Project Design Phase-I
Proposed Solution Template

Date	19 September 2022
Team ID	PNT2022TMID12998
Project Name	Efficient Water Quality Analysis & Prediction using Machine Learning
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)	To predict the quality of water by analyzing various factors using machine learning.
2.	Idea / Solution description	The dataset contains various parameters like temperature, pH , conductivity, B.O.D, D.O,Nitratenan N+ Nitratenann, Fecal Coliform, Total Coliform. Water quality is dictated by these features. For predicting and analyzing the quality of water, supervised machine learning models are trained and developed. The models that can be employed to predict the quality includes linear regression, random forest classifier, support vector regression, support vector classifier etc.
3.	Novelty / Uniqueness	The major goal is to develop a computationally efficient and reliable method that aims at estimating water quality characteristics to reduce the quantity of our time and money during measuring them. The model will estimate the Water Quality Index(WQI) which describes the overall water quality. The relationship among various parameters which led to water quality are analyzed.
4.	Social Impact / Customer Satisfaction	Water contamination has become increasingly significant as the economy has grown and urbanization has expanded. This has a greater impact on human health and various species.The effects of water contamination can be tackled efficiently if data is analyzed and water quality is predicted beforehand. Water quality has been conventionally estimated through expensive and time-consuming and

		statistical analyses. The alarming consequences of poor water quality necessitate an alternative method, which is quicker and inexpensive. With this motivation, a series of supervised machine learning algorithms are used to estimate the water quality.
5.	Business Model (Revenue Model)	The methods that are used to predict the water quality should not be time consuming and it also should benefit the business and make more profit.
6.	Scalability of the Solution	This solution has a great scale as it can conveniently handle any amount of data.It can also perform many computations in a cost effective and time saving way,so that it can instantly serve millions of users residing at global locations.