

LITERATURE SURVEY

Real-Time River Water Quality Monitoring and Control System

ABSTRACT

Good water quality is essential for the health of our aquatic ecosystems. Continuous water quality monitoring is an important tool for management authorities, providing real-time data for environmental protection and tracking pollution sources;

However, continuous water quality monitoring at high temporal and spatial resolution remains prohibitively expensive. In this system we present a design and development of a low cost system for real time monitoring of the water quality using IOT(internet of things).The system consist of four sensors is used to measuring physical and chemical parameters of the water. The parameters such as temperature, turbidity, PH and water flow can be measured. The measured values from the sensors can be processed by the core controller. The Raspberry Pi can be used as a core controller. Finally, the sensor data can be viewed on internet using cloud computing.

Problem Statement

Still in India most of the people use simple water purifier that is not enough to get surety of pure water. Sometimes the water has dangerous particles or chemical mixed and general purpose water purifier cannot purify that. And its impossible to check the quality of water manually in every time.This may cause many problems to aquatic life and many humans whose life is related to river Water system.there a huge need for a such system which can give real time quality monitoring.

So an automatic real-time monitoring system is required to monitor the health of the water reserved in our rivers. So it can warn us automatically if there is any problem with the reserved water. And we can check the quality of the water anytime and from anywhere. By keeping this mind we designed this system needed for real time applications

1) IoT-based System for Real-time Water Pollution Monitoring of River

Mohammad Ariful Islam Khan; Mohammad Akidul Hoque; Sabbir Ahmed

IEEE September 2021

The research proposes a system to remotely monitor the water quality of a river so that the authorities can gather better insights about the condition of that particular river and predict the critical future phenomena. Consequently, they will be able to take auspicious steps in order to protect the rivers and save the environment. The proposed framework can observe the real-time value of pH, conductivity, turbidity, temperature and flow of the water by utilizing various sensors. Furthermore, through our device, effective predictions about imminent floods can be made. Thus, authorities can commence early warning for floods and ensure prompt evacuation. Thus, our technique can significantly minimize the casualties caused by this disaster. In this context, real-time feeds are obtained through Internet of Things (IoT). For wireless data transmission Message Queuing Telemetry Transport (MQTT) is used.

2) A Development and Implementation of Water Quality Assessment Monitoring (WQAM) System using the Internet of Things (IoT) in Water Environment

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JEVA - 23 November 2021

This paper presents the development and implementation of Water Quality Assessment and Monitoring (WQAM) system. The system development used Wi-Fi enabled microcontroller to connect with the IoT environment and store the data in the IoT cloud server. The microcontroller used is Arduino UNO that interacts with three types of sensor probes which are pH, turbidity and temperature probe. All the data measurements is transferred using a Wi-Fi module which is ESP8266. The IoT cloud used to utilize the data frame is Thing Speak. This system was implemented on Bandar Pereda Lake and Deraa River in Pulau Pinang with two systems implemented at each location. The sensors were placed on the water surface for more accurate measurements. This system continuously measures the readings of pH, turbidity dan temperature on the lake/river for every 1 hour. Twenty readings were taken for every 1 hour within the first 20 minutes with 1 minute interval and the readings were stored in the IoT cloud server.

3) Review of Water Quality Monitoring using Internet of Things (IoT)

Mr. A. P. Roger Rozario, R. Surya

IEEE, 2019

The quality of the water must be monitored in real-time to ensure its safety and supply. Monitoring water in traditional ways takes longer, which can take up to from 24 to 96 hours to identify contaminants in water supplies, which are more time taking. This project aims at developing a water quality monitoring system using sensors and IoT (Internet of Things). The water quality parameters like temperature, pH, and turbidity are measures using sensors and the water quality index is determined. The measured values from the sensors will be processed using a microcontroller, and alert message will be sent to the user via an android application developed using MIT app inventor in case of any abnormalities.

4) An IoT Based Smart Water Quality Monitoring System using Cloud

Ajith Jerom B.; R. Manimegalai; R. Manimegalai

IEEE – April 2020

Other sources of pollution include agricultural runoff and unregulated small scale industry that results in polluting, most of the rivers, lakes and surface water in India. In this paper, An IoT Based Smart Water Quality Monitoring System using Cloud and Deep Learning is proposed to monitor the quality of the water in water-bodies. In conventional systems, the monitoring process involves the manual collection of sample water from various regions, followed by laboratory testing and analysis. This process is ineffective, as this process is arduous and time-consuming and it does not provide real-time results. The quality of water should be monitored continuously, to ensure the safe supply of water from any water bodies and water resources. Hence, the design and development of a low-cost system for real-time monitoring of water quality using the Internet of Things (IoT) is essential. Monitoring water quality in water bodies using Internet of Things (IoT) helps in combating environmental issues and improving the health and living standards of all living things.

5) Design and Implementation of Real Time Approach for The Monitoring of Water Quality Parameters

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IEEE - June 2022

Access to safe drinking water is essential to nurturing human life on earth. Polluted air and unsanitary water can cause health problems. Unhygienic water can cause stomach and health-related problems. A specific range of water quality parameters, mainly temperature, pH, total dissolved solids (TDS) and turbidity, can degrade the growth of this bacteria. This presented paperwork is to develop a smart water quality monitoring system using four sensors and an IoT platform to help determine water quality. It is to analyse the parameters of water samples such as tap water, co way water, river water, pond water, and lake water whether these water samples are in the threshold range for drinking or not. The device is initially used to measure pH, turbidity, total dissolved solids (TDS) and temperature, and then sent the information to the microcontroller Arduino Uno.

CONCLUSION

The paper depicts a brief survey on the technology used in the existing smart water quality monitoring system and describes the technology used for this system. It also includes the international status of the system. Comparative study of the different mode of technologies used for real time monitoring. By employing this recommended system, the related authorities can take measures to boost the water quality which makes it more usable. These measures can diminish the contaminants present in water, which in turn cut off the threats caused due to usage of unclean water for daily life, assuring the acceptable facets of water.