Project Design Phase-II

Solution Requirements (Functional & Non-functional)

Date	22 October 2022
Team ID	PNT2022TMID02419
Project Name	Real-Time River Water Quality Monitoring and Control System
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 product mobile UI
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	pH level detection	pH probes contain two electrodes (a sensor electrode and a reference electrode) that measure the hydrogen-ion activity in a solution. The exchange of ions generates a voltage that is measured by the pH meter converting the voltage into a readable pH value. A pH sensor is used to detect the pH value of river water.
FR-4	Turbidity detection	We need to perform a turbidity analysis on the water in order to find the presence of dust. The turbidity sensor is used for that.
FR-5	Ultrasonic generator	Waves generated at regular interval times to clear algae 25% ,50%, 100%

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	More efficient and simpler approach of time-continuous quality control and monitoring.
NFR-2	**Security**	The Android application applies data encryption at both the front end and the back end. As a result of adequate security measures implemented at the app's architecture level, proxy servers cannot be interrupted or compromised.
NFR-3	**Reliability**	A safe and secure system that guarantees living conditions for all species, from aquatic to terrestrial. Efficiency in energy management and data management has begun with the system. Assurance of the safety of aquaculture.
NFR-4	**Performance**	As the various technical building blocks might define a system-based one eco-friendly and innovative product helping people's daily lives. Entropy is less likely because of modern software engineering, which carefully implements architectural software design and well-planned process models.
NFR-5	**Availability**	24/7 customer assistance is offered, with high-end UI used by an agency to manage inquiries. Additionally, cloud services that may be accessible via a mobile app handle the monitoring, analysis, and streaming of sensed parameters and values.
NFR-6	**Scalability**	Due to the predetermined architectural design, it produces a product with high scalability. Additionally, the product was created specifically to address the needs of the target market.
NFR-7	**Stability**	A very stable system based on stronger power management tactics and specific design provides the best explanation for stability.
NFR-8	**Efficiency**	Low power consumption and high performance. It is highly efficient and it has simple monitoring system.