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REAL-TIME RIVER WATER QUALITY MONITORING AND CONTROL SYSTEM

PROJECT OBJECTIVE

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 ML lib, Deep learning neural network models, and Belief Rule Based (BRB) system and is also compared with standard values. Also, it assures low-cost efficient water quality monitoring and control over river water. Since its battery operated, it is much safer for the locality and people to use the river water which has a low rate of electrical shocks as the battery is completely insulated and rechargeable so that the system is continuous. By using this product people can predict, and analyze the hardness of water and also the factors like temperature and turbidity of water for having safe drinking and water with better consistency forhousehold purposes.

Since water is an essential compound on a daily basis intake of it in an a healthy manner is provided by our cost-efficient quality monitoring and control system which is market-affordable and a great life-saving factor for people using river water. The environment around consists of five key elements e.g., soil, water, climate, natural vegetation, and landforms. Among these water is the utmost crucial element for human life. It is also vital for the persistence of other living habitats. Whether it is used for drinking, domestic use, food production, or recreational purposes, safe and readily available water is the need for public health.

So, it is highly imperative for us to maintain a water quality balance. Otherwise, it would severely damage the health of humans and at the same time affect the ecological balance among other species. Water pollution is a foremost global problem that needs ongoing evaluation and adaptation of water resource directorial principles at the levels of international down to individual wells.

The records show that more than 14,000 people die daily worldwide due to water pollution. In many developing countries, dirty or contaminated water is being used for drinking without any proper prior treatment. One of the reasons for this happening is the ignorance of the public and administration and the lack of a water quality monitoring system which makes serious health issues. In this paper, we depict the design of a Wireless Sensor Network (WSN) that assists to monitor the quality of water with the support of information sensed by the sensors dipped in water. Using different sensors, this system can collect various parameters from water, such as pH, dissolved oxygen, turbidity, conductivity, temperature, and so on. The rapid development of WSN technology provides a novel approach to real-time data acquisition, transmission, and processing.

The clients can get ongoing water quality information from far away. 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 networks if everywhere starting from smart cities, smart power grids, and smart supply chains to smart wearables. Though IoT is still under-applied in the field of environment it has huge potential. It can be applied to detect forest fires and early earthquakes, reduce air population, monitor snow levels, prevent landslides, and avalanches, etc. Moreover, it can be implemented in the field of water quality monitoring and controlling system.

Water quality monitoring has gained more interest among researchers in this twenty-first century. Numerous works are either done or ongoing on this topic focusing on various aspects of it. The key theme of all the projects was to develop an efficient, cost-effective, real-time water quality monitoring system that will integrate a wireless sensor network and the internet of things.

In this research, we monitor the physical and chemical parameters of water bodies inside Chittagong city by using an IoT-based sensor network.