

# **IIT Hyderabad to host the second edition of R&D Innovation Fair IInvenTiv at IIT Hyderabad**

## **Top 120 innovations from Higher Education Institutes to be showcased**

### **Highlights:**

- *Hon'ble Education Minister of India, Shri Dharmendra Pradhan, to inaugurate the mega R&D Fair IInvenTiv-2024 on 19th January 2024.*
- *Beyond the 23 IITs, leading higher education institutes including NITs, IISERs, IIITs, IISc Bangalore, and the top 50 NIRF-ranked engineering institutions to also participate in the 2<sup>nd</sup> edition of IInvenTiv.*
- *2000 industry participants are poised to participate in the event.*

**Hyderabad, January 05, 2024:** The Indian Institute of Technology Hyderabad (IITH) will host the second edition of the Ministry of Education's flagship event, IInvenTiv 2024, on the 19th and 20th of January 2024. Under the guidance of Hon'ble Education Minister of India, Shri Dharmendra Pradhan, the 2<sup>nd</sup> edition of this mega Research and Development (R&D) fair promises to be a celebration of ingenuity and technological advancements. Dr. B.V.R. Mohan Reddy, Chairman of the IInvenTiv 2024 Steering Committee, Prof. B.S. Murty, Director, IITH, Prof. Bidyadhar Subudhi, Director, NIT Warangal, and Prof. P.J. Narayanan Director, IIIT Hyderabad, unveiled insights about the forthcoming mega R&D fair during a press conference today (5th January 2024), at IIT Hyderabad.

IInvenTiv-2024 is a platform to highlight the holistic impact of the research and innovation carried out by the top Higher Education Institutes in our country. It seeks collaborative avenues among state universities, institutes, and industry to enhance the development and reach of innovations at the grassroots level.

This year, the event will focus on five pivotal domains, reflecting the diverse landscape of innovation and also in line with the thrust areas for Atmanirbhar and Viksit Bharat. These include:

- Affordable Healthcare
- Agriculture & Food Processing
- Sustainable Technologies, including Climate change, E-mobility, Clean Energy
- Defence and Space
- Industry 4.0

**In a message shared by Hon'ble Education Minister of India Shri Dharmendra Pradhan, he expressed,** *"IInvenTiv-2024 is driven by Hon'ble Prime Minister of India Shri Narendra Modi's mantra of 'Jan Anusandhan' and is a part of the efforts to strengthen the country's research and innovation ecosystem. The second edition of IInvenTiv, hosted by IIT Hyderabad, will once again showcase India's spirit of innovation and enterprise and bring together industry and academia to build an Atmanirbhar and Viksit Bharat."*

One notable highlight of IIInvenTiv-2024 will be the expanded participation from various institutes. Beyond the 23 IITs, leading Higher Education Institutions such as NITs, IISERs, IIITs, IISc Bangalore, and the top 50 NIRF-ranked engineering institutions in the country will present their exemplary work to both academic and industry stakeholders. This diverse collaboration will culminate in a thoughtfully curated showcase featuring the top 120 innovations across these domains from the 53 participating technical institutions nationwide, serving as a pivotal highlight of the event.

**Speaking during the press conference, Dr BVR Mohan Reddy, Chairman, IIInvenTiv-2024, Steering Committee, said,** *"Promoting collaboration between academia and industry is of utmost importance for our nation. This collaboration will not only help us capitalize on our research endeavours but also facilitate industrial investments, leading to the innovation of products designed for India and the global market. In its second edition, IIInvenTiv aims to bridge this gap by bringing academia and industry closer. Such initiatives hold great potential in realizing the Prime Minister's vision of a self-reliant and empowered India."*

The selected projects will be presented before the audience in designated booths during the mega event. Representatives from more than 1000 Industries, apart from several key officials from the Government, are expected to be present at the inaugural event.

In addition to the R&D exhibition, the event will function as a dynamic platform, fostering collaboration between academia and industry to propel technological advancements that tackle real-world challenges. Pursuing this objective, dedicated one-hour panel discussions for each domain will convene experts and thought leaders, delving into the challenges and opportunities that define the future of these vital sectors.

**Speaking about hosting IIInvenTiv-2024, Prof BS Murty, Director, IITH, said,** *"IITH is delighted to host the second edition of the R&D Fair from Indian premier higher education institutions, IIInvenTiv-2024. I am glad that IIInvenTiv has become more inclusive this time by showcasing technologies from 30 more institutes in addition to 23 IITs. I am confident that industry participants attending IIInvenTiv-2024 would join hands with the inventors of these technologies towards their commercial realisation to make Indian not only Atmanirbhar but also a global player in most of these areas and a global leader in at least some of them."*

IIT Hyderabad warmly invites leading industries to be a part of IIInvenTiv-2024, urging them to participate and explore valuable opportunities for knowledge exchange. The event is poised to welcome over 2000 industry participants over the span of two days.

On Day 1 of IIInvenTiv-2024 on 19 January 2024, exclusive access will be granted to industry participants, allowing them to actively engage with cutting-edge innovations. Day 2 of the event will be open to the public, providing a unique opportunity for a wider audience to witness the latest breakthroughs in technology and research.

IIT Hyderabad is proud to present the eagerly anticipated IIInvenTiv-2024, a mega event that stands as a testament to the spirit of technological progress by uniting academia and industry for a brighter future of innovation and discovery.

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**About the first IInvenTiv:**

In celebration of the 75th year of India's Independence as part of the Azadi ka Amrit Mahotsav initiative, all the 23 IITs for the first time came together to showcase the technologies developed at these premier institutions through IInvenTiv, an R&D Fair. A total of 75 diverse array of technologies encompassing climate change, sustainability, smart city architecture, rural agriculture, affordable healthcare, and drone technology were showcased from 23 IITs at IIT Delhi between October 14th and 15th, 2022. The event drew over 3000 attendees, including participants from the industry, government, academia, and various other sectors.

**Follow IInvenTiv-2024 on social media:**

**Twitter:** <https://twitter.com/iinventivIIT>

**Facebook:** <https://www.facebook.com/IInvenTiv/>

**LinkedIn:** <https://www.linkedin.com/in/iinventiv-iith-b6a75429b/>

**About IIT Hyderabad:**

Indian Institute of Technology Hyderabad (IITH) is one of the eight IITs established by the Government of India in 2008. In a short span of **15** years, the institute has become one of the top-ranked institutions in the country and has received global recognition. It has **300+** full-time faculty, **4,800+** students, **18** Departments + **1** Centre for Interdisciplinary Programs, nearly **300+** state-of-the-art Research Facilities, and five research and entrepreneurship centres. The institute has a strong research focus with approx. Rs **900+** crores of sanctioned research funding, with PG+PhD students accounting for about **60%** of total student strength. IITH has more than **9500+** research publications with **1,42,000+** Citations, **190+** Published Patents, **3,700+** sponsored/consultancy projects with **500+** running projects, and about **135+** startups that have generated **1000+** jobs and a revenue of **Rs. 1200+ Cr.** Follow us on [Instagram](#), [LinkedIn](#), [Twitter](#), [Facebook](#), [Koo](#), and [YouTube](#) for the latest updates.

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**List of innovations to be showcased in the following five different themes:**

**Affordable Healthcare**

1. Soy Protein Isolate Matrices as Skin Wound Dressings for Successful Management of Highly Exuding Wounds [IIT (BHU)]
2. Titanium alloy based fine featured cranial implant development using Incremental Forming [IIT Bhubaneswar]
3. Chimeric Antigen receptor T- cell (CAR-T) therapy for cancer cure. [IIT Bombay]
4. Development of Ophthalmic and Orthopaedic Implants [IIT Delhi]
5. INSTROLE: Instrumented Smart Shoe Insole for Quantifying Gait [IIT Gandhinagar]
6. SARS-CoV-2 virus detection using affordable Point-of-care device [IIT Goa]
7. Mobilab Point-of-care-Testing Device [IIT Guwahati]
8. Nanofibers based Feminine Hygiene Products [IIT Hyderabad]
9. A Point-of-Care (PoC), IoT-enabled Uric acid Sensor System [IIT Indore]
10. Digitally Designed Maxillofacial Prosthesis [IIT Jodhpur]
11. Strips for simultaneous electrochemical detection of total and direct bilirubin [IIT Kanpur]
12. Noninvasive Blood Perfusion based screening for Oral cancer and other oral ailments [IIT Kharagpur]
13. Smart Eye – Technology Platform for Endoscopy [IIT Madras]
14. An adaptive feedback controlled electric hydro-dissection device [IIT Roorkee]
15. Dynamic head load redistributing wearable robot [NIT Calicut]
16. Fruit & Vegetable waste derived Nutraceutical [VNIT Nagpur]
17. AI based Quantitative Platform Measuring Tumor Subcomponent Geometry as Definitive of Gene Mutation Status using MR Images: Bypassing [IISER Berhampur]
18. Staining Dye for Endoplasmic Reticulum Labeling [IISER Bhopal]
19. High Frequency Ultrasound and Photoacoustic Sensor [IISER Mohali]
20. Micelle-Assisted Protein Labelling Technology (MAPLabTec) [IISER Pune]
21. Developing a rapid, user friendly, affordable kit for accurate Malaria detection under resource constrained settings [IISER Pune]
22. Design and Measurements of mmWave FMCW Radar-Based Non-Contact Multi-Patient Heart Rate and Breath Rate Monitoring System [Aligarh Muslim University]
23. Biogenic Carbon Quantum Dot in Stem Cells Biology for Directing Chondrogenesis [Amity University]
24. Surface Plasmon Resonance Device for sensing and bio-analysis [BITS]
25. Microscaled Electrochemiluminescence Biosensor Platform for Sample-to-Answer Biomarker Detection [BITS]
26. Single benzenoid green emitting fluorescent linkers for invitro imaging and flow cytometry [BITS]
27. Mini Medico Man [Kalasalingam Academy of Research and Education]
28. Non-invasive Ultrasound Bone Densitometer for estimating bone mineral density (BMD) to detect Osteoporosis in elderly women [Kalasalingam Academy of Research and Education]

29. A semi-autonomous telepresence mobile robot (UBOT) for patient care and monitoring [SASTRA Deemed to be University]
30. Clinical Investigation of a Biosynthetic Nanofibrous Skin Graft for Full thickness Wounds [SASTRA Deemed to be University]
31. Expandable Maxillary Impression Tray [SIKSHA O ANUSANDHAN]
32. Wearable Novel Wrist Exoskeleton for preventing Carpel tunnel Syndrome [Sri Sivasubramaniya Nadar College of Engineering]
33. “Development of automated breast cancer diagnosis system using deep learning network in HARDWARE ACCELERATION BOARD.” [SRM Institute of Science and Tech.]
34. C3 Fields: Head mount Portable device for Visual Field Perimetry [VIT Vellore]
35. Device to measure respiratory rate in children, in resource poor settings [VIT Vellore]

### **Agriculture & Food Processing**

1. AgroPro: Closing loop from agricultural waste to circular bio-based value-creation technologies and sustainable products [IIT (BHU)]
2. Smart vertical farming framework with sensor network and mobile application for real-time monitoring and control [IIT Bhilai]
3. Development of an indigenous Anti Hail Gun for preventing crop destruction [IIT Bombay]
4. Urine and Wastewater Treatment and Facilitation of Biodegradable Nitrogen-Phosphorus Enriched Fertilizers [IIT Gandhinagar]
5. Bhu-Samvardhak [IIT Indore]
6. A portable sensing device and method for rapid and non-destructive determination of the quality of coconut [IIT Roorkee]
7. Nanobubble generators [IIT Ropar]
8. Unbrick - Upcycling Waste into Panels and Tiles [IIT Ropar]
9. Nonthermal-Atmospheric-Photo-Plasma (NAP) reactor wastewater to liquid fertilizer [IIT Tirupati]
10. Technology for the production of “Ready to cook, non-acrid aroid tubers”. [NIT Karnataka]
11. Protein-based Internal Teat Sealant for prevention and treatment of mastitis in dairy cattle [NIT Rourkela]
12. A Deep Machine Vision Framework to detect stress due to Biotic, Abiotic and Climatic Factors of Saffron plant. [NIT Srinagar]
13. Development of tools for Agriculture, Pottery and Carpentry along with various machines for Rural development. [VNIT Nagpur]
14. Harnessing Plant volatiles for eco-friendly pest management [IISER Kolkata]
15. Targeted depletion of gut pathogens via bacterial T6SS-dependent functionality: an affordable poultry feed additive [IISER Kolkata]
16. An improved method for in vivo haploid induction in plants for accelerated plant breeding [IISER Thiruvananthapuram]
17. ROOTONIC: A Novel Plant Promoter [Amity University]
18. IoT device for rapid quality assessment of food grain stored in godown [SASTRA Deemed to be University]
19. Plantery Plant Based Energy Storage Solution [SIKSHA O ANUSANDHAN]
20. Efficient IOT Enabled Plant Disease Detection Device [Sri Sivasubramaniya Nadar College of Engineering]
21. Automated Fogponics- Unique design and technology for growing crops with High efficiency [VIT Vellore]

## **Defense & Space**

1. D2 Surya Shakti - Clean heating solutions for air and water [IIT Bombay]
2. Development of a Cognitive Model for an Intelligent Robotic Teammate [IIT Delhi]
3. Design and Development of Lightweight Bulletproof Jacket (BPJ) [IIT Delhi]
4. Fiber based quantum secure communication [IIT Delhi]
5. Non-Catalytic Diesel Autothermal Reformer for Marine Fuel Cell System Applications [IIT Gandhinagar]
6. Triboelectric based shoe sole for energy harvesting for powering microdevices for army personnels [IIT Indore]
7. Hardware Prototype for drone detection via Exploitation of Wavelet Scattering and other Acoustic Features with 1D-Convolutional Neural Network [IIT Jammu]
8. Parichay AI: Face Recognition for Security and Social Good [IIT Jodhpur]
9. Quadraped Robot [IIT Kanpur]
10. KlearVisenTM: Real-time Fog and Rain Removal from Video [IIT Kharagpur]
11. Ocean Acoustic Data Analytic Framework [IIT Palakkad]
12. Innovative Millimeter-Wave Lens and Reflector Antennas for Next Generation Communications (5G and 6G) [IIT Patna]
13. Radio Frequency Plasma Spheroidization Technology for Powder (Ceramics, Metals, Refractory Materials) Production for 3D Printing Applications. [NIT Jamshedpur]
14. System for Emergency Assistance, Response, and Communication Hub (SEARCH) [NIT Karnataka]
15. Denoising and Inpainting of Sonar Images via Convolutional Sparse Representation Techniques [IITDM Jabalpur]
16. Engineering clinically safe efficient sealant for treating bleeding disorder for defense sector [IISER Kolkata]
17. Artificial Intelligence Based Technique for Prediction of Atmospheric Visibility [SASTRA Deemed to be University]

## **Industry 4.0**

1. Handheld pulsed eddy current probe for non-invasive profiling of steel rebars embedded in RCC structures (iPEC) [IIT Bombay]
2. Advanced Dynamic Structures: 4D Printing and Shape Memory Materials [IIT Dharwad]
3. Wide Area-Monitoring of the Indian Electricity Grid for Enhanced Visibility [IIT Indore]
4. Development of a Lean Burn micro-gas turbine engine for UCAVs [IIT Jammu]
5. AI-enabled NDT system for weld defect detection from radiography images [IIT Kharagpur]
6. An IIoT enabled thermal error compensation module for precision machine tools [IIT Madras]
7. IIOT for Multi-point and Multi-Parameter Sensor for Hostile Processes [IIT Madras]
8. Development of RF Front-end Passive Components for 5G/6G Cellular Communications [IIT Palakkad]
9. AdaptiSync: AI-based Real-Time Adaptive Traffic Control using Edge-Computing [IIT Roorkee]
10. Virtual Reality Mine Simulator (VRMS) for Improving Safety and Productivity in Coal Mines [IIT(ISM) Dhanbad]
11. Real-time monitoring of construction projects using BIM and AR/VR technologies [NIT Srinagar]
12. Smart City ctOp ( City IOT Platform) [IIIT Hyderabad]
13. Fully Automated Intelligent Visual Inspection for Quality Control of Bottles in Injection Production Process [IITDM Kurnool]

## **Sustainable Technologies**

1. Membrane Reformer Device for On-Site and On-Demand Production of Ultra-Pure Hydrogen [IIT (BHU)]
2. Metal Hydride based Hydrogen Storage Systems and Solutions [IIT Bombay]
3. Innovative Construction Materials and Techniques [IIT Dharwad]
4. 3D printed Sustainable Building & Structure [IIT Guwahati]
5. Novel Algal-bacterial Photo-bioreactors for Wastewater Treatment: Less Cost, Less Energy Input, and Less Carbon Footprint [IIT Hyderabad]
6. Self-starting, Novel J-shaped Blade Vertical Axis Wind Turbine to Harvest Energy at Low to High Wind Speeds [IIT Kanpur]
7. Developing appropriate software and Hardware for fully automated self service public bicycle share (PBS) system [IIT Kharagpur]
8. Steam Generating Heat pump for Industrial Decarbonisation [IIT Madras]
9. Low-cost Landslide Monitoring and Early Warning System [IIT Mandi]
10. Urine fed self-driven stacked electrochemical resource recovery reactor for smart phone charging and biofertilizer production. [IIT Palakkad]
11. Metal Hydride based Hydrogen Storage, Compression and Purification Systems [IIT Tirupati]
12. Sustainable Antimicrobial Film Enabled (SAFE) Water Disinfection [IIT Tirupati]
13. AI/IoT based Integrated River Health Investigation System (IRHIS) [IIT(ISM) Dhanbad]
14. Bio-Coal and Bio-Coke Production from Agro Residue to Mitigate Greenhouse Gases [IIT(ISM) Dhanbad]
15. Biodegradable and non-polymer super-hydrophobic jute fabric exhibiting excellent water repellency [IIT(ISM) Dhanbad]
16. Visible Integration Nephelometer [NIT Calicut]
17. Portable Ball Mill Machine [NIT Jamshedpur]
18. Smart Universal Charging Solutions [NIT Karnataka]
19. A System for Designing and Fabricating a Solar Air Collector for Sustainable Drying Industry [NIT Mizoram]
20. Empowering Communities : Non-Biodegradable Municipal solid waste to clean electricity via mobile plasma gasification and gas turbine [NIT Tiruchirapalli]
21. Fureboat (Furniture cum emergency boat) [NIT Tiruchirapalli]
22. Hybrid waste water treatment systems for treatment of textile effluent [NIT Warangal]
23. Sustainable Technologies for Water Hyacinth: Transforming an Ecological Catastrophe into Clean Energy and Materials for socio-economic and environmental benefits. [SVNIT Surat]
24. Hybrid Draft Biomass Cook stove [VNIT Nagpur]
25. iRaste [IIIT Hyderabad]
26. Ask Agastya (students ask science Qs on phone ) [IIIT Hyderabad]
27. Next Generation Perovskite Solar Cell Modules [IISC]
28. Low-cost ASV for bathymetry mapping [IISER Bhopal]
29. Liquid Crystal Nanocomposites Based Memory Device and Their Applications [Aligarh Muslim University]
30. Generation of electricity from wastewater and self-cleaning of the same water simultaneously without using any external power or chemical [Amity University]
31. Wireless Charging System for Electric Vehicles [SRM Institute of Science and Tech.]