

REAL-TIME RIVER WATER QUALITY MONITORING AND CONTROL SYSTEM

INTRODUCTION:

Water is one of the most essential natural resource that has been gifted to the mankind. But the rapid development of the society and numerous human activities speeded up the contamination and deteriorated the water resources. For above water quality monitoring is necessary to identify any changes in water quality parameters from time-to-time to make sure its safety in real time. The Central Pollution Control Board (CPCB) has established a series of monitoring stations on water bodies across the country which monitor the water quality on either monthly or yearly basis. This is done to ensure that the water quality is being maintained or restored at desired level. It is important that it is monitored on regular basis. Water quality monitoring helps in evaluating the nature and extent of pollution control required, and effectiveness of pollution control measures. CPCB has plans to establish water quality monitoring network across Ganga river basin. All the stations will operate in real time and central station can access data from any of the above stations using GPRS/GSM or 3G cellular services. State pollution boards and CPCB zonal offices can also access data from central station. Large amount of data can help to take right decisions and also to implement in time accordingly. Cost of the system depends on number of parameters to be measured. Water quality monitoring systems need to quickly identify any changes in the quality of water and report the same to the officials for immediate action. The system is designed for continuous on-site sensing and real time reporting of water quality data where the officials can access the data on the smart phone/PC through Internet. Our

proposed system employs use of multiple sensors to measure the parameters, measures the quality of water in real-time for effective action, and is economical, accurate, and required less manpower.

LITERATURE SURVEY:

REVIEW -1

Title of the paper:

Detection of water pollution and water management using smart sensors.

Name of the Author:

J.Navarajan , B. Aswinkumar

This research paper focuses on Detection on water pollution and water management using smart sensors iot. To ensure the safe supply of drinking water the quality should be monitored in real time for that purpose new approach IOT (Internet of Things) based water quality monitoring has been proposed.

This system consists some sensors. Which measure the water quality parameter such as pH, turbidity, conductivity, dissolved oxygen, temperature. The measured values from the sensors are processed by microcontroller and these processed values are transmitted remotely to the core controller that is raspberry pi using Zigbee protocol.

Based on a study of existing water quality monitoring system and scenario of water we can say that proposed system is more suitable to monitor water quality parameters in real time.

Based on a study of existing water quality monitoring system and scenario of water we can say that proposed system is more suitable to monitor water quality parameters in real time.

REVIEW -2

Title of the paper:

River Water Pollution Monitoring and Alert System

Name of the Author:

NatasaMarkovic , Leonid Stoimenov

This research paper focuses on Sensor Web for River Water Pollution Monitoring and Alert System. Sensor Web has provided infrastructure for collecting and processing data from distributed and heterogeneous sensors.

This set of technologies has found various implementations, especially in the area of environmental monitoring. The Sensor Web architecture for crisis management, described in this paper, provides active monitoring of measuring parameters and timely responses in cases of environmental disasters.

The River Water Management and Alert System built on this architecture enable access, control and management of river water pollution.

REVIEW -3

Title of the paper:

Wireless Sensor Network for River Water Quality Monitoring

Name of the Author:

K. A. UnnikrishnaMenon , Maneesha V. Rameshet.

This research paper focuses on Wireless Sensor Network for River Water Quality Monitoring in India.

This paper introduces a river water quality monitoring system based on wireless sensor network which helps in continuous and remote monitoring of the water quality data in India.

The wireless sensor node in the system is designed for monitoring the pH of water, which is one of the main parameters that affect the quality of water. Wireless sensor Network which aids in River Water Quality Monitoring.

This paper also proposes a novel technique for the design of a water quality sensor node which can be used for monitoring the pH of water.

REVIEW -4

Title of the paper:

Water Quality Monitoring for Rural Areas-A Sensor Cloud Based Economical Project.

Name of the Author:

Nikhil Kedia

- This paper highlights the entire water quality monitoring methods, sensors, embedded design, and information dissipation procedure, role of government, network operator and villagers in ensuring proper information dissipation.
- It also explores the Sensor Cloud domain.
- While automatically improving the water quality is not feasible at this point, efficient use of technology and economic practices can help improve water quality and awareness among people

REVIEW -5

Title of the paper:

Real Time Water Quality Monitoring System

Name of the Author:

Jayti Bhatt, Jignesh Patoliya

- This paper describes to ensure the safe supply of drinking water the quality should be monitored in real time for that purpose new approach IOT (Internet of Things) based water quality monitoring has been proposed.
- In this paper, we present the design of IOT based water quality monitoring system that monitor the quality of water in real time.

- This system consists some sensors which measure the water quality parameter such as pH, turbidity, conductivity, dissolved oxygen, temperature.
- The measured values from the sensors are processed by microcontroller and this processed values are transmitted remotely to the core controller that is raspberry pi using Zigbee protocol. Finally, sensors data can view on internet browser application using cloud computing.

REVIEW -6

Title of the paper:

Adaptive Edge Analytics for Distributed Networked Control of Water Systems

Name of the Author:

Sokratis Kartakis, Weiren Yu, Reza Akhavan, and Julie A. McCann

- This paper presents the burst detection and localization scheme that combines lightweight compression and anomaly detection with graph topology analytics for water distribution networks.
- We show that our approach not only significantly reduces the amount of communications between sensor devices and the back end servers, but also can effectively localize water burst events by using the difference in the arrival times of the vibration variations detected at sensor locations.
- Our results can save up to 90% communications compared with traditional periodical reporting situations.