## IoT-based Water Quality Monitoring System Based on Turbidity and Water Level Using Blynk Application

## **Dimas Prabowo**

Program Studi Teknik Komputer Fakultas Sains & Teknologi Universitas Teknologi Yogyakarta Jl. Ringroad Utara Jombor Sleman Yogyakarta E-mail : <u>dimasprabowo963@gmail.com</u>

## ABSTRACT

Turbidity and water level are two critical parameters in assessing water quality; however, monitoring these factors can pose significant challenges in tilapia cultivation within tarpaulin ponds. Manual water quality monitoring is often time-consuming, prone to human error, and less responsive to fluctuations in water conditions. To address these issues, an IoT-based water quality monitoring system has been developed, utilizing turbidity and ultrasonic sensors integrated with the NodeMCU ESP8266 microcontroller and the Blynk application as a user interface. This system can operate a relay to automatically control the water pump based on sensor data, such as activating the pump to regulate both water level and turbidity. The results of the study demonstrated that the turbidity sensor effectively detected water turbidity, with tap water indicating a turbidity level below 50 NTU (clear) and tea water indicating a turbidity level above 50 NTU (cloudy). Additionally, the ultrasonic sensor successfully maintained the water level within the ideal range of 8-12 cm. The Blynk application is capable of displaying sensor data and pump status in real-time via an internet connection.

Keywords: Monitoring System, Internet of Things, Water Quality, Fish Cultivation