

ABSTRACT

Catfish cultivation faces significant challenges in providing effective feeding tailored to the fish's needs to prevent overfeeding and the subsequent degradation of water quality due to turbidity. This negatively impacts the health of the catfish. These problems can be addressed with a feeding system that aligns with the catfish's requirements and includes water quality monitoring. Therefore, this research was conducted to design and build an automated system based on the Internet of Things (IoT) to enable precise, remote catfish feeding and water quality monitoring. This study was implemented in the catfish ponds of the Wiyata Farmers Group. The system was developed using an ESP32 microcontroller, integrated with various supporting sensors and actuators, and applies linear regression as the feeding logic based on predicting fish weight by age. The system was successfully built and functions as designed, allowing for remote monitoring. The linear regression method predicted fish weight with an average error of 18.27 percent. However, the system showed deficiencies in feed portion accuracy, with a 42.23 percent error resulting from different calculation methods, alongside a 17 percent error in the feeding device's accuracy and inaccurate turbidity readings. Functionally, the system can perform remote monitoring, but it requires sensor calibration, refinement of the feed prediction model, and mechanical improvements to the feeder to reduce error rates, achieve optimal efficiency, and effectively prevent overfeeding.

Keywords: *catfish, overfeeding, Internet of Things(IoT), linear regression, water quality, feeding, automation system*