

LITERATURE SURVEY

1. IoT Based Real-time River Water Quality Monitoring System

Authors: Mohammad Salah Uddin Chowdury, Talha Bin Emran, Subhasish Ghosh, Abhijit Pathak, Mohd. Manjur Alam, Nurul Absar, Karl Andersson, Mohammad Shahadat Hossain.

The design of Wireless Sensor Network (WSN) that assists to monitor the quality of water with the support of information sensed by the sensors dipped in water. Using different sensors, this system can collect various parameters from water, such as pH, dissolved oxygen, turbidity, conductivity, temperature, and so on. 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. Now a day's Internet of things (IoT) is an innovative technological phenomenon. It is shaping today's world and is used in different fields for collecting, monitoring and analysis of data from remote locations. IoT integrated network is everywhere starting from smart cities, smart power grids, and smart supply chain to smart wearable. Though IoT is still under applied in the field of environment it has huge potential. It can be applied to detect forest fire and early earthquake, reduce air pollution, monitor snow level, prevent landslide, and avalanche etc. Moreover, it can be implemented in the field of water quality monitoring and controlling system. Water quality monitoring has gained more interest among researchers in this twenty-first century. Numerous works are either done or ongoing in this topic focusing on various aspects of it. The key theme of all the projects was to develop an efficient, cost-effective, real-time water quality monitoring system which will integrate wireless sensor network and internet of things. In this research, we monitor the physical and chemical parameters of water bodies inside Chittagong city by using an IoT based sensor network.

2. Real Time Monitoring Of Water Quality Using IoT

Authors: Somnath Swain, Mayank Raj, Aman Kaushal

Sensor-Based Water Quality Monitoring System which is used for measuring physical and chemical parameters of the water. The measured values from the sensors can be processed by the core controller, the Raspberry Pi. Finally, the sensor data can be viewed on the Internet using ThingSpeak API. The uniqueness of our proposed paper is to obtain the water monitoring system with high frequency, high mobility, and low power.

3. Internet of things enabled real time water quality monitoring system

Authors: S.Geeth,S.Gouthami

Smart solutions for water quality monitoring are gaining importance with advancement in communication technology. This paper presents a detailed overview of recent works carried out in the field of smart water quality monitoring. Also, a power efficient, simpler solution for in-pipe water quality monitoring based on Internet of Things technology is presented. The model developed is used for testing water samples and the data uploaded over the Internet are analyzed. The system also provides an alert to a remote user, when there is a deviation of water quality parameters from the pre-defined set of standard values.

4. IOT Based Real-Time River Water Quality Monitoring System

Authors: Bhoomika R,Netra Jalagar,Pooja F B,Sangeetha Sontera,Shanthveeresh M S

Real-time monitoring of water quality using IoT-integrated Big Data Analytics would greatly assist individuals in becoming aware of the dangers of drinking contaminated water and in not damaging the environment. The research is focused on real-time monitoring of river water quality. Since a result, IoT-integrated big data analytics appears to be a better solution, as it can provide dependability, scalability, speed, and permanence. An intensive comparative examination of real-time analytics technologies such as Spark streaming analysis through Spark MLlib, Deep learning neural network models, and Belief Rule Based (BRB) system will be undertaken during the project development period. This study suggests that the offered technologies be tested in a systematic manner in Bangladeshi river water of various characteristics. Due to budget constraints, we are just measuring the quality of river water parameters. This concept could be expanded into a local area's effective water management system. Other factors such as total dissolved solids, chemical oxygen demand, and dissolved

oxygen can also be quantified, which were not included in the scope of this investigation. As a result, the additional budget is required to improve the overall system.

5.The development of water quality monitoring system using internet of things

Authors: Sharifah Nurulhuda Tuan Mohd Yasin,Mohd Fauzi Mohd Yunus,Nur Bahiyah Abdul Wahab.

Biological diversity or biodiversity is an important element in the river water management system. The interaction between the various organisms in the river makes it a very complex ecological system. Therefore, water safety issues are a very important issue. Consumer complaints and reports made by the relevant government departments indicate that consumers are dissatisfied with the quality of water supplied. Hence, a concept in which equipment, machines, sensors and devices are connected to the Internet and there is data collection and transfer through the network developed to follow the river water quality index. Integration of the elements of sustainability and IR4.0 through the Internet of Thing by adopting electronic and Internet applications of Thing has a very positive impact to refresh the approach to lesions in Malaysia. The project aims to develop a wireless water quality monitoring system that aids in continuous measurements of water conditions based on pH and turbidity measurements. The developed system was successfully detecting both the pH and turbidity values. Water analysis and monitoring is a very important aspect of water conservation and protection. Water is a vital resource that runs more quickly overtime. To ensure continued supply of safe, clean drinking water, together as community to protect and to this vital resource.

6.IoT-Based Smart Water Quality Monitoring

Author:Kamal R

Field technicians resorted to Smart Water Quality Monitoring, which allowed them to monitor the water quality in real-time from anywhere across the globe using a combination of digital computing devices, internet services, communication media, and portable sensors.Smart Water Quality Monitoring systems have become extremely

useful in domestic applications, agriculture, aquaculture, and municipal waste recycling. In addition, these systems monitor water quality in lakes, rivers, and other water bodies. The IoT networks are incredibly safe, and the communication speed is also high. The technology comfortably resolves all the issues that the previous techniques had.

7. IoT Based Smart Water Quality Monitoring

Authors: Farmanullah Jan, Nasro Min-Allah, Dilek Düstegör

Safe water is becoming a scarce resource, due to the combined effects of increased population, pollution, and climate changes. Water quality monitoring is thus paramount, especially for domestic water. Traditionally used laboratory-based testing approaches are manual, costly, time consuming, and lack real-time feedback. Recently developed systems utilizing wireless sensor network (WSN) technology have reported weaknesses in energy management, data security, and communication coverage. Due to the recent advances in Internet-of-Things (IoT) that can be applied in the development of more efficient, secure, and cheaper systems with real-time capabilities, we present here a survey aimed at summarizing the current state of the art regarding IoT based smart water quality monitoring systems (IoT-WQMS) especially dedicated for domestic applications. In brief, this study probes into common water-quality monitoring (WQM) parameters, their safe-limits for drinking water, related smart sensors, critical review, and ratification of contemporary IoT-WQMS via a proposed empirical metric, analysis, and discussion and, finally, design recommendations for an efficient system. No doubt, this study will benefit the developing field of smart homes, offices, and cities.

8. Review of Water Quality Monitoring using Internet of Things (IoT)

Authors: Mr. A.P. Roger Rozario AP (Sr. Gr.), R. Vijay Radha Surya, V. Sowmethran

Water pollution is one of the biggest and serious threats to society. Water

has a significant impact on human health. 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. The sensor data can be viewed on the ThingSpeak GUI platform for monitoring and correction of the critical water quality parameters. The sensed data will be stored in the cloud or local storage and a machine learning algorithm will be implemented using the sensed parameters to predict the short term and long-term water quality in phase two of the project.

9.IoT based smart water quality monitoring system

Author:N. Geetha

Internet of Things (IoT) had emerged as a technology critical for environmental applications. Water is a natural resource and is the basic need for living things. In the current world, there is a scarcity of water due to overpopulation and also contamination of water resources. It is very crucial to save our drinking water for current and future generations. IoT based smart water quality monitoring system is proposed to monitor the quality of water. Different sensors are used to monitor various parameters like pH value, turbidity in the water. The microcontroller unit is interfaced with the sensors to process the data and GSM is used to send information to the monitoring centre for further actions to be performed. Results proved that the quality of the water is verified and SMS is sent to a higher authority.

10.IoT BASED WATER QUALITY MONITORING SYSTEM

Authors:JAYTI BHATT,JIGNESH PATOLIYA

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.