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

Date	15 October 2022
Team ID	PNT2022TMID12777
Project Name	Project – Realtime River Water Quality Monitoring and Control systems
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	Data Collection	• **Data Collection by Sensors** – Collection of data by using sensors to sense various parameters. • **Data Transfer & Storage** – Data collected is transferred and stored in the cloud.
FR-2	User Subscription	• **Subscribing particular entity** – Choosing a particular entity (which river / pond) is left to the choice of user.
FR-3	User Aspect	• **Publishing the data** – Once the user chooses the entity, data of that particular entity is shown.
FR-4	Data Processing	• **Retrieving Data** – Data of that entity is retrieved using Wi-Fi module. • **Processing of data collected** – The data of that entity is converted to realizable by applying mathematical formula in Microcontroller modules.
FR-5	Data Comparison	• **Comparison of Data** – Once the data is collected it is compared with Standard or Threshold values to check for any discrepancies.
FR-6	Action	• **Display of data** – The data collected is displayed to respective persons. • **Raise the Alarm** – If there are any discrepancies or the current value is intolerable than the standard values, raise the alarm to alert the authorities.

		• **Creating Awareness** – With the data in our hand awareness can be created to safeguard the resource for future use. • **Storage of Processed data** – This situation may arise in future so present data can be used to tackle similar situation in future or can be used to train ML models.

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	• The model can be used in any rivers or ponds to collect, process and raise the alarm. • The Publish – Subscribe model can be used to track ponds / rivers of our desire.
NFR-2	Security	• The data collected is stored in reputed cloud platform which is of highly secured one.
NFR-3	Reliability	• The collected data is processed and the compared with highly standard values thus increasing the accuracy of the device.
NFR-4	Performance	• The performance will be quite similar to that of what we expect from lab results with some plus / minus in values measured.
NFR-5	Availability	• The set up of the device can be easily done so that it can be used at any time.
NFR-6	Scalability	• The designed model can measure up to a certain but this area coverage can be increased / decreased depending on the customer needs.
NFR-7	Portability	• Since the device consists of small sensors, they are easily carriable to any places.
NFR-8	Maintainability	• The device consists of sensors of small size and low cost so, if there's any damage, they are easily replaceable.