Project Design Phase-I
Proposed Solution Template

Date	21 October 2022
Team ID	PNT2022TMID51187
Project Name	EFFICIENT WATER QUALITY ANALYSIS AND 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)	Water is considered as a vital resources that affects the various aspects of human health and lives. The quality of water serves as a powerful environmental determinant and a foundation for the prevention and control of waterborne diseases such as cholera, dysentery, amoebiasis, typhoid, polio, meningitis, etc. Without access to clean water, it leads to health issues.
2.	Idea / Solution description	The proposed model will predict whether the water is safe to drink or not and various usage of waters like gardening, domestic purposes, etc using parameters like pH value, turbidity, conductivity, hardness, etc. Various algorithms like KNN, classification algorithm, SVM, logistic regression, Random forest classifier, etc are used for improving the efficiency of predicted result.
3.	Novelty / Uniqueness	Our project will predict whether the water is potable or not with high accuracy. Our model will also predict the different usages of water like gardening, domestic purposes, etc. As the result is accurate, it will not cause any health issues.
4.	Social Impact / Customer Satisfaction	In recent years, water pollution has become a very serious problem affecting water quality. Therefore, to design a model that predicts water quality is nowadays very important to control water pollution. If drinking water contains unsafe levels of contaminants, it can cause health effects such as gastrointestinal illnesses, nervous system or reproductive defects and chronic diseases such as cancer. Thus Water quality testing is an important part of environmental monitoring that helps us to lead a healthy life.

5.	Business Model (Revenue Model)	The application of Machine Learning algorithm is an effective and reliable approach for analysing and predicting water quality. It has many advantages like cost efficient, consume less time, trustworthy and more accurate in business point of view.
6.	Scalability of the Solution	ML technique is an extension of the artificial neural network method, it has additional complex architectures that makes it more suitable for managing multi-dimensional inputs because of its high model configuration flexibility, greater generalization power, and robust learning capacity.