

Abstract

The increasing production of organic waste every day makes waste a problem that must be solved in every region of Indonesia. The Ministry of Environment and Forestry (KLHK) states that the amount of waste heap in Indonesia has reached 175,000 tons / day. Therefore, it is time for this problem to be addressed by recycling recycle trash. There are many ways in terms of recycling waste that have been started in Indonesia. One way to recycle organic waste is with Black Soldier Fly larvae. Breeders need to pay attention to several parameters that affect the growth of BSF larvae, namely temperature, humidity, pH, weight of 5 dol, and total feed. One solution is to design a control system placed in the BSF larval cage to maintain optimal media humidity and predict the growth of BSF larvae yields to estimate the condition of good environmental quality parameters.

In this final project, a control system is designed to maintain the humidity value of the BSF larval cage media between 60%-90%. The data is processed from the results of the sensor readings SEN0193. The test results obtained for the average value of the accuracy of the SEN0193 sensor is 98.78% and the average error value is 1.22%. Then to predict the growth results of BSF larvae using the K-Nearest Neighbor method. Parameters used as datasets were temperature, media humidity, media pH, weight 5 dol, and total feed for BSF larvae. The test results obtained using the value of $K = 3$ which has an accuracy value of 93.99% and will be used as a test by entering 10 data on temperature, humidity, pH, 5 DOL weight, and total feed that are different from the dataset to determine the growth results of BSF larvae.

Keyword: *BSF larvae, Control, Environmental quality, KNN, prediction*