

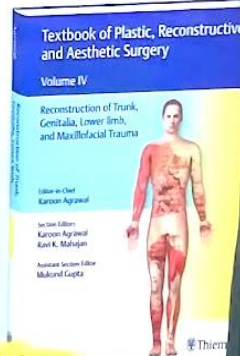
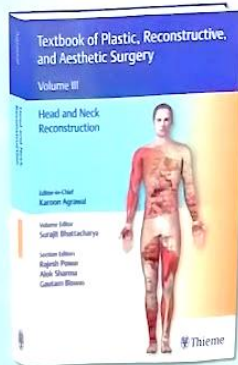
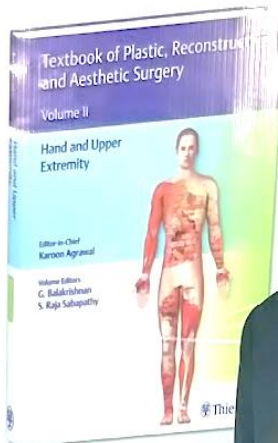
March 2024

Vol No. 15

अनुसंधान

(KIET Research Magazine)

A "must-have" resource for
students and practitioners



Stella
Plast

Seminars in
Plastic Surge

Journal of
Reconstructive
Microsurge

Dr. Karoon Agrawal (MS, MCh)
Senior Consultant
Plastic and Reconstructive Surgeon
National Heart Institute, New Delhi, India

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 7500+ 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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Dr. Minakshi Tyagi, Assistant Prof., School of Management

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Message from the Face of Cover Page



Dear Kietians & Readers,
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 towards creating a better world.

Biomedical Engineering has done wonders in the field of medical innovations and has transformed the management of patients in many medical-surgical fields. Robotic surgery, surgical microscope, intensive care equipment and many more are examples of biomedical engineering marvels. Still there is plenty of scope for working together to expand the horizon of research and innovation for *service to mankind*.

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 collaborative 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.

Warm regards,

Dr. Karoon Agrawal MS, MCh
Senior Consultant
Plastic and Reconstructive Surgeon
National Heart Institute, New Delhi, India

Former Director, Professor and Head
Dept of Burns, Plastic & Maxillofacial Surgery
Safdarjung Hospital and
Dept of Plastic Surgery, JIPMER, Pondicherry

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.

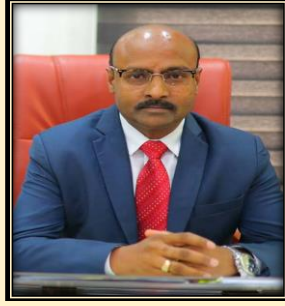
Dr. Anil Ahlawat

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 innovative technologies and solutions, share their findings, and disseminate their findings.

Our studies will 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 Patron



Dear All,

Dear Esteemed Readers,

It is with great pleasure and enthusiasm that I extend my warmest greetings to each of you as we embark on another insightful journey through the pages of the KIET Research Magazine.

As the Additional Director, I am continually inspired by the dedication and innovation showcased within the vibrant research community at our institution. The pursuit of knowledge, coupled with the relentless quest for excellence, forms the cornerstone of our endeavours.

In this edition, you will find a diverse array of articles, each offering a unique perspective and contributing to the advancement of knowledge in various fields. From groundbreaking discoveries to thought-provoking analyses, our researchers continue to push the boundaries of what is possible, driving positive change and making meaningful contributions to society.

Dr. Shailesh Tiwari

Additional 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 of 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 immense 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 make 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

Faculty Development Program: NVIDIA DGXA100 Supercomputing Lab



The KIET Group of Institutions proudly presents the NVIDIA DGXA100 SUPERCOMPUTING Lab as a testament to our unwavering commitment to pushing the boundaries of research and innovation. This groundbreaking initiative was officially inaugurated by the Hon'ble Minister Shri Sunil Kumar Sharma, Department of Electronics

and Informative Technology, Government of Uttar Pradesh, marking a significant milestone in our pursuit of cutting-edge research and innovation.

In tandem with this milestone and to foster a culture of continuous learning and growth, a five-day Faculty Development Program (FDP) was held from March 19th to March 23rd, 2024. Jointly organized by the CSE (AI), CSE(AI&ML) and IT Department.

The FDP aimed to equip faculty with in-depth knowledge of NVIDIA DGXA100. Over 20 participants explored the intricacies of NVIDIA DGX servers under expert guidance from trainers Ms. Sugandh Gupta and Mr. Hamza.

National Press Conference for Humanoid Robot



On 22nd March 2024, KIET Group of Institutions officially launched its humanoid robot "ANUSHKA" in a national press conference. This humanoid robot is designed by the Centre of Robotics & Mechatronics, running under the department of Electronics and Communication Engineering.

'Anushka' stands for 'Artificially Networked Unit for Smart Human Knowledge Assistance' that is designed to revolutionize human-robot interaction. Notably, ANUSHKA is not only the first humanoid robot with a beating heart in North India, but also the first in India with a comprehensive autonomous movement mechanism. Furthermore, she stands out as the world's first robot capable of supporting home automation and autonomous calling using the Internet of Things (IoT). Her ability to perform over 50 hand gestures, 30 eye gestures,

along with jaw and neck movements, showcases the intricate level of detail and sophistication involved in her creation.

Establishment of the Standard Club (Registration No. SC-4109) in collaboration with BIS



We're thrilled to announce the establishment of the Standard Club (Registration No. SC-4109) in collaboration with the Bureau of Indian Standards (BIS) and KIET. Under the mentorship of Mr. Neeraj Kumar (AP, ME), this club aims to uphold the highest standards of excellence and innovation.

The event took place on March 18, 2024. The Standard Club organized two dynamic activities at the KSOP Auditorium, KIET campus:

- 1 Standards Creation Competition: Witnessed exceptional talent as participants showcased their creativity and expertise in standards creation. Congratulations to the top 3 winners who received cash prizes for their outstanding contributions!
- 2 Youth to Youth Campaign: Launched with great enthusiasm, this campaign aims to empower our youth to champion important causes and drive positive change. We're proud to have had 50 students from various streams actively participate in this initiative.





A big thanks to Dr. Ashish Karnwal (HOD, ME), Mr. Neeraj Kumar (AP, ME), Dr. Sachin Rathore (AP, ME), Mr. Baadal (ADAM's Mentor), and everyone who made these events a success!

Two-week (FDP) on "Object Oriented Programming using Java"



We're delighted to share highlights from our Two-week Faculty Development Program (FDP) on "Object Oriented Programming using Java," organized by the Computer Science Department from February 19 to March 1, 2024.





Our esteemed resource persons include:

-  Dr. Vineet Sharma, Professor & Head, CSE (On special request)
-  Dr. Vipin Kumar, Associate Professor, MCA
-  Mr. Abhishek Goyal, Assistant Professor, CS
-  Mr. Chetan Vashisth, Solution Architect, NEC Technologies

Statistics of KIET Research and Development Activities

Rankings & Accreditations

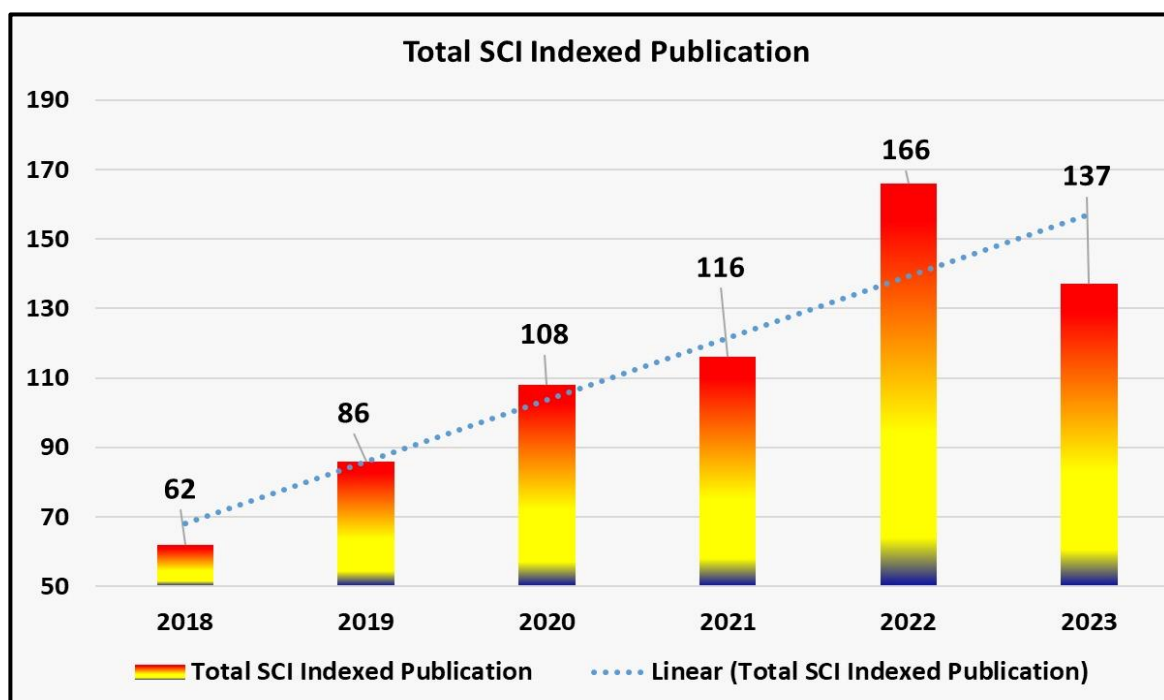
- NAAC - Grade 'A+' (Cycle 2 Assessment) - Accredited for 5 years till 03 Jan 2027.
- NIRF 2023 (Pharmacy – Rank 88 & Engineering - Rank Band (151-200)).
- NIRF 2023 Innovation Rank Band (51-100).
- QS-IGAUGE - 'Diamond' College Rating (till Feb 2024) & 'Institution of Happiness' Award.
- Innovation 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)

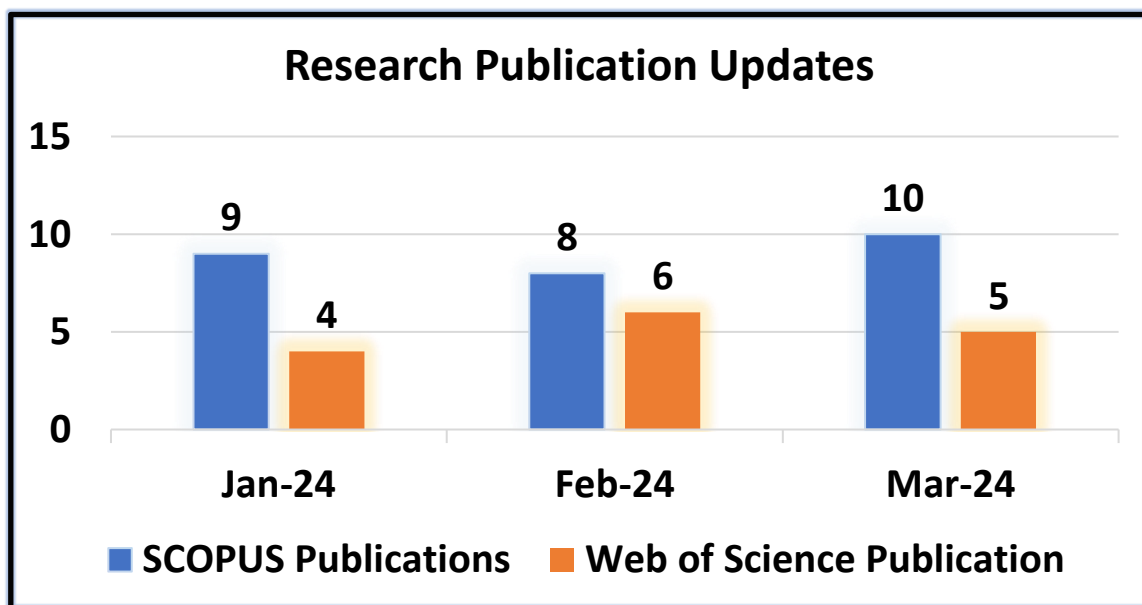
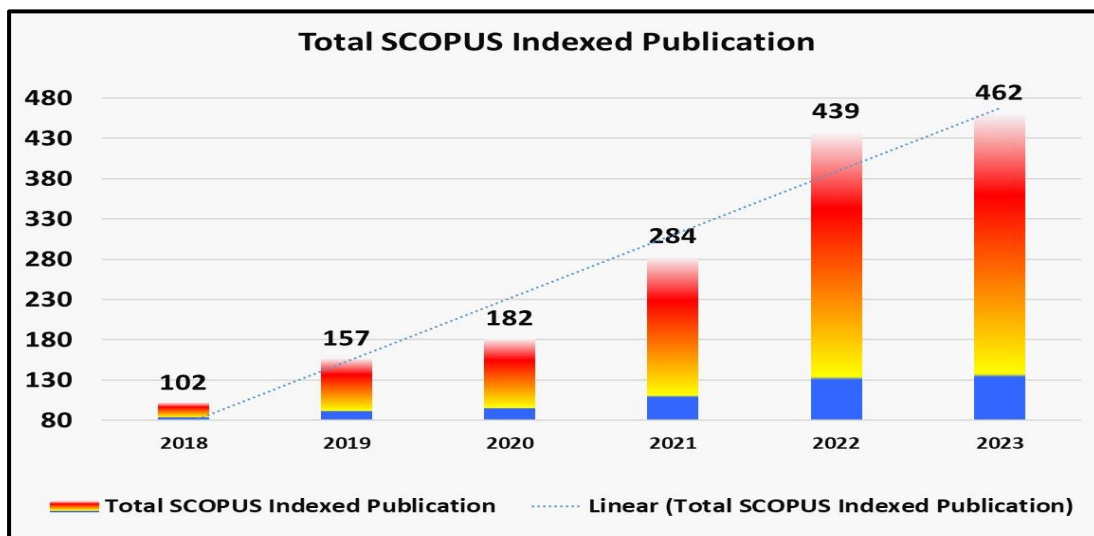
 <p>सूचना का अधिकार RIGHT TO INFORMATION</p>	<p>दूरभाष/TEL : 26962819, 26567373 (EPABX) : 26565694, 26562133 : 26565687, 26562144 : 26562134, 26562122 फैक्स/FAX : 26960629, 26529745 Website : http://www.dsir.gov.in (आयुर्विज्ञान 9001:2008 प्रमाणित विभाग) (AN ISO 9001:2008 CERTIFIED DEPARTMENT)</p>	 <p>सत्यमेव 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,  (Dr. P.K. Dutta) Scientist - 'F'</p>

KIET Research Credentials

A total of SCI Research Publications and Scopus Indexed Research Publications with an affiliation of KIET Group of Institutions, Delhi-NCR, Ghaziabad are listed in Web of Science and Scopus Database till March 2024.

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	137	465	602
2024	19 (upto March)	27 (upto March)	46
Total	694	1656	2350





Category	Number of Publication for February 2024	Number of Publication for March 2024
SCOPUS Publications	8	10
Web of Science Publication	6	5

Details of Patents Published/Granted

Title of the Invention: Formulation and Evaluation of Melphalan-Loaded Niosomes for Enhanced Cancer Treatment

Application Number: 202441011667 A (Indian Patent Office)

Applicant(S): Dr. Ajay Dixit (AS)

Date of Filing: 20-02-2024

Date of Publishing: 08-03-2024

Field of the Invention: The present invention relates to a pharmaceutical compositions comprising melphalan-loaded niosomes for cancer treatment. These niosomes aim to enhance drug delivery, improving therapeutic efficacy while potentially reducing side effects.

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 development and formulation of melphalan-loaded niosomes for enhanced cancer treatment.

Another object of the present disclosure is to provide that the melphalan-loaded niosomes facilitate targeted delivery to cancerous cells, increasing drug concentration at the site of action. Still another object of the present disclosure is to provide that the prepared Niosomes help minimize off-target effects by shielding healthy tissues from exposure to melphalan, thus lowering overall toxicity.

Another object of the present disclosure is to provide that by enhancing drug bioavailability and retention, niosomes can boost the effectiveness of melphalan in killing cancer cells. Still another object of the present disclosure is to provide that niosomes can extend the circulation time of melphalan in the bloodstream, allowing for sustained release and prolonged therapeutic action.

Summary of the Invention: The following presents a simplified summary of the invention in order 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. The present invention is generally directed to the developed five melphalan-loaded niosomal formulations with varying compositions, and to evaluated the impact of surfactant and cholesterol concentrations on formulation characteristics. An embodiment of the present invention is describes the method of preparation of niosomes.

Another embodiment of the invention is the prepared niosomes were evaluated for Transmission Electron Microscopy (TEM) for morphological analysis; and particle size analysis and zeta potential measurements to assess formulation properties. Yet another embodiment of the invention is the pharmaceutical composition comprising melphalan hydrochloride encapsulated within niosomes, wherein said niosomes consist of a

surfactant, cholesterol, and melphalan hydrochloride, with the surfactant and cholesterol present in a molar ratio ranging from 1:1 to 1:3, and wherein the composition exhibits enhanced stability and controlled release characteristics for the treatment of cancer.

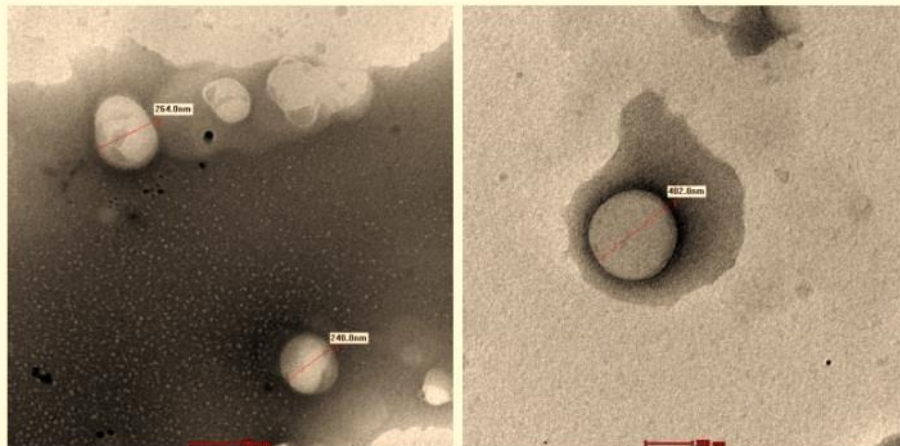


Figure : Transmission electron microscopy of niosomal formulation (F3)

Title of the Invention: System Based on Ai, MI & IoT for Dengue Diseases Monitoring, Diagnosis and Prevention

Application Number: 202441012371 A (Indian Patent Office)

Applicant(S): Dr. Sanjeev Kumar (IT)

Date of Filing: 21-02-2024

Date of Publishing: 08-03-2024

Field of the Invention: The current implementation uses AI, IoT sensors, and a Machine Learning algorithm to detect and prevent the spread of the dengue virus. The primary goal of this invention is to create an Internet of Things (IoT) and AI based system that can identify Aedes mosquitoes infected with the Dengue virus. This invention also aims to automate the process of dispensing medication to patients. When something is detected, the proposed system will send a notification immediately.

Abstract: The proposed innovation is an intelligent healthcare system that uses cloud computing, the internet of things, and fog computing paradigms to detect dengue virus (DeV) infections in real-time, track the locations of infected people, and notify the appropriate parties. Health monitoring, transportation, education, banking, etc., are just some of the traditional systems that have benefited from IT's efficiency boost. Artificial intelligence, machine learning, and the internet of things have vast applications and are used worldwide. There is no escaping this trend in the healthcare sector either. This document details a procedure for developing a Machine Learning-based, Artificial Intelligence-enabled, Internet of Things-based prevention System for keeping an eye on and identifying cases of Dengue fever.

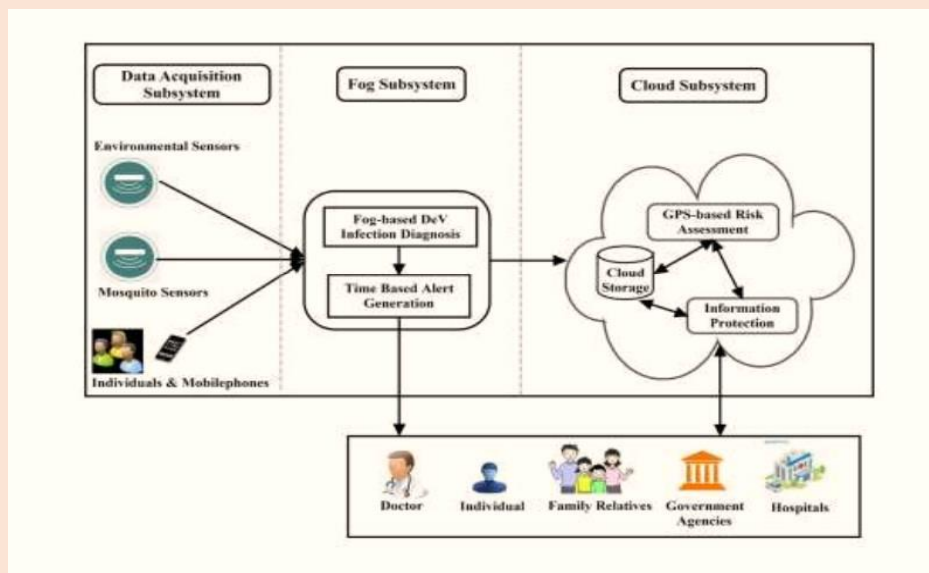


Figure: It shows the proposed system is divided into three distinct functional groups: the data acquisition group, the fog group, and the cloud group.

Title of the Invention: A Method for Refreshing the Road Surface Area in Images Acquired by Mobile Mapping System

Application Number: 202411013380 A (Indian Patent Office)

Applicant(S): Dr. Manisha Sharma and Dr. Archana Sharma (AS)

Date of Filing: 24-02-2024

Date of Publishing: 01-03-2024

Field of the Invention: The present invention relates to the field of geographic information systems, and more particularly to a method for refreshing the road surface area in images acquired by mobile mapping system.

Objective of the Invention: 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 method that offers more efficient method for refreshing the road surface area in images acquired by mobile mapping systems.

Another object of the present disclosure is to provide a method that can process the images in a shorter time and at a lower cost. Still another object of the present disclosure is to provide a method that can potentially provide more accurate results compared to manual interpretation. Still another object of the present disclosure is to provide a method that can reduce the subjectivity of human interpretation and minimize errors.

Summary of the Invention: The following presents a simplified summary of the invention in order to provide a 10 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 a method for refreshing the road surface area in images acquired by mobile mapping system. The invention addresses issues associated with manual interpretation and the limitations of existing automated techniques in detecting small

changes and handling complex scenarios. Key components include a high-resolution camera, light and weather sensors, a high-performance computer with advanced image processing algorithms, an automated refreshing mechanism, and integration with geographic information systems (GIS). The method involves acquiring high-resolution images, collecting data on lighting and weather conditions, processing images using advanced algorithms, updating road surface area in images, and integrating data into GIS. The method ensures efficiency, accuracy, adaptability to complex scenarios, versatility, and continuous monitoring, with applications in urban planning, transportation management, and environmental monitoring.

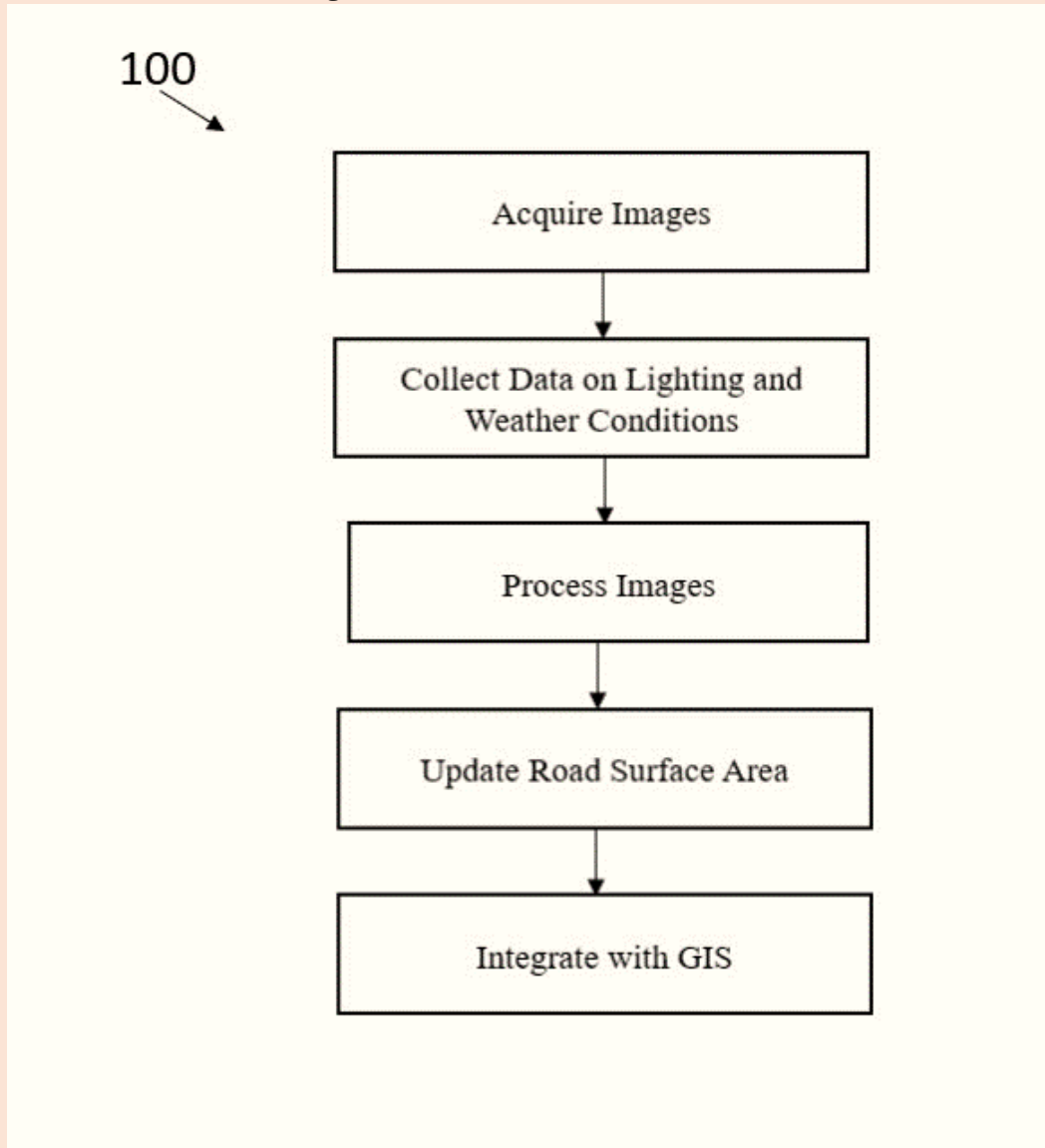


Figure : Illustrates a method for refreshing the road surface area in images acquired by mobile mapping system, in accordance with an embodiment of the present invention.

Title of the Invention: System and Method For Online Voting Using Blockchain

Application Number: 202411013595 A (Indian Patent Office)

Applicant(S): Mr. Harsh Khatter (CS)

Date of Filing: 26-02-2024

Date of Publishing: 02-03-2024

Field of the Invention: The present invention relates to the field of Computer Science field, precisely, electronic voting systems using blockchain technology.

Objects of the Invention: The objective of the present invention is to make a secure Online Voting system using Blockchain. Blockchain technology offers a solution to various challenges by providing a secure and transparent platform for voting, and ensures that system:

- Provides secure and transparent platform for voting.
- Prevents tampering of votes Ensuring results are accurate.
- Voters can vote anytime, anywhere (During Pandemics like COVID-19 where it's impossible to hold elections physically).
- More reliable process.

SUMMARY: Electronic voting has been used in varying forms since 1970s with fundamental benefits over paper-based systems such as increased efficiency and reduced errors. With the extraordinary growth in the use of blockchain technologies, several initiatives have been made to explore the feasibility of using blockchain to aid an effective solution to e-voting.

The present invention is one such effort which leverages benefits of blockchain such as cryptographic foundations and transparency to achieve an effective solution to e-voting. The approach has been implemented with Multichain and in-depth evaluation of approach highlights its effectiveness with respect to achieving fundamental requirements for an e voting scheme.

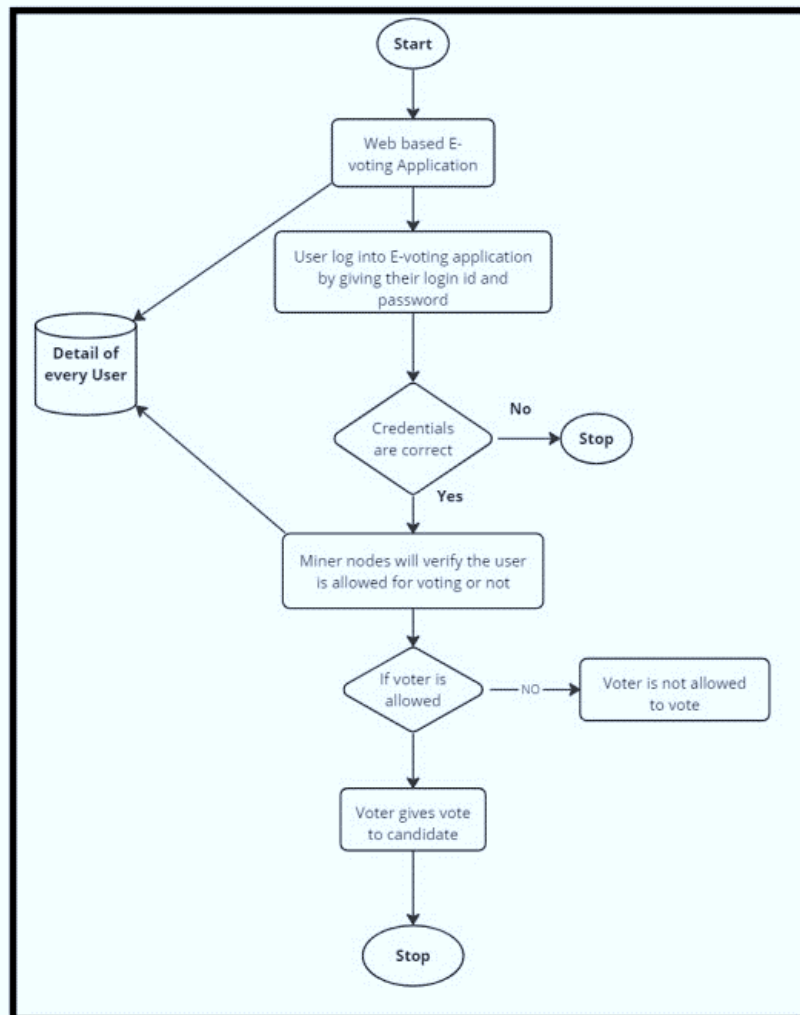


Figure : Work - Flow of the present invention

Title of the Invention: An Intelligent IoT Based System for Remote Health Monitoring and Emergency Response

Application Number: 202411014097 A (Indian Patent Office)

Applicant(S): Dr. Archana Sharma (AS)

Date of Filing: 27-02-2024

Date of Publishing: 08-03-2024

Field of the Invention: The present invention relates to an intelligent IoT-based system for remote health monitoring and emergency response, utilizing wearable devices, data analysis, and communication technologies.

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 an intelligent IoT based system for remote health monitoring and emergency response.

An object of the present disclosure is to provide an intelligent IoT based system for remote health monitoring and emergency response that can continuously monitor the user's health status in real-time, using wearable health monitoring devices equipped with sensors. This allows for early detection of health problems and timely intervention.

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 provide an intelligent IoT based system for remote health monitoring and emergency response.

The system for remote health monitoring and emergency response is a comprehensive solution that leverages IoT technology to provide real-time monitoring of a user's health status. This system comprises wearable health monitoring devices, a central server, and a user interface. The devices collect health data, which is transmitted to the central server for analysis.

The central server uses intelligent algorithms and machine learning techniques to generate alerts and notifications based on the analysis. These alerts are then displayed on the user interface, allowing the user to take appropriate actions in response. The system also includes a communication module for seamless communication between the devices, server, and user interface, as well as an integration module for integrating with healthcare providers and emergency services. Additionally, an emergency response module coordinates the response to emergencies detected by the system. The system provides a user-friendly and efficient solution for remote health monitoring and emergency response.

REGISTRATION OF DESIGN

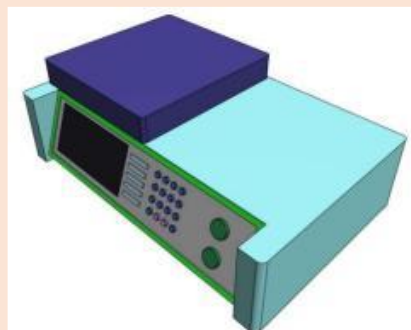
Title of the Invention: Conductivity Detector For Characterizing The Emulsion

Application Number: 402138-001 (Indian Design)

Applicant(S): (Dr.) N. G. Raghavendra Rao (KSOP)

Date of Filing: 14-12-2023

Date of Publishing: 15-03-2024



Title of the Invention: IoT Based Device for Environmental Monitoring Application

Application Number: 403824-001 (Indian Design)

Applicant(S): Dr. Deepak Kumar Singh (CSIT)

Date of Filing: 04-01-2024

Date of Publishing: 08-03-2024



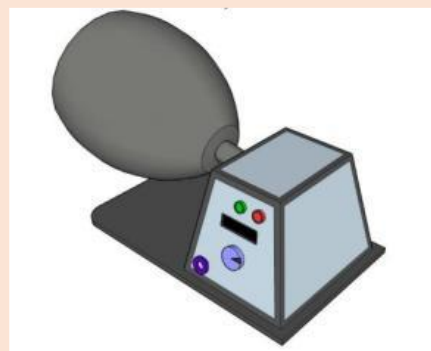
Title of the Invention: Digital Coating Pan for Pharmaceutical Purpose

Application Number: 404471-001 (Indian Design)

Applicant(S): (Dr.) N. G. Raghavendra Rao (KSOP)

Date of Filing: 13-01-2024

Date of Publishing: 15-03-2024



Title of the Invention: Smart Biometric Fingerprint Attendance System



Application Number: 404436-001 (Indian Design)

Applicant(S): Dr. Shashank Bhardwaj (MCA)

Date of Filing: 14-01-2024

Date of Publishing: 15-03-2024

PATENTS Published – March 2024

S. No.	Title Of Patent	Dept.	Name Of Applicant	Date Of Publication	Status
1.	Formulation and Evaluation of Melphalan-Loaded Niosomes for Enhanced Cancer Treatment	AS	Dr. Ajay Dixit	08-03-2024	Published
2.	System Based on Ai, Ml & Iot for Dengue Diseases Monitoring, Diagnosis	IT	Dr. Sanjeev Kumar	08-03-2024	Published
3.	A Method for Refreshing the Road Surface Area in Images Acquired by Mobile Mapping System	AS	Dr. Manisha Sharma, Dr. Archana Sharma	01-03-2024	Published
4.	System And Method for Online Voting Using Blockchain	CS	Akash Goel, Ashish Kumar Gupta, Saurabh Pundir, Aditya Aggarwal, Harsh Khatter	01-03-2024	Published
5.	An Intelligent IoT Based System for Remote Health Monitoring and Emergency Response	AS	Dr. Archana Sharma	08-03-2024	Published
6.	Method and System for Assessing and Enhancing Corporate Social Responsibility Management	KSOM	Prerana Taylor	08-03-2024	Published

7.	Neural Network in Education Unleashing Deep Learning For Education field Of the Invention	CS	Anurag Mishra	15-03-2024	Published
8.	Conductivity Detector For Characterizing The Emulsion	KSOP	(Dr.) N. G. Raghavendra Rao	15-03-2024	Registration of Design
9.	IoT Based Device for Environmental Monitoring	CSIT	Dr. Deepak Kumar Singh	08-03-2024	Registration of Design
10.	Solar Photovoltaic Based Device for Telecom Tower	EN	Dr. Sumit Sharma	08-03-2024	Registration of Design
11.	Digital Coating Pan for Pharmaceutical Purpose	KSOP	(Dr.) N. G. Raghavendra Rao, Mr. Missal Bansal, Ms. Manisha Bajpai, Mr. Nadeem	15-03-2024	Registration of Design
12.	Smart Biometric Fingerprint Attendance System	MCA	Dr. Shashank Bhardwaj	15-03-2024	Registration of Design
13.	Lamp	CS (AI)	Ms. Kavya Gupta, Dr. Abha Kiran Rajpoot, Dr. Gaurav Agrawal, Ms. Anjali Chauhan (KIET)	29.03.2024	Registration Of Design

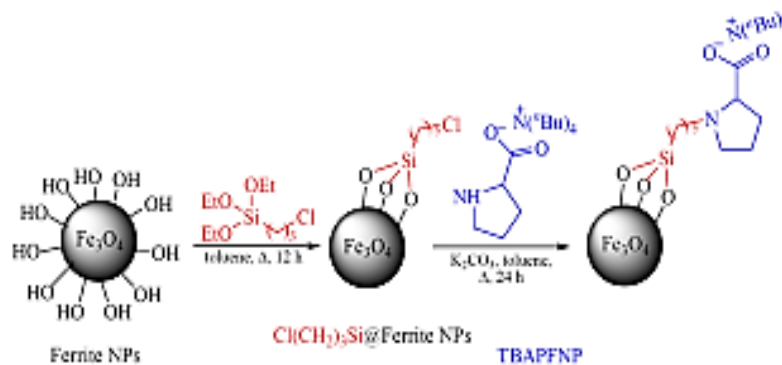
Details of Research Incentives for Journals

S. No.	Name of Faculty	Designation	Dept.	Title of Paper and Name of Journal	Impact Factor/Cite Score	Benefits/Incentives	Index in Journal
1.	Akansha Agarwal	Assistant Professor	AS	TBAPMNP as an Effective and Recyclable Heterogeneous Catalyst for Single-Pot Three Component Synthesis of α -Aminophosphonates through Kabachnik-Fields Reaction	5.5	15,000	SCI
2.	Naveen Chauhan	Assistant Professor	CSE	A Probabilistic Deadline-aware Application Offloading in a Multi-Queueing Fog System: A Max Entropy Framework	-	2,000	ESCI
3.	Shipra Srivastava	Assistant Professor	ECE	High gain circularly polarized graphene inspired dielectric resonator antenna for 6G IOT THz optical communication and optical refractive index Biosensing applications	1.8 (Cite Score)	3,000	SCOPUS
4.	Ajay Kumar	Assistant Professor	IT	SOM-US: A Novel Under-Sampling Technique for Handling Class Imbalance Problem	5.5	15,000	SCI

Highlights of the Published Journal Articles

1. Agrwal, A., Chadha, N., Sahu, A. *et al.* TBAPMNP as an Effective and Recyclable Heterogeneous Catalyst for Single-Pot Three Component Synthesis of α -Aminophosphonates through Kabachnik–Fields Reaction. *Russ J Gen Chem* 93, 2859–2865 (2023). DOI: 10.1134/S1070363223110154

Tetrabutylammonium prolininate ionic liquid (TBPAIL) was synthesized and linked with prepared magnetite nanoparticles (MNPs) to produce tetrabutyl ammonium prolininate functionalized magnetite nanoparticles (TBAPMNP) catalyst. The formation of the whole structure was analyzed using scanning



electron microscopy (SEM) and transmission electron microscopy (TEM) analysis. This TBAPMNP catalyst was used to synthesize α -aminophosphonates derivatives in solvent less condition and moderate temperature. The formation of the products was confirmed by FTIR and HNMR analysis. The reusability of catalyst was found active upto 5 cycles.

2. Chauhan, N., Agrawal, R. A Probabilistic Deadline-aware Application Offloading in a Multi-Queueing Fog System: A Max Entropy Framework. *J Grid Computing* 22, 31 (2024). <https://doi.org/10.1007/s10723-024-09753-7>

Cloud computing and its derivatives, such as fog and edge computing, have propelled the IoT era, integrating AI and deep learning for process automation. Despite transformative growth in healthcare, education, and automation domains, challenges persist, particularly in addressing the impact of multi-hopping public networks on data upload time, affecting response time, failure rates, and security. Existing scheduling algorithms, designed for multiple parameters like deadline, priority, rate of arrival, and arrival pattern, can minimize execution time for high-priority applications. However, the difficulty lies in simultaneously minimizing overall application execution time while mitigating resource depletion issues for low-priority applications. This paper introduces a cloud-fog-based computing architecture to tackle fog node resource starvation, incorporating joint probability, loss probability, and maximum entropy concepts. The proposed model utilizes a probabilistic application scheduling algorithm, considering priority and deadline and employing expected loss probability for task offloading. Additionally, a second algorithm focuses on resource starvation, optimizing task sequence for minimal response time and improved quality of service in a multi-Queueing fog system. The paper demonstrates that the proposed model outperforms state-of-the-art models, achieving a 3.43-5.71% quality of service improvement and a 99.75-267.68 msec reduction in response time through efficient resource allocation.

3. Shipra Srivastava, Saptarshi Gupta, Vibhav Kumar Sachan, Gaurav Saxena, Satya Sai Srikant, "High gain circularly polarized graphene inspired dielectric resonator antenna for 6G IOT THz optical communication and optical refractive index Biosensing applications", Engineering Science and Technology, an International Journal, Volume 49, 2024, 101603, ISSN 2215-0986, <https://doi.org/10.1016/j.jestch.2023.101603>.

In this article a high gain ($\approx 13\text{dBi}$) circularly polarized dielectric resonator antenna (DRA) has been designed with silicon and graphene based nano materials for 6G terahertz (THz) nano communication and bio sensing applications. This antenna having 2.2 % (4.32 to 4.42THz) 3 dB axial ratio and 3.72 % (4.32 to 4.5 THz) impedance bandwidth. Circular Polarization (CP) is achieved by the combination of Silicon/11.9 and Graphene based cylindrical dielectric resonator with 45° inclined rectangular silicon dielectric slab having height 8.4 μm . Patch top cylindrical dielectric resonator filled with Silicon/11.9 material along with graphene material having chemical potential 0.1 eV and relaxation time 0.1 ps at 300°K temperature. Proposed DRA having 55 % radiation efficiency with 13dBi gain to utilize its directive property as a bio sensor application. Proposed DRA also use as high frequency optical beam to utilize this DRA works as bio sensor to detect the hemoglobin in bio molecules having average sensitivity 2750 GHz/RIU, FOM-11.38 and Q factor 71.0. So that above properties proposed DRA is good candidate for 6G optical /nano communication and bio sensing applications.

4. A. Kumar, "SOM-US: A Novel Under-Sampling Technique for Handling Class Imbalance Problem," in *Journal of Communications Software and Systems*, vol. 20, no. 1, pp. 69-75, January 2024, doi: 10.24138/jcomss-2023-0133

A significant research challenge in data mining and machine learning is class imbalance classification since the majority of real-world datasets are imbalanced. When the dataset is highly unbalanced, the majority of available classification techniques frequently underperform on minority-class cases. This is due to the fact that they disregard the relative distribution of each class in favor of maximizing the overall accuracy. Various techniques based on sampling methods, cost-sensitive learning, and ensemble methods have recently been employed to handle the class imbalance problem. This paper proposes a new clustering-based under-sampling (US) technique, called SOM-US, for handling the class imbalance problem using the self-organized map (SOM). To validate the proposed approach, an experimental study was conducted to improve the capability of a classifier-logistic regression for software defect prediction by applying SOM-US over a NASA software defect dataset. The proposed approach was compared with six existing under-sampling methods on two performance measures. The results demonstrate that the SOM-US significantly improves the prediction capability of logistic regression over other under-sampling techniques for software defect prediction.

Reimbursement of Conference Registration Fee

S. No	Name of Faculty	Designation	Dept.	Name of Conference	Title of Paper	Benefits/Incentives	Published By
1.	Himanshi Chaudhary	Asstt Prof	CSE	International Conference organised by IIT - Delhi	Secure Watermarking Algorithm for Enhancing In-Visiblity of Medical Images	8,000	IEEE

1. **H. Chaudhary and V. P. Vishwakarma, "Secure Watermarking Algorithm for Enhancing Invisibility and Robustness of Medical Images," 2023 14th International Conference on Computing Communication and Networking Technologies (ICCCNT), Delhi, India, 2023, pp. 1-7, DOI: 10.1109/ICCCNT56998.2023.10307030.**

In contemporary times, within a society that is highly advanced in terms of technology, all data is gathered and archived in a digital format. In the realm of medicine, diagnostic data is also captured and transmitted in a digital format. The paramount considerations when transmitting information through digital means are security and authenticity. Watermarking is a technological approach that guarantees the credibility and genuineness of clinical images, patient data, and diagnostic data. The present study introduces a secure watermarking algorithm that enhances both invisibility and robustness simultaneously. The transform domain scheme is utilized as a primary step to ascertain the suitable coefficient for embedding data. In order to provide a fair balance between robustness and invisibility, this research provides a secure watermarking method using hybrid transformation. Multiple attacks are also included to show the robustness of the images.

Innovation Spotlights of the Month

DRUG DEALING ROBOTS

This new futuristic robot Hospi Bot, by Panasonic comes from Japan, adorned in the typical aqua color found on doctor's and nurse's uniforms. The very smart bot is designed to pick up and deliver drugs to nursing stations.

- 1. Pharmacy Automation** - The development of drug-dispensing robots like the Hospi Bot is disrupting the role of pharmacists and creating opportunities for pharmacy automation.
- 2. Logistics Robotics** - The Hospi Bot demonstrates the potential for logistics robots to deliver goods within hospitals, paving the way for similar innovation in other industries.
- 3. Artificial Intelligence in Healthcare** - The smart technology behind the Hospi Bot represents the growing trend of using AI to enhance healthcare operations and patient care.



Robot Hospi Bot

Source: www.linkedin.com

India Developing Indigenous High-Speed Bullet Trains

India has begun developing an indigenous bullet train that will surpass speeds of 250 kilometres per hour (kmph), making it faster than any existing train on the Indian Railways network.

About Vande Bharat Platform

In the global context, high-speed trains are defined as those capable of traveling at speeds exceeding 250 kmph, such as the French TGV and the Japanese Shinkansen. The Shinkansen E5 series bullet trains, which India plans to deploy on the Mumbai-Ahmedabad route, can reach speeds of up to 320 kmph.

Key Facts about The Vande Bharat Express in India:

- The Vande Bharat Express, also known as Train 18, is an indigenous electric multiple unit (EMU) train developed by the Integral Coach Factory (ICF) in Chennai.

- It is a semi-high speed train with a maximum operational speed of 160 kmph, although it has been tested at speeds up to 180 kmph.
- The first Vande Bharat Express was inaugurated by Prime Minister Narendra Modi on 15 February 2019, running between New Delhi and Varanasi.
- As of April 2023, there are 23 operational Vande Bharat Express trains connecting various cities across India, such as New Delhi, Varanasi, Mumbai, Ahmedabad, Chennai, and Hyderabad.
- The Vande Bharat Express features several modern amenities, including air-conditioned coaches, onboard Wi-Fi, GPS-based passenger information system, automatic doors, and bio-vacuum toilets.
- The train is designed to accelerate from 0 to 100 kmph in just 52 seconds and has a regenerative braking system that can save up to 30% of electrical energy.
- The coaches are manufactured using stainless steel, making them lighter and more energy-efficient compared to conventional coaches.
- The Vande Bharat Express has an aerodynamic design and is equipped with a driver-guard communication system, making it safer and more efficient.
- In the Union Budget 2022-23, Finance Minister Nirmala Sitharaman announced that 400 new Vande Bharat trains would be manufactured and introduced over the next three years.
- The Vande Bharat Express has been well-received by passengers for its comfort, speed, and modern amenities, and has become a symbol of India's progress in the rail sector.

Manufacturing Technology for Project

The Vande Bharat trains are manufactured by the Integral Coach Factory (ICF) in Chennai. The made-in-India bullet trains will operate on the recently announced north, south, and east corridors. These corridors will utilize more Indian technology and domestic manufacturing, complementing the western corridor developed in collaboration with Japan.

Mumbai-Ahmadabad High Speed Rail Project

India is currently relying on Japanese technology for the bullet trains that will operate on the Ahmadabad to Mumbai line, which is currently under construction. The Japan International Cooperation Agency (JICA) is providing a soft loan of approximately ₹40,000 crore for the Mumbai-Ahmadabad High Speed Rail project, with the total project cost exceeding ₹1.08 lakh crore.

The National High Speed Rail Corporation Limited (NHSRCL), responsible for implementing India's first bullet train project, recently announced the completion of 300 km of pier work. The land acquisition process for the entire 508 km stretch was finalized in January 2024.

About The National High Speed Rail Corporation Limited (NHSRCL)

The National High Speed Rail Corporation Limited (NHSRCL) is a government-owned entity responsible for implementing India's first bullet train project between Mumbai and Ahmadabad.

- Established in 2016 under the Companies Act, 2013
- Mandated to develop, construct, and operate high-speed rail projects in India

- Implementing the 508 km Mumbai-Ahmadabad High Speed Rail Corridor
- Utilizing Japanese Shinkansen technology and funding from the Japan International Cooperation Agency (JICA)
- Aims to revolutionize intercity travel and boost economic development

Source: <https://www.gktoday.in/india-developing-indigenous-high-speed-bullet-trains/>

Virtual Reality and The Technical World

Virtual Reality (VR) is a technology that has had a significant impact on the technical world and continues to play a pivotal role in various industries and applications. Here are some key aspects of how VR interacts with the technical world:

Immersive Experiences: VR technology allows users to immerse themselves in digital environments. This has numerous applications, from gaming to training simulations. In the gaming industry, VR provides a level of immersion that was previously unattainable.

Training and Simulation: VR is extensively used for training in various fields, such as aviation, medicine, and the military. Pilots can practice in virtual cockpits, surgeons can rehearse procedures, and soldiers can train for combat situations. This significantly reduces the risks and costs associated with real-world training.

Architectural and Design Visualization: Architects and designers use VR to create and explore 3D models of buildings, interiors, and products. This technology allows stakeholders to experience spaces and designs before they are built, helping to identify issues and make improvements early in the design process.

Entertainment and Media: VR has transformed the entertainment industry. Beyond gaming, it's used for virtual concerts, film experiences, and interactive storytelling. This provides new ways for artists and creators to engage with their audiences.

Healthcare and Therapy: In healthcare, VR is used for pain management, exposure therapy for phobias, and rehabilitation. It can provide a safe and controlled environment for patients to confront their fears or practice physical therapy exercises.

Education: VR can enhance the educational experience by offering students immersive learning environments. This can be particularly valuable in subjects like history, science, and geography, where students can virtually visit places and eras.

Collaboration and Remote Work: VR technology is being harnessed for remote work and collaboration. Virtual meetings and collaborative environments in VR can make it feel like team members are working together in the same room, even if they are geographically distant.

Medicine and Telehealth: VR is used for medical visualization, surgical planning, and even telehealth. Surgeons can visualize complex procedures in 3D before operating, and telehealth sessions can be more engaging through VR interfaces.

Artificial Intelligence: AI and VR often go hand in hand. AI algorithms are used to create more realistic and interactive VR environments. For example, AI can be used to generate realistic speech for virtual characters, making interactions in VR more lifelike.

Hardware Advancements: The technical world has seen significant advancements in hardware to support VR. This includes more powerful graphics cards, high-resolution headsets, and improved motion tracking systems. These developments have made VR more accessible and enjoyable for users.

Challenges: Despite its many benefits, VR also faces technical challenges. These include the need for more compact and powerful hardware, addressing motion sickness, and creating more natural and intuitive user interfaces.

Ethical and Social Considerations: As VR becomes more widespread, ethical and social issues related to privacy, addiction, and the blurring of virtual and real worlds are becoming increasingly important.

In summary, VR has become an integral part of the technical world, with applications spanning multiple industries. Its continued development and integration with other technologies, such as AI and AR (Augmented Reality), hold promise for future innovations and enhancements across various domains.

Dr. Sapna Juneja

Professor, CSE (AI)

KIET Group of Institutions, Ghaziabad

Smallest Portable Mini Fridge

A Mini Fridge that can work with any power bank and without using harmful CFC gases.

Ever heard of a 5V portable freezer? Yes, you heard it right. In this DIY we design a 5V portable freezer that is easy to carry even while traveling.

A freezer/refrigerator/fridge work on the same principle i.e. Pumping heat from one system to another and thermally isolating both the systems so that the pumped heat from one system cools down.

Meanwhile, the other system keeps getting hotter. The system generally acts like a radiator and transfers heat to a sink which is often the environment. Hence the heat transfer from the target system to the environment is done.

The same principle is used to make the 5V portable freezer. The heat is pumped using a thermoelectric generator. This can generate electricity based on the heat difference or it can pump the heat from one side to another side.

While out on picnics or outdoor activities, having a cold drink is what everyone wishes for especially on a hot day, and hence we wish to have some cold storage or a mini fridge. Since these are only found in luxury cars and vanity vans, and apart from being expensive, the CFC gas is quite dangerous to our environment, especially the ozone layer.

This freezer does not use a CFC gas system that causes harm. Also, it is portable and can operate even with less power. It can run on our phone's power bank and battery. We can attach it to any car or bus to enjoy chilled drinks, ice cream, etc. on ours.

The freezer is portable and can be carried in a travel bag and set against the car dashboard. It works on a 5V-1.5A power source, like a power bank/battery/solar panel.

Bill of Material

Component Name	Quantity	Description	Cost Approx. In INR
Heat Sink Fin	2	4cm and 6cm	200
12V BLDC Fan	1	Brushless Cooling Fan	50
Thermoelectric Cooler	1	12V 6A TEC	200
2A 5V Power Bank	2	2A 5V Power Bank	250
3D Printed Case	1	Refrigerator Body	100
Total Cost			800

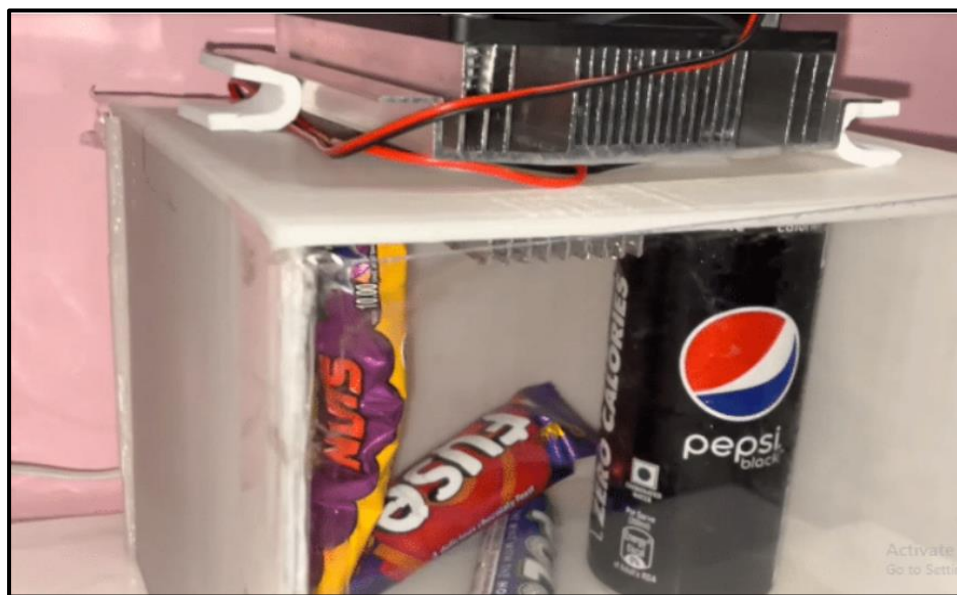


Fig. Refrigerator ready after fixing Components

For detailed design aspects, visit - <https://www.electronicsforu.com/electronics-projects/portable-mini-fridge>

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>

Salient Features of KIET (R&D) Research Policy

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 Up gradation 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 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.

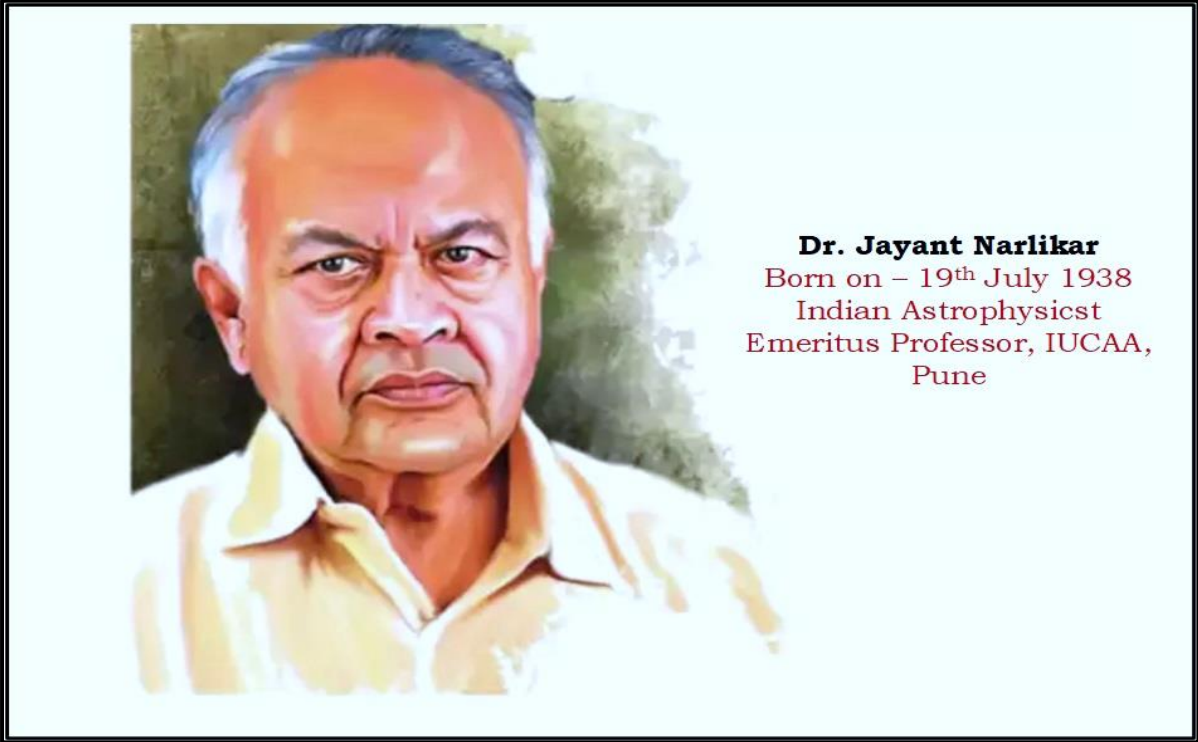
Note: For Annexures and more details kindly refer:

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

Various Research Labs in KIET

S. No.	Research Lab/Centre of Excellence	Department
1.	Centre of supercomputing equipped with NVIDIA DGX A100	CS (AI ML)
2.	Centre of Robotics and Mechatronics	ECE
3.	KIET NI LABVIEW Academy	ECE
4.	Bio-Medical Instrumentation MBS	ECE
5.	Space Technologies	ECE
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





Jayant Vishnu Narlikar FNA, FASc, FTWAS (born 19 July 1938) is an Indian astrophysicist and emeritus professor at the Inter-University Centre for Astronomy and Astrophysics (IUCAA).

Along with Sir Fred Hoyle, He developed the conformal gravity theory, known as **Hoyle–Narlikar theory**. It synthesises Albert Einstein's theory of relativity and Mach's principle. It proposes that the inertial mass of a particle is a function of the masses of all other particles, multiplied by a coupling constant, which is a function of cosmic epoch.

Narlikar has received many national and international awards and honorary doctorates. India's second-highest civilian honour, **Padma Vibhushan**, was awarded to him in 2004 for his research work. Prior to this, in 1965, he was conferred Padma Bhushan.

He was awarded '**Rashtra Bhushan**' in 1981 by FIE Foundation, Ichalkaranji. He received Maharashtra Bhushan Award for the year 2010.

Apart from his scientific research, Narlikar has been well known as a communicator of science through his books, articles, and radio & television programs. For these efforts, he was honoured in 1996 by **UNESCO with the Kalinga Prize**.

He received the **Indira Gandhi Award of the Indian National Science Academy** in 1990. He also served on the Physical Sciences jury for the **Infosys Prize** in 2009.

KIET Group of Institutions

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