarf Mongoose optimization enabled deep learning	8.0	21000	SCIE

				for relevant document retrieval." Engineering Applications of Artificial Intelligence			
6.	Dr. Ruchin Gupta	Assistant Professor	IT	" A Novel Transfer Learning Method for Code Smell Detection on Heterogeneous Data: A Feasibility Study". International Journal of SN Computer Science"	4.6	5000	Scopus

Highlights of the Published Journal Articles

1. **G. Sharma D. K. Dwivedi, P. Sharma, "Study on dislocation density, microstructure, and mechanical properties of P92 steel for different heat treatment conditions" Materials science and engineering technology, Vol. 54, Issue 9, pp. 1148-1156, September 2023. <https://doi.org/10.1002/mawe.202100023>**

The impact of various heat treatment procedures on microstructure, dislocation density, hardness, tensile characteristics, and impact toughness of P92 steel was examined in the current experiment. The martensitic microstructure and average microhardness of 463 HV 0.2±8 HV 0.2 of the normalized steel were prevalent. A tempering procedure was carried out at 760 °C for a range of 2 hours to 6 hours. Additionally, an X-ray diffraction examination was carried out, and the results were used to determine the dislocation density. The normalized sample was characterized by a high dislocation density. The dislocation density was decreased by the tempering of normalized samples. With an increase in tempering time, the effect of the treatment coarsened the grains, and precipitates, and decreased the area fraction of precipitates. After tempering, MX, M₂₃C₆, and M₇C₃ types of precipitates were found to have precipitated, according to energy dispersive spectroscopy and x-ray diffraction research. The ideal tempering period was determined to be 4 hours at a tempering temperature of 760 °C based on the microstructure and mechanical characteristics. Steel that was tempered at 760 °C for 4 hours had a yield strength of 472 MPa, an ultimate tensile strength of 668.02 MPa, and an elongation of 26.05 %, respectively.

2. **Diwania, S., Kumar, R., Kumar, M., Gupta, V., & Alsenani, T. R. (2023). Performance enrichment of hybrid photovoltaic thermal collector with different nano-fluids. *Energy & Environment*, 34(6), 1747-1769.**

<https://doi.org/10.1177/0958305X221093459>

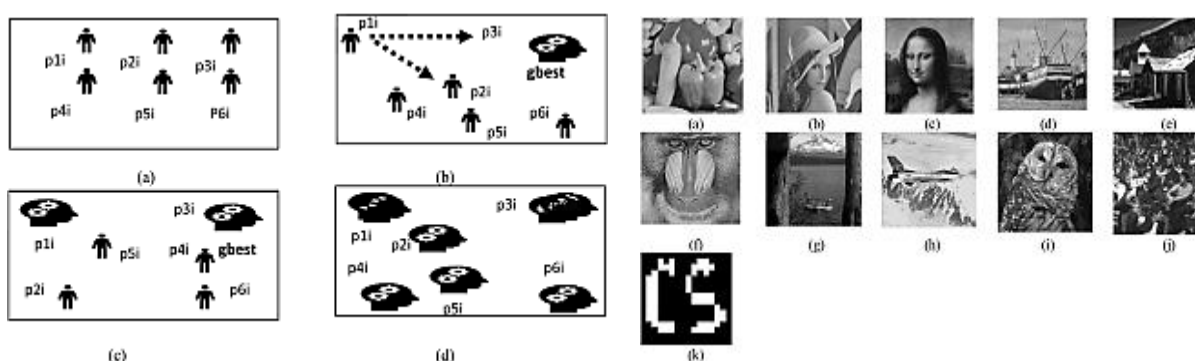
This work manifests the influence of different nanoparticles on the photovoltaic-thermal (PVT) system. The hybrid PVT (hPVT) systems provide thermo-electric energy by utilizing the module heat. The module heat is recovered for controlling the cell temperature using coolant in the channel. This work examines the impact of the type and volume concentration of different nano-fluids on the cell temperature, outlet temperature, and thermo-electric efficiency of hPVT collectors. Copper (Cu), titanium dioxide (TiO₂), and silicon dioxide (SiO₂) dispersed in pure water are considered nano-fluids in this study. The investigation reveals that the outcomes of the PVT collector with copper water as nano-fluid are superior to the other nano-fluids considered in the study. At 0.012 kg/s mass flow rate (MFR), the thermo-electric efficiency of the hPVT collector is 1.645% and 6.239% higher than the thermo-electric efficiency of the PVT at an MFR of 0.002 kg/s. It is also observed that with a 4% vol. concentration of Cu in the base fluid, the thermo-electric efficiency is considerably better than the efficiency at 2% and the base fluid.

3. Abhas Kanungo, Chandan Choubey, Varun Gupta, Pankaj Kumar, and Neeraj Kumar. 2023. Design of an intelligent wavelet-based fuzzy adaptive PID control for brushless motor. Multimedia Tools Appl. 82, 21 (Sep 2023), 33203–33223. <https://doi.org/10.1007/s11042-023-14872-6>

Nowadays, high-speed and high-power density Brushless Direct Current (BLDC) motors have been widely utilized in the industrial area. Moreover, the design of motor simulation strategies is used in the drive system, which controls the complicated problems in the BLDC motors. However, speed regulation is a vital challenge since it affects the controller performance; the Proportional-Integral-Derivative (PID) controller is used in mechanical concerns. Therefore, this study introduces the novel Wavelet-based Fuzzy Adaptive Hybrid Bat-Vulture PID (WFA-HBVPID) controller to control the BLDC motor acceleration. Also, the developed WFA-HBVPID controller organizes the loads in the BLDC motor while verifying the gain scheduling conditions. Furthermore, this proposed PID controller is implemented using MATLAB/Simulink. Here, the performance of the motor is assessed in two ways, i.e., with hybrid optimization and without hybrid optimization. In addition, the efficiency of the developed controller has been checked over the time domain specifications like settling time, rise time, peak overshoot, and gain. To calculate the presented controller efficiency, the performances of the controller were compared with existing techniques. From the comparison of the outcomes, it is found that the proposed controller has less computation time and error rate.

4. Garg, P., Rama Kishore, R. A robust and secured adaptive image watermarking using social group optimization. Vis Comput, 39, 4839–4854 (2023). <https://doi.org/10.1007/s00371-022-02631-x>

Watermarking is the process of inserting concealed data into carrier data to authenticate the owner of the material. To achieve optimal performance, we present an intelligent system for watermarking that combines a meta-heuristic method with an embedding technique. The suggested work proposes a blind watermarking technique that embeds the watermark bits in the best location of discrete cosine transform blocks while taking advantage of the discrete wavelet transform's features. To safeguard the embedded watermark, a two-step security mechanism is used: first, the column values are shuffled using a proposed shuffling algorithm, and then the scrambled watermark is encrypted using the Arnold encryption scheme. The primary goal of any watermarking technology is to protect embedded data from various attacks while maintaining the carrier data's quality. By tailoring the embedding site for watermark encapsulation, the recommended technique achieves an acceptable balance of these two characteristics known as imperceptibility and resilience. A meta-heuristic algorithm based on human social behavior is employed to optimize the placement. The social group optimization (SGO) algorithm is a new member of the family of meta-heuristic algorithms. No attempt has been made to include the social group optimization technique into applications for watermark embedding, to our knowledge. The SGO method can assist in striking a balance between various watermarking qualities. To demonstrate the utility of the suggested method, it is compared to a variety of existing watermarking techniques. The approach presented here is a robust solution that may be applied to a wide variety of multimedia applications, including telemedicine, media distribution, and security systems.

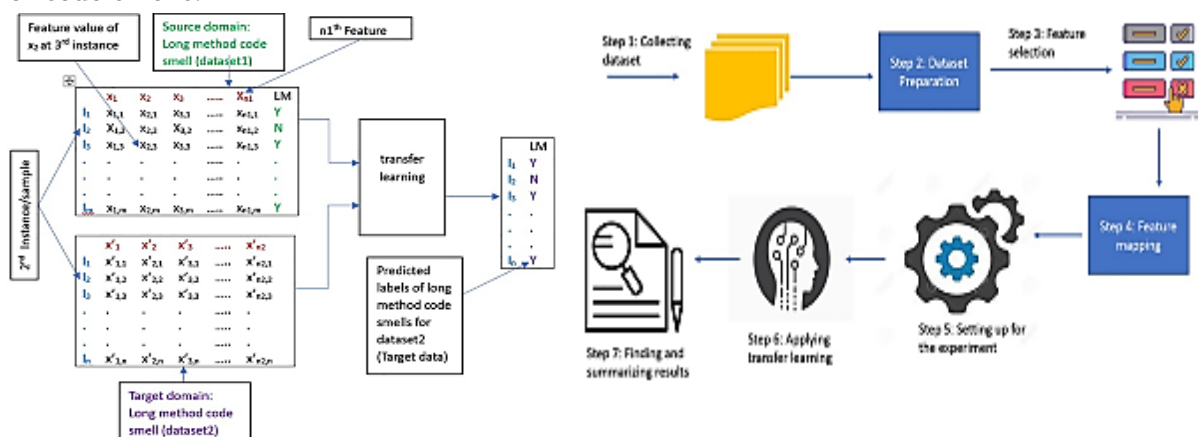


5. Gunjan Chandwani, Anil Ahlawat, Fuzzy Local Information C -Means based clustering and Fractional Dwarf Mongoose optimization enabled deep learning for relevant document retrieval, Engineering Applications of Artificial Intelligence, Volume 126, Part B, 2023, 106954, ISSN 0952-1976. <https://doi.org/10.1016/j.engappai.2023.106954>

Document Retrieval (DR) needs an innovative model to rank and retrieve documents based on their relevancy concerning some questions that require strong text understanding capability. The prime motive of document retrieval is to search the relevant documents that satisfy the user's questions. However, it is a complex process because it means the natural language textual content is based on syntax, context, and semantics. Conventional techniques for listing files prefer typical word and sentence encrypting to create abatement of constant-length documents. However, the widely used bag-of-words (BoW) method failed to integrate the signify context, which is a crucial problem in comprehending the document-query relevancy. To overcome such issues, deep neural networks (DNNs) have been put forward to arrange search outcomes concerning user's questions. Here, a unified solution is provided to perform relevant document retrieval using Dwarf Mongoose Optimization Fractional-based Deep Convolutional Neural network (DMOF-Deep CNN). Here, the textual content processing is done based on BERT tokenization and feature term extraction. Moreover, the cluster-based indexing by elastic search is accomplished using Fuzzy Local Information C-Means (FLICM) clustering and dice coefficient is employed to perform the query matching. Finally, re-ranking based document retrieval is conducted in terms of deep CNN, which is trained using designed DMOF. In addition, the designed DMOF-Deep CNN has outperformed other existing models by delivering a maximum precision of 0.854, recall of 0.913, and F1-score of 0.882.

6. Gupta, R., Singh, S.K. A Novel Transfer Learning Method for Code Smell Detection on Heterogeneous Data: A Feasibility Study. SN COMPUT. SCI. 4, 749 (2023). <https://doi.org/10.1007/s42979-023-02157-6>

Code smell detection has been primarily focused on homogeneous data. However, due to diverse sources of data, in a real-life scenario, the unseen target data on which code smell needs to be predicted may be heterogeneous in feature space representation from source data for which code smells are known. Also, the capability of a state-of-the-art technique of machine learning called “transfer learning” has not been well explored to transfer the knowledge of already known code smells from source data to predict code smells on unseen heterogeneous target data. This paper has examined the feasibility of transfer learning to predict code smells on unseen heterogeneous target data. The paper has proposed a novel method for detecting code smell on heterogeneous data using modified domain invariant transfer kernel learning (DITKL), one of the transfer learning techniques. The experiments were conducted using modified DITKL on six traditional machine learning models on long method and temporary field code smells. Results showed that modified DITKL on Naïve Bayes and the ID3 decision tree outperformed others for long method code smell, and modified DITKL on Multilayer Perceptron and Naïve Bayes performed well for temporary field code smell. The proposed method can be quite useful to detect code smells in unseen heterogeneous data when a tool or expert knowledge cannot be applied to detect a code smell due to the characteristics of the unseen data. It can also help in establishing benchmark data for code smells.



Reimbursement of Conference Registration Fee

S. No	Name of Faculty	Designation	Dept.	Name of Conference	Title of Paper	Benefits/Incentives	Published By
1.	Ms. Nikita	Student (II Year)	M. Tech. CSE	Conference	"Brain Stroke Detection and Prediction Using Machine Learning Approach: A cloud Deployment Perspective"	3500 (As per KIET Final year Project Outcome Policy)	IEEE
2.	Mr. Nikhil Kumar Singh	Student (II Year)	M. Pharm (Pharmaceutics) II year	Conference	"Advancement in Biomaterials used in Implants".	3500 (As per KIET Final year Project Outcome Policy)	IC4M 2023
3.	Ms. Garima Katyal	Student (II Year)	M. Pharm (Pharmaceutics) II year	Conference	" Ecofriendly Pharmaceutical packaging Materials: A review"	3500 (As per KIET Final year Project Outcome Policy)	IC4M 2023

Highlights of the Published Conference Articles

- 1. Nikita and G. Parashar, "Brain Stroke Detection and Prediction Using Machine Learning Approach: A Cloud Deployment Perspective," 2023 International Conference on Circuit Power and Computing Technologies (ICCPCT), Kollam, India, 2023, pp. 1705-1714, DOI: [10.1109/ICCPCT58313.2023.10245699](https://doi.org/10.1109/ICCPCT58313.2023.10245699).**

An ischemic stroke is a medical disorder that happens by ripping of circulation in the mind. A cardiac event can also arise when the circulation supply to the cerebellum is interrupted. It is a main factor in mortality and impairment globally, according to the World Health Organisation. Most work on heart stroke forecasting has been performed, however, few results illustrate the risk because of the mental attack. After that, AI algorithms are employed to predict the likelihood of mind strokes. The purpose of this work is to demonstrate whether machine learning may be utilized to foresee the beginning of brain strokes. For accurate prediction, the study used ML calculations such as Logistic Regression (LR), Decision Tree (DT), Random Forest (RF), Navies Bayes (NB), and Support Vector Machine (SVM), and deployed it on the cloud using AWS cloud. The results showed that SVM and LR had a maximum accuracy of 94%.

- 2. Shivgotra, R., Soni, B., Kaur, M., Thakur, S. (2023). Advancement in Biomaterials in the Form of Implants. In: Malviya, R., Sundram, S. (eds) Engineered Biomaterials. Engineering Materials. Springer, Singapore. https://doi.org/10.1007/978-981-99-6698-1_10**

Biomaterials are materials utilized to replace a human body part that serves the same function as the original or restore the function of damaged or degenerated tissues and organs. Implants such as sutures, bone plates, joint replacements, ligaments, vascular grafts, heart valves, intraocular lenses, and dental implants have overtaken alternative therapy approaches and entered the mainstream of dental care over the past ten years. One of the primary requirements for a biomaterial to be suitable for medical applications or implantation is that it should be nontoxic, not cause any immune response, and be chemically stable, biocompatible, and well-tolerated by the human body. Different materials like metals, ceramics, and polymers, are used for the manufacturing of implants, depending on whether a permanent or temporary implant is needed. However, they exhibit several disadvantages, including toxicity, a lack of mechanical stability, and processing complexity. Numerous biomaterials have been discovered, but most implanted biomaterials now in use cause either acute or chronic inflammatory reactions inside the body. Nanotechnology has aided in developing an entirely novel implant material with enhanced efficacy, low cost, and a significant surface-to-volume ratio. Modifying the surfaces of present implants to reduce the body's reaction and enhance the natural healing of wounds is also one strategy for developing such healing biomaterials. This chapter covers the advancements in biomaterials used for implants, including various techniques for physically and chemically modifying the surfaces, as well as the use of 3D printing and nanotechnology.

3. Anupama Singh, Pramod Kumar Sharma and Rishabha Malviya, “Eco Friendly Pharmaceutical Packaging Material”, World Applied Sciences Journal, 14(11): 1703-1716, 2011. ISSN – 1818-4952.

Eco-friendly pharmaceutical packaging materials are safe materials for the environment that enclose pharmaceutical products in any of the dosage forms. They may be derived from natural resources, like starches, proteins etc. that inflict little or nearly no harm on the environment and the environment-dependent species. This review highlights the eco-friendly materials, their classification, uses, and advantages, and finally summarizes the scope and future need in respect of pharmaceutical packaging. Classification has been done under several categories based on their uses, chemical constituents, and the type of raw material used for its manufacturing. This review details all the above-mentioned aspects and the responsibility of the pharmaceutical sector for the progressive development of such eco-friendly packaging.

Research Incentive for Book Chapters

S. No	Name of Faculty	Designation	Dept.	Category	Title of Book Chapter	Benefits/ Incentives	Published By
1.	Dr. Abhinav Juneja	Professor & Head	CSIT	Book Chapter	"Integration of IoT with Cloud Computing for Smart Applications."	2000	International Publisher Scopus

CRDC Presentation Series

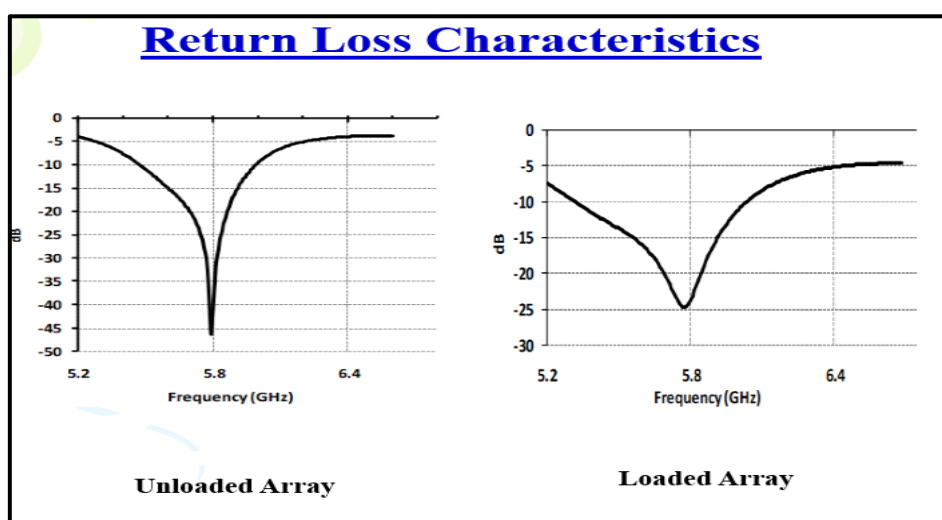
Activity Report October 2023

Collaborative Research and Development (CRD) Presentations 2022-23 (Odd)

Title: Bandwidth Enhancement of Microstrip Patch Antenna Array using Spiral Split Ring Resonators

It is observed that the bandwidth of the SSRR loaded antenna array gets improved at almost no extra cost and size.

This communication presents a Spiral Split Ring Resonators (SSRR) loaded, 4-element microstrip patch antenna array for 5.8 GHz WiMAX applications. The unloaded antenna array resonates at 5.8 GHz with gain of 7.15 dBi and bandwidth of 480 MHz. whereas, when the patches of this array are loaded with SSRR the bandwidth increases to 700 MHz with almost no variation in gain. The proposed antenna array has been designed on a 1.48 mm thick FR-4 substrate and simulated in FEM based HFSS commercial electromagnetic simulator.



Dr Chirag Arora
Associate Professor
ECE Department

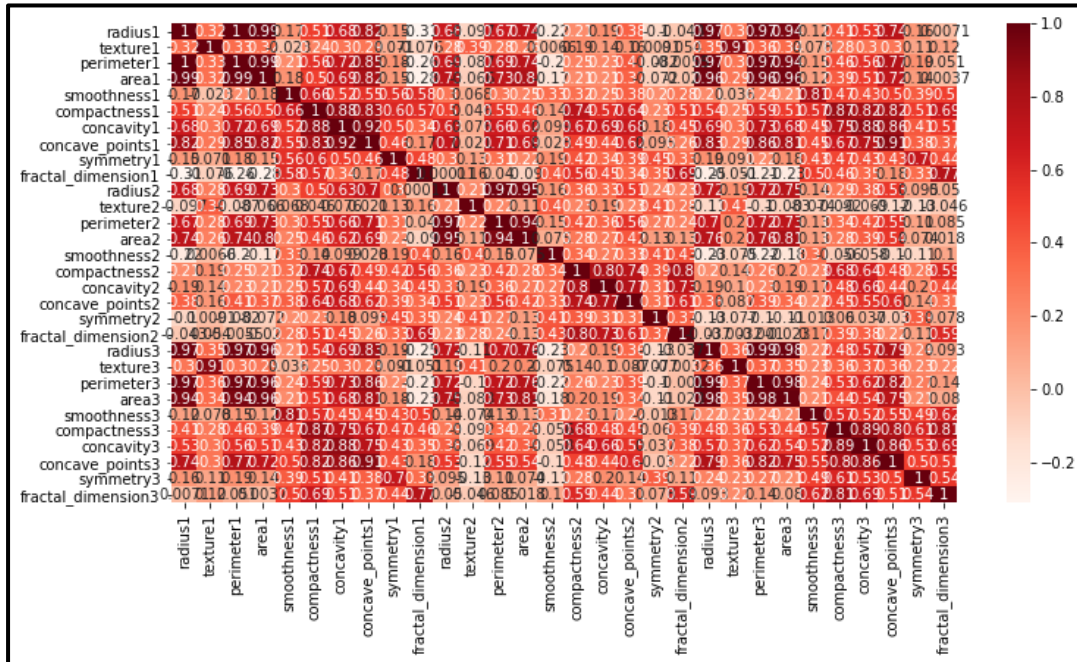
Title: The Role of Machine Learning Techniques in Breast Cancer Analysis

We will analysis and build a model to predict if a given set of symptoms lead to breast cancer. This is a binary classification problem, and a few algorithms are appropriate for use.

Summary: Machine Learning (ML) techniques play a crucial role in breast cancer diagnosis by aiding in the interpretation of medical images, such as mammograms and biopsy slides, and improving the accuracy and efficiency of the diagnostic process. This work how ML is used for breast cancer diagnosis:

Identified Thrust area of Research

Machine learning application in healthcare.



	precision	recall	f1-score	support
0	1.00	0.99	0.99	75
1	0.97	1.00	0.99	39
accuracy			0.99	114
macro avg	0.99	0.99	0.99	114
weighted avg	0.99	0.99	0.99	114

- Breast cancer is a type of cancer that develops in the breast tissue. It is the most common cancer in women worldwide, with an estimated 2.3 million new cases diagnosed in 2020. The exact causes of breast cancer are not known, but several factors can increase the risk of developing the disease, including age, family history of breast cancer, genetic mutations, exposure to radiation, and hormonal factors.
- Step 1: Data Preparation
- Load the Dataset: Import the WBCD dataset, which is available through various libraries such as scikit-learn or by downloading it from the UCI Machine Learning Repository.
- Data Exploration: Explore the dataset to understand its structure, including the number of samples, features, and the distribution of target classes (benign and malignant).

- Data Preprocessing: Preprocess the data to handle missing values, if any, and encode categorical variables if necessary. Standardize or normalize the numerical features to ensure that they have the same scale.
- Step 2: Data Splitting
- Split the Data: Divide the dataset into training and testing sets. A typical split is 70-80% for training and the remaining 20-30% for testing to evaluate model performance.
- Step 3: Model Selection
- Choose ML Algorithms: Select appropriate ML algorithms for classification. Common choices for binary classification tasks on the WBCD dataset include Logistic Regression, Decision Trees, Random Forests, Support Vector Machines, and Gradient Boosting algorithms.
- Step 4: Model Training
- Train the Models: Fit the selected ML algorithms on the training data. Each model learns the relationships between the input features and the target variable (benign or malignant).
- Step 5: Model Evaluation
- Evaluate Model Performance: Use various evaluation metrics, such as accuracy, precision, recall, F1-score, and ROC-AUC, to assess how well the models perform on the test data.
- Step 6: Hyperparameter Tuning
- Hyperparameter Optimization: Fine-tune the hyperparameters of the ML models to optimize their performance. Techniques like grid search or random search can help find the best hyperparameter combinations.
- Step 7: Model Selection
- Select the Best Model: Based on the evaluation results, choose the ML model that provides the best performance for breast cancer prediction on the WBCD dataset.



By-

Dr. Gaurav Dubey,

Professor Computer Science

Title: Wind Hazards on the Indian Power System and Challenges for the Future: A Review

1. To integrate and review the development of research towards power system vulnerability for cyclone catastrophe models.
2. Challenges and future investigation.

Summary

The interrelationship between interdependent power subsystems needs to be broadly analysed to assess the effect of the failure of each subsystem component on the other linked subsystem component and mostly, vulnerability models have been established internationally considering their geographical conditions, therefore, a model needs to be developed considering Indian subcontinent conditions.

Identified Thrust area of Research

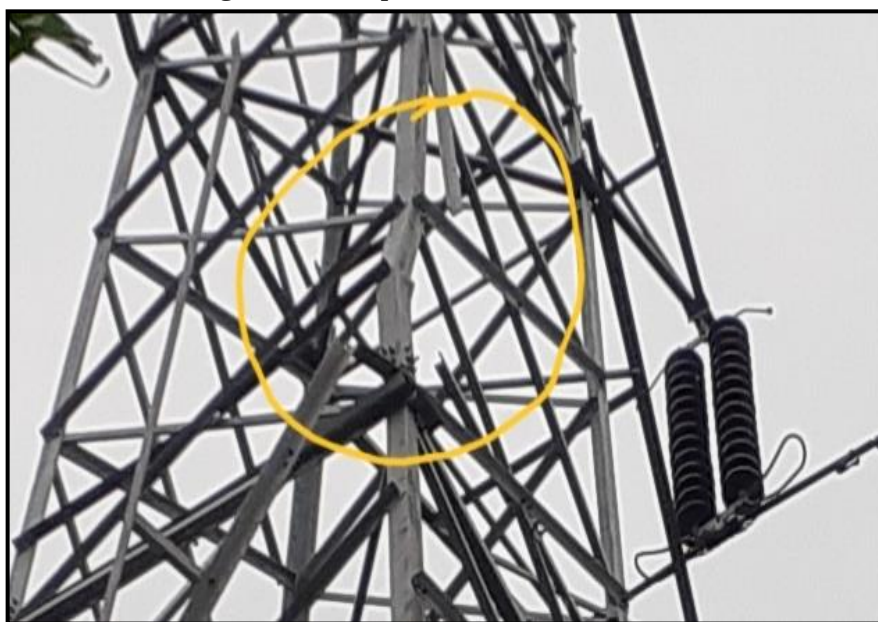
Wind Hazards

There is cause for concern regarding the cyclone's damage to the electricity system. In order to assess the power system vulnerability in catastrophic models, this presentation will cover the effects of tropical cyclones on the Indian power system, as well as its evolution, difficulties, and future trends. Several crucial variables have been employed by the new catastrophic models to evaluate the risk. According to the report, in severe wind conditions, the distribution

subsystem is more susceptible than the generation and transmission subsystems. Physical and systemic vulnerability are the two methods that are most frequently used to evaluate vulnerability.

Resilience modelling

requires the use of both physical and systemic vulnerability techniques, which forecast component damage within subsystems and within interconnected subsystems, respectively. A thorough analysis of the interdependencies across power subsystems is necessary to determine how the failure of one subsystem component would affect the other related subsystem components. The impact of climate change on the physical infrastructure and operational circumstances of the electricity system needs more investigation.





By:

Sarv Priya
Assistant Professor,
Department of Civil Engineering

Title: A STUDY ON SELF COMPACTING CONCRETE

SCC is one of the greatest evolutions in the field of concrete technology in the last 50 years.

Summary

The utilization of SCMs (as a replacement to Portland cement) in SCC plays a pivotal role in the mix design due to its requirement of increased paste content. Use of Alccofine to produce SCC mixes is prominent in improving its fresh, hardened and durability characteristics in terms of workability, strength, and permeability

Identified Thrust area of Research

Material Science

Self-compacting concrete (SCC) may be manufactured using a variety of mineral additives and fibers, as detailed in this study. Demand for massive and complicated buildings in the construction industry has resulted in challenging concrete circumstances. To guarantee that a reinforced concrete (RC) element is completely compacted without any voids or honeycombs, a substantial amount of strong reinforcement must be inserted into the concrete. The use of manual or mechanical vibrators to compact material is next to impossible in this condition. As a result, self-compacting concrete, a new variant of concrete, was developed (SCC). This kind of concrete is easy to deal with since it flows readily over the reinforcing steel and into the formwork. As the name suggests, self-compacting concrete is a kind of concrete that can be compacted without the need of vibration. High-performance SCC is another name for this kind of material, which is often referred to as self-consolidating concrete. There are no imprisoned air or rock pockets, and it can easily flow around obstructions and fill all of the crevices and crannies of a structure without separating out the mortar or other concrete

elements. Compaction is unnecessary with this concrete mix, which saves both labour and resources. Fibers and other mineral admixtures are discussed in this review study, which describes the features of Self-Compacting Concrete. Mineral Admixtures, Fibers, Longevity, Workability, Self-Compacting Concrete, Mix Design.

SCC is the type of concrete that, due to its own gravity and rheological nature, can fill any type of form work and obtain the appropriate compaction with no additional vibration due to low viscosity and great workability. The main feature of SCC is the special fluidity of the mix in connection to the stability, the latter being a measurement of resistance to segregation of the materials, both dynamic (during transport) and static (after placement). Self-compacting concrete (SCC) is defined as concrete that can flow under its weight, to fill the required space or formwork and to produce a dense and adequately homogenous material without a need for vibrating compaction.

Elimination of external or internal vibration for compaction

Better flowability, workability, and pumpability

Increased bonding with congested reinforcement

Faster placement and requires less labor.

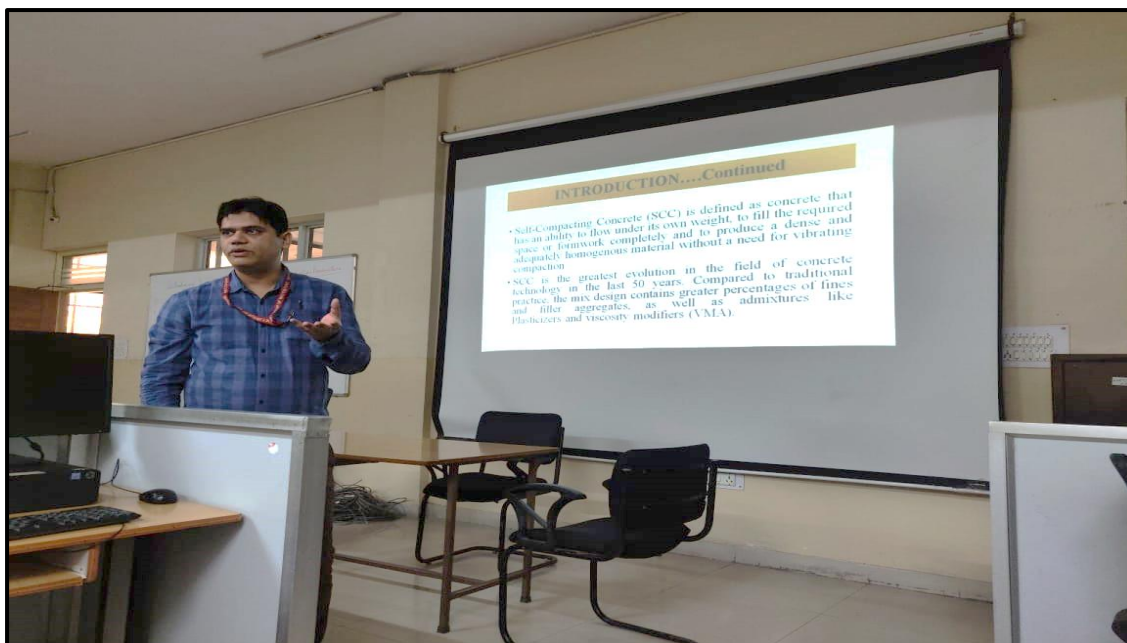
Better appearance (surface finish), mechanical performance and durability

SCC is the greatest evolution in the field of concrete technology in the last 50 years. Compared to traditional practice, the mix design contains greater percentages of fines and filler aggregates, as well as admixtures like Plasticizers and viscosity modifiers (VMA).

The greatest problem for the production of SCC was the lack of fine aggregate sources and the performance of mineral fillers.

- The suitability of slag filler (Alccofine) as mineral filler is studied.

Age of sample	Ultimate compressive strength (MPa)
16 h	8.1
24 h	10.3
3 days	26.2
7 days	34.5
28 days	43.6



By :-

Yasir Karim

Assistant Professor

Civil Engg. Department

Title: Recent Development in Solar Desalination- A Case Study

Solar desalination offers several advantages, making it a promising solution for addressing water scarcity and providing fresh water in regions with abundant sunlight.

Summary: The experimental results revealed that the influence of metal oxide nanoparticle as absorber coating material improved the rate of freshwater generation by 36.08 % than the conventional solar still at a minimum thickness of water as 1 cm in the absorber.

Identified Thrust Area of Research

ITRA-3: Improved Hybrid Renewable Energy Systems and Sustainable Energy Solutions

INTRODUCTION:

The quantity of drinkable water that is easily accessible is dwindling at an extremely quick pace. An extra degree of complication has been added to the problem as a consequence of the depletion of freshwater resources brought on by human activities. The primary objective of the present study is to enhance the rate of freshwater generation through the low-cost solar desalination unit using iron oxide as coating material using different thickness of water placed in the absorber plate.

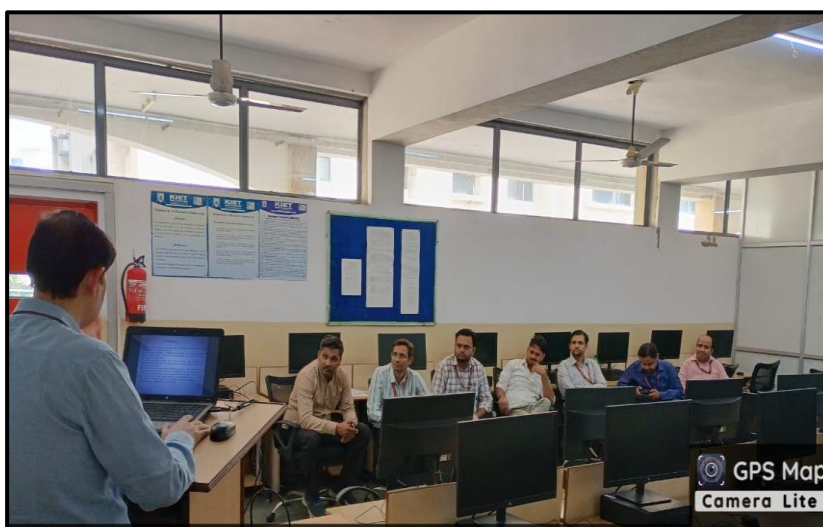
CONCLUSIONS:

The experimental results reported by the authors revealed that the influence of metal oxide nanoparticles as absorber coating material improved the rate of freshwater generation by 36.08 % than the conventional solar still at a minimum thickness of water as 1 cm in the absorber.

The palatable freshwater generated from the SS without any absorber coating for the thickness of water as 10, 20, and 30 mm is found to be 3.85, 3.09, and 2.90 kg/m² respectively. However, with an effective coating of the absorber plate using Fe₂O₃ nanoparticle, the cumulative daily palatable water generated from the solar still for different thicknesses of water as 10, 20, and 30 mm is enhanced to about 6.03, 5.36 and 4.72 kg/m² respectively.

There is a significant enhancement of about 38.47 to 60.15 % and 1.96 to 4.53 % in the daily energy, and exergy efficiencies of the solar still using coated absorber plate in the SS respectively while compared to the SS using uncoated absorber at the lowest thickness of water in the absorber of basin.

Similarly, the CPL of fresh water produced from the SS using coated absorber is lowered by 29.96 % than the SS using uncoated absorber.



By :-

Dr. Sandeep Chhabra
Professor
Department of Mechanical Engineering

Title: Hate Speech Detection with low resource languages

Prevention of spreading hate content is highly needed to maintain healthy social environments.

Summary

The work successfully investigated an unsupervised hate tweet detection approach with contextual semantic and emotion analysis for Bengali and Hindi languages.

The explosive growth of social media has fuelled an extensive increase in online freedom of speech. The worldwide platform of human voice creates possibilities to assail other users without facing any consequences, flout social etiquettes, resulting inevitable increase of hate speech. Nowadays, English hate speech detection is a popular research area, but the prevalence of implicit hate content in regional languages desire effective language-independent models. The proposed research is the first unsupervised Hindi and Bengali hate content detection framework consisting of three significant concepts - HateCircle, hate tweet classification, and code-switch data preparation algorithms. The novel HateCircle method is proposed to detect hate orientation for each term by co-occurrence patterns of words, contextual semantics, and emotion analysis. The efficient multiclass hate tweet classification algorithm is proposed with parts of speech tagging, Euclidean distance, and the Geometric median methods. Detection of hate content is more efficient in the native script compared to the Roman script, so the transliteration algorithm is also proposed for code-switch data preparation. The experimentation evaluates the combination of various lexicons with our enriched hate lexicon that achieves a maximum of 0.74 F1-score for the Hindi and 0.88 F1-score for the Bengali datasets. The novel HateCircle and hate tweet detection framework evaluates with our proposed parts of speech tagging and Geometric median detection methods. Results reveal that HateCircle and hate tweet detection framework also achieves a maximum of 0.73 accuracy for the Hindi and 0.78 accuracy for the Bengali dataset. The experiment results signify that contextual semantic hate speech detection research with language-independency feature offsetting the growth of implicit abusive text in social media. The experimentation section revealed that the language-independent hate content detection framework achieved satisfactory performance and effectively classified implicit and explicit hate text.

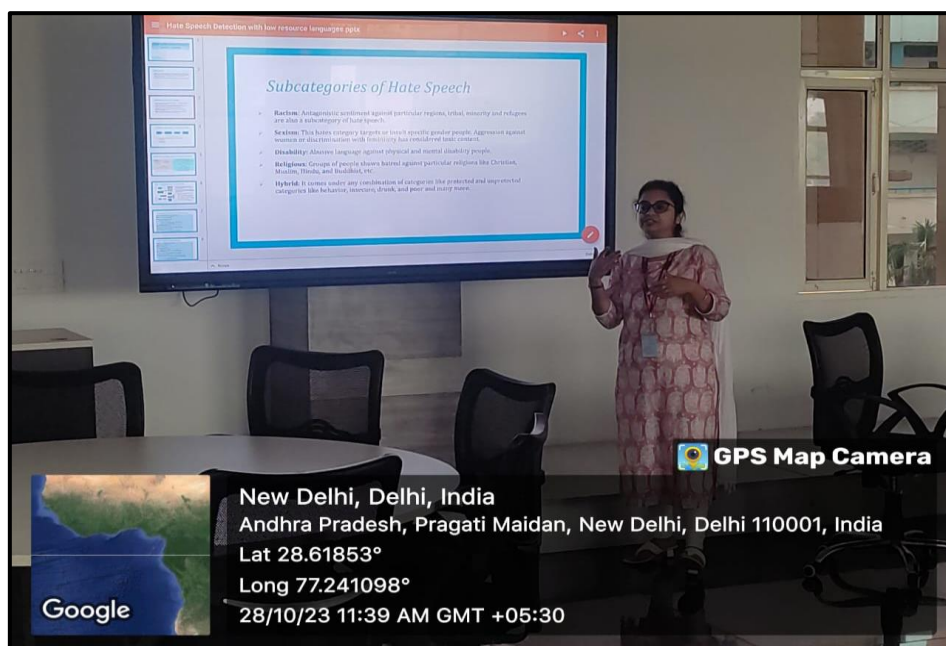
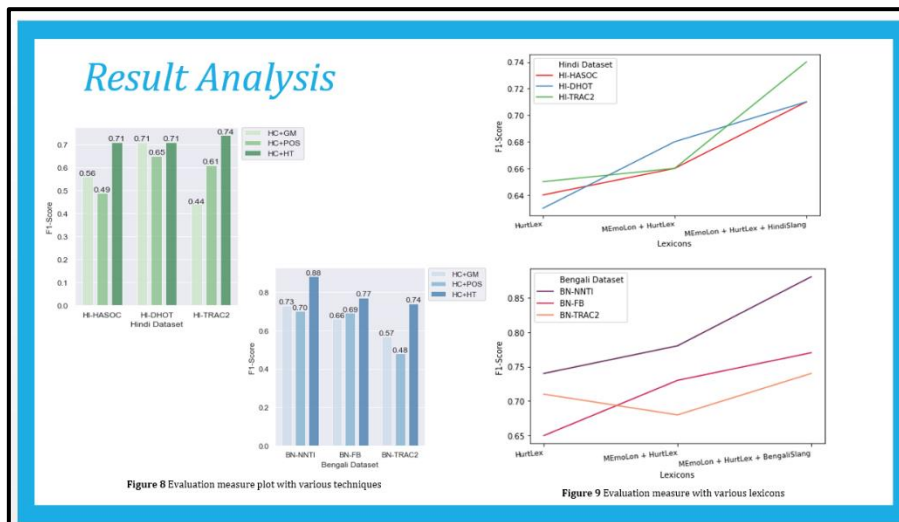
The work successfully investigated an unsupervised hate tweet detection approach with contextual semantic and emotion analysis for Bengali and Hindi languages.

It also identified that employed hate and emotion lexicons critically influenced HateCircle performance.

The experimental analysis also revealed that analysis of complex human behavior enhanced the F1-score of implicit hate tweet detection.

The proposed research is also compared with diverse discriminative learning models but extended FSVMCIL achieved requisite performance as it provides diverse importance of data. This research used the morphological analysis word similarity scheme to enhance the existing Bengali hate lexicon with more nearest hate terms from each tweet.

It also identified that emojis are important hidden information to detect hate speech from Bengali text.



By :-
Sayani Ghosal
Assistant Professor
CSE AI & ML

Title: A CNN Method based Predictive Model for Tomato Leaf Disease Prediction

This paper detects the tomato leaf diseases by extracting features from the images and classified them into ten different groups using CNN approach.

Summary

This paper detects the tomato leaf diseases by extracting features from the images and classified them into ten different groups using CNN approach. Results shows 93% of accuracy and compared with other existing work.

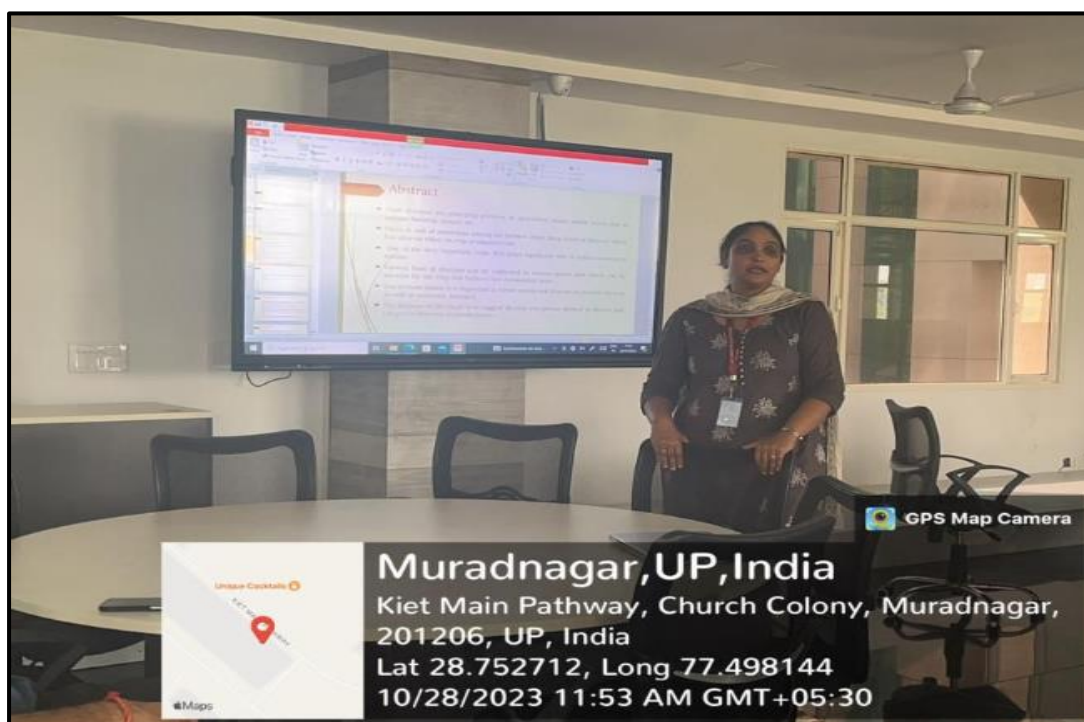
In future, research can also be done in the real time environment.

Efficiency of the proposed work can also be improved using emerging and efficient technologies and hybrid approaches can also be proposed by the researchers.

Identified Thrust Area of Research

Plant diseases are emerging problem in agriculture sector which occurs due to various bacteria, viruses etc. There is lack of awareness among the farmers about these kinds of diseases which has adverse effect on crop production rate. One of the very important crops that plays significant role in Indian economy is tomato. In India, production of tomato crop is vast which has direct impact on Indian economy. Various kinds of diseases can be cultivated in tomato plants also which can be harmful for the crop and farmers face economical losses. Due to these issues, it is important to detect tomato leaf diseases to prevent the crop as well as economic damages. The purpose of this study is to suggest an easy and precise method to identify and categorize diseases of tomato leaves. For this reason, a CNN method is applied as they employ automatic feature extraction as well as classification of the input image into different classes of diseases. Experiment is done on an online dataset in which images are classified into 10 different types of diseases. Proposed model was able to receive 93% of accurate results for detecting the correct diseases in tomato leaves which shows that proposed.

CNN model can be used as a feasible and efficient technique for identifying tomato leaf diseases in diverse circumstances.



By:
Dr. Shelly Gupta
Assistant Professor
CSE (AI) Department

Innovation Spotlights of the Month

The Menace of Illegal Sand Mining in Uttar Pradesh, India

Introduction: Illegal sand mining has emerged as a pressing environmental issue in Uttar Pradesh, jeopardizing the state's ecosystems and communities. This article explores the causes, consequences, and potential solutions to address the rampant illicit extraction of sand.

Background: Uttar Pradesh, a state known for its diverse landscapes and numerous rivers, has become a hotspot for illegal sand mining. The demand for sand, driven by rapid urbanization and construction projects, has led to the unregulated exploitation of riverbeds.

Causes of Illegal Sand Mining:

1. **High Demand:** The booming construction industry and infrastructure projects have created a soaring demand for sand, encouraging illegal mining activities.
2. **Lack of Regulation:** Weak regulatory frameworks and enforcement mechanisms have provided a conducive environment for illegal sand miners to operate with impunity.
3. **Corruption:** Instances of corruption within regulatory bodies contribute to the ineffective implementation of mining laws.

Consequences:

1. **Environmental Impact:** Illegal sand mining leads to the degradation of riverbeds, loss of biodiversity, and disruption of aquatic ecosystems.
2. **Social Consequences:** Local communities often bear the brunt of these activities, facing displacement, water pollution, and health hazards.
3. **Economic Losses:** Despite the economic gains for illegal miners, the long-term consequences include the depletion of a crucial natural resource and the hindrance of sustainable development.

Government Initiatives:

1. **Mining Regulations:** Efforts to strengthen and enforce existing mining regulations to curb illegal activities.
2. **Technological Solutions:** Exploration of technology to monitor and control sand mining activities, such as the use of satellite imagery and GPS tracking.

Challenges:

1. **Enforcement Gaps:** Despite regulations, effective enforcement remains a significant challenge.
2. **Community Engagement:** Involving local communities in monitoring and reporting illegal activities can be a crucial step in combating the issue.
3. **Political Will:** The need for political will to address corruption within regulatory bodies and ensure the strict implementation of mining laws.

Conclusion: Illegal sand mining in Uttar Pradesh poses a severe threat to the state's environment, communities, and sustainable development. A concerted effort involving

regulatory authorities, local communities, and the public is essential to combat this menace and safeguard the precious natural resource of sand.

Innovative Drug Formulation Offers New Hope for Scorpion Sting Patients

Scorpion envenomation is a life-threatening problem in many parts of the world, and the Indian red scorpion (*Mesobuthus tamulus*) is among the most dangerous scorpions globally. Current treatment primarily relies on equine anti-scorpion antivenom (ASA) administered intravenously. However, this treatment has limitations due to a low proportion of venom-specific antibodies and the risk of adverse reactions. To address this critical issue, scientists from the Institute of Advanced Study in Science and Technology (IASST) and Tezpur University, along with researchers from NIELIT, Guwahati, have developed an innovative therapeutic drug formulation (TDF). This TDF, composed of low doses of commercial ASA, α 1-adrenoreceptor agonist (AAAs), and vitamin C, aims to inhibit Indian red scorpion venom-induced toxicity and its associated symptoms.

The Scorpion Envenomation Challenge

The Indian red scorpion is known for its life-threatening sting, which can be fatal if not promptly treated. Intravenous administration of equine anti-scorpion antivenom (ASA), specifically raised against *M. tamulus* venom (MTV), is the current standard treatment for scorpion stings. However, its effectiveness is hindered by the low proportion of venom-specific antibodies, especially against low molecular mass channel toxins. This limitation leads to the need for high antivenom doses, increasing the risk of adverse reactions in patients. The complexity of scorpion envenomation necessitates extensive research and alternative therapeutic approaches.

Conventional Treatment with α 1-Adrenoreceptor Agonists

In addition to ASA, α 1-adrenoreceptor agonists (AAAs) such as Prazosin are conventionally used, either alone or in combination with commercial ASA, for the treatment of scorpion sting patients. However, this therapy has proven less effective and is associated with certain limitations.

A Novel Therapeutic Approach

To address the challenges posed by scorpion envenomation treatment, a team of scientists from IASST, Tezpur University, and NIELIT, Guwahati, has developed a novel therapeutic drug formulation (TDF). This innovative approach combines low doses of commercial ASA, AAAs, and vitamin C to counteract Indian red scorpion venom-induced toxicity and its associated symptoms.

Testing the Efficacy

Before moving to in vivo animal models, the researchers first tested the efficacy of the drug on *Caenorhabditis elegans*, a free-living nematode model, as an alternative to traditional animal testing. The results of their research were recently published in the journal *Toxins*, and an Indian patent has been filed for this groundbreaking drug formulation.

Promising Results

The study demonstrated the efficacy of the TDF. It efficiently neutralized Indian red scorpion venom, preventing an increase in blood glucose levels, organ tissue damage, necrosis, and

pulmonary edema in Wistar rats. Importantly, the TDF outperformed commercial ASA, AAAs, and vitamin C in its ability to mitigate the effects of scorpion venom.

Source: <https://www.gktoday.in/innovative-drug-formulation-offers-new-hope-for-scorpion-sting-patients/>

Migraine Preventing Headband

This Electric Headband Zaps Migraines

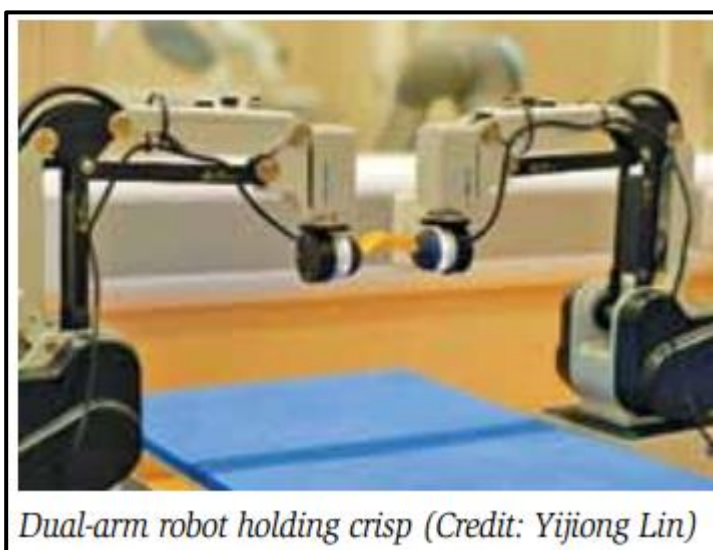
Belgian company Cefaly Technology has developed a cutting-edge electric headband that relieves migraine headaches by acting on nerve cells that transmit migraine pain signals to the brain.

Roughly ten percent of people suffer from migraines, which can be devastatingly debilitating. The Cefaly electronic headband has an electrode that covers the middle of the forehead and sends electrical impulses to nerves. This leads to an increase in the production of endorphins, which inhibit the transmission of pain signals. Essentially, the electric impulses block the entry of migraine pain into the nervous system.

Aside from preventing migraine pain, the headband has the added advantage of producing no side effects, a common problem with painkillers and other migraine medications. The headband is safe to use for all ages, although it is recommended only to patients over eight years old as a precautionary measure. It is also an excellent choice for pregnant or nursing mothers who have to refrain from using painkillers.

Dual-arm robot learns bimanual tasks from Simulation

Scientists at the University of Bristol, based at the Bristol Robotics Laboratory, have designed the Bi-Touch system, which enables robots to perform manual tasks by receiving guidance from a digital assistant. Researchers developed a virtual simulation with two robot arms equipped with tactile sensors, utilising reward functions and a goal-update mechanism to encourage mastery of bimanual tasks. They then created a real world dual-arm robot system where the trained agent could be directly applied, acquiring skills through deep reinforcement learning (Deep-RL), a technique that facilitates learning via trial and error. In this setup, the robot learns decision-making by experimenting with various actions to complete tasks, such as handling delicate objects without damage. Relying solely on proprioceptive feedback, the AI agent proficiently learns to lift fragile items, even as delicate as a Pringle crisp, through iterative success and failure assessments.



Dual-arm robot holding crisp (Credit: Yijiong Lin)

Source: <https://www.efymag.com/express/> - EFY magazine October Month

KIET (R&D) Policies

Promotion of research culture with the formulation of policies by the R&D Committee is as follows:

- KIET Research Policy
- KIET Ethics Policy for Students and Faculty Members
- CV Raman Award Policy
- Policy for KIET Research Faculty Members
- Guidelines for Organizing International Conferences in Institute
- Departmental Research Committee
- KIET Policy for Research Proposals/Grants
- KIET Policy for Research Guidance/Ph.D. Guidance for Improving Research Culture

For details, kindly refer -

<https://www.kiet.edu/Research%20and%20Development%20Policy>

Research Incentives for Attending Workshops/ Seminar/ FDPs

The faculty would be allowed OD+ Registration+ T.A. on an actual basis or Rs. 10,000/- whichever is less.

The Workshops/Seminars/FDPs hosting institutions must be institutes of repute (IITs/IISc/NITs/IITs/Universities/Deemed Universities etc.).

Each faculty member can attend workshops/seminars/FDPs of repute twice in an academic year with financial assistance. However, financial assistance is limited to Rs. 10,000/-only. The maximum number of ODs is limited to one week during the lean period. Only one one-day OD is allowed in the academic period.

The clause of "minimum requirement of 6 months of service in KIET" stands discontinued for claiming any research-related incentives or OD for attending workshops, seminars, or FDPs etc.

Faculty who attends FDPs outside the university must disseminate knowledge and information by organizing faculty development program (FDP) and student development programs (SDP)/student workshops/summer/winter schools, among other things, for the benefit of faculty and students in their respective departments.

The OD and registration claim under the Research Incentive Schemes (RIS) of KIET must be made within a month in the prescribed form available as Annexure IV (a) in KIET Research Policy (Edition 2023)

(<https://www.kiet.edu/uploads/department/research/2304230930.pdf>)

Details of the knowledge sharing session must be submitted while making the claim available as Annexure IV (b) in KIET Research Policy (Edition 2023) (<https://www.kiet.edu/uploads/department/research/2304230930.pdf>).

Research Incentives for Publications of Books

Faculty members who have made efforts to write and publish books or monographs are encouraged and an incentive will be given to the faculty member as per the cap provided:

Details	Published By	Amount
Full Book	Renowned International Publisher	Rs. 10,000/-
Full Book	Renowned National Publisher	Rs. 5,000/-
Edited volume of book with articles or chapters (with ISSN/ISBN number wherever necessary)	Renowned International / National Publisher	Rs. 2,000/-
Monographs	National Level / International Level	Rs. 2,000/-

If the book/chapter/monograph is contributed by more than one author, the incentive amount will be shared by all the authors equally.

A maximum of two books/chapters/monographs may be considered per academic year.

Authors must also be aware of the KIET Ethics Policy for Students and Faculty Members on academic dishonesty and plagiarism available as **Annexure I** in KIET Research Policy (Edition 2023) (<https://www.kiet.edu/uploads/department/research/2304230930.pdf>).

Published chapters or monographs must have "**KIET Group of Institutions, Delhi-NCR, Ghaziabad**" as the affiliation.

Research Incentive Schemes (RIS) of KIET must be made within a month of publication in Book Citation Index-Science (BKCI-S), Book Citation Index Social Sciences & Humanities (BKCI-SSH), and SCOPUS Indexed Book Publication in the prescribed form available as **Annexure V** in KIET Research Policy (Edition 2023) (<https://www.kiet.edu/uploads/department/research/2304230930.pdf>).

Research Incentives for Generation of Research Grants or Grants for Upgradation of Research Infrastructure

- Faculty members are expected to submit proposals for research grants from funding agencies.
- It is quite likely that these projects may involve the modernization of laboratories or research infrastructure, acquiring equipment required specific to the research study or conducting surveys, etc.
- The research incentive will be 5% of the allocable amount if the institutional overheads are less than 10% of the project, and 10% if the overheads are 10% or more of the project cost. Research grants with no overheads are eligible for up to a 5% incentive. However, researchers are encouraged to include institutional overheads while proposing the grant budgets. Applicable to DST/DRDO/ISRO/DAE/ICMR/DEIT/DST. The Principal Investigator will receive 60% of the incentive, with the remaining 40% divided equally among the co-investigators.

Research and Development Activity Calendar (June 2023 – Dec. 2023)

Research and Development Activity Calendar (June'23 to Dec'23)							
Month	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
June-2023	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31				
1 CRD Presentation on 2nd and 4th Saturday 2 IPR Awareness Session on 2nd Saturday 3 Research Grant Writing Session on 4th Saturday 4 Progress Report submission by Ph.D/Ph.D (P)/Non registered Ph.D faculty							
July-2023	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31				
1 CRD Presentation on 2nd, 4th and 5th Saturday 2 1st July'23- Notification for Research faculty 3 IPR Awareness Session on 2nd Saturday 4 Research Grant Writing Session on 4th Saturday 5 CRD Meeting with Associate/Assistant Heads on 5th Saturday 6 Awareness Session on CWL 7 Notification for submission of DRC Recommendations for uploading the Research data on KIET erp - 15th July'23							
August-2023	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31				
1 Approvals for DRC Recommendations 2 CRD Presentation on 2nd and 4th Saturday 3 Notification for CV Raman Award and Best Ph.D. Supervisor Award- 5th Aug'23 4 IPR Awareness Session on 2nd Saturday 5 Research Grant Writing Session on 4th Saturday							
September-2023	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31				
1. National STC on Generative AI -25th Sept'23 (CS AI&ML) 2 CRD Presentation on 2nd, 4th and 5th Saturday 3 IPR Awareness Session on 2nd Saturday 4 Research Grant Writing Session on 4th Saturday 5 CRD Meeting with Associate/Assistant Heads on 5th Saturday 6 Awareness Session on Turnitin							
October-2023	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31				
1. 2nd International Conference on Advances in Pharmaceutical and Health Sciences-13th to 14th Oct'23 (KSOP) 2 CRD Presentation on 2nd and 4th Saturday 3 IPR Awareness Session on 2nd Saturday 4 Research Grant Writing Session on 4th Saturday							
November-2023	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31				
1. Three days workshop on - Mercedes Benz Latest Technology & Trends - 23rd-25th Nov'23 (ME) 2. International Conference - 24th-25th Nov'23 (KSOM) 3. CRD Presentation on 2nd and 4th Saturday 4 IPR Awareness Session on 2nd Saturday 5 Research Grant Writing Session on 4th Saturday 6 Notification for submission of Research faculty progress report -1st Nov'23 7 Notification for submission of DRC Recommendations for uploading the Research data on KIET erp - 1st Nov'23							
December-2023	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31				
1. 5th International Conference on Artificial Intelligence in Bio - Medical Engineering - 22nd-23rd Dec'23 (ECE) 2. National Seminar on National Mathematics Day - 22nd Dec'23 and One week National FDP (AS) (AS) 3 Fourth International Conference on Issues and Challenges in Intelligent Computing Techniques (ICICT) - 29th-30th Dec'23 (CS) 4. Progress Report submission by Ph.D/Ph.D (P)/Non registered Ph.D faculty members- 1st Dec'23 5. Recent Advancements in Computing and Technologies - 15th-16th Dec'23 (MCA) 6. Seminar on Innovative Construction Technologies (CE) 7 CRD Presentation on 2nd and 4th Saturday and CRD Meeting with Associate/Assistant Heads on 5th Saturday 8 IPR Awareness Session on 2nd Saturday and Research Grant Writing Session on 4th Saturday 9 Awareness Session on CWL							

Director

Dean R&D

S. O. G. 2023

Various Research Labs in KIET

S. No.	Research Lab/Centre of Excellence	Department
1	Centre of Robotics and Mechatronics	ECE
2	KIET NI LABVIEW Academy	ECE
3	Bio-Medical Instrumentation MBS	ECE
4	Space Technologies	ECE
5	Apple for iOS University Program	IT, CS, MCA
6	D-Link Global Center of Excellence	IT, CS, MCA
7	Centre for Automotive Mechatronics in association Mercedes Benz	ME
8	CAD/CAM Lab	ME
9	Material Science & Testing Lab	ME
10	IC Engine and Automobile Lab	ME
11	Maker's Space Innovation Lab	All Branches
12	Central Instrumentation Lab	Pharmacy
13	Pharmacology research Lab	Pharmacy
14	Center of Excellence for Renewable Energy based Power System for Electrical Power Supply and Transportation	EN
15	Centre of Excellence in latest art of structural analysis and design facilities viz. STAAD PRO, E-TABS, SAP, ANSYS, PLAXIS, Primavera etc.	CE
16	Centre of Excellence in Process Control and Industrial Automation	EN
17	Finance Lab	MBA





Shreeram Shankar Abhyankar

(22 July 1930 – 2
November 2012)

Shreeram Shankar Abhyankar was an Indian-born American mathematician who worked in algebraic geometry.

Abhyankar was awarded a Master's Degree by Harvard in 1952 and continued to study there for his doctorate advised by Zariski. He received a Ph.D. from Harvard in 1955 for his thesis **Local Uniformization on Algebraic Surfaces over Modular Ground Fields**.

Abhyankar has received many honours for his remarkable mathematical achievements. These include the McCoy Prize from Purdue University, the Lester Ford Prize and the Chauvenet Prize from the Mathematical Association of America, a Medal of Honour from the University of Valliadolid, Spain, and a Medal from the University of Brasilia, Brazil.

He was given the honorary title of **Vidnyan Sanstha Ratna** from the Institute of Science, Mumbai. The University of Angers, France, awarded him an honorary doctorate in 1998.

Abhyankar was elected a Fellow of the Indian National Science Academy (1987) and a Fellow of the Indian Academy of Sciences (1988). The American Mathematical Society introduced a new honour of 'Fellow of the American Mathematical Society' in 2012 and Abhyankar was among the initial list of those receiving this honour on 1 November 2012. Several conferences have been organised in his honour, such as those at Purdue University in 1990 (to celebrate his 60th birthday), 2000 (to celebrate his 70th birthday), 2010 (to celebrate his 80th birthday), and 2012.

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