

ABSTRACT

Mushroom farming in West Java has the largest production compared to other regions, which is recorded at 1,740,456 kg according to the Central Statistics Agency. One of them is the mushroom kumbung in Cijontang village, Sukasari sub-district, Sumedang district which is able to produce 40 Kg/month. Until now, oyster mushroom treatment is still done manually so it is considered less effective because it requires considerable time and (physical) energy.

This final project models a system that can provide stable humidity (80%RH) for mushroom to grow and develop using fuzzy logic control, as well as IoT (Internet of Things) based monitoring and control. The device was implemented in Cijontang mushroom kumbung, Sukasari sub-district, Sumedang district by utilizing 4 sprayer actuators placed around the planting medium (4 m above ground level) and 4 fan actuators placed on each parallel sides of kumbung. It aims in the process of watering and drying. In addition, this study also models monitoring and two-mode control system (manual and automatic) through an application on a smartphone.

The PWM value used by the system is 0 – 256 with a maximum voltage of 12 V. The input error and delta error conditions can affect the result of PWM value. The greater the PWM value, the greater the voltage generated, as well as the water discharge on the sprayer and rpm on the fan. Condition test of the active system resulted in a change in measurement towards the set point (80%RH) for approximately 12-16 minutes. Meanwhile, changes in measurements under non-active system conditions tend to follow changes in the weather around the mushroom kumbung.

Keywords: Kumbung Mushroom, Fuzzy Logic, IoT.