

Project Design Phase 1

Problem Solution Fit Template

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| Project Name | Project-Efficient Water Quality Analysis And Prediction Using Machine Learning |
| Team ID | PNT2022TMID45622 |

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| 1. CUSTOMER SEGMENT(S) <ul style="list-style-type: none"> ❖ Customers who wish to have a water quality tester for household checking purpose. ❖ Various industries and places like hotels, restaurants and various textile factories who wish to test the water sources they use. ❖ Water purifying agencies. | 6. CUSTOMER CONSTRAINTS <ul style="list-style-type: none"> ❖ Customer has to depend on the testing agencies in order to test the water quality. ❖ Customers cannot get access to the results when they want and they are unaware of the predicting parameters. ❖ The available tools predict the quality based on a few parameters which is not trustable as some important factors may not be considered. | 5. AVAILABLE SOLUTIONS <p>Test strips: Cheapest way to test the hardness, pH and salinity of water.</p> <p>Turbidimeters / Turbidity meters: Determines how the concentration of suspended particulates affects the clarity of water.</p> <p>Portable pH meters: Determines the concentration of ions of hydrogen present in water and also whether it is acidic or basic.</p> |
| 2. JOBS-TO-BE-DONE AND PLANS <ul style="list-style-type: none"> ❖ Safe and readily available water is important for public health. So, it is necessary to detect the contaminants present in those samples. ❖ Customers are affected in various ways of life such as health, food production, environment, etc. due to contaminated water. | 9. PROBLEM ROOT CAUSE <ul style="list-style-type: none"> ❖ Rapid industrialization and urbanization has led to the deterioration of water quality at an alarming rate. ❖ The release of industrial effluents into water sources, the oil spills and leaks and deforestation are also the various reasons for the lack of water quality and created the necessity of monitoring the water quality. | 7. BEHAVIOURS <ul style="list-style-type: none"> ❖ The consumption of polluted or contaminated water makes the people fall ill and causes various health issues which affect them economically, physically and mentally as well. ❖ The poor interpretation of results with tools considering less parameters causes distrust and reduces their hope in water quality prediction tools or methods. |
| 3. TRIGGERS <ul style="list-style-type: none"> ❖ To enhance the standard of living of people by improving health aspects by providing water quality testing tools in order to reduce the water borne diseases and also to save time for predicting the quality and if possible to be integrated with future technologies. | 10. YOUR SOLUTION <ul style="list-style-type: none"> ❖ To build an effective and efficient water quality prediction system for all kinds of water samples using the Regression and Classification algorithms of Machine Learning to provide a better and easy interpretation of analysis of water samples so that the people with no prior knowledge can understand the results of analysis process and can be made available at anytime and at anyplace. | 8. CHANNELS of BEHAVIOUR <p>1. ONLINE</p> <ul style="list-style-type: none"> ❖ Through Advertising in social media, news platform makes customer to know and realize the importance of monitoring the level of water quality that we consume for our needs and to provide awareness about the need for measuring the water quality level. <p>2. OFFLINE</p> <ul style="list-style-type: none"> ❖ Words of mouth among customers. |
| 4. EMOTIONS: <ul style="list-style-type: none"> ❖ BEFORE: Doubtful state. ❖ AFTER: Customer satisfied. | | |