

***PROTOTYPE OF SOIL TEMPERATURE AND MOISTURE
DETECTION IN DURIAN NURSERIES AT MESKOM
BENGKALIS BASED ON IoT***

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ABSTRACT

Durian seedling cultivation in Meskom Village, Bengkalis, still faces challenges due to limited knowledge and reliance on traditional methods. One key issue is the inability to monitor soil conditions—particularly temperature and moisture—that are crucial for seedling growth. This study proposes an Internet of Things (IoT)-based system to detect soil temperature and moisture automatically. The system uses a DHT22 sensor for temperature, soil moisture sensor, and a NodeMCU ESP8266 microcontroller to process data and control a water pump. Sensor readings are sent to the Blynk platform for real-time monitoring. The system activates the pump automatically when soil moisture falls below the defined threshold. Testing showed that the system functions well in automating irrigation based on moisture level. However, temperature readings from the DHT22 occasionally fail when the pump is running. Despite this, the system supports farmers in improving the efficiency of durian seedling cultivation.

Keywords: *IoT, durian seedlings, soil moisture, temperature sensor, NodeMCU*