Water Turbidity Detection Device Using Turbidity Sensor Based on Arduino Uno

Abstract

A water turbidity detector using a turbidity sensor and Arduino Uno offers a practical solution for measuring the clarity of water. The system works by detecting the presence of dissolved solid particles using the turbidity sensor, with the Arduino Uno serving as the main microcontroller. The measured turbidity level is displayed on an LCD, while LED and buzzer indicators provide real-time alerts if the turbidity exceeds a predefined threshold. The integration of all components—turbidity sensor, Arduino Uno, LCD, LED, and buzzer—into a single, easy-to-use unit makes the device user-friendly and efficient. This system is designed to help users monitor water quality easily and effectively through a compact and responsive input-output setup.

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Low-cost Internet of Things System for Turbidity Water Clarity Measurement

Abstract

One of the main challenges the world is currently facing is the shortage of clean water supply, largely due to the contamination of water sources, which has severely impacted long-term availability. An effective way to assess water quality is by measuring turbidity, a measure of the cloudiness or haziness of water caused by suspended particles that are typically not visible to the naked eye. High turbidity often indicates the presence of pollutants and a decline in water clarity and safety. To address this, the Internet of Things IoT has emerged as a powerful technology that enables physical objects, such as sensors, to connect to the internet and exchange data with minimal human interaction. In water management systems, IoT can be applied through the use of smart sensors that remotely collect and transmit real-time data. This project aims to develop a low-cost, IoT-based prototype that uses simple sensors to monitor turbidity in water. The system was tested in three different locations, and several experiments were conducted to evaluate its performance. Results showed that the prototype was effective in detecting different turbidity levels at various times of the day, demonstrating its potential for reliable, real-time water quality monitoring

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Web-based of Smart Water Quality Monitoring System

Abstract

The Web-based Smart Water Quality Monitoring System is specifically designed for Bao Lin Yuan Nursery to ensure proper water quality control within the plantation. This IoT-based system incorporates the TS-300B turbidity sensor and a pH sensor to monitor both turbidity and pH levels in the water, helping to protect plants from potential damage caused by water impurities. The primary goal is to assist the nursery owner in continuously tracking water quality to reduce the risks associated with poor water management. The system is built using various IoT components, including the TS-300B turbidity sensor, pH sensor kit, ultrasonic sensor, and NodeMCU ESP8266 microcontroller, and integrates ThingSpeak as its cloud-based database platform. The development follows the waterfall methodology, which allows for a structured and phased implementation process. As a result, the system offers a user-friendly web interface that enables the owner to manage staff, register and monitor water tanks, and oversee the overall water quality in the plantation more efficiently.

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