ABSTRACK

With the development of technology in the agricultural sector, the number of automation technologies used in the agricultural sector, especially those applied to greenhouse use, is increasing. Proper use of a greenhouse by regulating optimal temperature and soil humidity. To achieve optimal conditions, the temperature in the greenhouse for azalea plants must be maintained at a temperature range of 21°C - 27°C, while the ideal soil moisture is 50% - 70%. However, manually adjusting the temperature and humidity is less effective and can cause the plant to die. Therefore, the right solution is to use an automation system that can regulate the temperature and humidity in the greenhouse. This research aims to design and implement a temperature automation system using Arduino with the fuzzy logic control method. This system is integrated with a DHT 22 sensor, soil moisture sensor, fan, lights, pump and other electronic components. The test results show that temperature calibration has an accuracy rate of 99.379% and soil moisture calibration has an accuracy rate of 90.675%. Based on the accuracy value in applying the fuzzy logic control method to the actuator, it is 99.579% for the fan, 99.646% for the pump, and 97.958% for the lamp. The comparison results on accuracy concluded that the results were accurate and the system could work well.

Keywords: *azalea plant, DHT 22, fuzzy logic control, greenhouse, soil moisture sensor.*