ABSTRACT

The advancement of current technology facilitates inter-device communication and supports the implementation of automated systems based on the Internet of Things (IoT). One of its applications is in the maintenance of ornamental fish in aquariums, which requires regular monitoring of water quality and timely feeding. A common problem faced by aquarium owners is the difficulty in monitoring water turbidity and delays in feeding. This study designs a water turbidity monitoring and automatic feeding control system for Louhan fish, which can be monitored online through the Blynk application on a smartphone. The system is built using a turbidity sensor to measure water cloudiness and a servo motor as the automatic feeding mechanism, controlled by a NodeMCU ESP32 microcontroller. Tests were conducted on five water samples with varying turbidity levels, as well as water temperature testing using the DS18B20 sensor. The results show that the system functions as intended, with the turbidity sensor achieving an average measurement accuracy of 96.47% and an error margin of 0.115, which is still within the acceptable tolerance limits for sensor-based monitoring systems.

***Keywords**: Fish Feeder, IoT, NodeMCU, Smart Aquarium, Turbidity Sensor*