Outlook

Conduction of a One-day Online Workshop on "AI-Driven Drone Analytics for Self-Sustainable Farming" on 14th October 2025 by KLEF, Vaddeswaram campus

From Registrar Office <officeofregistrar@kluniversity.in>

Date Mon 2025-10-13 12:33 PM

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Ref: KLEF/RO/ASC/Online Workshop/2025-26 Date : 10-10-2025

Orders of the Hon'ble Vice-Chancellor dt. 10-10-2025
CIRCULAR

Sub: Conduction of a One-day **Online Workshop on "AI-Driven Drone Analytics for Self-Sustainable Farming"** on 14th October 2025 by Academic Staff College, KLEF, Vaddeswaram campus - Communication - reg.

Ref: Letter dt. 09-10-2025 received from Dr. Radhika Rani Chintala, Principal, Academic Staff College.

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This is to inform that the Academic Staff College, KLEF, Vaddeswaram campus in association with KL College of Agriculture, is organizing a One-Day Online Workshop on 14th October 2025, as detailed below:

Title: Experimental Insights and AI-Driven Drone Analytics for Self-Sustainable Farming

Resource Person: Dr. Ranjeet Kumar Jha, School of Civil and Environmental Engineering, IIT Mandi

Date : 14th October 2025 (Tuesday)

Time : 2.00 PM to 4.00 PM

Mode : Online.

Meeting Link: https://meet.google.com/syn-uhoe-mnn

All Faculty Members, Research Scholars, and Students of KL College of Agriculture are directed to attend and get benefitted from this workshop. Interested Faculty Members, Research Scholars, and Students

from other departments may also join the session.

REGISTRAR

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Mail to: Principal-Academic Staff College
Director, KL College of Agriculture
HoD, KL College of Agriculture
All Faculty members
All Research Scholars
All Students

Thanks & Regards

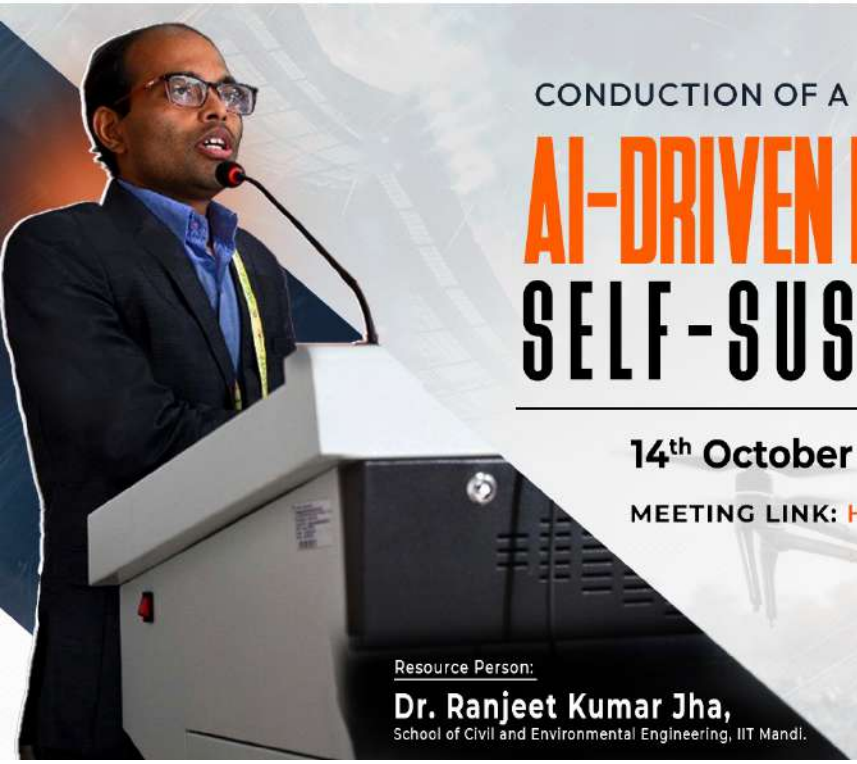
O/o REGISTRAR
C-006, EXTN. NO. 1200
KONERU LAKSHMAIAH EDUCATION FOUNDATION
(Category -1, Deemed to be University estd. u/s. 3 of the UGC Act, 1956)
❖ Approved by AICTE ❖ ISO 21001:2018 Certified
Campus: Green Fields, Vaddeswaram - 522 302, Guntur District, Andhra Pradesh, INDIA.
Phone No. **08645 - 350200**; **www.klef.ac.in; www.klef.edu.in; www.kluniversity.in**

KL (DEEMED TO BE UNIVERSITY) | Academic Staff College

45 YEARS OF EDUCATIONAL LEADERSHIP

nirf 2024 NATIONAL INSTITUTIONAL RANKING FRAMEWORK

RANKED 26 AMONG ALL UNIVERSITIES



CONDUCTION OF A ONE-DAY **ONLINE WORKSHOP** ON

AI-DRIVEN DRONE ANALYTICS FOR SELF-SUSTAINABLE FARMING

14th October 2025 | **2.00 PM to 4.00 PM**

MEETING LINK: HTTPS://MEET.GOOGLE.COM/SYN-UHOE-MNN

Resource Person:

Dr. Ranjeet Kumar Jha,

School of Civil and Environmental Engineering, IIT Mandi.

Organized by Academic Staff College,
KLEF, Vaddeswaram campus

Report on

One-Day Workshop on

AI-Driven Drone Analytics for Self-Sustainable Farming

1. Details of Programme:

Title: Experimental Insights and AI-Driven Drone Analytics for Self-Sustainable Farming

Date: 14th October 2025

Time: 2:00 PM – 4:00 PM

Mode: Online

Organized by: Academic Staff College, KLEF.

In Association With: KL College of Agriculture.

Resource Person:

Dr. Ranjeet Kumar Jha,

School of Civil and Environmental Engineering,

IIT Mandi.

2. Objectives of the Programme

The key objectives of the workshop were:

- To create awareness about the role of AI and drone technology in modern agriculture.
- To provide experimental insights into drone-based crop monitoring and analytics.
- To explore innovative approaches for achieving self-sustainable and precision farming.
- To familiarize participants with data-driven decision-making in agriculture.
- To encourage interdisciplinary collaboration between engineering technologies and agricultural sciences.

3. Target Audience

Faculty Members, Research Scholars, and Students of KL College of Agriculture. Interested participants from other departments were also invited to attend the workshop.

4. Brief Report of the Programme

The Academic Staff College (ASC), in association with KL College of Agriculture, organized a One-Day Online Workshop on "Experimental Insights and AI-Driven Drone Analytics for Self-Sustainable Farming" on 14 October 2025.

The session was delivered by Dr. Ranjeet Kumar Jha, from the School of Civil and Environmental Engineering, IIT Mandi. Dr. Jha is known for his work in remote sensing, drone applications, and AI-driven analytics in environmental and agricultural domains. His research focuses on applying advanced technologies for sustainable development and efficient resource management.

The workshop focused on the application of Artificial Intelligence and drone technologies in agriculture, highlighting how advanced analytics and aerial monitoring systems can improve farming efficiency and sustainability.

During the session, the resource person provided a comprehensive overview of the fundamentals of drone technology and its growing relevance in modern agricultural practices. He began by explaining the different types of drones commonly used in agriculture, including fixed-wing drones and multi-rotor drones, highlighting their specific advantages in crop monitoring and field analysis. The discussion also covered the key components of agricultural drones, such as GPS systems, flight controllers, imaging sensors, and data transmission modules. Dr. Jha further elaborated on the role of advanced sensing technologies, particularly multispectral and thermal sensors, which enable detailed monitoring of crop health and environmental conditions. Through these sensors, drones can capture high-resolution aerial images and generate valuable data on plant growth patterns, soil moisture content, pest infestations, and nutrient deficiencies, thereby enabling farmers and researchers to detect issues at an early stage.

The speaker then introduced the concept of AI-driven drone analytics, emphasizing how the integration of artificial intelligence and machine learning significantly enhances the value of data collected by drones. He explained that once aerial data is captured, it is processed using machine learning algorithms and data analytics tools to extract meaningful patterns and insights. These insights

help in making informed decisions regarding irrigation, fertilizer usage, crop monitoring, and yield prediction.

Dr. Jha also presented experimental insights and real-world applications, demonstrating how drone-based analytics supports precision farming and sustainable agricultural practices. The session emphasized the potential of integrating AI, remote sensing, and drone technology to improve agricultural productivity while minimizing environmental impact.

The programme concluded with an interactive question-and-answer session, where participants actively engaged with the resource person. Faculty members, research scholars, and students raised several questions related to the practical implementation of drone technologies in Indian agricultural settings, operational costs, accessibility of drone-based services, and opportunities for research and innovation in Agri-tech domains. Dr. Jha responded to the queries with detailed explanations and encouraged participants to explore emerging research opportunities and collaborative projects in drone-enabled agriculture and precision farming technologies. The interactive discussion made the session highly engaging and provided participants with deeper clarity on the practical and research-oriented aspects of AI-driven agricultural technologies.

5. Outcomes of the Programme

- Participants gained knowledge about AI-driven drone applications in agriculture.
- Enhanced understanding of precision farming and smart agriculture technologies.
- Increased awareness about data-driven decision-making in farming practices.
- Encouraged interdisciplinary collaboration between agriculture and engineering domains.
- Motivated participants to explore research opportunities in agri-tech innovations.

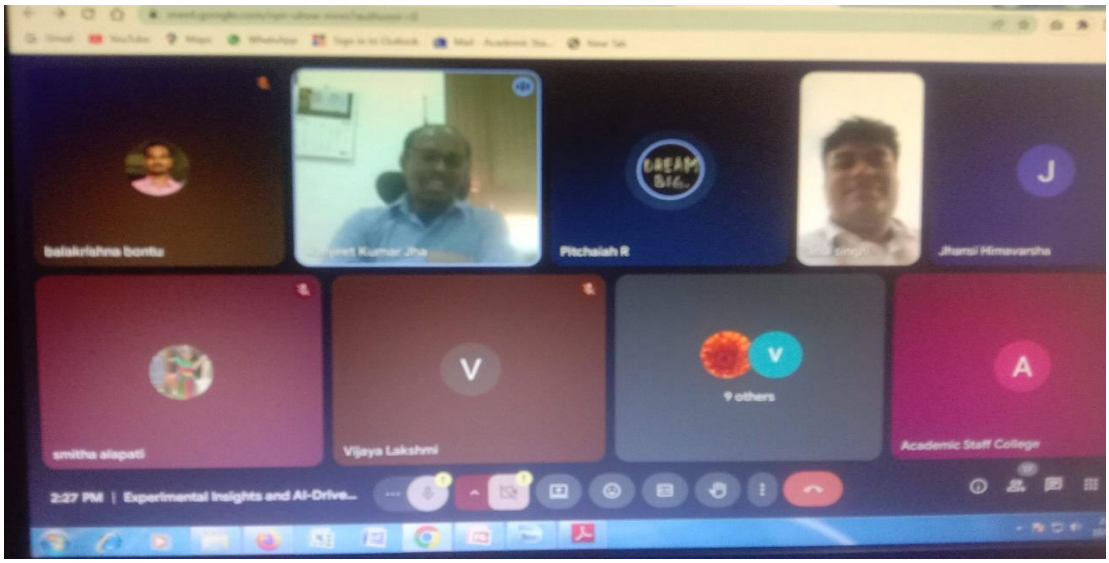
6. Number of Participants

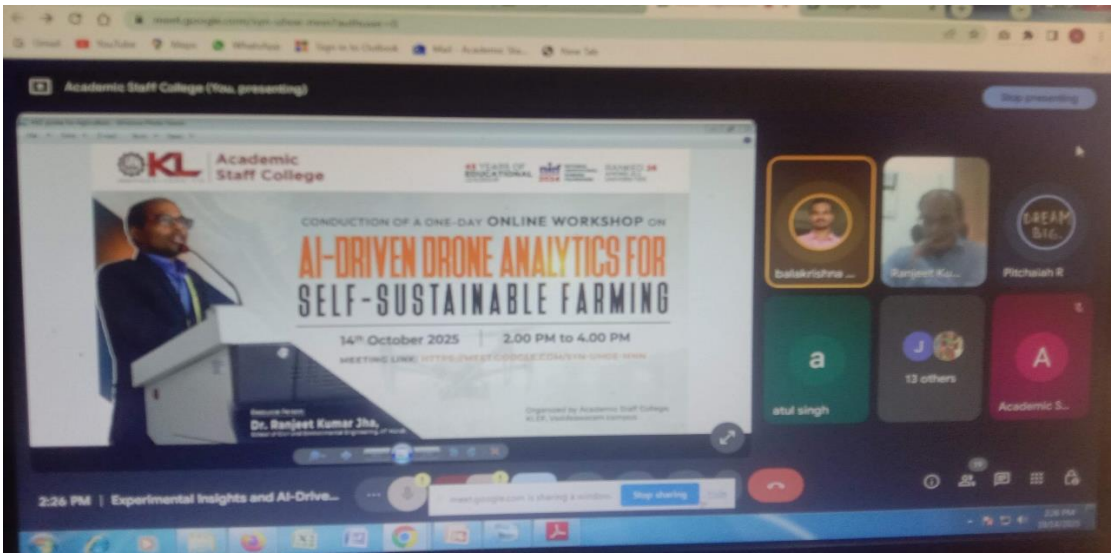
Faculty Members, Research Scholars, and Students from KL College of Agriculture and other departments actively participated in the workshop. A total of 20 faculty members and 40 students have actively participated in the event.

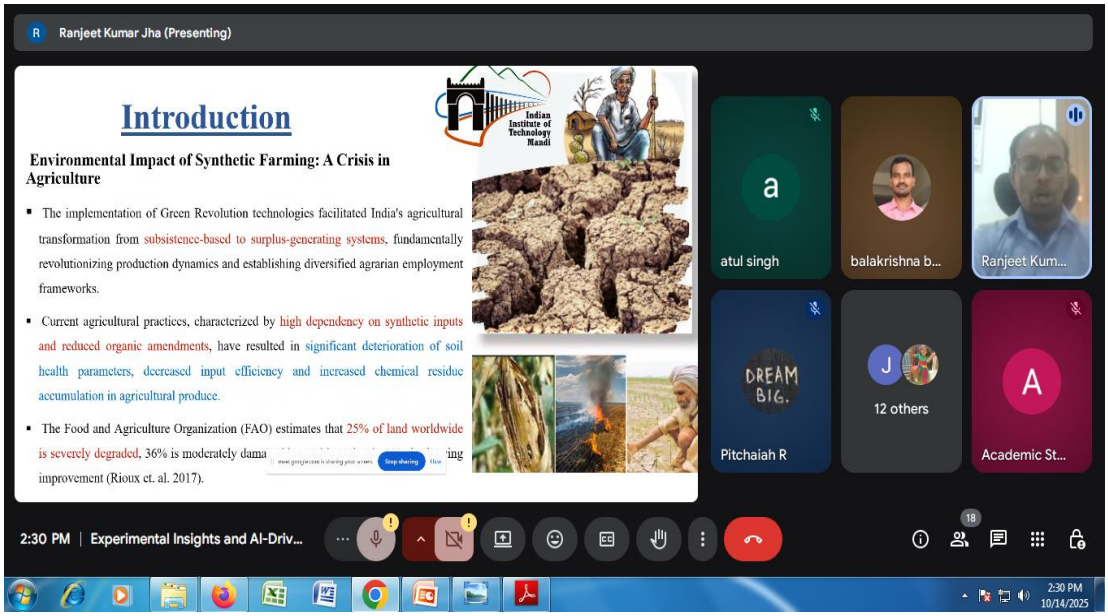
(Attendance sheet enclosed for records.)

7. Photographs

Photographs of the technical session, participant interaction and valedictory are enclosed.






Ranjeet Kumar Jha (Presenting)
Introduction
Environmental Impact of Synthetic Farming: A Crisis in Agriculture
The implementation of Green Revolution technologies facilitated India's agricultural transformation from subsistence-based to surplus-generating systems, fundamentally revolutionizing production dynamics and establishing diversified agrarian employment frameworks.
Current agricultural practices, characterized by high dependency on synthetic inputs and reduced organic amendments, have resulted in significant deterioration of soil health parameters, decreased input efficiency and increased chemical residue accumulation in agricultural produce.
The Food and Agriculture Organization (FAO) estimates that 25% of land worldwide is severely degraded, 36% is moderately dama
ing improvement (Rioux et. al. 2017).
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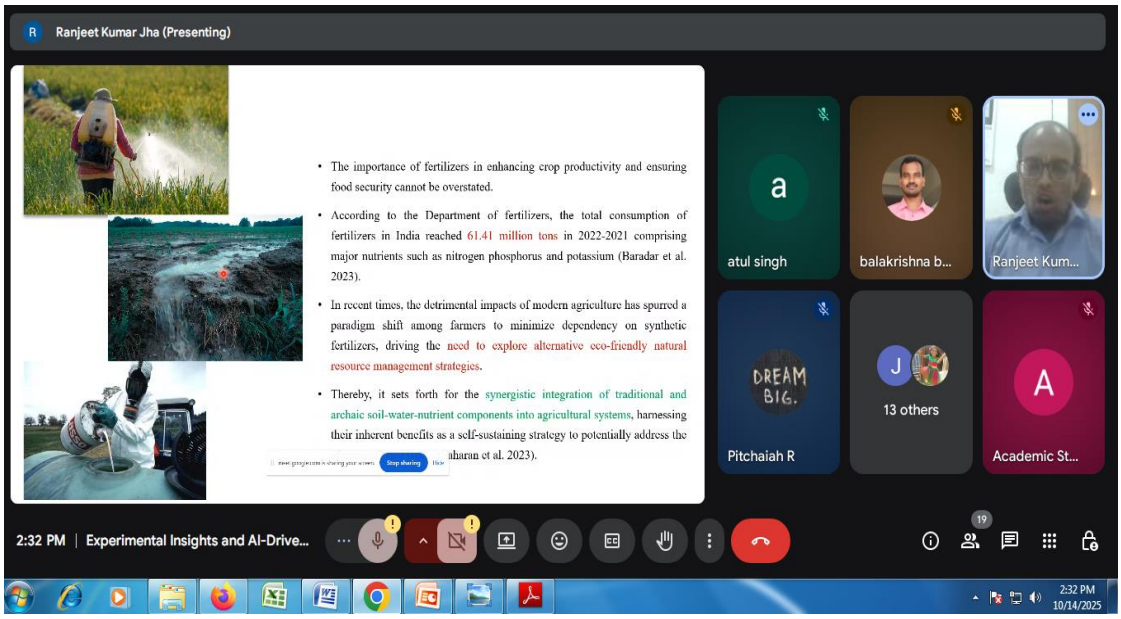
Ranjeet Kumar Jha (Presenting)
The importance of fertilizers in enhancing crop productivity and ensuring food security cannot be overstated.
According to the Department of fertilizers, the total consumption of fertilizers in India reached 61.41 million tons in 2022-2021 comprising major nutrients such as nitrogen phosphorus and potassium (Baradar et al. 2023).
In recent times, the detrimental impacts of modern agriculture has spurred a paradigm shift among farmers to minimize dependency on synthetic fertilizers, driving the need to explore alternative eco-friendly natural resource management strategies.
Thereby, it sets forth for the synergistic integration of traditional and archaic soil-water-nutrient components into agricultural systems, harnessing their inherent benefits as a self-sustaining strategy to potentially address the
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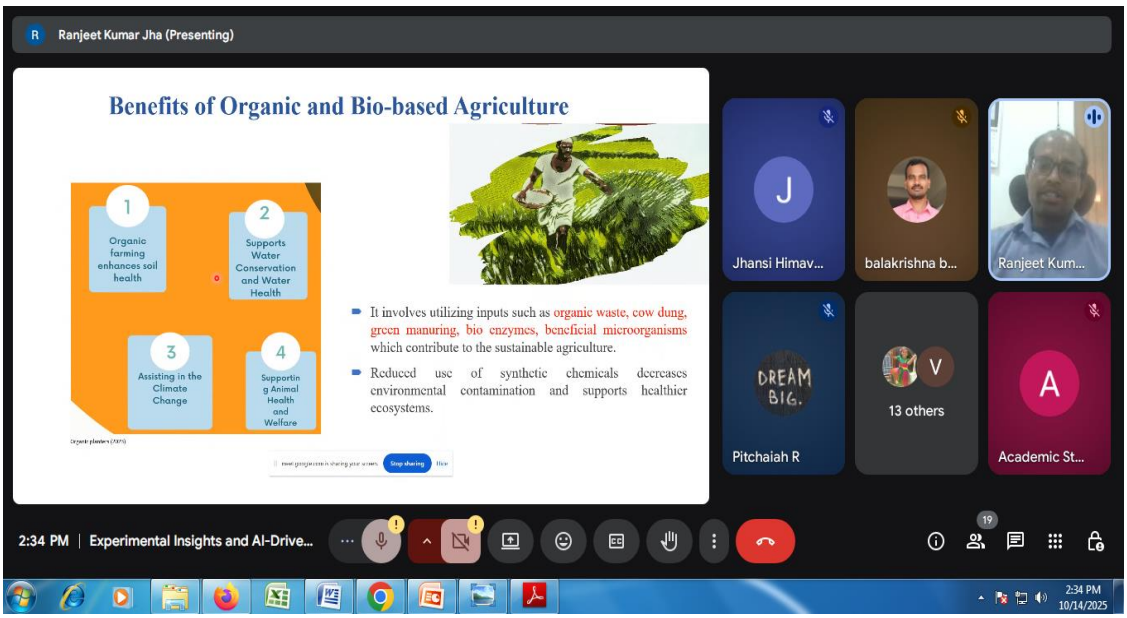
Ranjeet Kumar Jha (Presenting)
Benefits of Organic and Bio-based Agriculture
1
Organic farming enhances soil health
2
Supports Water Conservation and Water Health
3
Assisting in the Climate Change
4
Supportin g Animal Health and Welfare
It involves utilizing inputs such as organic waste, cow dung, green manuring, bio enzymes, beneficial microorganisms which contribute to the sustainable agriculture.
Reduced use of synthetic chemicals decreases environmental contamination and supports healthier ecosystems.
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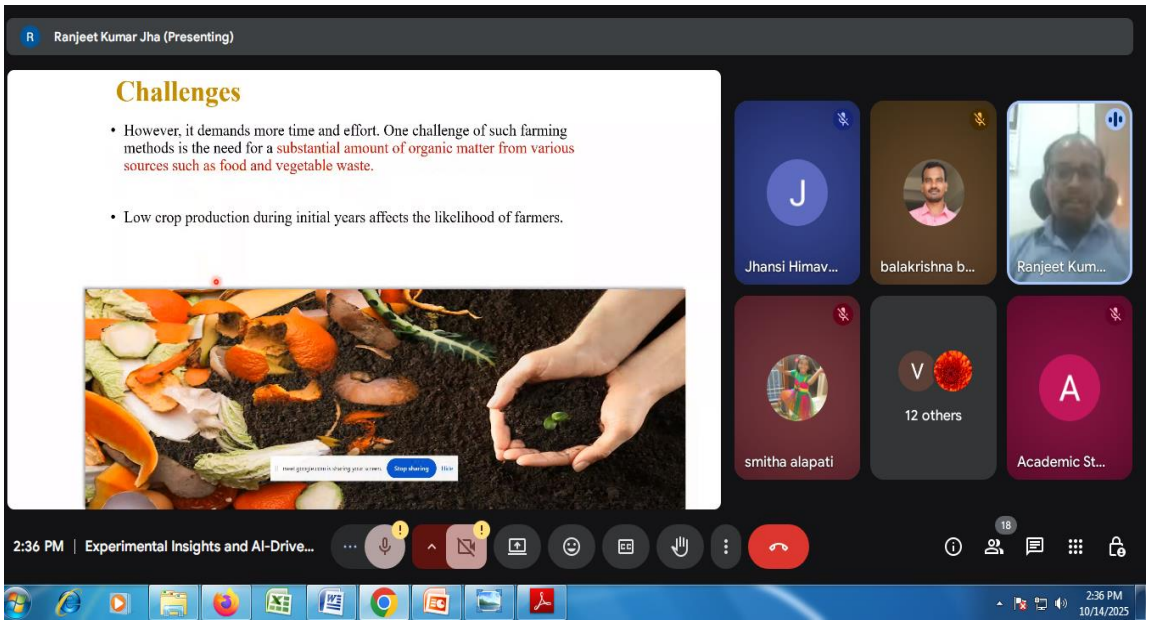
Ranjeet Kumar Jha (Presenting)
Challenges
• However, it demands more time and effort. One challenge of such farming methods is the need for a substantial amount of organic matter from various sources such as food and vegetable waste.
• Low crop production during initial years affects the likelihood of farmers.
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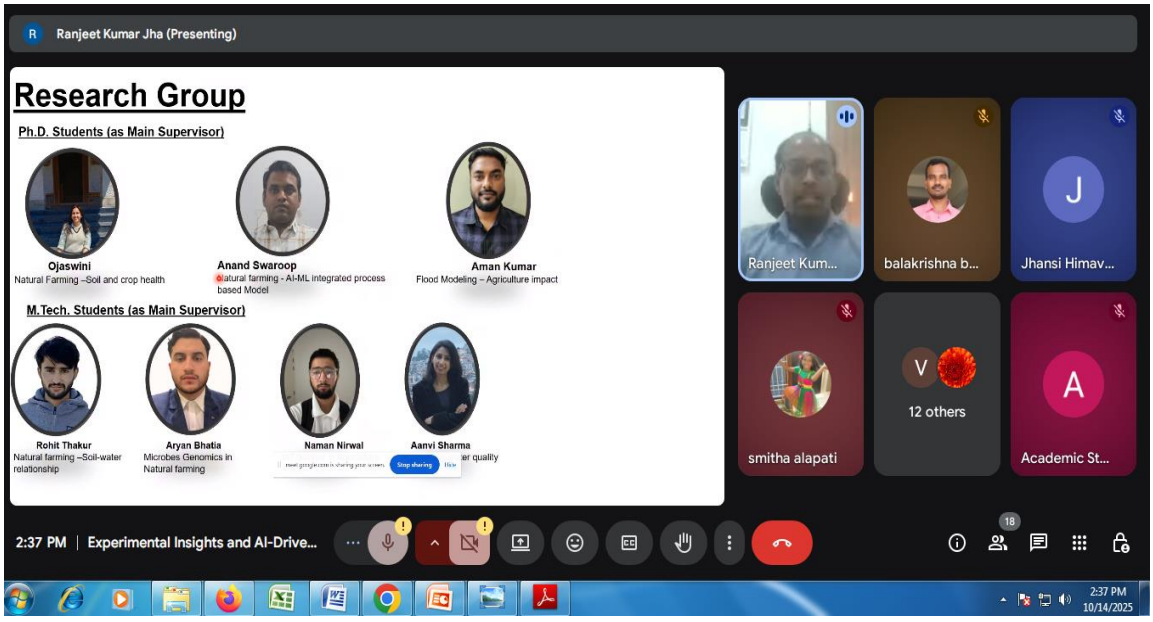
Ranjeet Kumar Jha (Presenting)
Research Group
Ph.D. Students (as Main Supervisor)
Ojaswini
Natural Farming –Soil and crop health
Anand Swaroop
Aman Kumar
Flood Modeling – Agriculture impact
M.Tech. Students (as Main Supervisor)
Rohit Thakur
Natural farming –Soil-water relationship
Aryan Bhatia
Microbes Genomics in Natural farming
Naman Nirwal
Aanvi Sharma
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7. Conclusion:

The workshop on **"AI-Driven Drone Analytics for Self-Sustainable Farming"** proved to be highly informative and insightful. It successfully highlighted the transformative role of **AI, remote sensing, and drone technologies in modern agriculture**. The session enriched the participants' knowledge and motivated them to adopt innovative technologies for sustainable and efficient agricultural practices.

The Academic Staff College expressed its appreciation to **Dr. Ranjeet Kumar Jha** for delivering an engaging and informative session and thanked all participants for their enthusiastic involvement in making the programme successful.

Dr. Radhika Rani Chintala
Principal, Academic Staff College

PRINCIPAL
ACADEMIC STAFF COLLEGE
Koneru Lakshmaiah Education Foundation
(Deemed to be University)
Green Fields, VADDESWARAM-522 302