GTU–IIT Gandhinagar Jointly Organizes Conference on

'Frontiers of Engineering in Healthcare'

Day 1 Summary Report

Date: 10 December 2025

Venue: Jibaben Patel Auditorium, IIT Gandhinagar

Inaugural Ceremony

The inaugural ceremony of the Frontiers of Engineering in Healthcare (FEH) conference—jointly organized by Gujarat Technological University (GTU) and IIT Gandhinagar—was held on 10th December 2025, beginning with the traditional lamp lighting and setting the stage for a three-day multidisciplinary dialogue. Distinguished dignitaries including Chief Guest Dr. Krishna Rajan (SUNY Buffalo, USA), Dr. Rajul Gajjar (Hon'ble Vice Chancellor, GTU), Dr. K. N. Kher (Registrar, GTU), Dr. Vimal Mishra (Dean, R&D, IITGN), Dr. Rajesh Thakkar (Director, R&D Cell, GTU), Dr. J. A. Amin (GTU-SET) and Dr. Dhiraj Bhatia (IITGN) graced the occasion. In the welcome address, Dr. Amin highlighted the role of the Accelerated National Research Foundation (ANRF) in strengthening collaborative research between GTU and IITGN. Dr. Bhatia emphasized the rapid transformation in India's innovation ecosystem, the rise of interdisciplinary opportunities, and the need to address pressing environmental and urban challenges, particularly declining air quality in major cities. He pointed to emerging research avenues in biosciences, neuroscience, and biomedical engineering, positioning Ahmedabad–Gandhinagar as a growing hub for innovation. Dr. Vimal Mishra underscored the importance of societally relevant, technology-driven research, noting the impact of AI and data-centric systems on future healthcare. Chief Guest Dr. Rajan reflected on the global imperative to utilize science and technology for meaningful societal progress. Delivering the presidential address, Dr. Rajul Gajjar emphasized that advancements in AI, robotics and diagnostics must be globally impactful while drawing from India's traditional knowledge systems. Concluding the session, Dr. Thakkar announced that the conference will feature 86 posters, 56 participants, and 70 expert speakers, with representation from premier national and international institutions.

Technical Sessions

- ***Industry-Relevant Healthcare Research (Sessions 2A & 2B): 10:45 am – 12:45 pm***

The first technical sessions of the day commenced in parallel across Hall 1 and Hall 2, featuring eminent speakers presenting advancements in biomedical devices, therapeutics, chemical biology, and translational healthcare technologies. In Hall 1, discussions were initiated by Prof. Akshay Srivastava (NIPER Ahmedabad), followed by Prof. Saravanan M. (IIT Kanpur), Prof. Pramod A. (PGIMR Chandigarh), and Prof. Shyam Sudhir Pandey (Kyushu Institute of Technology, Japan), each offering perspectives on industry-aligned research pathways. In Hall 2, the session included insightful contributions from Prof. Krishna Rajan (University at Buffalo), Prof. Ashutosh Kumar (Ahmedabad University), Prof. Sachidanand Singh (PDEU), and Dr. Navneet Choudhary (Umeå University, Sweden). Both tracks reflected a rich thematic spread and were characterized by active discussions, echoing the academic rigor seen in the reference report.

- **Lunch break followed from 12:45 pm to 1:45 pm.**
- ***Frontiers in Plant Sciences and Technology for Healthcare (Sessions 3A & 3B): 1:45 pm – 3:45 pm***

Post-lunch sessions continued to expand the interdisciplinary landscape of the conference. Hall 1 hosted leading researchers—including Prof. Subramanian S. (IITGN), Prof. Sangram Lenka (GBU), Prof. Bhuvan Pathak (Ahmedabad University), and Dr. Krupa Kansara (IITGN)—who presented innovative work connecting plant sciences, biomolecular pathways, and health applications. Concurrently, Hall 2 explored next-generation healthcare technologies through talks by Prof. Apoorba Das (IIT Indore), Prof. Sarat Dalai (Nirma University), and Prof. Suchetan Pal (IIT Bhilai), each highlighting evolving engineering tools for diagnostics, smart systems, and medical devices. These sessions exemplified the conference's commitment to fostering multidisciplinary scientific engagement.

- ***Students' and Industry Talks (Session 4): 3:45 pm – 5:00 pm***

The afternoon progressed into a vibrant session dedicated to students and industry professionals. In Hall 1, presentations by Kiranshing Rajput (Gujarat University), Appan (GBU), and Dr. Balaji (Saveetha Medical College) introduced promising research directions across clinical engineering and applied biological sciences. Simultaneously, Hall 2 featured talks by Prof. Raju Khan (CSIR-AMPRI), Prof. Ashish Mathur (UPES), and Prof. Saurabh Kumar (NIPER Guwahati), who shared developments in healthcare materials, analytical technologies, and biomedical instrumentation. These talks provided young scholars with an influential platform for scientific visibility and mentorship.

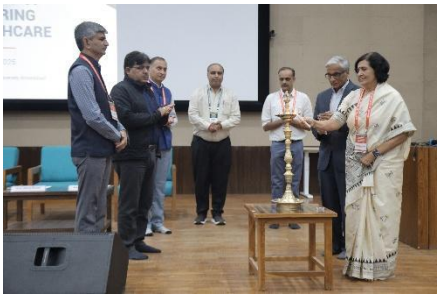
- ***Poster Session and Networking: 6:00 pm – 6:30 pm***

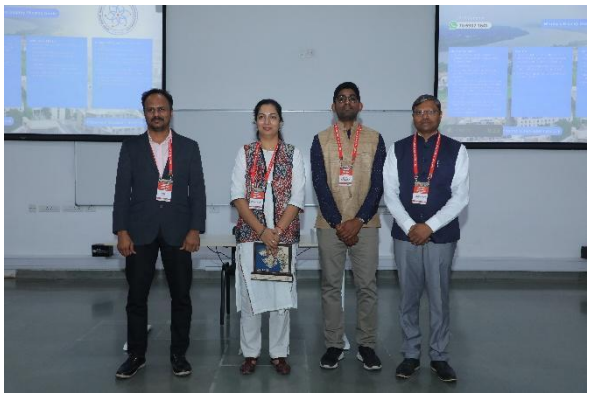
A dedicated Poster Presentation and Interaction Session took place from 6:00 pm to 6:30 pm, offering students an engaging forum to showcase research ideas, prototypes, and preliminary results. Participants interacted with faculty members, session chairs, and industry delegates, mirroring the collaborative and discussion-oriented atmosphere described in the reference event. The session further strengthened the conference's objective of promoting emerging researchers and fostering interdisciplinary dialogue.

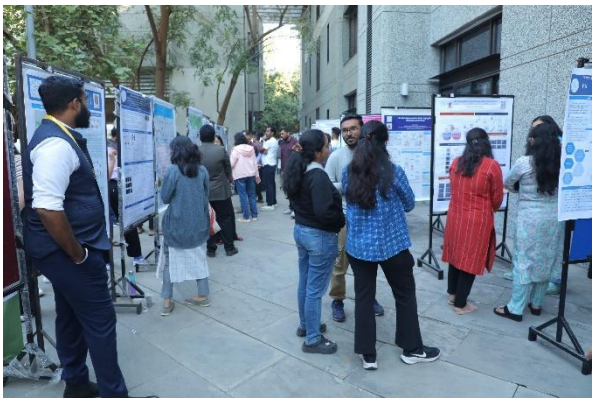
- ***Virtual Keynote Lecture: 6:30 pm – 7:15 pm***

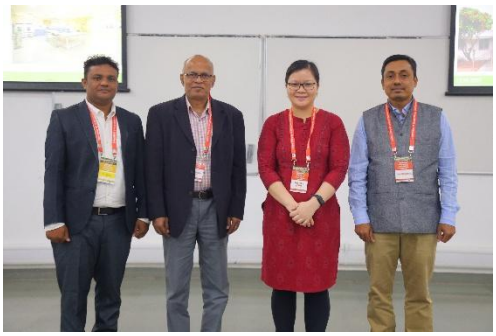
The academic proceedings of the day concluded with a compelling virtual keynote lecture by Prof. Josephine Thinwa, University of Texas Southwestern (6:30 pm – 7:15 pm). Her talk highlighted cutting-edge biomedical frameworks, novel approaches in molecular health engineering, and integrated methodologies shaping future therapeutic and diagnostic innovations. The keynote expanded the scientific depth of Day 1 and connected global perspectives with local research initiatives.

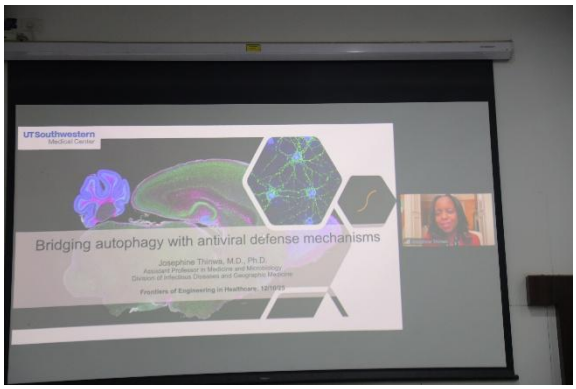
Glimpses of the event:

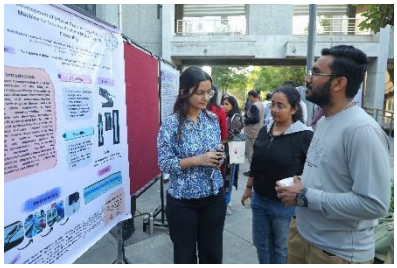


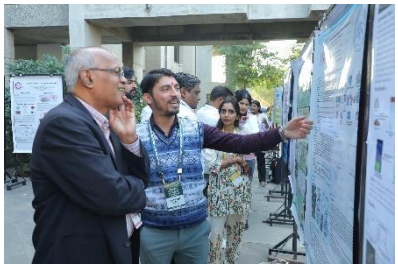












Day 2 Summary Report

Date: 11 December 2025

Venue: Jibaben Patel Auditorium, IIT Gandhinagar

Technical Sessions

- ***New Biomaterials and applications to diseases (Sessions 4A & 4B): 09:30 am – 11:00 am***

The first technical sessions of the second day commenced in parallel across Hall 1 and Hall 2, featuring eminent speakers presenting *New Biomaterials and applications to diseases*. In Hall 1, discussions were initiated by Prof. Prachi Thareja, IITGN, followed by Prof. Sushil Kumar, IIT Bombay and Dr. Amit Yadav, NPDF, IITGN, each offering perspectives on biomaterials and their applications in disease treatment. In Hall 2, the session included insightful contributions from Prof. Sanjeev Sharma (Meerut), Dr. Rohit Kumar (Punjab University) and Prof. Vishal Nanavati (Gujarat University) and Key discussions covered contamination of edible products, rising CO_2 and toxic gases, impacts of waste on living entities, advances in quantum dots for cell internalization, and multiomics insights into gut microbiome–methylation links. Both tracks collectively highlighted advancements in biomaterials for disease treatment alongside emerging environmental, quantum-based, and multiomics approaches addressing health and sustainability challenges.

Time : 11 am to 11.15 am Tea break

Key Note talk by Prof. Ambarish Ghosh, IISc Bangalore in Hall 1: 11.15 am to 12.00 pm

A keynote talk by Prof. Ambarish Ghosh, IISc Bangalore, held in Hall 1 from 11:15 am to 12:00 pm, explored the transformative potential of magnetic nanobots as local probes and delivery vehicles in biomedical applications. The session highlighted the GLAD fabrication method, the development of 3D micro-environments to model in vivo tumor conditions, and breakthroughs in deploying nanoswimmers inside living cells. The talk emphasized how micro- and nanorobotics are emerging as powerful tools for next-generation healthcare, offering precise, minimally invasive solutions for diagnosis and therapy.

Students and Industry talks (Session 5A & 5B): 12 pm to 12.50 pm

The afternoon progressed into a vibrant session dedicated to students and industry professionals. In Hall 1, presentations by Dhwani Jhala (GBRC), Samsuzzoha Mondal (Stanford University), Dr. Kaushik M. Gondaliya (GTU), and Dr. Ravindra Meena (JNU) introduced promising research directions across different topics related to healthcare. Simultaneously, Hall 2 featured talks by Amlanjyoti Dutta (TIFR) , Nital Nirmal (Shantilal Shah Engineering College), Bhumika (IIIT Delhi), Dr. Dignesh Khunt (GTU-SP), gave a research talks which highlighted the mitochondrial DNA-targeted antitumor potential of Rhenium(I) tricarbonyl NHC complexes, underscoring their promise in cancer therapy, advancing biologics through liquid innovation. Another presentation examined the emerging role of digital twin technology in advancing next-generation healthcare management systems.

Lunch Break: 1 pm to 2 pm

AI in Health care (Sessions 6A & 6B): 2 pm to 4 pm

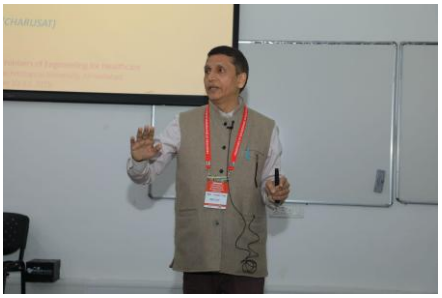
Post-lunch sessions continued to expand the interdisciplinary landscape of the conference. Hall 1 hosted leading researchers including Arjun Ray (IIIT Delhi), Prof. Santanu Acharjee (Guwhati University), Prof. Yogesh Meena (IIT Gandhinagar), and Prof. Sharad Gupta (IIT Gandhinagar) who presented innovative work related to healthcare. Concurrently, Hall 2 explored next-generation healthcare technologies through talks by Prof. Krishna Kanti Dey (IIT Gandhinagar)), Prof. Sameer Dalvi (IIT Gandhinagar)), Dr. Damini Verma (IIT Roorkee), and Prof. Sunita Patel (CUG), each highlighting the role of AI in healthcare, focusing on topics such as non-thermal active fluctuations and particle dynamics, oral cancer diagnosis, and breast cancer drug delivery. These sessions exemplified the conference's commitment to fostering multidisciplinary scientific engagement.

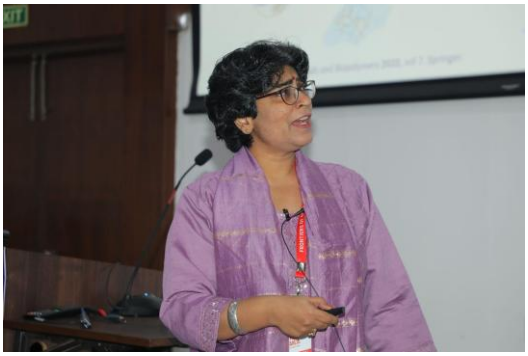
Tea Break: 4 pm to 4.30 pm

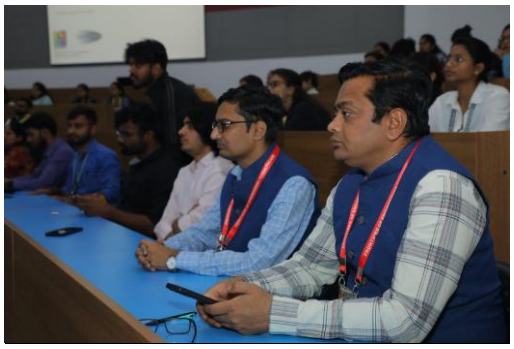
Core technologies in Healthcare (Session 7A & 7B): 4.30 pm to 6.30 pm

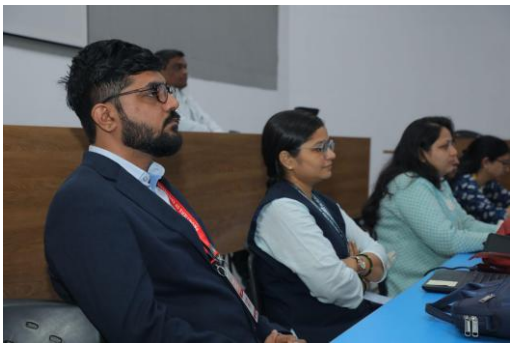
In Hall 1, presentations by Prof. Amit Jaiswal, IIT Mandi, Prof. Tatini Rakshit, Shiv Nadar University, Prof. Rakesh Rawal, GBU, Prof. Anil Kumar, NII introduced promising research directions across applied biological sciences. Simultaneously, Hall 2 featured talks by Prof. Neeraj Jain, CHARUSAT, Prof. Daulat Singh Zala, GTU, Prof. V. V. Raghavendra Sai, IIT Madras and Prof. Bhavin Parekh, GU who shared developments in healthcare materials, analytical technologies, and biomedical instrumentation. These talks provided young scholars with an influential platform for scientific visibility and mentorship.

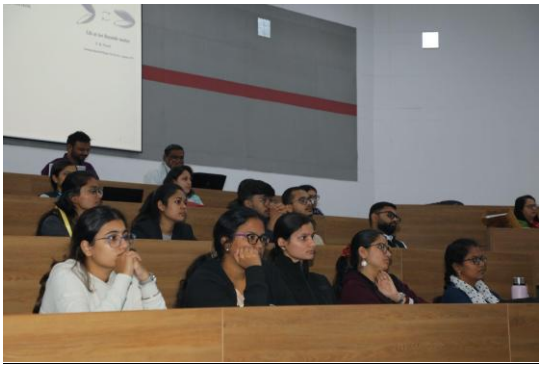
Glimpses of the event:

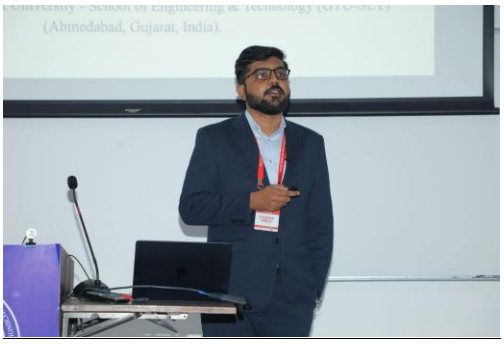


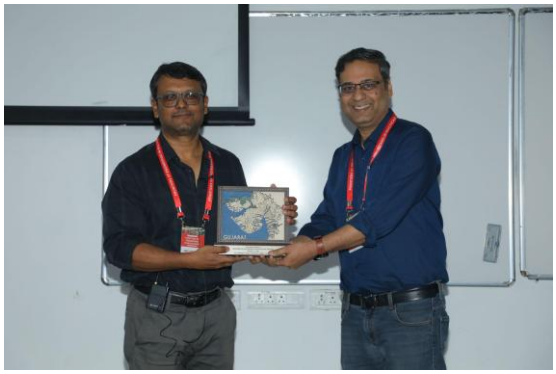


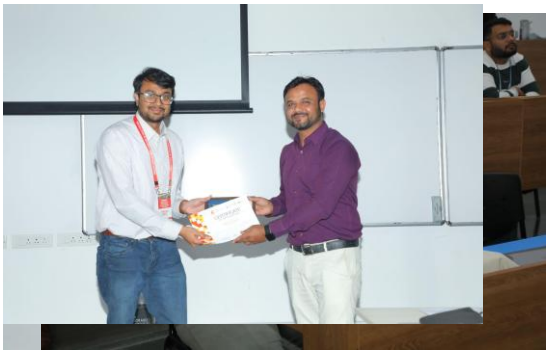


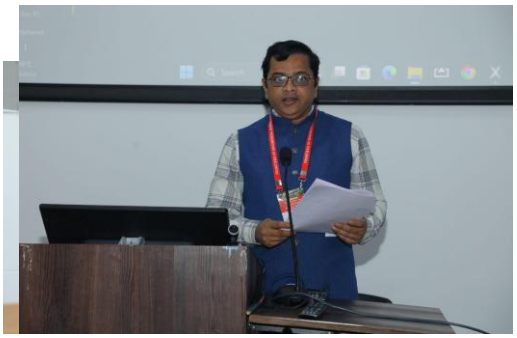












Day 3 Summary Report

Date: 12 December 2025

Venue: Gujarat Technological University

The visit to GTU Ahmedabad began with arrival between 9:00 a.m. followed by a tea break and campus tour. The delegates then visited the Vice Chancellor's office followed by interactive session and a brief talk on innovations. During the meeting, the invited experts shared insights on research and laboratory expansion initiatives undertaken at their respective institutes with the Hon'ble Vice Chancellor Dr. Rajul Gajjar.

Technical Sessions

- ***Advanced Technologies in Healthcare (Sessions 8A): 11:00 am – 01:00 pm (Hall A1)***
- ***Emerging trends in Biomedical sciences (Sessions 8B): 11:00 am – 01:00 pm (Hall A2)***

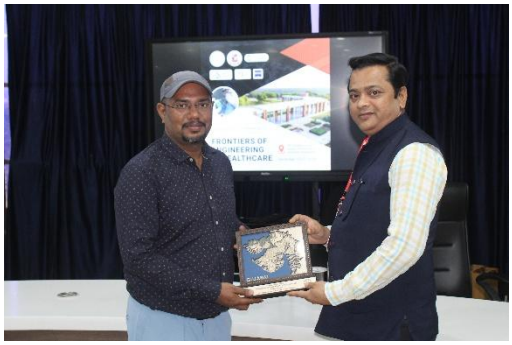
The first technical sessions of the third day commenced in parallel across Hall A1 and Hall A2, featuring eminent speakers presenting sessions on themes Advanced Technologies in Healthcare and Emerging trends in Biomedical sciences. In Hall 1, discussions were initiated by Prof. Hitesh Kulhari (CUG), Prof. Mukesh Dhanka (IIT Gandhinagar)), Prof.Tulika Prasad (JNU) and Prof. Mudasir Syyed (SKAUST Srinagar) each offering perspectives on Advanced Technologies in Healthcare. In Hall 2, the session included insightful contributions from Dr. Vimal Kumar (JNU), Prof. Sriram Seshadri (Nirma University), Prof. Vineet Vashishtha (IIT Gandhinagar) and Prof. D K Acharya covered the Emerging trends in Biomedical sciences. Both tracks collectively highlighted advancements highlighting Advanced Technologies in Healthcare and Emerging Trends in Biomedical Sciences. Distinguished speakers from premier institutions delivered diverse and insightful perspectives across both thematic tracks.

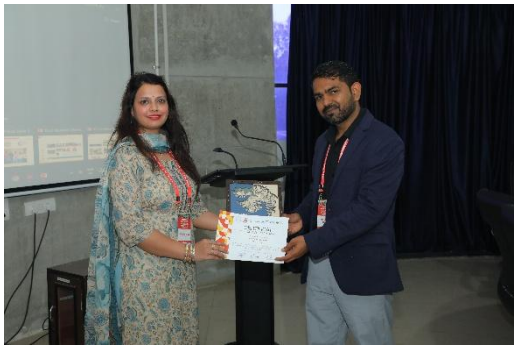
Technical Sessions

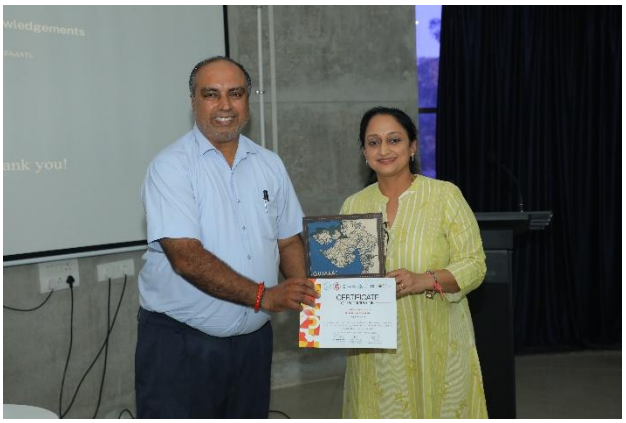
- ***Advanced Technologies in Healthcare (Sessions 8A): 2:30 pm – 04:00 pm (Hall A1)***
- ***Emerging trends in Biomedical sciences (Sessions 8B): 2:30 pm – 04:00 pm (Hall A2)***

Post-lunch sessions continued to expand the interdisciplinary landscape of the conference.

In Hall A1 & A2, discussions were initiated by Dr. Rajesh Patel (VNSGU), Dr. Anupama Modi (GTU-SAST), Prof. Trivima Sharma (Ganpat University), each offering perspectives on Advanced Technologies in Healthcare. In Hall 2, the session included insightful contributions from Jay Chaudhary (IIIT Vadodara), Prof. Nishima Wangoo (Chandigarh), Dr. Raghu Solanki (IITGN) and Dr. Unnati Modi (IAR), each offering perspectives on the cognitive behaviour of AI, Advanced Technologies in Healthcare focused on how modern technological innovations are enhancing healthcare systems through improved diagnostics, treatment approaches, and patient care. The Emerging Trends in Biomedical Sciences session highlighted recent research developments and evolving scientific trends that are shaping the future of biomedical research, disease management, and medical advancements.







The conference concluded with the valedictory function, followed by the presenting the Best Poster Awards, recognizing outstanding research contributions.

Dr. Dhiraj Bhatia, Associate Professor, IIT Gandhinagar, highlighted that the conference featured high-quality speakers and poster presentations from the very first day, reflecting its strong academic depth. He noted that diverse themes such as computational modelling, molecular behaviour, sustainable agriculture, and plant-based studies were comprehensively covered. Dr. Bhatia also appreciated the active participation of medical doctors, which significantly enhanced the overall quality and relevance of the conference. He underlined that research is not conducted merely for compliance or demonstration purposes, but is closely linked with real-world applications, including direct engagement with hospitals by seeking inputs from doctors and nurses on its usefulness. Similarly, feedback from farmers was actively sought for plant-based and agricultural studies. He further highlighted that the conference witnessed encouraging inclusivity, with about 35% female participation, along with several international contributions. He concluded by stating that the conference provided a valuable platform to translate technologies from the laboratory to the marketplace.

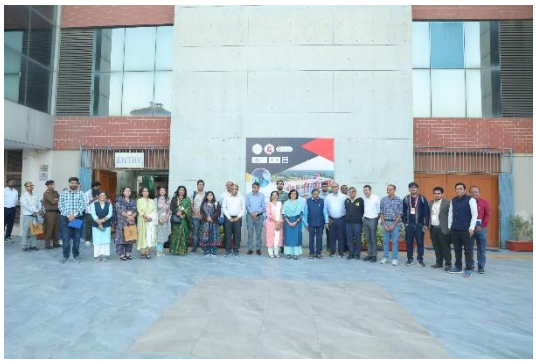
The speech delivered by Dr. Somnath Mitra, CTO, Gandhinagar, during the valedictory ceremony focused on the urgent need to intensify efforts toward research commercialization. He

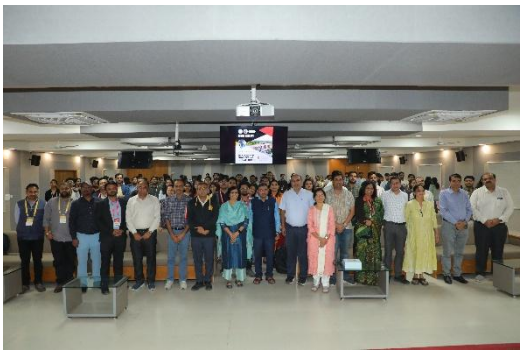
emphasized that a large volume of research carried out in academic institutions has significant latent potential for commercialization. Drawing examples from countries such as South Korea, Japan, China, and others, he highlighted how systematic investment and policy-driven approaches have enabled them to successfully translate research into market-ready innovations. Dr. Mitra pointed out that India has ample opportunities to advance in this domain and stressed the importance of building an ecosystem that supports innovation-driven growth. He concluded by underlining that the ultimate objective should be to transform faculty members into entrepreneurs, enabling them to convert academic research into sustainable and impactful ventures.

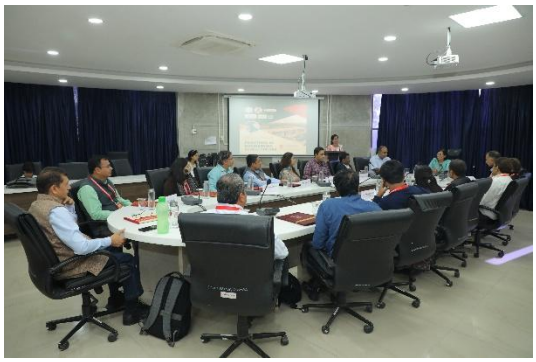
During the presidential address in the valedictory ceremony, Dr. Rajul Gajjar, Hon'ble Vice Chancellor of Gujarat Technological University, reflected on the rich academic deliberations and interdisciplinary exchanges witnessed throughout the conference. She appreciated the valuable contributions of eminent speakers, researchers, clinicians, academicians, students, and industry professionals from India and abroad, noting that the conference effectively bridged fundamental research with real-world applications. Emphasizing the importance of innovation, sustainability, and translational research, she highlighted that platforms like FEH play a crucial role in aligning academic research with national priorities and societal needs. Dr. Gajjar encouraged young researchers and faculty members to pursue collaborative, impact oriented research and to translate ideas into scalable solutions and start-ups. She concluded by congratulating the organizing committee for the seamless conduct of the conference and expressed confidence that the outcomes of FEH 2025 would foster meaningful scientific advancements and enduring collaborations.

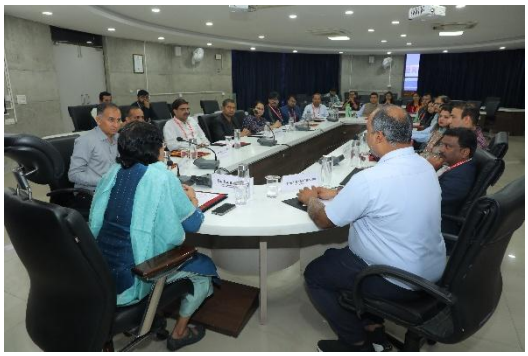
During the valedictory ceremony, the Chief Guest, Dr. N. M. Desai, Director, SAC–ISRO, congratulated all the participants, speakers, and organizers for their active involvement and the successful execution of the conference. He emphasized that healthcare becomes critically important in microgravity environments due to the unique physiological challenges experienced by astronauts. Dr. Desai highlighted that ISRO is actively working on research related to medicines and healthcare applications in space. He also pointed out that sending astronauts to space stations involves a huge financial investment, making astronaut healthcare a key priority for ISRO. Further, he informed that experiments in pharmaceutical, agricultural, and five other domains are planned under microgravity conditions, which makes the health and well-being of astronauts extremely crucial. He concluded by mentioning that astronauts are kept under quarantine for a few days after space missions to manage the various effects caused by prolonged exposure to microgravity.

The valedictory session was ended with a formal vote of thanks, marking a successful and impactful culmination of the event. This conference received active participation from the academic and research community where in 86 poster presentations, 56 registered participants, and 70 expert speakers delivered various sessions.







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