

ABSTRACT

This final project aims to develop a web-based water quality classification system for aquaponics using the K-Means Clustering algorithm with three key parameters: pH, temperature, and Total Dissolved Solids (TDS), obtained through Internet of Things (IoT) devices installed in the aquaponic system on-site. The sensor data is classified into three categories: good, fair, and poor, which are visualized through an interactive web-based interface using Streamlit. The system implementation includes real-time data integration from IoT sensors with manual input capability for users. The system also provides educational content, allowing farmers to access up-to-date knowledge about aquaponics while maintaining reference integrity through direct links to original content. With this approach, the system serves not only as a monitoring tool but also as a learning platform that supports data-driven decision making for aquaponic farmers.

Keywords: Aquaponics, K-Means Clustering, Internet of Things, Streamlit, Real-Time