PROJECT DESIGN PHASE 1

PROPOSED SOLUTION:

DATE	1 OCT 2022
TITLE	Real Time River Water Quality Monitoring and Control System
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MAXIMUM MARKS	2

Solution:

Abstract

Pollution of water is one of the main threats in recent times as drinking water is getting contaminated and polluted. The polluted water can cause various diseases to humans and animals, which in turn affects the life cycle of the ecosystem.

If water pollution is detected in an early stage, suitable measures can be taken and critical situations can be avoided. To make certain the supply of pure water, the quality of the water should be examined in real-time.

Smart solutions for monitoring of water pollution are getting more and more significant these days with innovation in sensors, communication, and Internet of Things (IoT) technology.

In this paper, a detailed review of the latest works that were implemented in the arena of smart water pollution monitoring systems is presented.

The paper proposes a cost effective and efficient IoT based smart water quality monitoring system which monitors the quality parameters uninterruptedly. The developed model is tested with three water samples and the parameters are transmitted to the cloud server for further action.

Related works

Pasika and Gandla [1] proposed a monitoring system which consists of a number of sensors used to measure several quality parameters like turbidity, pH value, water level in the tank, dampness of the adjoining environment and temperature of the water. The sensors are interfaced with the Microcontroller Unit (MCU) and additional processing is executed by the Personal Computer (PC). The acquired data will be directed to the cloud by means of Internet of Things (IoT) based ThinkSpeak application for monitoring the quality of the water under test. As a future directive, work should be extended for analyzing some other parameters such as nitrates, electrical conductivity, dissolved oxygen in the water and free residual chlorine.

Mukta et al. [2] developed an IoT based Smart Water Quality Monitoring (SWQM) system which helps in incessant measurement of quality of water on the basis of four different parameters of water quality i.e., pH, temperature, turbidity and electric conductivity. Four different sensors are coupled to Arduino Uno in order to sense the quality parameters. The data collected from all the four sensors are communicated to a desktop application which is developed in .NET platform and the extracted data are matched with the standard values. On the basis of the collected data from sensors, the developed SWQM model will efficaciously examine the water quality parameters by employing fast forest binary classifier for classification of the sample of water under test is whether potable or not.

Requirements :-

=> Any Iot Kit(Eg; Raspberry pi , esp32,Arduino Uno)

=> Temperature Sensor

=> Turbidity Sensor

=> pH Sensor

=> Conductivity Sensor

=> Humidity Sensor

=> IBM watson Cloud Platform

=> Node - Red

=> Mobile

=> Computer(for Programming)

Benefits:-

The rapid development of WSN technology provides a novel approach to real-time data acquisition, transmission, and processing. The clients can get ongoing water quality information from far away. **forest fire and early earthquake, reduce air population, monitor snow level, prevent landslide, and avalanche** etc

Some of the main advantages of smart water management are **a better understanding of the water system, detection of leaks, conservation, and monitoring of water quality**.