Research

UMPSA researchers share expertise in IoT systems and fertigation for farmers in Pahang

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PEKAN, November 22, 2023 – A team of researchers from Universiti Malaysia Pahang Al-Sultan Abdullah (UMPSA) shared their expertise in the IoT-Based Smart Farming System project.

This initiative, grounded in agricultural applications and successful technology, aims to enhance the quality of life for the Bumiputera community, particularly low-income families (B40) in rural areas, while simultaneously creating job opportunities for the local community.

The researchers include Dr. Ahmad Najmuddin Ibrahim and Dr. Muhammad Amirul Abdullah from Faculty of Manufacturing and Mechatronic Engineering Technology (FTKPM), Dr. Nor Hanuni Ramli@Said from Faculty of Chemical and Process Engineering Technology (FTKKP), and Dr. Nurul Ashykin Abd Aziz, Head of Programme for Entrepreneurship in the Faculty of Industrial Management (FIM).



The collaboration between UMPSA and Bumiputera Agenda Steering Unit (TERAJU) provides an opportunity to 45 Small and Medium Entrepreneurs (SMEs) from the B40 group to bring chili and eggplant agricultural products to the local market through the Bumiputera Entrepreneur Development

Fund Programme (DPUB).

This initiative spans across 33 locations in four districts, including Kuantan, Pekan, Maran, and Temerloh.

Since its initiation in 2021, the group participating in the DPUB programme has successfully secured a grant of RM2,270,000 from TERAJU.

This accomplishment was facilitated through the coordination efforts of the Centre for Industry & Community Linkages (PJIM). The DPUB programme aims to benefit the community in the field of agriculture.

According to Dr. Ahmad Najmuddin, this technology has the capability to enhance the precision of water usage in irrigation systems and the concentration mixing of fertilizers for optimal plant growth.

“This system has three main features: a user-friendly automated control box for water and fertilizer irrigation, sensors to detect water and fertilizer levels in the tank, and sensors to determine soil moisture, condition, and temperature. Lastly, it incorporates Internet of Things (IoT) technology in a single device.

Meanwhile, according to Dr. Nor Hanuni, over 1,000 fertigation polybags, two large-sized water tanks, fertilizers, insecticides, disease control chemicals, and various other plant supplies were contributed to support the needs of farmers' fields.

“With the convenience of this system, it can enhance farm management efficiency and produce higher-quality crops," she explained.

Furthermore, Dr. Muhammad Amirul, who is also involved in this research, mentioned that through this technology, farmers can efficiently control crop yields by monitoring water and fertilizer levels in the tank, whether through manual or automated methods.

“This system also allows for automatic mixing of substances, saving time, and farmers can monitor plant growth using their mobile phones.



With this initiative, UMPSA is not only introducing advanced technology to the farming community but also providing practical support to enhance productivity and sustainability of agriculture for Pahang," he stated while monitoring the IoT system owned by one of the program participants in Kampung Bentan, Pekan.

The location, spanning half an acre of land, involves 3,000 eggplant trees and 1,000 chili plants.

Also present at the location was Yusmin Jaafar, Technical Executive from Centre for Industry & Community Linkages (PJIM), UMPSA.

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