

ABSTRACT

Due to the device's capability to efficiently manage the pond environment, concrete ponds have become a preferred choice for nirvana tilapia farming. Controlling oxygen levels in the pond plays a vital role in maintaining the reproduction of nirvana tilapia. Therefore, the objective of this study is to develop an oxygen regulation system using Internet of Things (IoT) technology to increase productivity and efficiency in maintaining tilapia farmed in concrete ponds.

TDS, pH, and temperature sensors are the three sensor tools used in this research to support the research process. Quantitative results from sensor testing are carried out by taking 20 data samples on each sensor test. The collected samples will be analyzed through the application of the linear regression method to carry out the calibration process on the sensor. This process aims to optimize the accuracy of the sensor in measuring the observed phenomenon. Sample data is collected periodically, at every 5 second interval, to obtain continuous and continuous information.

The test results show that the percentage error of the calibrated sensor shows a significant reduction such as the TDS sensor before calibration with the percentage error obtained 72% to 197%. After calibration, the percentage error becomes 0.5% to 8%. A significant decrease in the percentage error is also seen in the pH sensor with tests carried out with a percentage error of 11% to 230%. After calibration, the percentage error becomes 0.3% to 2%. Then there is a decrease in the percentage error on the temperature sensor obtained in the temperature test with a percentage error of 4% before calibration and 3% to 0.5% after calibration.

Keyword: *IoT, pH, TDS, Temperature*