

Kata kunci: penyiraman otomatis, monitoring, kelembaban tanah, tanaman cabai rawit, internet of things.

ABSTRACT

ABSTRACT INTERNET OF THINGS BASED DESIGN OF AUTOMATIC WATERING AND MONITORING OF CHILI PLANTS BASED ON INTERNET OF THINGS

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Cayenne pepper is a potential raw material with high economic value that can be developed because it is used as an ingredient in everyday cooking and contains nutrients for the health of the body. In the cayenne pepper plant itself, the soil moisture level and air humidity temperature are important factors that need attention, because it affects the growth of the cayenne pepper plant. Manual watering which is currently being carried out, often results in soil moisture not suitable for growth. Cayenne pepper plants generally grow well if the soil moisture ranges from 60% - 80%, air humidity is 85% - 90% with a temperature of 18-30 °C. So that soil moisture and plant temperature are properly monitored for growth, an automatic watering system and monitoring of cayenne pepper plants based on the internet of things is made. Internet of things itself is a concept where objects have the ability to send data via the internet network. The method used in this study is the experimental research method and the system is made using nodeMCU as the controller, soil moisture sensor to measure plant soil moisture, DHT11 sensor to measure plant air humidity temperature and rain sensor to detect rain. The way this system works is if the soil moisture level is below 60%, the system will water and will automatically stop if the soil moisture level reaches 80%, but when the rain sensor detects rain, the system will not water even though the soil moisture is below 60% to anticipate excess water in plants and the sensor readings will be displayed via the blynk application on a smartphone. From the results of system testing that has been done, the system can work well in carrying out automatic watering and monitoring the results of sensor readings can be displayed on the blynk application with an error value percentage in the watering tool test of 3.3% and a soil moisture sensor accuracy rate of 93.23%, then in the tool resistance test there is measurement instability on the soil moisture sensor, DHT11 sensor and rain sensor.

Keywords: automatic watering, monitoring, soil moisture, cayenne pepper, internet of things.