

## ABSTRACT

### ***PROTOTYPE OF KOLAMKUSAT FOR MONITORING SYSTEMS OF PH, TEMPERATURE AND LEVEL OF PONDS WATER LEVEL IN NILE TILAPIA AQUACULTURE USING INTERNET OF THINGS***

Oleh  
Bagus Satria Pratama 17102028

*The Nila fish farmers in Purwosari Village have not been regularly checking the water quality parameters such as pH, temperature, and water level in their fishponds. Additionally, they have not been utilizing technology to efficiently monitor these aspects. The lack of prompt and accurate monitoring of water issues, such as maintaining the ideal pH, temperature, and water level, is crucial for the optimal growth of Nila fish. To address these problems, an Internet of Things-based monitoring system called "Kolamkusat" was developed to monitor the pH, temperature, and water level in the fishpond. This research utilized the NodeMCU ESP8266 as the microcontroller and various components such as pH sensor, temperature sensor, ultrasonic sensor, and LCD. The prototyping method was employed in the development process. The implementation of the monitoring system was tested for 7 hours, 11 minutes, and 7 seconds directly in the Nila fishpond. During the testing, the system successfully collected 5768 data points. However, there were 312 instances of inaccurate water level data due to physical obstruction by the surrounding grass, resulting in a device error rate of 5.41%. Nonetheless, the system achieved a 94.63% success rate in effectively capturing data from the total readings.*

**Keywords:** *Internet of Things (IoT), Nila fish farming, pH, temperature, water level.*