ABSTRACT

WIFI COMMUNICATION BASED SMART FARMING IMPLEMENTATION AS A TOOL TO EXTERMINATE RED ONION PESTS

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Smart farming is a form of technological change in agriculture. One application of smart farming is onion farming which is often affected by pest attacks. The solution to help overcome this problem by contributing to the technology in it is by designing a pest sprayer that communicates with wifi and an application that is used as a tool for control and monitoring. The purpose of designing this system is to make it easier for farmers to spray and reduce the risk of crop failure due to irregular schedules for spraying plants. System design was successfully made using ESP8266 microcontroller components, power supply, soil moisture sensors, ultrasonic sensors, LDR sensors, LEDs, relays, water pumps and pesticide pumps. The results of the soil moisture sensor test were that at bits 0-200 the soil condition was stated to be dry, bits 201-700 the soil condition was stated to be moist and 800-1023 the soil condition was stated to be wet. The test results on the ultrasonic sensor are if the water level is 1-4 cm then the water pump will turn on but if $n \geq 5$ then the water pump will stop. The test results on the relay are if the 12v current enters the relay, the pump will turn on but if the 12v current is disconnected at the relay, the pump will stop. The test results on NTP are Monday and Thursday at 08.00 WIB, the water pump will turn on for 15 seconds and after 15 seconds the water pump will stop but if it is outside the predetermined schedule then the water pump is not active. The Blynk application is used as a control tool and monitors spraying activity already installed on a smartphone so farmers don't have to come directly to the object. A pest control tool made with the help of a wifi connection will provide benefits in the form of treating shallot plants.

Keywords: Smart Farming, Shallots, Farmers, System Design, Blynk