

Project Design Phase-I
Proposed Solution Template

Date	05 NOVEMBER 2022
Team ID	PNT2022TMID42599
Project Name	Real time water quality monitoring and control system
Maximum Marks	2 Marks

Proposed Solution :

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Due to the fast growing urbanization supply of safe drinking water is a challenge for the every city authority. Water can be polluted any time. In India most of the people use simple water purifier that is not enough to get surety of pure water. Sometimes the water has dangerous particles or chemical mixed and general purpose water purifier cannot purify that.. So an automatic real-time monitoring system is required to monitor the health of the water reserved in our water tank of the society or apartment. So it can warn us automatically if there is any problem with the reserved water. And we can check the quality of the water anytime and from anywhere.
2.	Idea / Solution description	The need for effective and efficient monitoring, evaluation and control of water quality in residential area has become more demanding in this era of urbanization, pollution and population growth. Ensuring safe water supply of drinking water is big challenge for modern civilization. Traditional methods that rely on collecting water samples, testing and analyses in water laboratories are not only costly but also lack capability for real-time data capture, analyses and fast dissemination of information to relevant stakeholders for making timely and informed decisions.
3.	Novelty / Uniqueness	Monitoring of real time quality of Water from reserve tank of house and colony makes use of PH, turbidity and temperature sensor with Raspberry Pi and existing Cloud system for data analytics. The system can monitor water quality automatically, triggers alarms immediately to prevent any health hazards and it is low in cost and does not require people on duty. So, the system is likely to be more economical, convenient and fast. The system has good flexibility.

4.	Social Impact / Customer Satisfaction	Water purification is the process of removal of undesirable chemicals, biological contaminants, suspended solids and gases from water. Direct consumption of tap water or debased water causes cholera, dysentery, typhoid, diarrhea and polio. The presence of pollutants in the water causes diseases like arsenicosis due to arsenic and fluorides components in the water. In most parts of India, tap water is not potable hence there is a need for smart water quality monitoring and purification systems. This system will notify the user regarding the purity of the water on some explicit water parameters and helps user to drink polluted free water.
5.	Business Model (Revenue Model)	In our proposed method, an assembled Arduino microcontroller is used as the core controller of the system. Once the code is uploaded to the microcontroller, no PC system, keyboard command, monitor is required to operate the system. The system functions automatically and independently according to the code uploaded to the microcontroller. In this system, three sensors are used to measure the essential water parameters. Essential water parameters needed to be monitored by the average users are water pH level, water turbidity (cloudiness) and water temperature which is a measurement of the amount of the water in a container.
6.	Scalability of the Solution	Real-time monitoring of water quality by using IOT integrated Big Data Analytics will immensely help people to become conscious against using contaminated water as well as to stop polluting the water. The research is conducted focusing on monitoring river water quality in real-time. Therefore, IOT integrated big data analytics is appeared to be a better solution as reliability, scalability, speed, and persistence can be provided.