

**OPTIMASI SISTEM MONITORING KUALITAS AIR PADA BUDIDAYA
UDANG DI TAMBAK KALISOGO SIDOARJO MENGGUNAKAN *FUZZY
LOGIC MAMDANI***

(Optimizing the Water Quality Monitoring System for Shrimp Aquaculture
in Kalisogo, Sidoarjo Using Mamdani Fuzzy Logic)

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ABSTRACT

This study presents a real-time water quality monitoring system for shrimp ponds using Mamdani Fuzzy Logic. The system, implemented in Kalisogo, Sidoarjo, utilizes ph, temperature, and turbidity sensors, managed by a NodeMCU ESP8266. Sensor data is automatically sent to a web platform for visualization and analysis. The Mamdani inference classifies water quality into “poor,” “moderate,” or “good.” Testing shows a low average error of 1.80% compared to manual calculations. The system offers an efficient and adaptive solution to support sustainable shrimp farming.

Keywords: Mamdani Fuzzy Logic, Water Quality, Shrimp Aquaculture, IoT, ph Sensor, Temperature, Turbidity, NodeMCU ESP8266, Monitoring System, Kalisogo Pond.