Project Design Phase-I
Proposed Solution Template

Date	19 September 2022
Team ID	PNT2022TMID52107
Project Name	Project – 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)	To establish safe drinking water sources in the future, it is imperative to understand the quality and pollution level of existing groundwater. The prediction of water quality with high accuracy is the key to controlling water pollution and the improvement of water management.
2.	Idea / Solution description	In this study , a machine learning (ML) based model is proposed for predicting groundwater quality and compared with three other machine learning(ML) models, namely, random forest, extreme gradient boosting and artifical neural network(ANN).
3.	Novelty / Uniqueness	• The main reason behind the success of this ML technique is that it ignore the requirements of selective featuires that are most representative compared to that of traditional ML algorithm. • ML methods can progressively construct highlevel attributes from the given dataset. • ML technique is a self deterministic approach that learns features to discover the correct representation required for the given task .
4.	Social Impact / Customer Satisfaction	Generation of unprocessed effluent, municipal refuse, factory wastes, and junking of compostable and non compostable effluents has hugely contaminated nature provided water bodies like rivers,lake ,and ponds. Therefore, there is a necessity to look into the water standard before usage .This is a problem that can greatly benifit from artifical intelligence. Traditional methods require human inspection and are time consuming.
5.	Business Model (Revenue Model)	Assesment of water quality using conventional methods causes losses in eco-nomic value, which in turn affect yhe decision –making

		capacity for water quaqlity managenment programs. Therefore to tackel these issue ,it is essential to adopt a potential and cost – efficient approach for quick and accurate assessment of water quality.
6.	Scalability of the Solution	• Objective weighting system –based approaches are more reliable because they consider local variation in a dataset during the computation process. • This ML technique is an extention of the artifical neural network method ; it has additional complex architecture that makes this approach suitable for managing multi-dimentional inputs because of its high model configuration flexibility, greater generation power ,and robust learning capacity.