

# DEEPENING OF SCIENTIFIC RESEARCH ON 5G USE CASES FOR SOLVING CHALLENGES OF SOCIETY

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## Lab Activities at 5G Lab Arunachal Pradesh

Faculty members from Central Agricultural University (CAU) visited our 5G Lab. We discussed the ongoing project, lab equipment, and explored ideas for future improvements and collaboration.



The Registrar of Central Agricultural University (CAU), Imphal visited our 5G Lab along with other faculty members of COA, PAsighat. We discussed the project objectives, lab infrastructure, and potential areas for future development.

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## Lab Activities at 5G Lab Arunachal Pradesh



Dr. S.V. Ngachan, Former Director of ICAR Research Complex, Meghalaya, visited our 5G Lab. We discussed the project details, lab facilities, and explored future possibilities for innovation and collaboration.

Hon'ble VC of CAU Imphal, Prof. Anupam Mishra, visited our 5G Lab, where we had the opportunity to brief him about our ongoing project. He showed keen interest in the initiative and appreciated the efforts being made towards technological advancement.



Conducted course on Introduction to 5G with second batch. (13 Students)



Visited Mushroom production unit of College of Agriculture, Pasighat. But it is closed now & is non operational at the time due to some issues.



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## Lab Activities at 5G Lab Arunachal Pradesh

Visited one farmer Ms Yarik and her Mushroom Production unit & Discuss regarding challenges faced by her.



One MSC 2nd year students visited our Lab & I have described him about the project along with all the equipments in Lab.



The 5G Lab was honored by the visit of Dr. S.N. Puri, former Vice-Chancellor of CAU Imphal. During his visit, we presented an overview of our ongoing project. He appreciated the team's efforts and encouraged us to continue advancing in the field of technology and innovation.



A session on "IoT Basics" was organized for the students of the College of Agriculture, Pasighat. The session introduced the fundamentals of the Internet of Things (IoT), including key concepts, components, and real-world applications. Students gained insights into how IoT can be integrated into agriculture and other fields to improve efficiency and decision-making.

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## Lab Activities at 5G Lab Arunachal Pradesh

A workshop on “3D Printing Basics & Materials Used in 3D Printing” was organized for the students of the College of Agriculture, Pasighat. The session aimed to introduce students to the fundamentals of 3D printing technology, its applications in various fields, and the different materials commonly used in the process. The workshop provided hands-on insights and encouraged students to explore innovative solutions using 3D printing.



A workshop on “3D Printing: Components, Printing Methods & Maintenance” was organized for the students of the College of Agriculture, Pasighat. The session covered the fundamental components of a 3D printer, various printing methods (such as FDM, SLA, and SLS), and essential maintenance practices to ensure optimal performance and longevity of the machines. The workshop aimed to build practical knowledge and spark interest in emerging fabrication technologies among students.



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## Lab Activities at 5G Lab Arunachal Pradesh

A hands-on training session on 3D printing was conducted for the students of the College of Agriculture, Pasighat. During the workshop, students actively engaged in operating 3D printers and printing their own models. The session provided practical exposure to 3D printing technology, fostering creativity and technical skills through real-time learning.



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## Lab Activities at 5G Lab Assam

A lab demonstration and technical discussion were conducted in collaboration with faculty members from IIT Bombay.



A one-day workshop and 5G lab demonstration were organized for a batch of students from Assam Don Bosco University.



A dedicated lab demonstration session was conducted for a group of five students from Assam Don Bosco University.

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## Lab Activities at 5G Lab Assam

A workshop was successfully conducted for a joint batch of students from Garden City University (GCU) and Assam University.



A theory session was delivered for the current batch of students undergoing internship training.



A separate workshop session was also conducted for a batch of students from Garden City University (GCU).



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## Lab Activities at 5G Lab Manipur

A visit was made to the Krishi Vigyan Kendra (KVK), Imphal West, where a meeting was held with Dr. Laishram Kanta Singh, Senior Scientist and Head. A productive discussion took place on leveraging 5G use cases to support smart farming initiatives.



A meeting was conducted with Dr. Lydia Zimik, Subject Matter Specialist (Agronomy), during which the 5G Lab and its relevant use cases for smart farming were demonstrated. Following the discussion, Dr. Zimik provided contact details of identified smart farmers for further engagement regarding their agricultural challenges.

Visits were made to farmers Mr. Jenson Waikhom and Mr. Nongthombam Amarjit to understand the specific challenges they face in their farming practices. The potential of the MIT 5G Lab to offer practical technological solutions was presented during the interactions.



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## Lab Activities at 5G Lab Manipur

The 5G Lab was visited by college students as part of their exposure and learning on emerging technologies.



Another group of college students visited the 5G Lab for an orientation session focused on 5G and IoT applications.



Mr. W. Punil Kanta, Technical Assistant, visited the 5G Lab to explore ongoing initiatives and their applications in the field of agriculture.



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## Lab Activities at 5G Lab Manipur

A visit was made to the KVK office in Andro, Manipur, where an insightful discussion was held with Dr. Prabhavati Yumnam, Senior Scientist and Head, along with her team. The conversation focused on identifying practical ways in which 5G use cases can help address the existing challenges faced by farmers.



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## Lab Activities at 5G Lab Mizoram

Several agriculture offices were visited to engage with officials and discuss the potential applications of the 5G Lab in the farming and agriculture sectors. During the meetings, an invitation was extended for the officials to visit the lab. Valuable insights were shared by the officials, along with suggestions on how the lab could better serve the needs of the agricultural community and farmers.



A group of NCC students visited the 5G Lab, where a workshop was conducted on 5G use cases involving IoT devices. The session included demonstrations of Arduino and Raspberry Pi applications.



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## Lab Activities at 5G Lab Mizoram

The visitors were also introduced to the potential of Virtual Reality (VR) in enhancing educational experiences.



Visits were made to multiple schools to coordinate and schedule workshops.



A workshop on 5G use cases, including an introduction to mobile communication evolution from 1G to 5G, was conducted at Hill Gate School. A total of 58 students participated in the session.



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## Lab Activities at 5G Lab Mizoram

A course on 5G technology was conducted at Little Diamond School, with 55 students attending. In addition, a visit was made to the agriculture office to discuss specific 5G use cases applicable to the sector.



A certificate course on 5G and its use cases was conducted at Government High School, Durtlang, attended by 58 students.



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## Lab Activities at 5G Lab Mizoram

Visits were made to startup companies LushaTech and Siruk to discuss 5G use cases and to demonstrate ongoing projects. During the discussions, invitations were extended for collaboration on IP solutions and for visiting the 5G Lab.



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## Lab Activities at 5G Lab Nagaland

The first day of IP generation and production by Naga Digital commenced in the 5G Lab. Daily activities are being recorded systematically. Two representatives from the startup, Mr. Temjen and Mr. Supong, are participating in the process.



The second day of IP generation and production by Naga Digital was successfully completed.

The third day of IP generation and production by Naga Digital proceeded as scheduled.



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## Lab Activities at 5G Lab Nagaland

A use case project for final-year B.Sc. students commenced on June 9th and is currently ongoing, with continuation planned through July. The project focuses on aquatic farming, involving the development of a device capable of measuring water pH and temperature, as well as assessing the surrounding ecosystem. Students are being guided and supported throughout the execution phase. The institute has allocated a total of 60 hours for this project, and daily documentation is being maintained.



An awareness program was conducted at Salesian College, highlighting 5G technology use cases and their impact on society.



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## Lab Activities at 5G Lab Shillong

The student group working on the project Megh Alert Pro visited the 5G Lab. A demonstration was provided, explaining the hardware components to be used in the project, along with a detailed explanation of the system's operational flow graph.



The student group working on the Touch-Based Theft Detection project visited the 5G Lab. Support was provided in resolving a low-power issue affecting system performance. The product was successfully tested using a GSM network. However, compatibility issues were observed when testing with the available 5G network, and the device failed to operate under the 5G setup.

A one-day workshop was conducted for Class 10 students of Shillong Higher Secondary School on Introduction to 5G and Its Use Cases. A total of 55 students participated, and they were encouraged to visit the 5G Lab at NEHU for further exposure.



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## Lab Activities at 5G Lab Shillong

A one-day workshop was held for students of ITI Shillong on Introduction to 5G and Its Use Cases, attended by 45 students. Participants were also encouraged to visit the 5G Lab at NEHU.



Students and instructors from ITI Shillong visited the 5G Lab, where they were given a demonstration of the lab's infrastructure and an explanation of existing 5G use cases.



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## Lab Activities at 5G Lab Shillong

The third batch of the 5G Technology Course commenced with students from the Department of ECE, NEHU. Topics covered in the session included Introduction to 5G and Evolution from 1G to 5G. A total of 12 students participated.



The second session of the 5G Technology Course (Batch 3) was conducted for 12 eighth-semester students from the ECE Department, NEHU. Topics included Spectrum Bands and 5G RAN.



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## Lab Activities at 5G Lab Shillong

The third session of the 5G Technology Course (Batch 3) was conducted with 12 students from the ECE Department, NEHU. Topics covered were Use Cases of 5G in Various Sectors and 5G Lab Demonstration.



Certificates were distributed to students of the second batch of the 5G Technology Course from the Department of ECE, NEHU.



The student project group working on Smart Waste Segregation Bin visited the 5G Lab and demonstrated their prototype. Further discussions were held on integrating 5G technology into their project, such as enabling communication with municipal boards and optimizing garbage truck routes.

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## Lab Activities at 5G Lab Shillong



A visit was made to Krishi Vigyan Kendra (KVK), East Khasi Hills, Meghalaya. Discussions were held with Mr. L. Victor Khonglah (Senior Scientist and Head) and Mr. S. Marbaniang (Subject Matter Specialist) regarding challenges faced by farmers at the field level in the East Khasi Hills region.

Certificates were distributed to the third batch of the 5G Technology Course for students from the Department of ECE, NEHU.



Ideathon 2025 was successfully conducted at the 5G Lab, NEHU, in collaboration with the Electrophoneix group from the ECE Department.



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## Lab Activities at 5G Lab Sikkim

Certificates for the second batch of the 5G course were distributed, and the remaining certificates were submitted to the respective departments.



A visit was made to Government Girls' Senior Secondary School to invite students to explore and engage with the 5G Lab.



Government Secondary School, Langang, was also visited to extend an invitation for students to participate in lab sessions.



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## Lab Activities at 5G Lab Sikkim

The Honourable Education Minister of Sikkim, Mr. Raju Basnet, and the Honourable District Collector of Geyzing, Mr. Tenzing D. Denzongpa, along with other officials, visited the 5G Lab during their college visit. During the interaction, the project's objectives and the lab's hardware infrastructure were explained in detail. Practical applications of the IoT devices available in the lab were also demonstrated, with a focus on how these technologies could address various challenges and limitations within Sikkimese society.



An acknowledgment letter was provided to Health Club member Mr. Pema Sherpa and the faculty-in-charge for their active participation and successful mobilization of 132 participants for the Digital Health Workshop.



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## Lab Activities at 5G Lab Sikkim

Government Girls' Senior Secondary School, Kyongsha, visited the 5G Lab, where a presentation and theory session were conducted for 11th-grade science students. Mr. Amir Rai, one of the faculty members, also attended the session along with the students.



Langang Government Secondary School visited the 5G Lab for a two-hour workshop session held at the college. The session included a live lab demonstration. Three faculty members from the school accompanied the students, and the Vice Principal of the college was also present during the workshop.



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## Lab Activities at 5G Lab Tripura

On 16th June 2025, one research scholar, Mr. Suman Debbarma from the IT Department, and one B.Tech CSE student, Mr. Tapash Saha, visited the 5G Lab for internship purposes. During the visit, they were introduced to the lab's features and facilities, which are designed to support the implementation of student projects.



A visit was made to the National Forensic Science University to initiate discussions and extend invitations to students for participation in upcoming 5G courses and workshops.



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## Lab Activities at 5G Lab Tripura

A meeting was held at the College of Fisheries with Dr. Naresh Kumar Mehta, Head of the Department and Assistant Professor in the Department of Fish Processing Technology & Engineering. The discussion focused on the existing challenges in their domain and explored how 5G technology and its use cases could be leveraged to support their future development initiatives.



Mr. Tuhin Sarkar, a B.Tech CSE student, visited the 5G Lab to gain insights into 5G use cases and IoT devices. He expressed interest in pursuing an internship related to these technologies.



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## Lab Activities at 5G Lab Tripura

A meeting was conducted with Professor Dr. A. B. Payel, Dean of the College of Fisheries, during which formal permission was granted to conduct various academic and technical activities at the college, including workshops, 5G courses, IP generation, and other collaborative initiatives.

