**SISTEM KONTROL KUALITAS AIR DAN PAKAN OTOMATIS PADA IKAN KOI MENGGUNAKAN LOGIKA *FUZZY***

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## *ABSTRACT*

*Water quality plays a crucial role in koi fish farming, as it directly affects their health and growth. This study aims to develop an automated system for water quality control and feeding using the Fuzzy Sugeno method. The system is built using an ESP32 microcontroller to monitor key water parameters, including pH, temperature, and turbidity. The primary focus is on pH levels, where the system automatically activates the water pump for replacement if the pH exceeds 8 or falls below 6. Additionally, the system includes an automatic feeding mechanism based on a predefined schedule. A web-based interface using the Laravel framework is designed to display fuzzy logic results, control the water pump, and allow users to adjust temperature and turbidity thresholds as needed. Testing results indicate that the system effectively maintains water quality within optimal conditions, promoting a healthier environment for koi fish. Future enhancements may include a flexible feeding schedule adjustable via the website and the integration of a dissolved oxygen sensor to improve water quality monitoring accuracy.*

*Keywords: Water Quality, Fuzzy Sugeno, ESP32, Koi Fish, Laravel.*