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Low-cost, Real-Time, Autonomous Water Quality Testing and Notification System

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Abstract

Input Traditionally, water quality was tested by collecting the samples of water and experimentally analyzing it in the laboratories. However, in today's world, where time is the scarcest resource available and industrialization and economy is growing rapidly, the traditional method of water quality testing is not applicable anymore. To tackle the issue, several electronic (microcontroller and sensor based) water quality monitoring systems were developed in the past decade. However, as most of these systems were studied, besides their strengths, each of them have their own limitations to be taken into consideration. Therefore, an automatic, remote, portable, real time, and low cost water quality monitoring system has been developed. This system consists of a self-made Arduino microcontroller, multiple sensors, GSM module, LCD display screen, and alarm system. The water quality data is read from the physical world through the water quality testing sensors and sent to microcontroller. The data is then analyzed by the microcontroller and the result is displayed on the LCD screen on the device itself. Another copy of the sensor readings is sent remotely to the water quality monitoring user's mobile phone in the form of SMS. When an abnormal water quality parameter is detected by any sensor, the alarm system will turn on the respective red LED for that parameter and the buzzer will give warning sound. At the same time, the abnormality of the water parameter is reported to the user through SMS. The system has been designed so that it can be used for wide applications and by all kinds of users.

Keywords

Author Keywords: Water quality monitoring; Microcontroller; Sensors; GSM module; Alarm system

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