REAL-TIME RIVER WATER QUALITY MONITORING AND CONTROL SYSTEM

A PROJECT REPORT

Submitted by

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ABSTRACT:

Current water quality monitoring system is a manual system with a monotonous process and is very time-consuming. 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. Data collected at the apart site can be displayed in a visual format on a server PC with the help of Spark streaming analysis through Spark MLlib, Deep learning neural network models, Belief Rule Based (BRB) system and is also compared with standard values. If the acquired value is above the threshold value automated warning SMS alert will be sent to the agent. The uniqueness of our proposed paper is to obtain the water monitoring system with high frequency, high mobility, and low powered. Therefore, our proposed system will immensely help Bangladeshi populations to become conscious against contaminated water as well as to stop polluting the water.

INTRODUCTION:

Water is the primary need of all living beings and living without water is impossible. With the advancement of technology and industrialization, environmental pollutions have become a major concern. Water pollution is one of the most serious types of this environmental pollution. Our lives depend on the quality of water that we consume in different ways, from juices which are produced by the industries. Any imbalance in the quality of water would severely affect the humans health and at the same time it would affect the ecological balance among all species. Water quality refers to the chemical, biological, radiological, and biological parameters of the water.The essential parameters of the water quality vary based on the application of water. 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 if everywhere starting from smart cities, smart power grids, and smart supply chain to smart wearable [7- 12]. Though IoT is still under applied in the field of environment it has huge potential.

OBJECTIVES:

To monitor the river water quality by the web application.Here we are using PH meter to monitor the ph level of the water and using many sensors like turbudity sensors, temperature sensors. The IoT device are connected with the

cloud services are IBM watson IoT platform, Node-Red, Web UI.By the application the user will register in the particular which we provide after login to it , the SMS will received to the person.It shows the temperature of the water , turbidity and ph value of the water for every 5mins.

Benefits or Advantages of IoT based Water Quality Monitoring System

Following are the benefits or advantages of IoT based Water Quality Monitoring System are as follows.

➢The boat is mobile in nature and hence large number of samples are easily collected from different locations in less time.

➢It is very easy to maintain the IoT based water quality monitoring system as all the electronic boards are available in the boat itself.

➢The system is very cheap as the hardware and software does not cost much.

➢Machine learning techniques have made it very easy to plot the data collected in various formats for proper analysis.

➢Cloud storage platforms such as IBM CLOUD,azure helps in storing the sensor data immediately and wirelessly to the robust servers.

Disadvantages of IoT based Water Quality Monitoring System

Following are the disadvantages of IoT based Water Quality Monitoring System are as follows.

➢the system cannot provide real time monitoring of water parameters

➢For trouble shooting the system technicians is required and this process might take some time

CONCLUSION:

Water pollution is one of the biggest threats to all living beings. Polluted water causes various diseases in humans, plants, animals, which, in turn, negatively impact the life cycle of the ecosystem. If the contamination

is detected early on, suitable measures can be taken to preserve water quality or even upgrade it.

Therefore, Smart Water Quality Monitoring using IoT is paramount to supply pure water in real-time. Thanks to innovation in sensors, wireless modules, and communication devices, the activity is easy.

DEMO LINK:
https://drive.google.com/file/d/1VVvDGH5fmqzRBzwdFPNRuNRP1QlJd8Ib/view?usp=sharing