

IBM PROJECT – REAL TIME WATER QUALITY MONITORING AND CONTROL SYSTEM

PROPOSED SOLUTION

PROBLEM STATEMENT:

Nowadays, maintaining pure supply of water to the people is getting more challenging day by day. In India mainly in big cities the municipality corporation use lots of chemicals to purify the river water then supply that to the people. And we reserved that water without any test. And we also don't know the water is either safe for drinking or not. And now a day's water quality monitoring in real time faces challenges because of global warming limited water resources, growing population, etc. Pollutions, Global Warming and so on are being formed, because of this there is no safe drinking water for the world's pollution.

So, the water we reserved in the water tank at our roof top or basement in our society or apartment may not be safe. Still in India most of the people use simple water purifier that is not enough to get surety of pure water. Sometimes the water has dangerous particles or chemical mixed and general-purpose water purifier cannot purify that. And it's impossible to check the quality of water manually in every time. So an automatic real-time monitoring system is required to monitor the health of the water reserved in our water tank of the society or apartment. So, it can warn us automatically if there is any problem with the reserved water. And we can check the quality of the water anytime and from anywhere.

IDEA DESCRIPTION:

Our goal is to develop a system for real time quality assessment for water health at residential places using pH, Turbidity and Temperature sensors are used to gather the parameters necessary to monitor water health in real time. Following are the objectives of the proposed system.

- River water quality can be monitored by the web application.
- Can be able to know if there are any dust particles present in the water.

- The PH level of the water can be monitored using pH sensor.
- Water temperature can be monitored using temperature sensor.
- Alerting the authorities if the water quality is not good so that they can go and announce the localities not to drink that water.

NOVELTY:

Monitoring of real time quality of Water from reserve tank of house and colony makes use of PH, turbidity and temperature sensor and existing Cloud system for data analytics. The system can monitor water quality automatically, triggers alarms immediately to prevent any health hazards and it is low in cost and does not require people on duty. So, the system is likely to be more economical, convenient and fast. The system has good flexibility. Only by replacing the corresponding sensors and changing the relevant software programs, this system can be used to monitor other water quality parameters. The operation is simple. The system can be expanded to monitor hydrologic, air pollution, industrial and agricultural production and so on. It has widespread application and extension value.

SOCIAL IMPACT:

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. Monitoring provides the objective evidence necessary to make sound decisions on managing water quality today and in the future. Water-quality monitoring is used to alert us to current, ongoing, and emerging problems; to determine compliance with drinking water standards.

FINANCIAL BENEFITS:

Water quality is one of the most important factors in a healthy ecosystem. Clean water supports a diversity of plants and wildlife. Though it may seem unrelated at first, our actions on land affect the quality of our water. It results in less cost and saves man power and time.

SCALABILITY OF SOLUTION:

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.

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.