

SciTech Chronicles

SCHOOL OF TECHNOLOGY & SCIENCES

NEWSLETTER

NOVEMBER- 2025



Message

"REMEMBER, LEADERSHIP IS NOT JUST ABOUT ACHIEVING GOALS; IT'S ABOUT INSPIRING OTHERS TO ACHIEVE THEM TOGETHER. BY BLENDING THE WISDOM OF THE PAST WITH THE REALITIES OF THE PRESENT, LEADERS CAN NAVIGATE THE COMPLEXITIES OF THE MODERN WORLD AND CREATE LASTING IMPACT."

-Dr. Raul V. Rodriguez
Vice-President
Woxsen University



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"I BELIEVE THAT EDUCATION IS NOT MERELY THE ACQUISITION OF KNOWLEDGE, BUT THE CULTIVATION OF WISDOM. WE WILL STRIVE TO CREATE A HOLISTIC LEARNING EXPERIENCE THAT FOSTERS INTELLECTUAL CURIOSITY, ETHICAL CONSCIOUSNESS, AND CULTURAL SENSITIVITY. BY PROVIDING OPPORTUNITIES FOR EXPERIENTIAL LEARNING, MENTORSHIP, AND COMMUNITY ENGAGEMENT, WE WILL EQUIP OUR STUDENTS WITH THE SKILLS AND VALUES NEEDED TO SUCCEED IN AN EVER-EVOLVING WORLD."

-Dr. Uma Ananda
Vice Chancellor
Woxsen University

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Message



"IN MY SCHOOL OF TECHNOLOGY IT IS NOT JUST ABOUT THE CUTTING-EDGE LABS WITH THE LATEST INFRASTRUCTURE BUT THE ENVIRONMENT AND THE MENTORS AMONG THE FACULTY."

-Dr. Peplluis Esteva de la Rosa
Executive Dean
School of Technology

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"AS DEAN OF THE SCHOOL OF SCIENCES, I'M PROUD OF OUR STUDENTS AND FACULTY FOR THEIR HARD WORK. OUR LABS ARE HELPING DRIVE EXCITING RESEARCH AND HANDS-ON LEARNING. I LOOK FORWARD TO THE CONTINUED SUCCESS OF OUR COMMUNITY."

-Dr. Daya Shankar
Dean
School of Sciences

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SCIENCE AND TECHNOLOGY NEWS

Woxsen University celebrates a significant milestone as the School of Sciences and the School of Technology enter into a strategic collaboration with Teemant Technologies Pvt. Ltd., Thane. This MoU marks the co-development of a first-of-its-kind Project Tracking & Talent Visibility Platform, designed to boost research collaboration, elevate student visibility, and seamlessly bridge academic innovation with industry needs. Congratulations to our Deans, faculty leads, and everyone who contributed to making this partnership a reality—together, we are advancing impactful research, student success, and future-ready innovation.



Woxsen University was delighted to conduct an engaging workshop for students of Crimson Schools- St. Andrews School, Keesara and St. Michaels School, Alwal, led by Dr. S. Bhanu prakash, Assistant Professor, School of Technology.

The session, “Inside the Metaverse: Where Reality Ends and Code Begins,” offered students an in-depth understanding of the Metaverse, exploring its core components, transformative applications, and the challenges shaping this emerging digital frontier.

Students were highly intrigued by how the Metaverse can redefine industries, automate everyday life, and contribute to the development of smart cities of the future.

It was truly inspiring for the speaker and the host to witness the curiosity and enthusiasm of young minds exploring the world of innovation and technology!

MEMORANDUM OF UNDERSTANDING

For

ACADEMIC RESEARCH AND TECHNOLOGY COLLABORATION

BETWEEN

WOXSEN UNIVERSITY, HYDERABAD, TELANGANA, INDIA



AND

TEEMANT TECHNOLOGIES PRIVATE LIMITED, THANE,
MAHARASHTRA, INDIA



SCIENCE AND TECHNOLOGY NEWS

Woxsen University proudly extended its outreach footprint to Goa, where Assistant Professor Meher Gayatri Devi Tiwari engaged with students at Sharada Mandir School, Navy Children's School, and Kings School. The sessions focused on emerging technologies, innovation, and future-ready skills, sparking curiosity and inspiring young learners to think ambitiously about their future in tech.

This initiative reflects Woxsen's commitment to empowering students across India and nurturing the next generation of innovators and leaders.



It was a moment of immense pride and inspiration for all faculties to attend a Talk on “Principles of Meta-Research: Evaluating and Improving Research Practices”, delivered by the globally renowned Dr. John P. A. Ioannidis, Distinguished Professor at Stanford University and one of the most cited scientists in the world.

Dr. Ioannidis, known for his pioneering work in Meta-Research and Evidence-Based Science, emphasized the importance of transparency, reproducibility, and research integrity in modern academia. His thought-provoking session shed light on how data-driven inquiry and critical evaluation can transform the way research is conducted and interpreted across disciplines.

Encounters like these not only inspire the Woxsen community but also reaffirm the university's commitment to fostering global research excellence and ethical scholarship.

The event was graced by Vice-Chancellor Dr. Uma Ananda Dagnino González and Dr. Daya Shankar Tiwari, Dean, School of Sciences, whose presence added warmth and inspiration to the occasion. Their active participation and words of encouragement motivated students to embrace the values of harmony, togetherness, and joy that Diwali stands for. The vibrant celebration concluded with cheerful moments, shared sweets, and smiles that lit up the campus atmosphere.

Check for updates


Sustainable Development

WILEY

Sustainable Development

REVIEW ARTICLE OPEN ACCESS

Smart Waste, Smarter World: Exploring Waste Types, Trends, and Tech-Driven Valorization Through Artificial Intelligence, Internet of Things, and Blockchain

Segun E. Ibitoye^{1,2,3,4}  | Amit K. Bhatt⁵ | Raul V. Rodriguez⁶ | Olekan A. Olayemi¹ | Pepluh Esteva¹ | Peter O. Ormoyi⁶ | Isaac K. Adegun¹ | Rasheedat M. Mahmood^{2,7} | Esther T. Akinnibi⁸

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Received: 18 July 2023 | **Revised:** 3 October 2023 | **Accepted:** 10 October 2023

Keywords: artificial intelligence | blockchain | Internet of things | smart wastes | waste classification | waste valorization

ABSTRACT

Global municipal solid waste generation is projected to exceed 3.8 billion tonnes annually by 2050. This makes the need for smart, inclusive, and scalable waste valorization systems more urgent than ever. This review critically explores the shift from conventional waste management to intelligent, technology-driven solutions aligned with circular economy goals. Key findings highlight the transformative role of digital tools in waste classification, forecasting, and real-time monitoring. Long Short-Term Memory models achieved up to 94% accuracy in biogas prediction, while XGBoost demonstrated 98.5% accuracy in solid waste generation forecasting. Deep learning systems have reached classification accuracies of 83.11% across 28 recyclable categories and mean average precision scores up to 63% in complex waste detection. Despite promising advances, challenges such as data quality, regulatory hurdles, and system interoperability persist. This article contributes both a conceptual and practical blueprint for stakeholders, positioning smart waste valorization as a strategic opportunity to drive innovation.

1 | Introduction

Rapid industrialization, technological advances, and population growth are intensifying global environmental challenges. This is most visible through the escalating volume and complexity of waste generated across economic sectors (Pedro et al. 2024;

Ullah et al. 2025). Traditional disposal practices are now increasingly unsustainable, once suited to predominantly organic waste streams. These include dumping (Sridhar et al. 2024), open burning (Bamigbade et al. 2025), incineration (Ling Wen Xia et al. 2024), and burying. Modern waste is heterogeneous, encompassing plastics (Olazar et al. 2024), e-waste (Kwon

Abstracts: AD, associative algorithm; AI, artificial intelligence; CE, circular economy; CNN, convolutional neural network; DL, deep learning; EIT, data-driven technology; EIT, electrical and electronic equipment; GIS, geographic information system; IoT, Internet of Things; MSW, Municipal Solid Waste; Linked Data; L20, large scale pilot; nAPIO, mean average precision at 50%; ML, machine learning; MFL, material resource facility; MSW, municipal solid waste; SDGs, sustainable development goals; W4B, DC, waste management recovery-driven framework; W4V, waste valorization.

Segun E. Ibitoye and Amit K. Bhatt contributed equally to this work.

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© 2023 The Author(s). Sustainable Development published by EEP Environment and John Wiley & Sons Ltd.

Sustainable Development, 2023, 01–22
<https://doi.org/10.1002/sd.70345>

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SCIENCE AND TECHNOLOGY NEWS

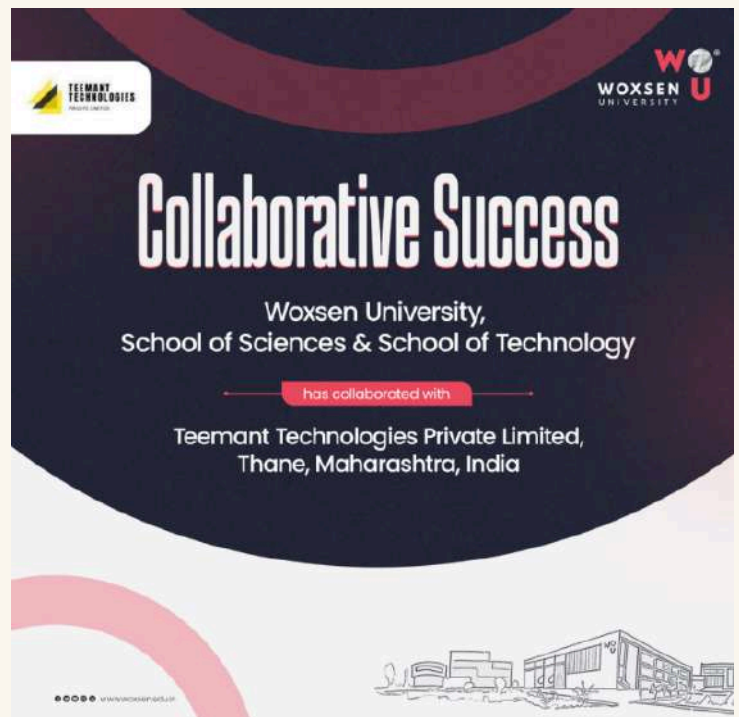
Faculty members from the School of Sciences embraced the festive spirit, dressed in traditional attire and sharing joyful moments with students. The evening concluded with a vibrant DJ night, seamlessly blending tradition and modern celebration while filling the campus with music, dance, and energy.



The event, organized under the guidance of Dr. Daya Shankar Tiwari, Dean, and Dr. Beauty Pandey, Associate Dean, School of Sciences, was a glowing success.

Woxsen University continues to foster a vibrant campus culture that celebrates diversity, creativity, and community spirit.

The School of Sciences and the School of Technology, Woxsen University, have officially signed a Memorandum of Understanding (MoU) with Teemant Technologies Private Limited, Thane, and Maharashtra.



A special acknowledgment goes to Dr. Beauty Pandey and Dr. Ravinder Tadi, whose leadership and initiative played a pivotal role in realizing this strategic collaboration. Their continued efforts contribute immensely to Woxsen University's growing network of global partnerships and academic excellence.

FACULTY ACHIEVEMENTS



Dr. Brundaban Mishra

Professor, School of Technology, receives an ICSSR Major Research Grant of ₹19 lakh for his project “Embody, Emotion, Endangered Music and Dance Tradition of Western Odisha: A Revitalization in the Globalized World.”

Dr. Mohammad Ashfaq,

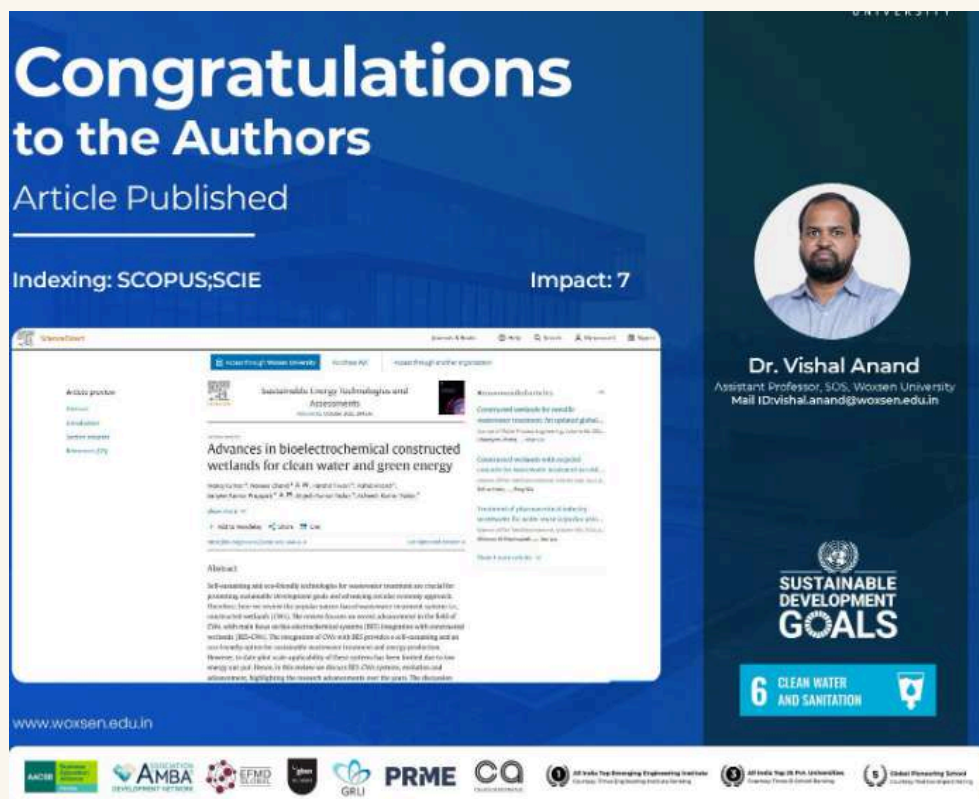
Woxsen University is proud to celebrate this remarkable achievement by Dr. Ashfaq, who has been listed among the Top 2% Scientists worldwide as per the Stanford University Global Ranking (2023–2025) for three consecutive years.



Dr. Mohammad Ashfaq

Associate Professor - School of Science published an article on utilizing banana peel as a natural reducing and encapsulating agent, developed a Waste-Derived Cellulose-Based Composite (WD-CBMC) capable of efficiently removing Fluoride (F^-) ions from contaminated water.

FACULTY ACHIEVEMENTS



Dr. Vishal Anand

Associate Professor - School of Science published an article titled Advances in bioelectrochemical constructed wet lands for clean water and green energy.

Dr. Dipak Kumar Sahoo

Associate Professor - School of Science published an article focusing on biodegradation of pharmaceutical contaminants using a newly isolated bacterial strain, *Pseudomonas* sp. MSW2, from pharmaceutical wastewater.



FACULTY ACHIEVEMENTS

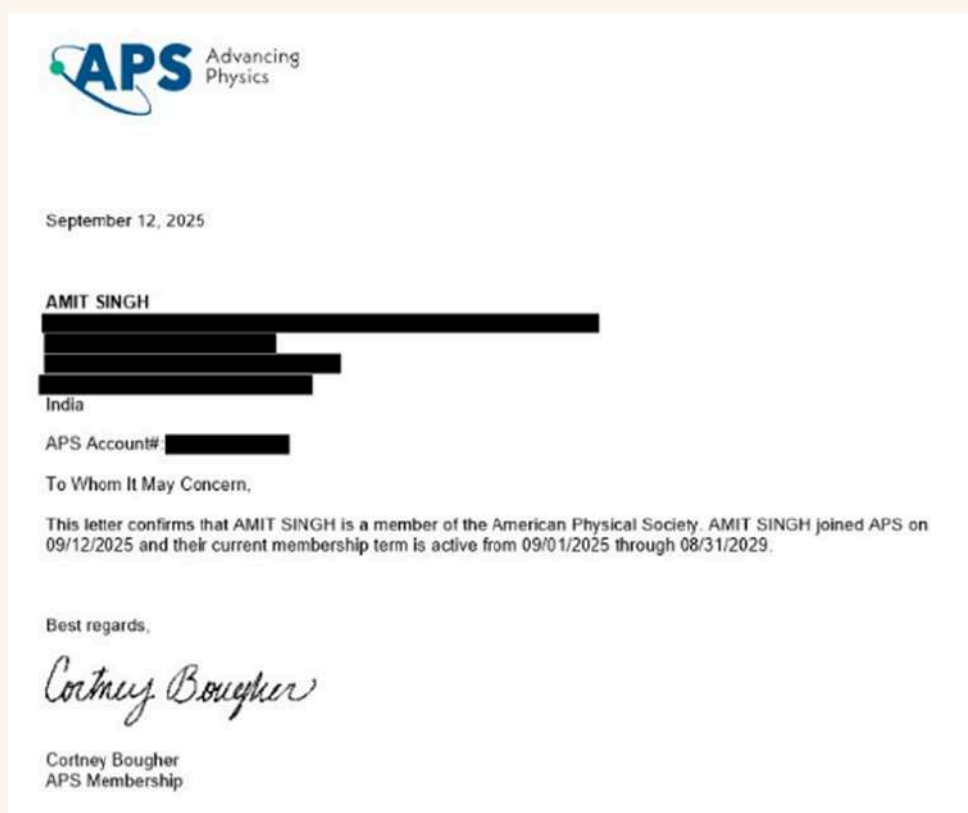


Dr. Rajender Boddula

Associate Professor - School of Science published an article highlighting major advances in electrocatalytic transesterification, an emerging and sustainable technique for biodiesel synthesis.

Dr. Amit Kumar Singh

Has been inducted as a Member of the American Physical Society (APS) in recognition of his expertise in Material Science.



FACULTY ACHIEVEMENTS



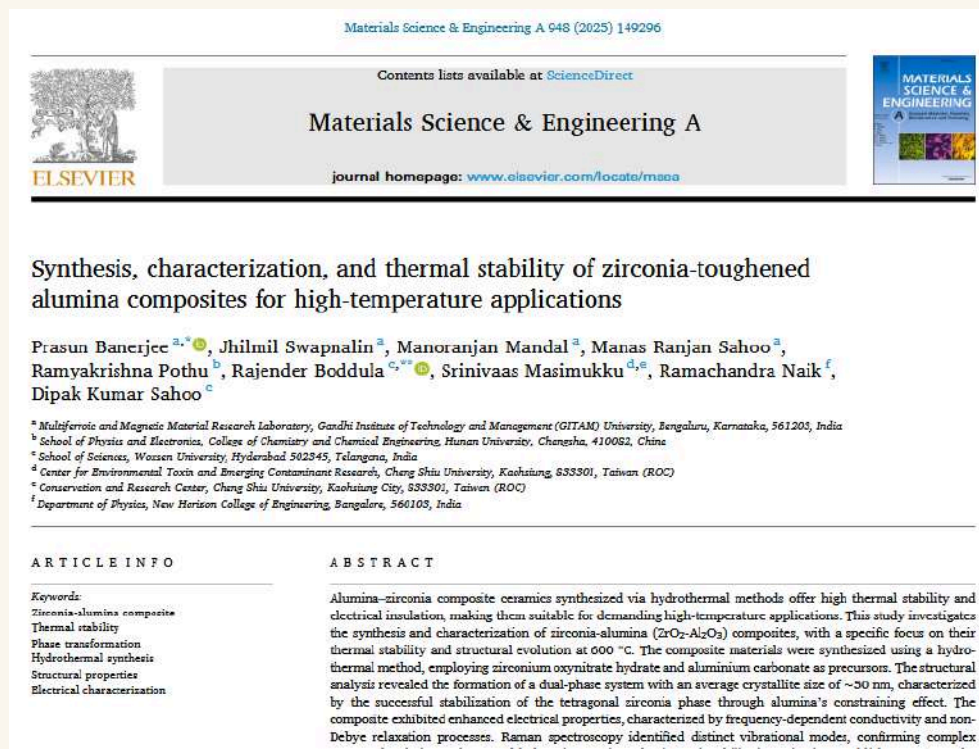
Dr. Mohammad Ashfaq

Associate Professor -
School of Science
published an article
“Synthesis of
biochar/MoS₂ composite
modified with poly
(acrylic acid)
(BC/MoS₂/PAA) for the
removal of Cd (II) and Pb
(II) from wastewater.”

Dr. Rajender Boddula
WoXsen University
proudly congratulates
Dr. Boddula for being
invited to review a
manuscript for the
international journal
Diabetes, Metabolic
Syndrome and Obesity
(Dove Press, Taylor &
Francis Group) in 2025.



FACULTY ACHIEVEMENTS



Dr. Dipak Kumar Sahoo

Associate Professor - School of Science has successfully synthesized and characterized Zirconia-Toughened Alumina (ZTA) composites with exceptional thermal stability for high-temperature industrial applications.

Dr. Segun E Ibitoye

Assistant Professor - School of Technology has published a review article in Sustainable development Wiley Journal. It's titled as Smart waste, Smarter world. The 9 authors contribute in working towards exploring waste types, trends, and Tech Driven Valorization through AI, IoT and Blockchain.



FACULTY ACHIEVEMENTS

Discover Applied Sciences

Review

Machine learning in prolactinoma detection: a systematic review and meta analysis of diagnostic innovations

Kashif Raza Siddique¹ · Nivith P. Murali² · Urwa Khalid³ · Naveed Jeelani Khan⁴ · Asif Adil⁵ · Kamil Reza Khondakar⁶

Received: 18 September 2024 / Accepted: 11 April 2025

Published online: 02 October 2025

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Abstract

Prolactinomas are common pituitary adenomas that present significant diagnostic challenges due to their varied clinical manifestations. This systematic review assesses machine learning (ML) applications in prolactinoma detection by analyzing MRI scans and hormonal biomarkers across 25 studies published between 2000–2024. A comprehensive literature search was conducted across multiple databases, yielding 550 papers from which 25 relevant studies. This paper provides the entire matrix of literature reviewed for relational analysis. Conventional visual assessment of MRI scans by radiologists typically achieves 75–85% sensitivity for microadenomas, while ML models have demonstrated sensitivities exceeding 92% in multiple studies. Key findings indicate that convolutional neural networks (CNNs) show superior diagnostic accuracy compared to traditional methods, with an average accuracy exceeding 90% and significantly improved sensitivity in detecting microadenomas on MRI scans. ML models also demonstrate enhanced ability to distinguish prolactinomas from other Sellar lesions using novel metrics such as Prolactin-Volume-Ratio (PVR). However, challenges related to data quality and generalizability persist. The review identifies critical research gaps and proposes future directions, emphasizing the need for larger, diverse datasets and user-friendly ML tools to advance early detection and personalized treatment strategies for prolactinomas.

Dr. Kamil Reza Khondakar

Assistant Professor - School of Technology has published a review article in Discover Applied Sciences. The paper is titled ML in Prolactinoma detection: a systematic review and meta analysis of diagnostic innovations.

Dr. Nagaraju Dharavat

Associate Professor - School of Technology published an article in IEEE IoT Journal. The paper titled Lightweight Chebyshev Polynomial-Based Authentication and Signature Framework with Antenna Array for IoT Enabled V2V and V2X Communications.

This article has been accepted for publication in IEEE Internet of Things Journal. This is the author's version which has not been fully edited and content may change prior to final publication. Citation information: DOI 10.1109/IIOT.2025.3622480

Lightweight Chebyshev Polynomial-Based Authentication and Signature Framework with Antenna Array for IoT-Enabled V2V and V2X Communications

Arun Sekar Rajasekaran, *Senior Member, IEEE*, Ashok Kumar Das, *Senior Member, IEEE*, Azees Maria, *Member, IEEE*, Kalyan Sundar Kola, *Member, IEEE*, Nagaraju Dharavat, *Member, IEEE*, Minho Jo, *Senior Member, IEEE*

Abstract—Vehicle-to-everything (V2X) communications in intelligent transportation systems are emerging as a pivotal Internet of Things (IoT) technology for improving road safety, optimizing traffic flow, and reducing energy consumption. However, it is a major challenge to provide secure, efficient, and scalable authentication in dynamic vehicular situations. To resolve these issues, this work suggests a novel lightweight Chebyshev-based authentication and key exchange protocol, combined with the use of an antenna array for secure transmission. To ensure anonymity and critical security, the protocol incorporates biometric-based key generation and physical unclonable function (PUF) response that maps cryptographic keys to user-specific data. In addition, efficient batch signature verification based on multiplicative properties of Chebyshev polynomials, is designed to support scalable group authentication, allowing reduced computational expenses. The proposed design of the slotted waveguide array antenna

Index Terms—Internet of Things (IoT), Vehicular Adhoc Network (VANET), authentication, signature, antenna array, Chebyshev polynomial, privacy.

I. INTRODUCTION

The advent of advanced technologies, like the Internet of Things (IoT), Artificial Intelligence (AI), and 5G networks, is driving a crucial transformation in the transportation sector. At the core of such an evolution, vehicular-to-Vehicle (V2V) and Vehicle-to-Everything (V2X) communications play a crucial role in order to enhance road safety, alleviate traffic congestion, and also enable seamless connectivity between vehicles

STUDENT ACHIEVEMENTS

The month of October 2025 has been marked by commendable student achievements across diverse domains ranging from cutting-edge technologies to impactful social contributions.

Aayushmaan Pandab - BTech-2029 (AIML)

has received a Certificate of Participation for participating in SPEEDATHON at IEEE Day 2025, organized by IEEE DTU SB in collaboration with IEEE GTBIT SB, held on 9th – 11th October 2025.



Anoushka Rojaria - BTech-2029 (CSE)

has received a certificate of appreciation for participating in the Megathon 2025, organized by IIITH Hyderabad.



Pragnan Seemakurthi- B.Tech 2026 (Data Science)

Pragnan Seemakurthi has received a Certificate of Appreciation for his invaluable contribution to the Academic Student Ambassador Initiative.



STUDENT ACHIEVEMENTS



Monishwar Reddy V – B. Tech 2027 (CSE)

has received a Certificate of Participation for attending the 2025 UNC GREENSBORO VIRTUAL PDE Conference on 10th -12th October 2025.

Srikanth Kummari – Research Scholar

Srikanth Kummari, Chakradhar Muppuri, Erolla Rishvin Reddy, Yogamruth Reddy, Gayathri Pocharam, Yashwanth Reddy and Ganesh Challa (B.Tech 2028 AIML) have received a Certificate of Registration of Design on IOT Connectivity Device.



PUZZLE TIME !!

The Coffee Code

Scenario:

During campus placements, five friends — Arjun, Neha, Kiran, Priya, and Ravi — were waiting in the lounge for their technical interview. To stay awake, each ordered a coffee: Espresso, Latte, Cappuccino, Mocha, and Americano (one each).

Here's what we know:

Arjun didn't order Espresso or Latte.

The one who chose Mocha sat next to Ravi.

Neha sat on Ravi's other side.

Priya ordered a Latte.

Kiran didn't sit beside Priya.

The person sitting at the far left ordered an Espresso, and the one at the far right ordered an Americano.

The students are seated in a single line (left to right).

Can you find who ordered which coffee?

Your Task:

Figure out the complete order : who is sitting where (left to right) and what coffee each person ordered.

Send your answers and the correct one will be posted in the next edition!

ANSWERS FOR THE PREVIOUS PUZZLE

Rao — handled Gamma (C) — arrived at 2:00 PM — entered through the Window.
 Meera — handled Delta (D) — arrived at 11:00 AM — entered through the Main door.
 Sameer — handled Alpha (A) — arrived at 9:00 AM — entered through the Service hatch.
 Tanya — handled Beta (B) — arrived at 4:00 PM — entered through the Maintenance corridor.

**So: Answer to Q1: Rao stole (or moved) Gamma (C) at 2:00 PM via the Window.
 How the clues force that solution — brief walkthrough**

From (2) we know Main → 11:00.

(4) gives 2:00 → Window.

(5) Fixes Sameer → Hatch.

(9) Corridor → Beta (B).

(6) D's time is later than A's time. That orders A before D.

(3) Meera ≠ A,B so Meera is either C or D.

(10) 9:00 ≠ C, so if someone at 9:00 isn't C.

(7) Rao ≠ Corridor/Main, so Rao must be either Window or Hatch — but Hatch is Sameer (5), so Rao must be Window. From (4), Window is 2:00 → Rao is 2:00.

Since Main is 11:00 and Main ≠ C by clue (11), the 11:00 person didn't take Gamma. Combine with (3): Meera (11:00) cannot be A or B and also cannot be C (by clue 11), so Meera must be D at 11:00 via Main.

With Meera = D and A earlier than D (6), A must be at 9:00, and the 9:00 person cannot be C (10), so 9:00 must be A — that requires Sameer (who uses Hatch) to be 9:00 and to have A.

Corridor maps to B (9); remaining person Tanya must be Corridor at 4:00 with B. The only remaining prototype is C, and the only remaining assistant & slot is Rao at 2:00 via Window — so Rao handled the missing Gamma (C).

Editor's Note

November 2025 Edition

This edition arrives with vibrant energy; a month that beautifully blends the joy of festivals with the spirit of academic achievement. As lights and celebrations fill the air, our students are equally illuminating their academic journeys by wrapping up projects, PBLs, and innovative coursework with remarkable pace and passion.

This phase marks not just the end of a semester, but a testament to how creativity, collaboration, and commitment can turn challenges into milestones. Amidst the festivities, let's also take a moment to celebrate our collective progress; the ideas shared, experiments conducted, and discoveries made across disciplines.

As always, SCI-TECH thrives on your voices and visions. We invite you to contribute your articles, research insights, or campus stories that capture this exciting blend of innovation and celebration. Let's make this edition a reflection of both intellect and inspiration!

Editor's Note

We warmly invite Junior Scholars, faculty, and staff to contribute your stories, achievements, and reflections to upcoming editions of SciTech Chronicles. Together, let's make this magazine the voice. Whether it's a breakthrough project, a global experience, or a classroom innovation your journey can inspire others. Let's make this platform a true voice of our School.

Big or small, every step you take shapes our story. Let's tell it together in SciTech Chronicles. Here's to a month of inspiration, collaboration, and fresh perspectives!

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SciTech Chronicles
Woxsen University



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