IoT Based Water Quality Monitoring System

A PROJECT REPORT

Submitted by

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ABSTRACT

Water is the most precious element in the world. All the living things on the earth must need water for their livelihood. So need to safeguard water .Due to various chemicals, plastic and unwanted elements usage increase water pollution. Once water gets polluted then, it is very hard for living on the earth. To prevent water pollution nowadays it becomes very essential to monitor water pollution. IOT based system is one of the most automated and applicable tools for water pollution monitoring. The system measure the live values and it may be applicable for the current situations. The designed system is much active and capable to apply modifications based on water contaminated. The precautionary measures will be taken derived from the system. The system analyzes the current contamination and makes decisions. Water is used for various purposes and it has a strong impact on public health and the environment. Drinking contaminated water can cause many diseases. Even some of the packaged water that is available does not have the appropriate mineral content which in turn leads to an adverse health effect. The proposed system is to check whether the given water sample is eligible for drinking by creating an application for which IOT is used by taking some of the basic parameters of the water sample.

OBJECTIVE

Main objective is to develop a reliable water quality monitoring system using IOT.

• Proposed System consists of various sensors which will compute the standard values of water in real-time for effective action and .If limits exceeded then alert is send to the user using IOT.

• Depict the design and working of IOT based water quality monitoring system .

FUNCTIONAL REQUIRMENTS

Hardware Requirements

Processor: Any Processor above 500 MHz.

Ram :4 GB

Hard Disk: 4 GB

Microcontroller :Raspberry-pi 3

Input device :Temperature/Conductivity/PH/Turbidity Sensors

Output device :Blynk Application in Mobile phone or PC

Software Requirements

Operating System: Windows 7 or higher

Programming language:Python

Platform :Raspberry Pi IDE

SYSTEM MODULES

Sensing Module

Sensor is an ideal device to detect water quality parameters values. The proposed architecture consist of several sensors (Turbidity, Conductivity, PH, Temperature) is connected to core controller. These sensors reads the values.

Data gathering and processing Module

The analog values read by sensors are coverted to digital values. The measured values from the sensors can be processed by the core controller. The single chip gets the data, and then processes and analyzes them. The core controller(Raspberry pi) are accessing the sensor values and processing them to transfer the data through internet.

Wireless Transmission Module

The processed sensor data transfer through the internet. Raspberry pi has inbuilt wifi support. The data are instantaneously sent to monitoring center by IoT network to concern authority. The sensor data can be viewed on the internet wi-fi system.

Visualization and monitoring Module.

BLYNK app is installed in the android version to see the data and corresponding actions. If the water quality is abnormal, the data will be sent to monitoring center and management's mobile in the same way at the same time.

RESULTS
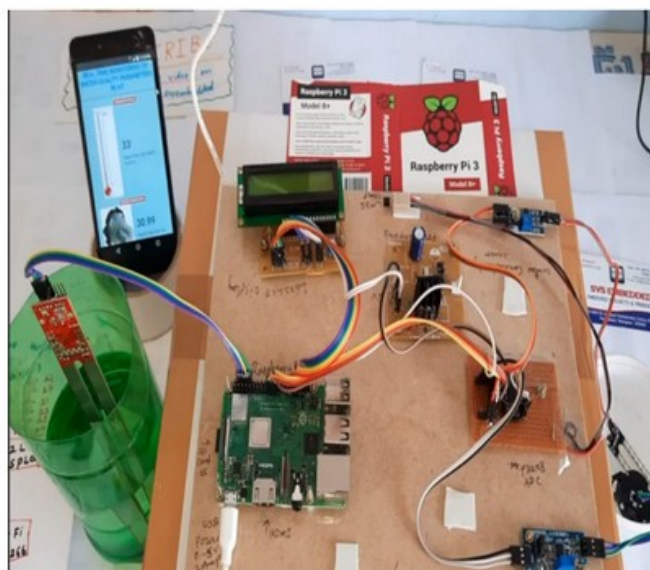
CONCLUSION

The water is more precious and required for the human beings and other living objectives on earth. Due to much pollution and huge water usage, the water became polluted. So it is essential to monitor the water pollution. The water pollution system provides a mechanism to have continues monitoring and provides the status of contamination. With the advances in IoT technology, the water quality monitoring system is becoming smarter with reduced power consumption and ease of operation. This work presents a review of the recent works carried out by the researchers in order to make water quality monitoring systems smart, low powered and highly efficient such that monitoring will be continuous and alerts/notifications will be sent to the concerned authorities for further processing.The developed model is flexible and simple to use .