

Monitoring the Feasibility Level of Clean Water Source Quality in Sumber Kemuning Village, Tamanan Subdistrict, Bondowoso Using Fuzzy Logic

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ABSTRACT

Clean water is a primary need for the community that greatly affects health and well-being. In Sumber Kemuning Village, Tamanan District, Bondowoso, water quality problems arise due to drought and the lack of an adequate monitoring system. This encourages the need for innovation in automatic and real-time water quality monitoring.

This study aims to design a water quality monitoring system based on the Sugeno method of Fuzzy Logic using three parameters, namely pH, TDS (Total Dissolved Solid), and turbidity. Data from the sensor is processed using Arduino Nano and ESP32, then displayed in real-time via a website that can be accessed by the public via smart devices. The Sugeno method was chosen because it is able to handle dynamic data and provide more accurate decision results.

With this system, the community can monitor water quality directly and quickly, and prevent the use of unsuitable water. This research is expected to be the right solution in maintaining clean water quality and become a reference for the development of water monitoring technology in rural areas..

Keywords: Clean Water, Water Quality Monitoring, Fuzzy Logic Sugeno, Arduino Nano, ESP32, pH, TDS, Turbidity, Real-Time System, Sumber Kemuning Village.