

# **REAL TIME RIVER WATER QUALITY MONITORING AND CONTROL SYSTEM**

**Domain: Internet of Things**

**TEAM LEADER:** NITISH KUMAR D.P

**TEAM MEMBERS:** MOHAN R

NANDAMUDI DINESH

SIVA SHANKAR M.B

**TEAM MENTOR:** Ms. SASIKALA M

## **LITERATURE SURVEY**

### **Real Time Water Quality Monitoring System Using IoT**

**AUTHORS:** Mayuri Malunekar, Sadhana Mare, Monika Nagawade

There is need for effective monitoring, evaluation and control of water quality in different areas. Ensuring safe water supply of drinking water is big challenge for today's generation. The excessive use of fertilizers in farms and

also, in other sectors such as mining and construction have contributed in overall reduction of water quality. To ensure the safe supply of the drinking water the quality needs to be monitor. So, we can give a design and

development of a low-cost system for real time monitoring of the water quality using IoT (Internet of Things) and the system include of different sensors is used for measuring physical and chemical parameters of the water.

### **ADVANTAGES:**

- Due to automation, it will reduce the time to check the parameters.
- This is economically affordable for common people
- Provides the prevention from diseases caused by water
- Accuracy in measurement
- SMS alert is sent to the user

### **IoT Based Real-time River Water Quality Monitoring System**

**AUTHOR:** Mohammad Salah Uddin Chowdury, Talha Bin Emran, Subhasish Ghosh

As real time water quality monitoring is emerging all over the world. From drinking water to industrial waste water. In this general water quality parameters are total Organic carbon, Residual Chlorine, Conductivity, pH,

Turbidity. Various types of parameters are measured with sensors by placing them into different solutions of water. Data generated is compared with standard values in cloud and if exceeds then message sent from cloud to the users mobile. The given paper presents a detailed information of recent works carried out in smart water quality monitoring. Also, a power efficient, simpler solution for in pipe water quality monitoring based on Internet of Things technology is presented.

## **Real-Time Water Quality Monitoring System**

**AUTHORS:** Jyotirmaya Ijaradar, Subhasish Chatterjee

The need for effective and efficient monitoring, evaluation and control of water quality in residential area has become more demanding in this era of urbanization, pollution and population growth. Ensuring safe water supply of drinking water is big challenge for modern civilization. Traditional methods that rely on collecting water samples, testing and analyses in water laboratories are not only costly but also lack capability for real-time data capture, analyses and fast dissemination of information to relevant stakeholders for making timely and informed decisions. In this paper, a real time water quality monitoring system prototype developed for water quality monitoring in Residential home is presented. The development was preceded by evaluation of prevailing environment

including availability of cellular network coverage at the site of operation. The system consists of a Raspberry Pi, Analog to Digital Converter, Water quality measurement sensors. It detects water temperature, dissolved oxygen, pH, and electrical conductivity in real-time and disseminates the information in graphical and tabular formats to relevant stakeholders through a web-based portal and mobile phone platforms. The experimental results show that the system has great prospect and can be used to operate in real world environment for optimum control and protection of water resources by providing key actors with relevant and timely information to facilitate quick action taking.

The system developed in this paper is generally used for testing water samples and the data uploaded over the Internet are analyzed. The paper presents a detailed survey on the different techniques implemented in existing smart water quality monitoring systems. Also, a low cost, less complex water quality monitoring system is proposed.

### **Water Quality Monitoring System Based on IOT**

**AUTHORS:** Vaishnavi V. Daigavane, Dr. M.A Gaikwad

In the 21st century, there were lots of inventions, but at the same

time were pollutions, global warming and so on are being formed, because of this there is no safe drinking water for the world's pollution. Nowadays, water quality monitoring in real time faces challenges because of global warming limited water resources, growing population, etc. Hence there is need of developing better methodologies to monitor the water quality parameters in real time. The water quality parameters pH measures the concentration of hydrogen ions. It shows the water is acidic or alkaline. Pure water has 7pH value, less than 7pH has acidic, more than 7pH has alkaline. The range of pH is 0-14 pH. For drinking purpose, it should be 6.5-8.5pH. Turbidity measures the large number of suspended particles in water that is invisible. Higher the turbidity higher the risk of diarrhoea, cholera. Lower the turbidity then the water is clean. Temperature sensor measures how the water is, hot or cold. Flow sensor measures the flow of water through flow sensor. The traditional methods of water quality monitor involve the manual collection of water samples from different locations.

### **Smart Water Quality Monitoring System**

**AUTHORS:** Vaishnavi V, Varshitha R C, Tejaswini M, Needhu Rebecca Biju

India is facing a major issue of natural resource exiguity, especially in case of water due to population growth and economic development .

Most of the water bodies are contaminated due to the superfluous pollutants, which are mostly human-made. Thus certify the cleanliness of water is a major challenge. Rapid industrialization and greater emphasis on agriculture growth with latest technology, usage of more fertilizers and pesticides caused large impurity in aquatic surroundings directing to debasement of water quality and depletion of aquatic life. Water bodies are contaminated due to point and non-point sources of pollution, which include sewage discharge, discharge from industries, run-off from agricultural fields, urban run-off and even due to floods, droughts and lack of education and awareness amid users. The involvement of users in looking at the aspects like hygiene, environment sanitation, storage and disposal are exceptive elements to uphold the quality of water bodies. The tonicity of lakes, rivers and other water bodies and their biological diversification are directly linked with the health of nearly every element of the ecosystem. Due to the use of befouled water by ecosystem components, the waterborne diseases are spreading over surroundings causing death and slowing down socio-economic progress. About 5 million people have died because of waterborne diseases all over the world (Water Resource Information System of India, 2017). Fertilizers and pesticides used for agriculture purpose can be washed by rain through soil, which ends up in water bodies. Industrial effluents are also washed into water bodies. These pollutants go into the food chain and gather till they reach noxious levels, ultimately killing birds, fish and mammals. For potable water, it should of high quality whereas for agriculture and industries the quality can be flexible. Industries use water from rivers to power machinery and for

cooling down machinery Increment in water temperature diminishes the broke down oxygen level in water which influences the biotic life. (Central Ground Water Board, 2017) . The large portion of the above variables makes water quality checking more paramount in our biological system