ABSTRACT

Catfish seedling farming is a fisheries sector with promising economic prospects in Indonesia. However, cultivation practices often face challenges such as bird infestations that prey on fish fry, as well as difficulties in maintaining water quality and timely feeding. These issues can reduce harvest yields and hamper cultivation productivity, necessitating technological innovations to facilitate more effective pond management.

As a solution, this final project designed and implemented an Internet of Things (IoT)-based Intelligence Controller Pond (ICo-Pond) system. This system detects the presence of bird pests using a PIR sensor and camera, and is equipped with a buzzer to automatically repel birds. Furthermore, this system is integrated with a pH sensor, a rain sensor, and an automatic feeding and fertilizer distribution mechanism. Monitoring data is transmitted in real time using an ESP32-CAM connected to a server via HTTP and ESP-NOW protocols.

Test results show that the ICo-Pond system can detect birds within a range of up to 3,8 meters, control feeding according to schedule, and maintain a stable water pH within the optimal range of 6 - 8.5. The monitoring website can also display sensor data and activity logs in real time with minimum delay. Therefore, ICo-Pond is expected to be an effective solution to support, efficient,realtime , and environmentally friendly catfishs seedling farming.

Keywords: IoT, PIR sensor, ESP32, Monitoring, Catfish Seedling Farming