**Project Title:** **Real-Time River Water Quality Monitoring and Control System Project Design Phase-I** - **Solution Fit Team ID: PNT2022TMID02419**

**Focus on J&P, tap into BE, understand RC**

**Explore AS, differentiate**

**Deﬁne CS, ﬁt into CC**

**AS**

**5. AVAILABLE SOLUTIONS**

This work presents the architecture of river water monitoring systems based on contemporary IoT communication technology, Al, and Wireless networks.

Al-based IoT apps can speed up and cut back on the time it takes to get findings and solutions to issues.

In manual method, it is difficult to collect the water samples from all the area of the water body but, It is very easy to maintain the IoT based water quality monitoring system as all the electronic boards are available in the WQM system itself. River water quality analysis replaces the need for using laboratory checking and reduces the time of delay required for result.

**CC**

**6. CUSTOMER CONSTRAINTS**

**CS**

**1. CUSTOMER SEGMENT(S)**

Farmers, Fishermen, Riverside communities and Drinking water supplier.

**Explore AS, differentiate**

**Define CS, fit into CC**

By measuring physical and chemical parameters of river water by using an loT based sensor network, It simulates and evaluates quality parameters for quality control finally, sends SMS to an authorized person routinely when water quality detected does not match the preset standards, so that, necessary actions can be taken.

**BE**

**7. BEHAVIOUR**

**RC**

**9. PROBLEM ROOT CAUSE**

➤The cost of analysis is very high.

➤The lab testing and analysis takes some time and hence the lab result does not reflect real time water quality measurement due to delay in measurement.

➤The process is time consuming due to slow process of manual data collection from different locations of the water body.

**J&P**

**2. JOBS-TO-BE-DONE / PROBLEMS**

➤ Measure the water parameters such as pH, dissolved oxygen, turbidity, etc. using available sensors at a remote place.

➤Assemble data from various sensor nodes and send it to the base station by the wireless channel.

➤Simulate and evaluate quality parameters for quality control.

**Focus on J&P, tap into BE, understand RC**

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| **Identify strong TR & EM**  **Identify strong TR & EM** | **3. TRIGGERS TR**  It ensures high data precision, data accuracy, timely reporting, easy accessibility of data, cost effective and completeness. | **10. YOUR SOLUTION SL**     * To implement a cost effective technique for monitoring water river quality and controlling in real-time using IoT. * Due to advancement in IoT technology, the water quality monitoring system is becoming smarter with reduced power consumption and ease of operation. * Advanced data collection could significantly benefit purposes such as continuous monitoring of water resources, assessments of flood areas, pollution management, and effects due to anthropogenic activities. Recently, automated sampling devices have been used to collect the water samples on a regular basis (e.g., few‐hour interval) to estimate the pollutant load in designated field streams. | 1. **CHANNELS of BEHAVIOUR CH**   **8.1 ONLINE**  Online website provides the information according to the customer’s need.  **8.2 OFFLINE**  In offline, according to the information acquired from the SMS sent to the authorized person regarding water quality necessary actions can be taken(i.e.)when water quality detected does not match the preset standards, so that, necessary actions can be taken. |  |
| **4. EMOTIONS: BEFORE / AFTER EM**  In earlier days, Water quality data are collected mainly by manual field sampling which consumes huge amount of time and it was difficult for river side communities, farmers, water suppliers and many more to analyze the quality of water for their purpose. After river water quality analysis ,A real‐time water quality monitoring system can be applied forth management of drinking‐water‐supply processes, in rivers, lakes and the sea |