

## Project Design Phase-I - Solution Fit

**Project Title: Efficient Water Quality Analysis & Prediction using Machine Learning**  
**Team ID: PNT2022TMID21084**

### **PROBLEM-SOLUTION FIT**

<b>1. CUSTOMER SEGMENT(S)</b> <ul style="list-style-type: none"><li>• Private and public laboratories.</li><li>• Residential and industrial places.</li><li>• Hotels,restaurants, factories.</li><li>• Household purposes.</li></ul>	<b>6. CUSTOMER CONSTRAINTS</b> <ul style="list-style-type: none"><li>• Customer has to depend on the testing agencies in order to test the water quality.</li><li>• The interpretation of result of water quality analysis done by the testing agencies may be trustable or not.</li><li>• Customers on using a web application to analyze the water quality may require some fundamental prerequisites such as network connection, a system or a mobile.</li></ul>	<b>5. AVAILABLE SOLUTIONS</b> <ul style="list-style-type: none"><li>• The solution is to have information on water quality parameters like pH level, Temperature, Turbidity, Minerals etc, to analyze the quality of water.</li><li>• It is possible to find the Water quality index(WQI) and Water quality class(WQC)</li></ul>
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2. PROBLEMS / PAINS	9. ROOT/CAUSE	7. BEHAVIOUR
<ul style="list-style-type: none"> <li>• Check the quality of water by gathering information based on many features and qualities in the chemical and physical composition of nature.</li> <li>• Customer can check the water quality without expert's support.</li> <li>• Check the usability of water.</li> </ul>	<ul style="list-style-type: none"> <li>• Poor quality water is one of the major factors of escalation of many diseases.</li> <li>• Rapid urbanization has led to the deterioration of water quality at an increasing rate.</li> <li>• All living things are harmed by improper maintenance of rainwater and surface water contaminated by industrial waste.</li> </ul>	<ul style="list-style-type: none"> <li>• The study attempts to assess the users water behavior using available resources, prevailing socio economic conditions and personal aspects of users. The research work suggests the need for ensuring the water quality.</li> <li>• Customers must have knowledge about the water quality in order for machine learning models to accurately anticipate the water quality.</li> </ul>

<p><b>3. TRIGGERS TO ACT</b></p> <p>To enhance the standard of living in terms of health aspects by providing good quality water in order to reduce the water borne diseases.</p>	<p><b>10. YOUR SOLUTION</b></p> <p>To build an effective and efficient water quality prediction system for all kinds of water samples using Classification algorithms of Machine Learning provides a better and easy interpretation of water samples by using the past historical data of water for prediction and analysis so that the people with no prior knowledge can understand the results of analysis process and can be made available at anytime and at any place.</p>	<p><b>8. CHANNELS OF BEHAVIOUR</b></p> <p><b>ONLINE:</b></p> <ul style="list-style-type: none"> <li>Through Advertising in social media, news platform makes customer to know and realize the importance of monitoring the level of water quality.</li> <li>Customers can make use of web applications to process the data.</li> </ul>
<p><b>4. EMOTIONS</b></p> <p><b>BEFORE:</b> Without appropriate technology to analyze the water quality, lead to various diseases.</p> <p><b>AFTER:</b> Now it is easy to evaluate the quality of water with the help of this application.</p>		<p><b>OFFLINE:</b></p> <ul style="list-style-type: none"> <li>To attain standard quality of water by analyzing the water parameters</li> </ul>