

ABSTRACT

Internet of Things (IoT) based Black Soldier Fly (BSF) larvae cultivation offers an innovative solution for sustainable organic waste management and animal feed production. BSF larvae have the unique ability to decompose organic matter, making them an efficient and environmentally friendly feed source. In addition, BSF larvae are also used in the production of organic fertilizers because of their ability to decompose organic waste into materials that are more beneficial to plants. However, at present, the cultivation of Black Soldier Fly (BSF) larvae still uses traditional traditions that require farmers to carry out maintenance independently and are not assisted by existing technology. This study will design a BSF cage management system based on the Internet of Things (IoT) to optimize larval growth and make it easier for farmers to care for BSF. This system uses a DHT 11 Temperature Sensor, Soil Moisture Sensor, LCD Screen, 2 Channel Relay, Mini DC Waterpump Motor, 12V fan and will be connected to the Blynk IoT Platform. This system will monitor the conditions in the BSF cage in Real-Time by monitoring and controlling the temperature and humidity of the soil in the maggot cage, and will also send a notification to the user if the conditions in the cage are not ideal for the growth of BSF larvae. The test results on the system created showed that the accuracy value of the two sensors reached 94.87% and 94.45%, successfully maintaining the temperature below 30 ° C and soil humidity above 70%. The quality of the system service is classified as good with a Throughput of 341 kbps, packet loss 0.00%, delay 118 ms, and jitter 114 ms. Larvae kept in cages with a monitoring system can grow better than those kept manually.

Keywords: Blynk, Internet Of Things, BSF Larva, Sewage Tratmen