

**Project Design Phase-I**  
**Proposed Solution**

Date	19 September 2022
Team ID	PNT2022TMID18283
Project Name	Efficient Water Quality Analysis & Prediction using Machine Learning
Maximum Marks	2 Marks

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Water is considered as a vital resource that affects various aspects of human health and lives. The quality of water is a major concern for people living in urban areas. The quality of water serves as a powerful environmental determinant and a foundation for the prevention and control of waterborne diseases. However, predicting the urban water quality is a challenging task since the water quality varies in urban spaces non-linearly and depends on multiple factors, such as meteorology, water usage patterns, and land uses, so this project aims at building a Machine Learning (ML) model to Predict Water Quality by considering all water quality standard indicators.
2.	Idea / Solution description	The solution is derived from the data sets by comparing the accuracy rate with previous data set and the current data set.
3.	Novelty / Uniqueness	Using ML techniques (Regression models) to predict the quality of water instead of using physical measurements or sensors to obtain the quality of water. ML techniques improves the accuracy of measurement over existing chemical and physical techniques as it is infeasible to obtain all the required features to predict the water quality. Physical and chemical measurements may lead to the usage of expensive instruments and also takes a lot of time. ML techniques make the process easier, feasible and faster.
4.	Social Impact / Customer Satisfaction	Our intended audience consist of people who are concerned about the quality of water they drink. Water's health is more important which should be considered as many water-borne diseases are more widely known. The

		proposed solution will help in identifying water pollution and helps the customer to drink healthy water.
5.	Business Model (Revenue Model)	Industries that provide sanitation facilities and products (like water purifiers, quality testers etc.) can deploy this solution to provide more waste water treatment plants, better insights in health concerns and there may also be an increase in awareness and demand for better water quality testing and availability. People will start looking for treatments related to water-borne diseases as the awareness increases.
6.	Scalability of the Solution	The solution proposed will be deployed as web-application. So, it is easily accessible by anyone who has internet services and has no specific software and hardware specifications