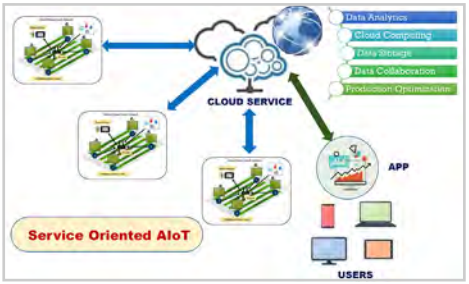
ACHIEVEMENTS

Revolutionizing Agriculture: NTU Wins National Agricultural Science Award

The system used in greenhouse for long-term pest monitoring and alerts.

The R&D team led by Distinguished Professor Ta-Te Lin from NTU Department of Biomechatronic Engineering has been awarded the first prize in the Industrial Pioneer Category of the Ministry of Agriculture's 2023 National Agricultural Science Award. This prestigious national recognition honors outstanding achievements in developing agricultural science and technology. The team's groundbreaking project— Smart Pest Monitoring System—was developed through a collaborative effort involving experts from NTU's Department of Biomechatronic Engineering, the Department of Entomology, the Ministry of Agriculture's Tainan District Agricultural Research and Extension Station, and Taiwan Hipoint Corporation. The system has been lauded for its innovative approaches and wide applications in the agricultural sector.



The architecture of the Smart Pest Monitoring System and its digital services.

The Smart Pest Monitoring System leverages advanced AI image recognition technology, as well as rapid computing and wireless communication capabilities of embedded systems. By combining these cutting-edge technologies with the

expertise of agricultural professionals, the system can accurately and automatically identify various pest species and assess their population levels. By continuously monitoring pest activity and its impact on crops and the environment over extended periods, the system enables farmers to engage in pest control and cultivation management digitally. This versatile monitoring system can be seamlessly implemented in greenhouse and outdoor cultivation environments. It effectively reduces pesticide use, human labor, and environmental impact while promoting sustainable agricultural practices.

Through ongoing innovation and collaboration, the interdisciplinary team successfully developed the first-ever pest and environmental monitoring module tailored specifically for agricultural use. By transferring technology and implementing it extensively in various agricultural settings, the system has been effectively utilized in more than 10 extended experimental locations and 114 agricultural sites. The system provides targeted pest and disease alerts for each crop, establishing an innovative model for smart pest and disease management. This has resulted in a significant improvement in agricultural production efficiency and has propelled the industry towards a new era of technological agriculture and sustainable development.

The system implemented in a honey angel garden for long-term pest monitoring and alerts.

This commercialized system is also applied to passionfruit gardens for pest monitoring and alerts.

The award ceremony of the 2023 National Agricultural Science Award.

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