Project Design Phase-I
Proposed Solution Template

Date	19 September 2022
Team ID	PNT2022TMID15687
Project Name	Project - Real-Time River Water Quality Monitoring and Control System
Maximum Marks	2 Marks

Proposed Solution Template:

Project team shall fill the following information in proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Many rivers and streams are significantly polluted all around the world. A primary reason for this is that all three major sources of pollution (industry, agriculture and domestic) are concentrated along the rivers. Industries and cities have historically been located along rivers because the rivers provide transportation and have traditionally been a convenient place to discharge waste. Agricultural activities have tended to be concentrated near rivers, because river floodplains are exceptionally fertile due to the many nutrients that are deposited in the soil when the river overflows. Hence it is highly necessary for us to monitor the quality of river water. Current water quality monitoring system is a manual system with a monotonous process and is very time-consuming.
2.	Idea / Solution description	This project proposes a sensor-based water quality monitoring system. The main aim is to develop a system for continuous monitoring of river water quality at remote places using wireless sensor networks with low power consumption, low-cost and high detection accuracy. pH, conductivity, turbidity level, etc. are the limits that are analyzed to improve the water quality. Following are the aims of idea implementation (a) To measure water parameters such as pH, dissolved oxygen, turbidity, conductivity, etc. using available sensors at a remote place. (b) To assemble data from various sensor nodes and send it to the base station by the wireless channel. (c) To simulate and evaluate quality

		parameters for quality control. (d) To send SMS to an authorized person routinely when water quality detected does not match the pre-set standards, so that, necessary actions can be taken.
3.	Novelty / Uniqueness	This project not only monitors the quality of water but also suggests methods to prevent pollution caused by various factors.
4.	Social Impact / Customer Satisfaction	Real-time monitoring of water quality by using IoT integrated Big Data Analytics will immensely help people to become conscious against using contaminated water as well as to stop polluting the water. The research is conducted focusing on monitoring river water quality in real-time.
5.	Business Model (Revenue Model)	A low cost, less complex water quality monitoring system is proposed. The implementation enables sensor to provide online data to consumers. We plan to collaborate with authorities and market our product to them to generate revenue.
6.	Scalability of the Solution	This project focusses on measuring the quality of river water parameters. This project can be extended into an efficient water management system of a local area. Moreover, other parameters which wasn't the scope of this project such as total dissolved solid, chemical oxygen demand and dissolved oxygen can also be quantified.