

Implementation of a Temperature and Humidity Monitoring Website for Duck Egg Incubators

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ABSTRACT

Temperature and humidity are key factors determining the success of duck egg hatching. At UD. Edi Farm, Wuluhan District, Jember Regency, incubator conditions are still monitored manually, resulting in inefficient supervision and no historical data. This study aims to build a monitoring website that displays incubator temperature and humidity in real time and stores historical data for evaluation. The system uses DHT11 and DHT22 sensors on an ESP32, the MQTT protocol (HiveMQ) for data transmission, a Laravel backend, a MySQL database, and the WebSocket protocol for automatic updates without page refresh. Testing showed the website was successfully implemented with real-time data display, historical graphs, and data export, accessible from various internet-connected devices. This system is expected to improve monitoring effectiveness and support successful duck egg hatching.

Keywords: duck egg incubator, temperature and humidity monitoring, website, real-time, MQTT