

ABSTRACT

Crab cultivation in brackish waters requires regular water quality monitoring to maintain environmental conditions in accordance with the crab's living needs. Manual monitoring that has been carried out so far has several shortcomings, such as limited observation time and the unavailability of direct data. This study aims to design and build an Internet of Things (IoT)-based water quality monitoring system that is applied to the Vertical House system for crab cultivation. The system uses an ESP32 microcontroller connected to five types of sensors, namely temperature sensors (DS18B20), pH, dissolved oxygen (DO), total dissolved solids (TDS), and turbidity. The reading data from the sensors is sent to the Firebase Realtime Database and displayed via a web interface that can be accessed using a browser-based device. From the test results, the system is able to display data on the five water quality parameters directly, so that it can help users monitor water conditions remotely.

Keywords: Internet of Things, water quality, Firebase, sensors, crabs, brackish water cultivation.