

ABSTRACT

Oyster Mushroom (Pleurotus Ostreatus) is a type of fungus that is often cultivated in Indonesian agriculture, because this plant has many uses in terms of culinary and health. The fungus is bred by manipulating environmental parameters, so that it can grow in a container / place that has been provided by the container, commonly called kumbung. It should be noted that mushroom cultivation requires temperature, humidity and light intensity that are suitable for the growth of oyster mushrooms in order to grow properly. Oyster mushrooms require a temperature that is used which is in the range of 23°-28°C, for humidity it is used between 70%-90% and for light intensity it requires light of ±300 lux. In addition, the mushroom kumbung also requires air circulation for the growth of oyster mushrooms.

In this final project, a tool that functions to perform automatic monitoring and controlling in real time based on the Internet of Things (IoT) will integrate the DHT22 room humidity and air temperature sensor, the BH1750 light intensity sensor and the NodeMCU as a microcontroller with the measurement results sent to the Firebase database. In addition, a dc water pump connected to the sprayer nozzle is installed in this system to maintain the humidity of the oyster mushroom kumbung.

From the results of implementation and testing, the tool can work automatically to stabilize the temperature, humidity, and light intensity according to the ideal parameters, this tool can also work manually to control 3 actuators namely dc water pump, fan, and LED. During the testing of the tool, various times were obtained depending on the initial temperature before normalization was carried out by the tool. From the test results it is known that the LED can stabilize the intensity of light received in the kumbung as evidenced by the average change in light intensity in the kumbung, which is 270 Lux. From the test results also obtained the highest temperature at 12.00 i.e. 28.4 takes 3 minutes to reach a stable temperature of 27.8 at 12.03 o'clock. As for the humidity at 3 p.m. that is 66.7% and it takes 3 minutes to reach a stable humidity of 75% at 15.03. Then the results of testing the delay in sending data from the tool until the data can be displayed in the database and application, the average value of the data delivery time is 1,8 seconds.

Keywords: *Oyster mushroom, IoT, Humidity, Air temperature, Light intensity, Firebase.*