

LITERATURE SURVEY

Real-Time River Water Quality Monitoring and Control System

Topic 1:

IoT Based Real-time River Water Quality Monitoring System

Author:

Mohammad salah Uddin chowdury, Talha Bin emran, Subhasish ghosh, Abijith Pathak

About:

Current water quality monitoring system is a manual system with a monotonous process and is very time-consuming. This paper proposes a sensor-based water quality monitoring system. The system consists of several sensors which is used to measure physical and chemical parameters of the water. The main components of Wireless Sensor Network (WSN) include a microcontroller for processing the system, communication system for inter and intra node communication and several sensors. Real-time data access can be done by using remote monitoring and Internet of Things (IoT) technology. Data collected at the apart site can be displayed in a visual format on a server PC with the help of Spark streaming analysis through Spark MLlib, Deep learning neural network models, Belief Rule Based (BRB) system and is also compared with standard values. If the acquired value is above the threshold value automated warning SMS alert will be sent to the agent. The uniqueness of our proposed paper is to obtain the water monitoring system with high frequency, high mobility, and low powered. Therefore, our proposed system will immensely help Bangladeshi populations to become conscious against contaminated water as well as to stop polluting the water.

Limitations:

- * It is difficult to collect the water samples from all the area of the water body.
- * The cost of analysis is very high.
- * The lab testing and analysis takes some time and hence the lab results does not reflect real time water quality measurement due to delay in

Topic 2:

An IoT Based System for Water Quality Monitoring

Authors:

Pranita Mahajana ,Prachi Shahaneb

About:

Potable water quality is important in socio-economic aspects. Many researchers developed various systems to ensure clean drinking water. The traditional system works by manually collecting the samples; manual analysis is done in the laboratory causing delay and manual errors. Existing systems may reduce the errors but incur a delay as the analysis is not done at user site. A system is needed which will dynamically monitor and ensure water quality to users. Proposed system has various sensors to check and ensure the quality of water-based on pH, temperature, conductivity, turbidity, ORP, Nitrate and free residual chlorine. Data is collected through sensors and send for further processing. LEDs deployed on the system are for general users to immediately identify the water quality. The system aims to reduce the delay in existing systems by deploying indicators on system itself so that the person using the system will be able to decide whether water is safe to drink or not, which can avoid further health hazards. Implemented system is economical and dynamic. Use of LEDs on system makes it user friendly and even common people can assure quality of water. System is specially designed for public places like schools and colleges.

Limitations:

- Sensors are available but no system is available for real time monitoring thus deploying such a system in the public places especially school and colleges will help people as well as water monitoring boards.

Topic 3:

IoT based smart water quality monitoring system

Author:

VarshaLakshmikantha,AnjithaHiriyannagowda,AkshayManjunath,ArunaPatted,
JagadeeshBasavaiah

About:

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.

Limitations:

Due to the limited drinking water resources, intensive money requirements, growing population, urban change in rural areas, and the excessive use of sea resources for salt extraction has significantly worsened the water quality available to people

Topic 4:**IoT based Smart Water Quality Monitoring System****Author:**

Monira Mukta; Samia Islam; Surajit Das Barman; Ahmed Wasif Reza; M Saddam Hossain Khan

About:

This paper represents an IoT (Internet of things) based smart water quality monitoring (SWQM) system that aids in continuous measurement of water condition based on four physical parameters i.e., temperature, pH, electric conductivity and turbidity properties. Four sensors are connected with arduino-uno in discrete way to detect the water parameters. Extracted data from the sensors are transmitted to a desktop application developed in NET platform and compared with the WHO (World Health Organization) standard values. Based on the measured result, the proposed SWQM system can successfully analyze the water parameters using fast forest binary classifier to classify whether the test water sample is drinkable or not.

Limitations:

*The system is less effective as sensors are installed very deep inside the water and their positions are fixed.

*The sensors are very expensive. Moreover their maintenance cost is also very high. This leads to higher cost on the regulatory body.

*The sensors which work on power source may often required to be replaced in case of malfunctioning.

*Mounted Sensors may get damage during natural disasters and often by aquatic animals.

Topic 5:**Smart Water Quality Monitoring System Using Iot Technology****Authors:**

Vennam Madhavireddy, B. Koteswarrao

About:

The economical and effective system of water quality observation is the most robust implementation of impure water. Drinking water could be precious for all people as water utilities face more challenges. These challenges arise due to the high population, fewer water resources, etc. So, different methods are used to monitor in the real-time water quality. To make sure that safe distribution of water is done, it must be observed in real time for a new method in the "Internet of Things (IoT)" based water quality has been projected. Realtime water quality observation is examined by data acquisition, method, and transmission with an increase in the wireless device network method in the IoT. Microcontroller and the processed values remotely to the core controller ARM with a WI-FI protocol are used to interface the measured values from the sensors. This projected the water quality observation interface sensors with quality observation with IOT setting. WQM selects parameters of water like temperature, pH level, water level and CO₂ by multiple different device nodes. This methodology sends the information to the web server. The data updated at intervals within the server may be retrieved or accessed from anyplace within the world. If the sensors do not work or get into abnormal conditions, then a buzzer will be ON.

Limitations:

- Reliability
- Bandwidth
- Range