

Project Design Phase-II
Solution Requirements (Functional & Non-functional)

Date	21 October 2022
Team ID	PNT2022TMID51187
Project Name	EFFICIENT WATER QUALITY ANALYSIS AND PREDICTION USING MACHINE LEARNING
Maximum Marks	4 Marks

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration through Gmail Registration through LinkedIn
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	Authorization level	A security question will be displayed to the user to authorize the user.
FR-4	Data handling	Handles both trained data and test data of water quality metrics for different water bodies.
FR-5	Quality analysis	Analyze the various water quality indicator like pH value, turbidity, conductivity, chemical contents, etc using various algorithms.
FR-6	Remote visualization	Visualization through charts and graphs based on present and past values of all the parameter for future forecast.
FR-7	Reporting	Result of predicted water will be send through message to the user with parameter present in the water.

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	The system provides a natural interaction with the users. Allows users to identify missing data elements available in the water quality portal data.
NFR-2	Security	The model enables with high security as the user information will not be shared with anyone. The system is protected with the user name and password and authorized through email.
NFR-3	Reliability	Our model will accurately report the uncertainty in the prediction. The model can be extended in large scale by increasing the datasets. Various ML

		algorithms are used for accurate prediction of water quality. As the result is accurate, it will not cause any health issue.
NFR-4	Performance	Our system will run on 32bit or 64 bit processor. It will not exceed 2GB RAM. The system effectively compares the input given by the user with the available dataset.
NFR-5	Availability	The system will available to the user until the user terminate the access. Our system will keep working and be available for work even if there is an infrastructure failure. The system response to request of the user in less time with more accuracy.
NFR-6	Scalability	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.