作品簡介

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Motivation for the Project

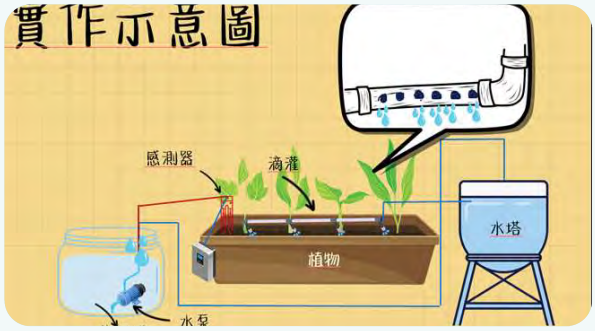
To address the challenges of global water scarcity and climate change on agricultural irrigation, our team has developed an intelligent "IoT Drip Irrigation Technology" system, incorporating "soil moisture sensors," a "data analysis platform," and "real-time alerts and automation" functions. By integrating sensor monitoring, data analysis, and remote control, it resolves the issues of water waste and low efficiency in traditional irrigation methods. Through precise control of irrigation frequency and water volume, it not only enhances crop yield and quality but also achieves water-saving and environmentally friendly agricultural practices.

Production Process

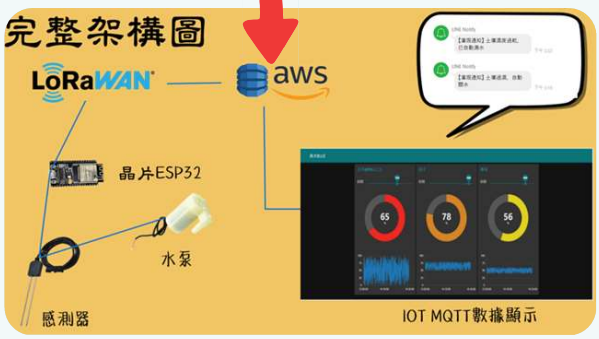
This system uses the ESP32 chip as the core control unit, integrated with a soil moisture sensor. It connects to a water pump and uploads data to a cloud platform via the Wi-Fi module, allowing real-time monitoring of crop growth conditions and irrigation status. Additionally, it utilizes LINE Notify to provide instant notifications, achieving intelligent and precise drip irrigation management, enabling users to manage their farmland more effectively.

Results Presentation

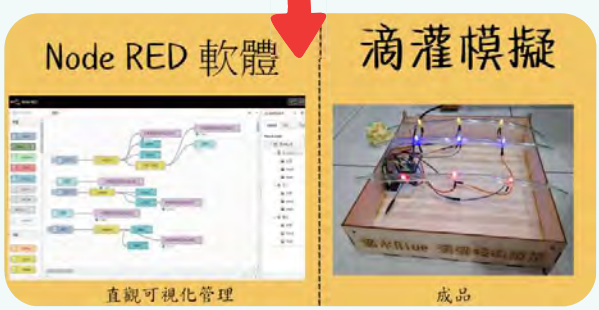
3rd Place in the 2024 National College and High School Student Project Competition and Exhibition



Implementation Concept (Drip Irrigation Technology)



System Architecture Diagram Design



Final Product Development (Drip Irrigation Technology and User Interface)

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