UTILIZING THE INTERNET OF THINGS FOR PROVIDING NUTRITION TO MELON PLANTS

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ABSTRACT

Proper nutrient provision is a key factor in melon cultivation to achieve maximum yields. In modern agriculture, Internet of Things (IoT) technology offers an innovative approach to managing plant nutrients more optimally and sustainably. This research aims to design and implement an IoT system for controlling nutrient provision in melon plants to increase yields, optimize labor utilization, and minimize resource waste. The study was conducted with Petani Milenial Sleman using a qualitative approach through interviews, field observations, and documentation of agricultural practices. The prototype system uses an ESP32 as the main controller, a DHT11 sensor to monitor temperature and humidity, a TDS meter to measure nutrient concentration, a 20x2 LCD to display real-time data, and an automatic pump for nutrient solution distribution. The system also utilizes solar panels as the primary energy source, supporting energy savings and environmental sustainability. The results show that this system is capable of monitoring nutrient management, facilitating remote monitoring, and supporting optimal melon plant growth in real-time. This research makes an important contribution to technology-based agriculture at the local and national levels.

Keywords*: IoT, Nutrition, Automation*