

‘Indigenous AgriTech Innovations Showcasing Real-World Impact for harnessing Sensors, Electronics and AI for an Aatmanirbhar Bharat’: Shri S. Krishnan, Secretary, MeitY

Secretary, MeitY Highlights the Indigenous Technologies Transferred and Launched, like Cattle Health Monitoring System Would Help Farmers to Boost Productivity and Enhance the Economical Gain

Data-Driven, Market-Oriented Models to Enhance Scalability and Sustainability of Agriculture: Shri S Krishnan

MeitY Announces Transfer of Technologies for Four Agri-Electronic Products for Commercialisation; RIGE-Sense, Grain-Ex, CT-VIEU for Crop Quality Monitoring and Launches ODORPravah for Real-Time Odour and Emission Monitoring at Waste Management and Industrial Sites

Electronics-Based Dairy Solution for Real-Time Cattle Health and Mastitis Monitoring

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the transfer of technology for Electronics & IT-based Dairy Solution for cattle health monitoring and quality detection of pulses, rice, dry red chilli and launch of sensor-based Odour Monitoring system for various application including municipal solid waste (MSW) management.

The AgriEnIcs is a national programme of MeitY involving research, development, deployment, demonstration, and commercialization of technologies in the agriculture and environment domain. The programme is being implemented by the Centre for Development of Advanced Computing (C-DAC), Kolkata, as the nodal agency with participating agencies from Academic Institutes, R&D laboratories, and Industries. All the above five technologies have been developed and tested under this programme.

The details of the transfer of technology (ToT) and product launch in the presence of the Secretary, MeitY are as follows:

- 1) Transfer of technology for Electronics-based Dairy Solution, developed by C-DAC (K), IIT, Kharagpur and ICAR-NDRI, Kalyani, to M/s Handholders Global, Bhubaneswar: The Electronics based Dairy Solutions is a package of two technologies i.e., Cattle Health Monitoring System (Go-P) and Mastitis detection (MAST-D). The Go-P is a wearable collar-mounted IP67-rated device for cattle to monitor the real-time physiological temperature change to predict the 'heat' condition of cattle for Artificial Insemination, a major requirement for cattle breeders. The Mastitis detector can electrochemically detect the presence of mastitis infection in the cattle milk by detecting ion concentrations in the infected cattle which causes huge dairy loss in milk products. This indigenous solution is fast, accurate, scalable and cost-effective solution to measure the cattle health and milk quality



Transfer of Technology for Electronics-Based Dairy Solutions

- 2) Transfer of technology for horticulture crops quality analysis and estimation system, developed by C-DAC (K), ICAR-IARI, New Delhi and Food Corporation of India (FCI), to M/s Agnext Technologies Private Limited, Punjab: The package contains Grain-Ex system for quality analysis of pulses, CT-View for quality of dry red chilli and RIGE-Sense for quality estimation of rice.

- a) The Grain-Ex system comprises a bench-top mini conveyORIZED sample feed system integrated with an AI-based digital image processing solution for real-time, computer-controlled automated image capturing and analysis. The system includes crop-specific software with a user-friendly

graphical interface for efficient operation. It measures appearance-based quality parameters such as immature grains, damaged grains, foreign matter, and pure grains. This solution supports multiple crops, including Tur (whole), Moong (whole), Masoor (whole), Bengal gram, Sorghum, and Wheat.



Transfer of Technology for Grain-Ex & CT-VIEU for quality estimation of dry red chilli and grains

b) The CT-VIEU system is a conveyerized setup consisting of essential components such as a hopper equipped with a vibration unit, a conveyor belt, and an imaging unit for capturing the image of the samples for analysis. To avoid redundant frame analysis, the conveyor belt is segmented into four distinct frames using coloured rubber strips. It utilizes a user-friendly graphical interface (GUI), and the software presents comprehensive reports of analyzed samples, allowing users to access real-time results or retrieve reports from past analyses with ease.

c) The RIGE-Sense system is an indigenous machine vision-based system to ensure the quality of rice supplied under Public Distribution Agencies (PDA). The traditional Mixed Indicator Method for rice age determination is subjective, inconsistent, labour-intensive, and reliant on laboratory conditions, making real-time monitoring impractical. To overcome these challenges, RIGE-SENSE integrates computer vision, AI/ML algorithms, and automated chemical analysis, offering a fast, accurate, and objective solution for rice age estimation.

3) Launch of Sensor-based Odour Monitoring Device for MSW sites, developed by C-DAC (K): The sensor-based odour monitoring device has been developed by C-DAC, Kolkata, for tackling the challenges of odour nuisance at municipal solid waste (MSW) sites, industrial waste processing units, and landfill areas. The system uses a photonization detector (PID) and an electrochemical gas sensor with advanced signal conditioning techniques to ensure high sensitivity and accuracy. It is a compact, low-cost, and portable system, the device ensures real-time monitoring and control of odour-causing gases, supporting both environmental compliance and public health protection.



Product Launch for Odour Pravah

During the meeting, Secretary, MeitY, highlighted the importance of electronics and sensor-based innovations that can create a tangible impact in common man daily lives. He mentioned that the indigenous technologies transferred and launched today, like cattle health monitoring system would help farmers to boost productivity and enhance the economical gain. He highlighted the importance of RIGE-Sense system for rice quality estimation and the ODORPravah device for emission monitoring. He emphasized the need for wider adoption, data-driven insights, sustainable, market-oriented models to ensure scalability and long-term success aligned with the vision of Aatmanirbhar Bharat.

The ToT and product launch of the above technologies was done at MeitY, New Delhi in the presence of Secretary, MeitY, Shri S. Krishnan; Joint Secretary & Financial Advisor (JS&FA), MeitY, Shri Rajesh Singh; Group Coordinator (R&D-E/CCBT), Smt Sunita Verma; Scientist 'G', NATCOM Cell, MoEFCC, Shri. Sharath Kumar Pallerla; Director General, C-DAC, Shri E. Magesh; Centre Head & Director, C-DAC, Kolkata, Dr. Ch A S Murty, Scientist 'D', MeitY, Dr Om Krishan Singh; and representatives from the ToT partners and other senior officials from MeitY, line ministry, and C-DAC, Kolkata were also present on the occasion.

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