Project Design Phase-II

Solution Requirements (Functional & Non-functional)

Date	03 October 2022
Team ID	PNT2022TMID03762
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	Arduino (Control System)	Used to concatenate and interface devices with sensors and gather data systematically for transferring.
FR-2	PC/Mobile Display	Used to visualize the sensed data like pH, temperature etc... from sensors. If the obtained value > Threshold value, then comment=BAD. If obtained value < Threshold value then comment=GOOD.
FR-3	Ultrasonic Generator	Converts electrical energy received from the power line into electrical energy with the proper frequency, voltage and amperage to power. Waves generated at regular interval of times to clear algae 25%, 50%, 100%
FR-4	Wireless Sensor Network	Numerous sensor nodes installed for the detection of temperature, pH, turbidity, dust particles etc…
FR-5	Requirements for Software Design	WSN requires IOT platform which need Neural Network Model to classify water quality as Good or Bad. To store data in cloud and to analyse it regularly, IOT integrated big data analytics is used.

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	To monitor the quality of water and to ensure the usage for living things whether it is safe or not.
NFR-2	**Security**	The IOT networks are incredibly safe and also the communication speed is high. The technology will safely resolve all possible issues.
NFR-3	**Reliability**	The devices used and the sensors are highly reliable as it produces accurate results. Maintain the product conditions and update the version of the product up-to-date.

NFR-4	**Performance**	The performance of the system is faster that it immediately alerts the user if the obtained result is high than the threshold value.
NFR-5	**Availability**	This can be made available at any location in place of river water usage and can be accessed anytime. Depending on the requirement of the user, all required function will be offered.
NFR-6	**Scalability**	The system can provide low power, high frequency and high mobility as the result.