Project Design Phase - I
Problem – Solution Fit

Date	1 October 2022
Team ID	PNT2022TMID12710
Project Name	Trip-Based Modelling of Fuel Consumption in Modern Fleet Vehicles

Define CS, fit into CC

1. CUSTOMER SEGMENT(S) — CS

- Heavy duty / Fleet vehicle owners and drivers
- Transportation Service providers and managers of such services

6. CUSTOMER CONSTRAINTS — CC

- Customers will be hesitant to try a new solution that is yet to establish a reputation
- Customers might already be using a different solution
- Customers' location might be remote and might not have access to internet

5. AVAILABLE SOLUTIONS — AS

- Optimization of the route and vehicle speed to provide decent fuel economy, but routes can change dynamically and not all drivers drive at the optimal speed
- Predicting the fuel expense for a trip is done by looking at recent similar trips and extrapolating and thus is not always accurate

Explore AS, differentiate

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

2. JOBS-TO-BE-DONE / PROBLEMS — J&P

- Predict the fuel consumption of fleet vehicles
- Find the best fuel type for a particular vehicle
- Various external and internal parameters to be taken into consideration like whether AC was ON or not, weather, etc.
- Find the appropriate model for regression analysis

9. PROBLEM ROOT CAUSE — RC

- Increasing fuel costs as it is a diminishing resource
- Competition could have acquired newer vehicles with inherently better fuel efficiencies
- Advancements in heavy-duty electric vehicles can make gasoline-based vehicles obsolete soon

7. BEHAVIOUR — BE

- The customer will try to find the best type of fuel for their fleet vehicles
- They will try to keep track of the expenses of all the trips to predict the cost of future trips
- They will try the various solutions available and find out the most appropriate

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

Identify strong TR & EM

3. TRIGGERS — TR

- The competition provides much cheaper prices
- The customers moving to the competition due to cheaper prices

4. EMOTIONS: BEFORE / AFTER — EM

- Frustrated > Confident (That they can provide competitive prices, and predict expenses accurately)
- Suspicious > Relieved (That fraudulent activities will be prevented)

10. YOUR SOLUTION — SL

- Current solutions provide results that are not accurate and do not take into account various parameters that can significantly affect fuel economy.
- Using ML regression models, we can take into consideration such parameters with relative ease and predict fuel consumption with decent accuracy
- The solution will be provided as a web application and the results will be displayed in an intuitive and easy-to-understand manner

8. CHANNELS of BEHAVIOUR — CH

8.1 ONLINE

- The customer visits various websites related to the field.
- The customer might also interact with other enthusiasts / experts via forums and blogs, etc.

8.2 OFFLINE

- The customer can rely on word of mouth to find the best solution and the most effective fuel
- They can also be influenced by advertisements
- They will approach other service providers and can ask for advice with their issue

Extract online & offline CH of BE