Literature Survey

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S.NO	Paper	Author	Year	Method and algorithm
1	**IoT Based Real-time River Water Quality Monitoring System**	Mohammad Salah Uddin Chowdury[a†], Talha Bin Emran[b†], Subhasish Ghosh[a†], Abhijit Pathak[a†], Mohd. Manjur Alam[a], Nurul Absar[a], Karl Andersson[c], Mohammad Shahadat Hossain	2019	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.
2	**Real Time Water Quality Monitoring System**	Mithila Barabde[1], Shruti Danve	2015	Water pollution is one of the biggest fears for the green globalization. To prevent the water pollution, first we have to estimate the water parameters like pH, turbidity, conductivity etc, as the variations in the values of these parameters point towards the presence of pollutants. At present, water parameters are detected by chemical test or laboratory test, where the testing equipments are stationary and samples are provided to testing equipments. Thus the current water quality monitoring system is a manual system with tedious process and is very time consuming. In order to increase the frequency, the testing equipments can be placed in the river water and detection of pollution can be made remotely. This paper proposes a Sensor-Based Water Quality Monitoring System. The system architecture consists of data monitoring nodes, a base station and a remote station. All these stations are connected using wireless

				communication link. The data from nodes is send to the base station consisting of ARM controller designed for special compact space application. Data collected by the base station such as pH, turbidity, conductivity, etc is sent to the remote monitoring station. Data collected at the remote site can be displayed in visual format on a server PC with the help of MATLAB and is also compared with standard values. If the obtained 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.
3	Cost-Effective River Water Quality Management using Integrated Real-Time Control Technology	Fanlin Meng,† Guangtao Fu,*,† and David Butler*,†	2017	Integrated real-time control (RTC) of urban wastewater systems is increasingly presented as a promising and emerging strategy to deliver improved surface water quality by responsive operation according to real-time data collected from the sewer system, treatment plant,

				and the receiving water. However, the detailed benefits and costs associated with integrated RTC have yet to be comprehensively evaluated. Built on state-of-the-art modeling and analytical tools, a three-step framework is proposed to develop integrated RTC strategies which cost-effectively maximize environmental outcomes. Results from a case study show integrated RTC can improve river quality by over 20% to meet the "good status" requirements of the EU Water Framework Directive with a 15% reduced cost, due to responsive aeration with changing environmental assimilation capacity. The cost-effectiveness of integrated RTC strategies is further demonstrated against tightening environmental standards (to the strictest levels) and against two commonly used compliance strategies. Compared to current practices (seasonal/monthly based operation),

				integrated RTC strategies.
4	Water quality monitoring in smart city: A pilot project	Yiheng Chen*, Dawei Han	2018	A smart city is an urban development vision to integrate multiple information and communication technology (ICT), "Big Data" and Internet of Things (IoT) solutions in a secure fashion to manage a city's assets for sustainability, resilience and liveability. Meanwhile, water quality monitoring has been evolving to the latest wireless sensor network (WSN) based solutions in recent decades. This paper presents a multi-parameter water quality monitoring system of Bristol Floating Harbour which has successfully demonstrated the feasibility of collecting real-time high-frequency water quality data and displayed the real-time data online. The smart city infrastructure – Bristol Is Open was utilised to provide a plug & play platform for the monitoring system. This new system demonstrates how a future smart city can build the environment monitoring system benefited by the wireless network covering the urban area. The system can be further integrated in the urban water management system to achieve improved efficiency.
5	Water Quality Monitoring System Using Wireless Sensor Network	**Shruti Sridharan**	2014	**The parameters involved in the water quality monitoring such as the pH level, turbidity and temperature is measured in real time by the sensors that send the data to the base station or control/monitoring room. As the monitoring is intended to be carried out in a remote area with limited access, signal or data from the sensor unit will then be transmitted wirelessly to the base monitoring station. The application of wireless sensor network (WSN) for a water quality monitoring is**

				composed of a number of sensor nodes with networking capability. Such monitoring system can be setup emphasizing on the aspects of low cost, easy ad hoc installation, easy handling and maintenance. The use of wireless system for monitoring purpose will not only reduce the overall monitoring system cost in terms of facilities setup and labor cost, but will also provide flexibility in terms of distance or location. In this paper, the fundamental design and implementation of WSN featuring a high power transmission Zigbee based technology together with the IEEE 802.15.4 compatible transceiver is proposed. It is chosen due to its features that fulfill the requirement for a low cost, easy to use, minimal power consumption and reliable data communication between sensor nodes. The development of graphical user interface (GUI) for the monitoring purposes at the base monitoring station is another main component discussed in this paper. The GUI should be able to display the parameters being monitored continuously in real time. The developed GUI platform using MATLAB is cost-effective and allows easy customization.