Real-Time River Water Quality Monitoring and Control System

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Literature Survey:

Paper 1 : IoT Based Real-time River Water Quality Monitoring System

Author : Mohammad Salah Uddin Chowdurya , Talha Bin Emranb, Subhasish Ghosha , Abhijit Pathaka , Mohd. Manjur Alama , Nurul Absara , Karl Anderssonc and Mohammad Shahadat Hossaind

This paper proposes a sensor-based water quality monitoring system. 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.

Paper 2 : Real Time Water Quality Monitoring System

Author : Mithila Barabde and Shruti Danve

This paper proposes a Sensor-Based Water Quality Monitoring System. The system architecture consists of data monitoring nodes, a base station and a remote station. All these stations are connected using wireless communication link. The data from nodes is send to the base station consisting of ARM controller designed for special compact space application. Data collected by the base station such as pH, turbidity, conductivity, etc is sent to the remote monitoring station. Data collected at the remote site can be displayed in visual format on a server PC with the help of MATLAB and is also compared with standard values.

Paper 3 : Internet of things enabled real time water quality monitoring system

Author : S. Geetha and S. Gouthami

Published : 27 July, 2017

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.

Paper 4 : Real-Time Water Quality Monitoring with Chemical Sensors

Author : Irina Yaroshenko, Dmitry Kirsanov, Monika Marjanovic , Peter A. Lieberzeit, Olga Korostynska, Alex Mason, Ilaria Frau and Andrey Legin

This paper provides a critical assessment of the applicability of various technologies for real-time water quality monitoring, focusing on those that have been reportedly tested in real-life scenarios. Specifically, the performance of sensors based on molecularly imprinted polymers is evaluated in detail, also giving insights into their principle of operation, stability in real on-site applications and mass production options. Such characteristics as sensing range and limit of detection are given for the most promising systems, that were verified outside of laboratory conditions.

Paper 5 : Cost-Effective River Water Quality Management using Integrated Real-Time Control Technology

Author : Fanlin Meng, Guangtao Fu and David Butler

Integrated real-time control (RTC) of urban wastewater systems is increasingly presented as a promising and emerging strategy to deliver improved surface water quality by responsive operation according to real-time data collected from the sewer system, treatment plant, and the receiving water.

Paper 6 : Real-time water quality monitoring through Internet of Things and ANOVA-based analysis: a case study on river Krishna

Author : Prasad M. Pujar, Harish H. Kenchannavar, Raviraj M. Kulkarni and Umakant P. Kulkarn

In this paper, an attempt has been made to develop a statistical model based on Internet of Things (IoT) for water quality analysis of river Krishna using diferent water quality parameters such as pH, conductivity, dissolved oxygen, temperature, biochemical oxygen demand, total dissolved solids and conductivity. These parameters are very important to assess the water quality of the river. The water quality data were collected from six stations of river Krishna in the state of Karnataka.

Paper 7 : Water Quality Monitoring System Using Wireless Sensor Network

Author : Shruti Sridharan

In this paper, the fundamental design and implementation of WSN featuring a high power transmission Zigbee based technology together with the IEEE 802.15.4 compatible transceiver is proposed. It is chosen due to its features that fulfill the requirement for a low cost, easy to use, minimal power consumption and reliable data communication between sensor nodes. The development of graphical user interface (GUI) for the monitoring purposes at the base monitoring station is another main component discussed in this paper.

Paper 8 : SMART WATER-QUALITY MONITORING SYSTEM BASED ON ENABLED REAL-TIME INTERNET OF THINGS

Author : ALI J. RAMADHAN

Published : Journal of Engineering Science and Technology December 2020, Vol. 15

This paper present an electronic water-monitoring system capable of facilitating proactive response to curb unsafe water supply in Najaf. The proposed system is intended to replace the conventional method, which is time-consuming and fails at real-time data generation. The proposed system is affordable and based on a wireless sensor network (WSN) and internet of things (IoT) to perform real-time monitoring and issue timely warning SMSs and e-mails.

Paper 9 : Smart water quality monitoring system with cost-effective using IoT

Author : Sathish Pasika and Sai Teja Gandla

In this paper, the proposed system consists of several sensors to measure various parameters such as pH value, the turbidity in the water, level of water in the tank, temperature and humidity of the surrounding atmosphere. And also, the Microcontroller Unit (MCU) interfaced with these sensors and further processing is performed at Personal Computer (PC). The obtained data is sent to the cloud by using IoT based ThinkSpeak application to monitor the quality of the water.

Paper 10 : Water Quality Monitoring System Using 3G Network

Author : Joseph Bryan G. Ibarra, Meo Vincent C. Caya, Andal, Jen Angelica, Magno Christian Lemuel Soc, Villaruel King Ralph, Villeza Steve Vincent and Zaliman Sauli

This paper presents a water quality monitoring system through the acquisition of data parameters such as temperature, pH level, turbidity, and amount of dissolved oxygen. The prototype consists of hardware such as sensors, Gizduino, Raspberry Pi, and 3G Pocket Wifi. Software element includes Raspbian as an operating system, Python as a programming language and MySQL for the database.

Paper11 : A system for monitoring water quality in a large aquatic area using wireless sensor network technology

Author : Alexander T. Demetillo, Michelle V. Japitana and Evelyn B. Taboada

In this paper, a low cost, real-time water quality monitoring system which can be applied in remote rivers, lakes, coastal areas and other water bodies is presented. The main hardware of the system consists of off-the-shelf electrochemical sensors, a microcontroller, a wireless communication system and the customized buoy. It detects water temperature, dissolved oxygen and pH in a pre-programmed time interval.

Paper12 : Real Time River Water Quality Monitoring Based on IoT

Author : Akash Jadhav, Akash Pathak, Ajay Suryawanshi, Rishikesh Avhad

To continuously monitored several water quality parameters through IOT environment that will help to control pollution of water due to sewage through illegal drainage pipelines.

Thank You