Research

UMPSA lecturer’s innovation simplifies farm and aquaculture automation through SELESAI Board, wins gold at ITEX 2025

Thu, 08/07/2025 - 16:54

PEKAN, 10 July 2025 – A high-impact research initiative from Universiti Malaysia Pahang Al-Sultan Abdullah (UMPSA) bore fruit when a smart automation technology innovation based on the Internet of Things (IoT), known as the SELESAI Board, won a gold medal at ITEX 2025.

The innovation was created by a lecturer from the Faculty of Manufacturing and Mechatronics Engineering Technology (FTKPM), Dr Mohd Azraai Mohd Razman.

This competitive automation system was specifically developed to support the needs of small and medium-sized farms and aquaculture entrepreneurs.

The innovation also helps solve daily operational challenges such as plant watering, fertilising, and fish feeding.

According to Dr Mohd Azraai, the idea for the product began in 2020 when the country faced the Movement Control Order (MCO), which significantly impacted the agriculture and freshwater aquaculture sectors.

“At that time, I personally experienced crop failure due to the lack of automation systems and had to deal with movement restrictions.

“The idea for SELESAI Board emerged as a solution to the urgent needs of farmers and breeders who lacked manpower and could not consistently be present at their project sites.

“SELESAI Board is an automatic control system based on an open microcontroller capable of operating various equipment such as water pumps, automatic valves, aerators, and automatic feeders,” he said.

He added that the system is also equipped with various sensors such as temperature, soil moisture, an electrical conductivity (EC) sensor, and a water level sensor that transmit real-time data to a cloud-based dashboard and can be controlled via the Agronetics mobile app.

“Users have three control modes: manual, automatic based on timer or sensor readings, and remote control via smartphone.

“This allows users to manage farm or fish pond operations even when they are far from the actual site.

“This flexibility is very useful, especially for entrepreneurs managing more than one project site,” he added.

The SELESAI Board was developed together with the iMAMS Lab FTKPM research team, consisting of Dr Muhammad Amirul Abdullah, Amir Fakarulisroq Abdul Razak, Muhammad Nur Aiman Shapiee, Nur Aliya Syahirah Badrol Hisam, Mohd Izzat Rahman, Nurul Syafiqah Zaidi, and Muhammad Rizal Ramedan.

The project also received support from TERAJU (Bumiputera Empowerment Agency) through the Bumiputera Entrepreneur Development Fund (DPUB), along with technical and commercialisation collaboration with Flow Studios Sdn. Bhd.

The estimated cost for one unit of the SELESAI Board system starts from RM1,999 to RM16,999, depending on the module (fertigation or aquaculture), number of sensors, and type of control.

The system can be customised based on scale and user needs, making it accessible to a wide range of grassroots users.

SELESAI Board not only won gold medals at CITREX 2024 and ITEX 2025, but also received the UMPSA Holding Award 2024 and was selected for exhibitions in various smart agriculture innovation programmes and national green technology expos.



Dr Mohd Azraai Mohd Razman stated that the next phase is to add smart modules based on artificial intelligence (AI), including object recognition systems to detect ungrown crops, empty polybags, and activities in fish ponds.

“We hope SELESAI Board will not only benefit the agriculture and aquaculture sectors, but can also

be expanded into other sectors such as oil and gas, food industry, chemical industry, as well as building and manufacturing management," he added.

In addition to SELESAI Board, Dr Mohd Azraai Mohd Razman is also active in various other projects, such as Agronetics Crop Detection, IoT Greenhouse, Auto-Feeder Device, and smart sports technology that develops athlete performance monitoring systems using smart sensors.

He further mentioned that more information about his research and products can be found on his official website: https://agronetics.net/

By: Naqiah Puaad, Centre for Corporate Communications

Translation by: Dr Rozaimi Abu Samah, UMPSA Press

- 168 views

View PDF