INTISARI

MONITORING PENGARUH CURAH HUJAN TERHADAP KELENGASAN TANAH BERBASIS *INTERNET OF THINGS* (IOT) TERINTEGRASI APLIKASI *BLYNK*

Putra Mahardika Sindhu Nugroho
20/457198/SV/17645

Kelengasan tanah merupakan faktor penting yang memengaruhi produktivitas tanaman, kualitas tanah, dan risiko erosi. Perubahan intensitas curah hujan secara langsung mempengaruhi tingkat kelengasan tanah yang berdampak pada kebutuhan air di lahan pertanian. Oleh karena itu, pada penelitian ini akan dibuat sebuah sistem "Monitoring Pengaruh Curah Hujan Terhadap Kelengasan Tanah Berbasis *Internet of Things* (IoT) Terintegrasi Aplikasi *Blynk*". Sistem ini dirancang dengan menggunakan sensor *rain gauge*, sensor *capacitive soil moisture*, sensor DHT22, *battery management system*, solar panel *monocrystalline* dan NodeMCU ESP8266 sebagai mikrokontrolernya yang kemudian diintegrasikan ke dalam platform *Blynk*.

Hasil dari penelitian ini menunjukkan bahwa sistem pemantauan yang dikembangkan bekerja dengan baik dan berhasil mengirimkan data pembacaan sensor ke dalam *blynk* secara *real-time* dengan rata-rata curah hujan tercatat sebesar 27,50 mm/h, kelengasan tanah sebesar 62,73%, suhu sebesar 28,26˚C dan kelembaban udara sebesar 85,56%. Berdasarkan hasil penelitian tersebut dapat disimpulkan curah hujan yang tinggi menghasilkan nilai kelengasan tanah dan kelembapan udara yang mengalami peningkatan signifikan, sedangkan suhu lingkungan cenderung menurun begitupun sebaliknya.

Kata kunci: Kelengasan Tanah, Curah Hujan, *Internet of Things*, *Blynk*

ABSTRACT

MONITORING THE EFFECT OF RAINFALL ON SOIL MOISTURE BASED ON THE INTERNET OF THINGS (IOT) INTEGRATED WITH BLYNK APPLICATION

Putra Mahardika Sindhu Nugroho
20/457198/SV/17645

Soil moisture is a critical factor influencing crop productivity, soil quality, and erosion risk. Changes in rainfall intensity directly affect soil moisture levels, which in turn impact water requirements in agricultural fields. Therefore, this study developed a system for "Monitoring the Effect of Rainfall on Soil Moisture Based on the Internet of Things (IoT) Integrated with Blynk Application." The system was designed utilizing a rain gauge sensor, capacitive soil moisture sensor, DHT22 sensor, battery management system, monocrystalline solar panel, and NodeMCU ESP8266 microcontroller, all integrated into the Blynk platform.

The results of this study demonstrate that the monitoring system performed effectively, successfully transmitting real-time sensor data to Blynk. The recorded average rainfall intensity was 27.50 mm/h, soil moisture was 62.73%, temperature was 28.26˚C, and air humidity was 85.56%. Based on these findings, it can be concluded that higher rainfall significantly increases soil moisture and air humidity, while the ambient temperature tends to decrease. Conversely, lower rainfall results in reduced soil moisture and air humidity, accompanied by an increase in temperature.

Keywords: Soil Moisture, Rainfall, Internet of Things, Blynk