ABSTRACT

One of the main problems faced by people in Indonesia in managing ornamental plant cultivation is negligence in caring for these ornamental plants. Negligence of plant managers and errors in care in the watering process which is sometimes not carried out regularly can cause ornamental plants not to develop perfectly.

Another problem faced by ornamental plant managers is that plant managers do not know the characteristics of the plants. Both the temperature needed by the plant, as well as the humidity of the environment around the plant. High temperatures can damage enzymes so that plant metabolism does not run properly. In this research, the author makes a control system in the form of NodeMCU-based hardware that is able to help plant managers control the watering process and monitor the temperature and humidity around the plant via the internet.

The microcontroller used is NodeMCU ESP8266 with input parameters obtained from the Soil Moisture sensor and the DHT22 sensor. The data processing uses the Fuzzy Mamdani Algorithm. The results of the tests carried out show that the DHT22 sensor can measure plant temperature and humidity with an average error value of 0.49% with a sensor accuracy of 99.85% and becomes a command signal for the plant fan to work to maintain the temperature around the plant. The Soil Moisture sensor can measure the water content or soil moisture and is an order for the Mini Submersible Pump to water plants with water with an average error value of 1.54% with a sensor accuracy of 99.8%. Plants also grew well with growth in height and leaf width of 1.5 cm and 1 cm for 4 weeks.

Keywords: DHT22, NodeMCU ESP8266, Mini Pump, Soil Moisture, Submersible.