

Energy Moguls: FuelUp

CSCC10: Human-Computer Interaction

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Energy Moguls: FuelUp

1) User Stories and Scenarios:

Charles, 17, Senior Year High School Student

[View Persona](#)

As the sun begins to shine in Vancouver, and birds begin to sing, Charles wakes up for another day for his final year in high school. For most people, the first thing they do when they wake up is eat breakfast or wash up, but what Charles does is approach his window and stare at his BMW parked on the driveway. Being a car enthusiast for as long as he could remember, when he reached the legal age to obtain a license and own a vehicle, he did not hesitate to do so 2 weeks ago with his hard earned money from his part time construction job. He begins to think as he looks at his car, does he need to fill up his tank today, and if so, where can he find the cheapest and nearest gas station that offers Ultra 94 gas. He begins to sigh as he realizes he has got a long day ahead since he has to devote a great amount of time in his academics to pursue a path down UofT on top of working after school to support the demands of rising gas prices in British Columbia. Now that his school-work-life balance is out of control, he wishes there was a solution to help him find a balance again, perhaps a way to optimize gas prices for his BMW that requires 94.

Jonathan, 22, Works in the Financial District

[View Persona](#)

Early morning. Jonathan gets ready as normal, checks traffic, packs up, and hops in his car. Before setting off, he checks FuelUp for which station on the way to work is cheapest and finds that the wait time at the station is very low, so he lets FuelUp forward him to Google Maps to find a route to bring him to the station. Jonathan leaves 10 minutes earlier than a regular commute to work, which is much later than he used to when he had to roll the dice without FuelUp. He feels confident that he'll still make it to work on time, and he does exactly that, filling up without having to wait and hitting the highway on time.

Natalie, 33, Medical Receptionist at a Hospital

[View Persona](#)

One fine Tuesday morning, Natalie sets off for work and encounters unexpected road construction. Mornings usually stress her out due to the rush hour traffic and now she was forced to take a detour. Suddenly notices that she is running out of fuel, so she stops by a gas station and fills up her tank. As she continues to drive, she passes by multiple gas stations, noticing that some of them were offering lower fuel prices than others. Natalie, being conscious of her expenses, wishes she had a way to identify the most cost effective options since she ended up stopping at a station that charged her higher rates leaving her frustrated for spending more money on fuel than necessary.

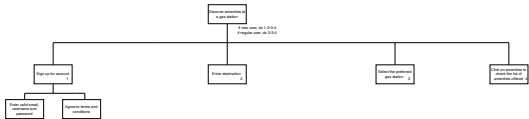
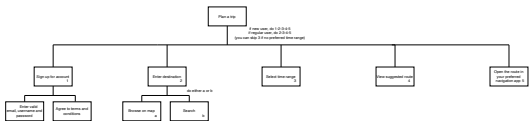
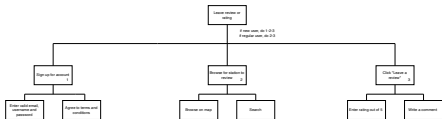
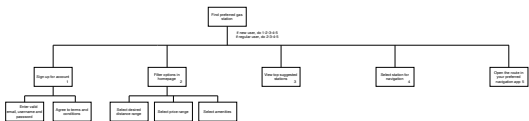
Sarah, 49, Working in Teaching Faculty

[View Persona](#)

It's a bright Saturday morning, and Sarah and her kids embark on their family road trip. They've loaded up their SUV with snacks, blankets, and some travel games to keep the kids entertained during the journey. A few hours later, the kids become thirsty and bored since they have finished their snacks. They ask if they can buy a drink somewhere. Sarah checks the fuel level and realizes that they need to refuel. Sarah decides to drive to a gas station where she can buy drinks for her kids and maybe some food for herself.

Sarah opens a map app on her smartphone to search for nearby gas stations. There are quite a few gas stations that she is able to drive to, however, it is hard to choose one from them. Sarah wants to find a gas station that offers affordable fuel prices and a range of kid-friendly food and drink options. It would be perfect if there are also some spots nearby for her kids to play. This can only help her manage her budget effectively but also ensure a delightful experience for her kids.

Graphical representation of the task analysis for FuelUp app



2) Techniques Used

We use one-on-one interviews and online surveys as techniques to gather user requirements for our application. For interviews, we segment users into four age groups (16-19, 20-29, 30-39, and 40-60) and conduct quantitative interviews with each group.

Conducting one-on-one interviews allows us to have direct and personalized conversations with the users, enabling us to delve deeper into their thoughts, opinions, and preferences. By asking open-ended questions, we can explore their experiences with refueling stations, frustrations, and specific requirements for an application that displays such information. Interviews also provide the opportunity to clarify any ambiguous or incomplete responses provided by the users, allowing us to probe further and gain a deeper understanding of their requirements. For example, if users complain about the time-consuming refueling process, we can immediately ask follow-up questions to uncover the root of the problem. Additionally, interviews help us establish a personal connection with the users. Building rapport and trust enables them to feel more comfortable sharing their thoughts and opinions openly. This personalization enhances the quality of the data collected and fosters a sense of ownership among the users, making them more invested in the development process.

While interviews provide a deep perspective from a limited number of individuals, surveys complement them by efficiently collecting data from a larger sample size. Surveys can be easily distributed, allowing us to gather results in a short amount of time. The combination of both techniques allows us to gather comprehensive user requirements, capturing both rich data from surveys and profound insights from interviews. This approach ensures that our application meets the diverse needs of the target demographics and delivers a user-centered experience.

3) Types of Users Selected

Considering that our application targets drivers aged 16-60, our group decided to divide this demographic into four categories - users aged 16-19, 20-29, 30-39, and 40-60. This reflects the various stages of life for individuals and how the significance of driving may vary.

Our first category targets teenagers, the youngest demographic behind the wheel. Seeing as there has been a negative correlation between the prices of gas and the commonality of teenage drivers (Sen, 2017), we're interested in the youth perspective on how an application might fuse this disconnect.

When gauging consumer preferences in regards to vehicles, a population that seems to have a significant breadth of opinions are drivers aged 20-29 (Abraham, 2016). Individuals in this range are often beginning early stages of their careers, relationships, and families, offering a

variety of reasons for them to be driving and concerned about how to go about the everyday task as efficiently as possible.

Considering the age range 30-39 is an age where many individuals begin to build families and develop careers, driving can continue to play a significant role in their lives. The conundrum of whether to fill up gas at the upcoming station or stretch out the tank for a little longer is one faced often, and drivers at this stage of life are burdened with sufficient responsibilities that refilling gas should not be amongst them (Khuller, 2019).

With age, driving competence in drivers tends to decrease (Brouwer, 2018), which can make the task of navigating gas stations more of a challenge. With users aged 40-60 as our final demographic, we have the opportunity to explore what this change in competence looks like. Increasing accessibility to gas stations with our application can bring comfort to these older drivers.

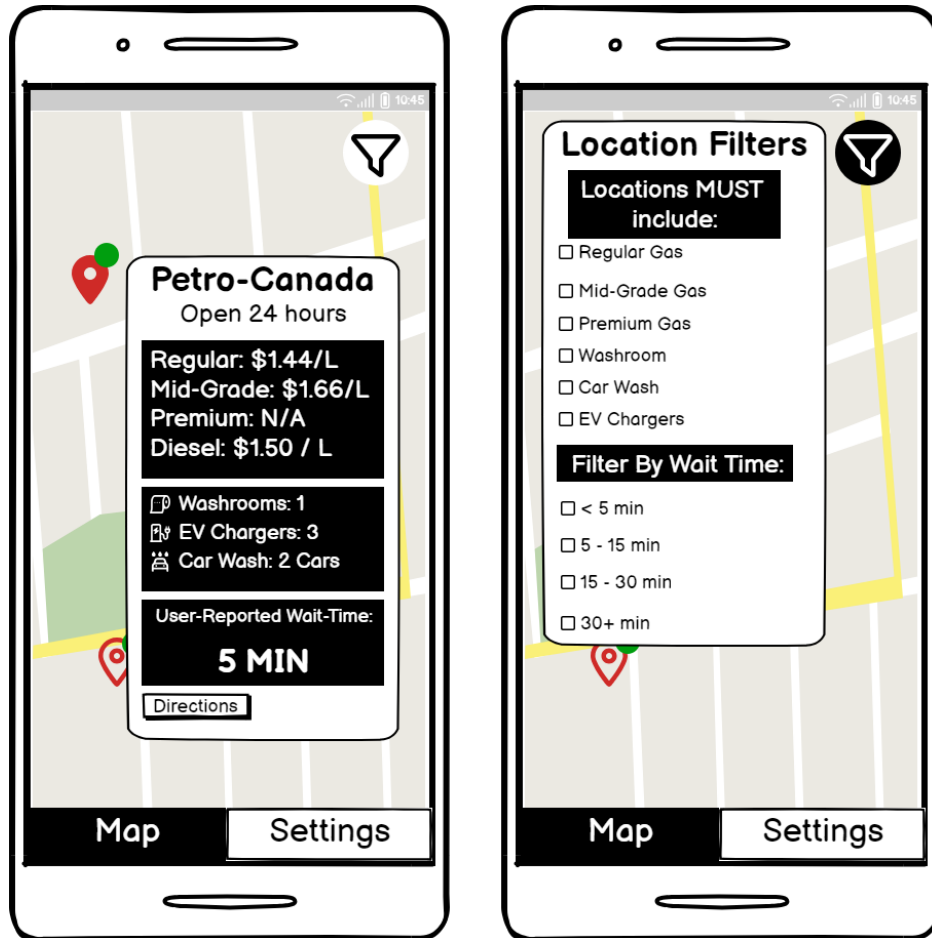
Driving directly and indirectly impacts the majority of the population in North America (Abraham, 2016), our focus demographic. Breaking this population down into groups that have similar priorities where driving is concerned was suitable to our project, as it helped us understand a range of needs. One limitation is that regardless of the age group, gender, or abilities of the driver, every driving experience is unique, so any sample size could be considered insufficient. However, with the interviews completed, we were met with the exact types of responses we were hoping for from the range of individuals selected.

4) Artifacts

Listed below are the artifacts used for gathering user requirements. In order, these artifacts are: a hyperlink to the sample interview sheet, a low-fidelity prototype, and a survey link to on online google forms for participants to fill out.

[View Sample Interview Sheet](#)

Low Fidelity Prototype



[View FuelUp Survey Link](#)

5) Summary of Results

The results from the data collection and user feedback have imperatively informed the design decisions for creating a high-fidelity prototype. Initially, the FuelUp application was designed for users that were searching for a way to find the right fuel stations suited for their needs—the correct gas types for their vehicles, washrooms, and other amenities. While the interviewees are still interested in these features, the data and feedback collected throughout the interviews and survey responses (see Appendix and Figure 1) highlight the importance of routine and price. Generally, people who drive already have a list of fuel stations they routinely visit. As a result, in terms of day-to-day use, users are more inclined to prioritize information regarding the fuel stations they already know; queue times are notably mentioned in Justin Li's, Shawn Xie, Terry Chen and other interviewees' answers. In addition, the majority of the interviewees share an interest in being able to view and compare fuel prices with the application. Shawn Xie, along with other interviewees, expressed an interest in finding and using new fuel stations depending on lower prices. Thus, moving forward, future design choices will take into consideration what was highlighted in the interviews and survey responses (see Appendix and Figure 1). These include, but are not limited to, an option for users to favorite their preferred fuel stations for convenience as well as a potential price prediction option located on fuel stations.

With respect to the prototype: which feature (or features) are most important to you?

 Copy

12 responses

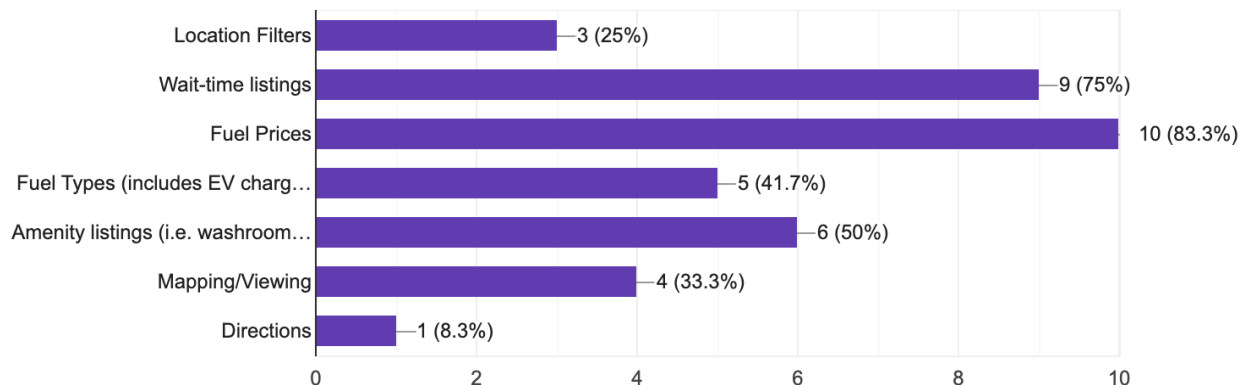


Figure 1: a sample of survey responses from the interviewees

Appendix: Interview Responses

Interview 1

Interviewer: Neil Wang

Interviewee: Justin Li

Interviewee Age: 34

Warm-up Questions:

1. How often do you drive?
 - a. **Answer:**
 - i. Hybrid work: 3 days in office to drive to.
 - ii. Child (9 years old) extracurriculars: 2 times a week.
 - iii. Total: Around 5 times a week.
2. Do you own a car yourself?
 - a. **Answer:** Yes; Tesla Model S.
 - b. If so, how often do you fill up on gas/electricity a month?
 - i. **Answer:**
 1. About 2-3 times for a full charge.
 2. Usually once a week to partially charge.
 - c. If not, do you plan to own a vehicle in the future?
 - i. What kind of vehicle (electric, gas, hybrid, BMW, etc.)?

Application Questions:

3. Could you describe what your average trip to a refueling station would look like?
 - a. **Answer:**
 - i. Tesla has built in map to see stations.
 - ii. Drive to nearest supercharger.
 - iii. Sit in car and wait around 20-30 minutes.
4. How would you decide when and where you refuel your vehicle?
 - a. **Answer:**
 - i. Mainly planned out with the built-in tesla map.
 - ii. Finds the closest charger available when low battery.
 - iii. Has not considered pricing; is interested in lower cost.
5. Is there anything you find bothersome/inconvenient about refilling your vehicle?
 - a. If so, can you elaborate?
 - i. **Answer:**
 1. Sitting in the car for 20-30 minutes can be monotonous.
 2. Washrooms are hard to find around tesla superchargers.
 3. Long wait time in some areas (i.e. cities, highway exits).

6. We're interested in helping users plan and choose the most convenient way to refill their vehicles:
 - a. As a driver, would you be interested in using an application that displays refueling stations and their specifics, such as fuel prices, fuel types, bathroom availabilities, etc?
 - i. **Answer:**
 1. Maybe; not really with tesla vehicles.
 2. Likes the bathroom availabilities.
 - ii. If not, can you elaborate as to why?
 1. **Answer:**
 - a. Tesla already has a built-in search map for electric vehicle chargers.
 - b. Tesla also has a monopoly on electric charger efficiency.
 - b. Are there any additional elements/functionalities you look for when it comes to choosing a refueling station?
 - i. **Answer:**
 1. Pricing.
 2. Queue time.

Closing Questions:

7. What do you mainly use your vehicle for?
 - a. **Answer:**
 - i. Work and travel.
8. If you could have a road trip anywhere, where would you go?
 - a. **Answer:**
 - i. Across the United States; New York, Chicago, Texas, etc.

Interview 2

Interviewer: Neil Wang

Interviewee: Cameron Jakobs

Interviewee Age: 53

Warm-up Questions:

1. How often do you drive?
 - a. **Answer:**
 - i. In-office work: 5 days in office.
 - ii. Outings: around 2 times a week.
 - iii. Total: Around 7 times a week.
2. Do you own a car yourself?
 - a. **Answer:** Yes; Honda Civic.
 - b. If so, how often do you fill up on gas/electricity a month?
 - i. **Answer:**
 1. Around once a week to full.
 - c. If not, do you plan to own a vehicle in the future?
 - i. What kind of vehicle (electric, gas, hybrid, BMW, etc.)?

Application Questions:

3. Could you describe what your average trip to a refueling station would look like?
 - a. **Answer:**
 - i. Refill around end of the week (Friday night/Saturday).
 - ii. Go to closest, cheapest gas station.
 - iii. Buy some snacks and drinks from convenience store.
 - iv. Clean car windows with squeegee.
4. How would you decide when and where you refuel your vehicle?
 - a. **Answer:**
 - i. Closest, cheapest.
 - ii. Bathroom and convenience stores are a plus.
5. Is there anything you find bothersome/inconvenient about refilling your vehicle?
 - a. If so, can you elaborate?
 - i. **Answer:**
 1. Long queue times, especially on Friday night/Saturday.
 2. Some fuel stations don't have correct gas types (91) or they ran out.
6. We're interested in helping users plan and choose the most convenient way to refill their vehicles:

- a. As a driver, would you be interested in using an application that displays refueling stations and their specifics, such as fuel prices, fuel types, bathroom availabilities, etc?

i. **Answer:**

1. Interested; would like to see queue times and amenities such as squeegees and bathrooms.
2. Also would like to have real-time updates on gas stations (i.e. when a gas type runs out).

- ii. If not, can you elaborate as to why?

1. **Answer:**

- a. Worried about complexity of the app; not too good with technology.
- b. Worries about being overwhelmed by functionalities and information:
 - i. Wants a simple view that can be customized to suit user needs.

- b. Are there any additional elements/functionalities you look for when it comes to choosing a refueling station?

i. **Answer:**

1. A way to store favorite gas stations.
2. A way of being notified if a gas station amenities have changed.

Closing Questions:

7. What do you mainly use your vehicle for?

a. **Answer:**

- i. Work and outings with friends/family.

8. If you could have a road trip anywhere, where would you go?

a. **Answer:**

- i. Across Europe: Germany, Netherlands, Sweden, etc.

Interview 3

Interviewer: Xiaoran Yu

Interviewee: Shawn Xie

Interviewee Age: 49

Warm-up Questions:

1. How often do you drive?
 - a. **Answer:**
 - i. Every weekday: drive to the office
 - ii. 5 to 10 times a year: drive for a trip.
2. Do you own a car yourself?
 - a. If so, how often do you fill up on gas/electricity a month?
 - i. **Answer:**
 1. Yes, I own a car. Once a month (commuting distance is pretty short).

Application Questions:

3. Could you describe what your average trip to a refueling station would look like?
 - a. **Answer:**
 - i. Refuel my car if I come across a gas station when commuting.
4. How would you decide when and where you refuel your vehicle?
 - a. **Answer:**
 - i. When to refuel depends on the fuel level. Usually refuel when there is about a hundred miles left.
 - ii. I choose convenient gas stations along the way, preferably ones that are on my route. I also pay attention to promotional offers such as free car wash cards or small gifts given when filling up the tank.
5. Is there anything you find bothersome/inconvenient about refilling your vehicle?
 - a. **Answer:**
 - i. No.
6. We're interested in helping users plan and choose the most convenient way to refill their vehicles:
 - a. As a driver, would you be interested in using an application that displays refueling stations and their specifics, such as fuel prices, fuel types, bathroom availabilities, etc?
 - i. **Answer:**
 1. Yes, I'm interested in using such an app.
 - b. Are there any additional elements/functionalities you look for when it comes to choosing a refueling station?

i. **Answer:**

1. It's hard to say. Generally, unless a gas station has a very obvious feature (such as being very cheap), I don't really consider going to a specific gas station. I usually choose one that is conveniently located along my route.

Closing Questions:

7. What do you mainly use your vehicle for?

a. **Answer:**

i. Commuting

8. If you could have a road trip anywhere, where would you go?

a. **Answer:**

i. I would choose nearby places with better scenery for a road trip.

Interview 4

Interviewer: Xiaoran Yu

Interviewee: Q. Thompson

Interviewee Age: 45

Warm-up Questions:

1. How often do you drive?
 - a. **Answer:**
 - i. Almost every day; commuting to work, running errands and other personal activities.
2. Do you own a car yourself?
 - a. If so, how often do you fill up on gas/electricity a month?
 - i. **Answer:**
 1. Yes, I own a car. I fill up on gas about twice a month, depending on specific driving needs and the distance I cover.

Application Questions:

3. Could you describe what your average trip to a refueling station would look like?
 - a. **Answer:**
 - i. I usually fuel my car when running my regular errands or when I'm on my way to work.
 - b. How would you decide when and where you refuel your vehicle?
 - i. **Answer:**
 1. Refuel when my fuel gauge is around the quarter tank mark or if I have a long drive ahead. I prefer gas stations that are on my regular routes or conveniently located near my destination. I also take into consideration factors such as fuel prices, station reputation, and cleanliness.
4. Is there anything you find bothersome/inconvenient about refilling your vehicle?
 - a. **Answer:**
 - i. Sometimes gas stations are crowded and there are long waiting lines, especially during peak hours. Additionally, it can be frustrating when certain stations' fuel pumps are out of order but I didn't know that in advance.
5. We're interested in helping users plan and choose the most convenient way to refill their vehicles:
 - a. As a driver, would you be interested in using an application that displays refueling stations and their specifics, such as fuel prices, fuel types, bathroom availabilities, etc?

i. **Answer:**

1. Yes, I would be interested in using such an application.

b. Are there any additional elements/functionalities you look for when it comes to choosing a refueling station?

i. **Answer:**

1. It would be helpful to know how crowded the gas station is. I also want to be notified if something becomes unexpectedly unavailable in a gas station.

Closing Questions:

7. What do you mainly use your vehicle for?

a. **Answer:**

i. Commuting to work, running errands, and transporting my family.

8. If you could have a road trip anywhere, where would you go?

a. **Answer:**

i. Banff.

Interview 5

Interviewer: Sana Alia

Interviewee: David

Interviewee Age: 32

Warm-up Questions:

1. How often do you drive?
 - a. **Answer:**
 - i. I drive to work daily, Monday through Friday. I also need to travel for client meetings as a marketing consultant.
2. Do you own a car yourself?
 - a. **Answer:**
 - i. Yes, I do. Ford Escape SUV.
 - b. If so, how often do you fill up on gas/electricity a month?
 - i. **Answer:**
 1. I fill up my car with gas around once a week but it also depends on my commuting distance and errands that I need to run or any additional trips.
 - c. If not, do you plan to own a vehicle in the future?
 - i. What kind of vehicle (electric, gas, hybrid, BMW, etc.)?

Application Questions:

3. Could you describe what your average trip to a refueling station would look like?
 - a. **Answer:**
 - i. When I notice my fuel gauge has reached the halfway mark or when I have a longer journey ahead for meeting up with my clients. I prefer to fill up at a station near my workplace.
4. How would you decide when and where you refuel your vehicle?
 - a. **Answer:**
 - i. I would consider a few factors such as the current fuel prices, convenience, and proximity to my regular routes.
5. Is there anything you find bothersome/inconvenient about refilling your vehicle?
 - a. If so, can you elaborate?
 - i. **Answer:**
 1. Yes, one thing that can be bothersome is the uncertainty of finding a gas station with amenities such as restrooms and shops, since I am usually traveling a lot for client meetings.

6. We're interested in helping users plan and choose the most convenient way to refill their vehicles:
- a. As a driver, would you be interested in using an application that displays refueling stations and their specifics, such as fuel prices, fuel types, bathroom availability, etc?
 - i. **Answer:**
 - 1. Of course! An application like that would be incredibly helpful. It would save me time and effort by providing real-time information on fuel prices and amenities at nearby gas stations.
 - ii. If not, can you elaborate as to why?
 - b. Are there any additional elements/functionalities you look for when it comes to choosing a refueling station?
 - i. **Answer:**
 - 1. I would also appreciate information regarding the availability of clean and well-maintained restrooms.

Closing Questions:

7. What do you mainly use your vehicle for?
- a. **Answer:**
 - i. I primarily use my vehicle for commuting to work, traveling to meet with clients and running daily errands. Occasionally, I also enjoy using my car for weekend getaways.
8. If you could have a road trip anywhere, where would you go?
- a. **Answer:** I would love to take a road trip to Montreal.

Interview 6

Interviewer: Sana Alia

Interviewee: Sarah Khan

Interviewee Age: 36

Warm-up Questions:

1. How often do you drive?
 - a. **Answer:**
 - i. I drive on a daily basis with my 2 year old as I have to drop her at daycare before going to work.
2. Do you own a car yourself?
 - a. **Answer:**
 - i. Yes, my husband and I own a car, he's working remotely so I am using the car to commute to my workplace.
 - b. If so, how often do you fill up on gas/electricity a month?
 - i. **Answer:**
 1. I fill up my car with gas around three times in a month.
 - c. If not, do you plan to own a vehicle in the future?
 - i. What kind of vehicle (electric, gas, hybrid, BMW, etc.)?

Application Questions:

3. Could you describe what your average trip to a refueling station would look like?
 - a. **Answer:**
 - i. I usually plan my trip to a refueling station when 40 kms of petrol is left.
4. How would you decide when and where you refuel your vehicle?
 - a. **Answer:**
 - i. My husband is really picky about the fuel type, so that is one of the factors we usually consider.
5. Is there anything you find bothersome/inconvenient about refilling your vehicle?
 - a. If so, can you elaborate?
 - i. **Answer:**
 1. Yes, like I mentioned before one thing that is bothersome is not knowing which gas stations are offering the fuel type we usually get.
6. We're interested in helping users plan and choose the most convenient way to refill their vehicles:

- a. As a driver, would you be interested in using an application that displays refueling stations and their specifics, such as fuel prices, fuel types, bathroom availability, etc?
 - i. **Answer:**
 - 1. Yes! I would definitely be interested because having access to real time data on fuel types would be great!
 - ii. If not, can you elaborate as to why?
- b. Are there any additional elements/functionalities you look for when it comes to choosing a refueling station?
 - i. **Answer:**
 - 1. I would also like to have some information about the amenities majorly because my toddler usually gets restless when we are travelling, so that would definitely be helpful.

Closing Questions:

- 7. What do you mainly use your vehicle for?
 - a. **Answer:**
 - i. I mainly use my vehicle for commuting to work, running errands and dropping my kid at daycare on my way to work and then picking her up.
- 8. If you could have a road trip anywhere, where would you go?
 - a. **Answer:** My husband and I have been planning to take a road trip to New York.

Interview 7

Interviewer: Jeremy Neilson

Interviewee: Terry Chen

Interviewee Age: 21

Warm-up Questions:

1. How often do you drive?

a. **Answer:**

- i. 5-7 times per week. When parents don't need the car he'll drive to work, but he'll get a ride otherwise. Drives to meet with friends etc. on the weekends

2. Do you own a car yourself?

a. **Answer:** No. Plans to own a Mitsubishi SUV, hopefully an electric one.

Application Questions:

3. Could you describe what your average trip to a refueling station would look like?

a. **Answer:**

- i. When he takes the car, he'll check the gas, and if it needs refueling, he takes it to the closest gas station to his house and fills it up. He passes it so much he doesn't check directions or prices. Fills up with the cheapest gas but doesn't pay attention to price as he gets paid back by his parents.

4. How would you decide when and where you refuel your vehicle?

a. **Answer:**

- i. Fills up at the closest gas station and only does so when necessary. His use isn't frequent or long enough to need to plan anything out.

5. Is there anything you find bothersome/inconvenient about refilling your vehicle?

a. **Answer:**

- i. He finds it annoying when he is in a rush and doesn't realize that the car is low on gas. Finds it a nuisance most of the time, but that's just because he's almost never expecting to have to fill up.

6. We're interested in helping users plan and choose the most convenient way to refill their vehicles:

a. As a driver, would you be interested in using an application that displays refueling stations and their specifics, such as fuel prices, fuel types, bathroom availabilities, etc?

i. **Answer:**

- 1. He would be when he's in Toronto for school, but when he's back home he has a general idea of the locations and prices of all nearby stations, and the city isn't big enough that he would need to take

advantage of any of the amenities at the gas station, rather than wait until he arrives at his destination.

Closing Questions:

7. What do you mainly use your vehicle for?
 - a. **Answer:** Getting around the city (to work, to friends, etc.) and to go on drives with people to hang out.
8. If you could have a road trip anywhere, where would you go?
 - a. **Answer:** Seattle, then down the west coast of the U.S.

Interview 8

Interviewer: Jeremy Neilson

Interviewee: Alex Carlson

Interviewee Age: 24

Warm-up Questions:

1. How often do you drive?
 - a. **Answer:** 1-2 times per week. Only must use it when it's his turn to drive the carpool.
2. Do you own a car yourself?
 - a. **Answer:** Yes. Only has to fill up about once a month.

Application Questions:

3. Could you describe what your average trip to a refueling station would look like?
 - a. **Answer:** Checks gas every time he finishes the drive home from work, and fills up after dropping everyone off if it's low, so he stops at the closest gas station to himself when he drops the last person off. Usually has no issue with it and it's almost always a specific Co-op station so he can grab groceries etc. as well.
4. How would you decide when and where you refuel your vehicle?
 - a. **Answer:** It's on the fly, just does it in reaction to the meter being low, no planning ahead of time.
5. Is there anything you find bothersome/inconvenient about refilling your vehicle?
 - a. **Answer:** He finds it to be quite easy, it only adds a little bit of time to every day errands.
6. We're interested in helping users plan and choose the most convenient way to refill their vehicles:
 - a. As a driver, would you be interested in using an application that displays refueling stations and their specifics, such as fuel prices, fuel types, bathroom availabilities, etc?
 - b. If not, can you elaborate as to why?
 - i. **Answer:** For day-to-day life, he doesn't need one. He would only use it in a rare case that he's in the city and hasn't been checking the meter and needs to find a station ASAP, but that would be extremely rare.
 - c. Are there any additional elements/functionalities you look for when it comes to choosing a refueling station?
 - i. **Answer:** He likes that his usual gas station is by the grocery store, but in a random gas station it all he needs is regular gas to be available, and hopefully for the line to not be too bad, but it almost never is where he goes.

Closing Questions:

7. What do you mainly use your vehicle for?
 - a. **Answer:** Carpooling, sometimes Costco trips.
8. If you could have a road trip anywhere, where would you go?
 - a. **Answer:** From Alberta to Ontario, to visit family and friends on the way.

Interview 9

Interviewer: Aaliyah Jaleel

Interviewee: Aisha Ghouse

Interviewee Age: 18

Warm-up Questions:

1. How often do you drive?
 - a. **Answer:**
 - i. Once or twice biweekly, just for leisure
 - ii. Grocery shopping
2. Do you own a car yourself?
 - a. **Answer:** No
 - b. If so, how often do you fill up on gas/electricity a month?
 - i. **Answer:** Often
 - c. What kind of vehicle (electric, gas, hybrid, BMW, etc.)?
 - i. **Answer:** Van/Car

Application Questions:

3. Could you describe what your average trip to a refueling station would look like?
 - a. **Answer:** A few near your house, less than a km away
4. How would you decide when and where you refuel your vehicle?
 - a. **A:**
 - i. At ¼ tank refill
 - ii. Never wait for the light
 - iii. Go to the Port Union one because it has cheaper pricing
5. Is there anything you find bothersome/inconvenient about refilling your vehicle?
 - a. If so, can you elaborate?
 - i. **Answer:** Cleanliness
 - ii. **Answer:** Mother doesn't fill up gas because she gets a lot of static electricity and is afraid of blowing up the gas station
 - iii. **Answer:** Payment sometimes not straight forward
6. We're interested in helping users plan and choose the most convenient way to refill their vehicles:
 - a. As a driver, would you be interested in using an application that displays refueling stations and their specifics, such as fuel prices, fuel types, bathroom availabilities, etc?
 - i. **Answer:**
 1. Gas is pretty important these days, convenient to have
 2. Brother uses so much gas - should definitely use this app for him

ii. If not, can you elaborate as to why?

1. **Answer:**

a. Tesla already has a built-in search map for electric vehicle chargers.

b. Tesla also has a monopoly on electric charger efficiency.

b. Are there any additional elements/functionalities you look for when it comes to choosing a refueling station?

i. **Answer:** Don't care about brand, just the price.

Closing Questions:

7. What do you mainly use your vehicle for?

a. **Answer:** Leisure and occasionally groceries

8. If you could have a road trip anywhere, where would you go?

a. **Answer:** Peelee Island.

Interview 10

Interviewer: Aaliyah Jaleel

Interviewee: Aditya Parekh

Interviewee Age: 24

Warm-up Questions:

1. How often do you drive?
 - a. **Answer:** Every single day. At least 3 times a day, about 30-35 miles a day.
2. Do you own a car yourself?
 - a. **Answer:** No, family just got new car, drives family car.

Application Questions:

3. Could you describe what your average trip to a refueling station would look like?
 - a. **Answer:**
 - i. At least once a week, fill it up on the way to school. Arrive at the gas station, tell them what type of gas you'd like and for how much, and the gas station employee fills it up.
4. How would you decide when and where you refuel your vehicle?
 - a. **Answer:** Goes to the one near school because it's the closest one he knows of.
5. Is there anything you find bothersome/inconvenient about refilling your vehicle?
 - a. **Answer:**
 - i. The frequency for which he has to fill it up is convenient - but has bought a new car so hopefully there is better mileage. Bought the new car because the old car had issues unrelated to mileage.
6. We're interested in helping users plan and choose the most convenient way to refill their vehicles:
 - a. As a driver, would you be interested in using an application that displays refueling stations and their specifics, such as fuel prices, fuel types, bathroom availabilities, etc?
 - b. **Answer:**
 - i. Would use it - finds it convenient. Include traffic at gas stations - gas stations are often very busy. It would also be convenient to know how far it is from a main road.

Closing Questions:

7. What do you mainly use your vehicle for?
 - a. **Answer:** Primarily for school, also for picking up mom from work, going to gym, groceries, leisure
8. If you could have a road trip anywhere, where would you go?
 - a. **Answer:** Banff

Interview 11

Interviewer: Alex Zeng

Interviewee: Vinz Dela Cruz

Interviewee Age: 19

Warm-up Questions:

1. How often do you drive?
 - a. **Answer:**
 - i. Everyday. Drive on weekdays as transportation to work. Drive on weekends for transportation.
2. Do you own a car yourself?
 - a. **Answer:** Yes; 2014 Honda Civic SI (Requires 91 High Octane)
 - b. If so, how often do you fill up on gas/electricity a month?
 - i. **Answer:** Need to fill from $\frac{1}{8}$ to full Sunday every week

Application Questions:

3. Could you describe what your average trip to a refueling station would look like?
 - a. **Answer:**
 - i. Would find the nearest gas station after leaving a car meet. Sometimes there might just be one around the corner, sometimes would need to relocate due to gas outages.
4. How would you decide when and where you refuel your vehicle?
 - a. **Answer:**
 - i. Fuels up on Sunday night every week or whenever tank falls below $\frac{1}{8}$. Fills up usually where a car event ends after participation and have long waits.
5. Is there anything you find bothersome/inconvenient about refilling your vehicle?
 - a. If so, can you elaborate?
 - b. **Answer:**
 - i. The gas prices are sometimes drastically cheaper on my way home compared to finding the nearest gas station. Also long wait times as everyone that leaves the car meets fills up at the same time. Sometimes a gas station might even run out of the gas I need or only take cash.
6. We're interested in helping users plan and choose the most convenient way to refill their vehicles:
 - a. As a driver, would you be interested in using an application that displays refueling stations and their specifics, such as fuel prices, fuel types, bathroom availabilities, etc?
 - i. **Answer:** Yes.

- b. Are there any additional elements/functionalities you look for when it comes to choosing a refueling station?

- i. **Answer:**

- 1. Displaying gas stations with fuel types and prices would help a lot.
It would help more with wait times and payment methods

Closing Questions:

- 7. What do you mainly use your vehicle for?
 - a. **Answer:** Use vehicle mainly to commute to work and for recreation on weekends.
- 8. If you could have a road trip anywhere, where would you go?
 - a. **Answer:** Would like to drive to New York from Toronto as a road trip.

Interview 12

Interviewer: Alex Zeng

Interviewee: Max Zeng

Interviewee Age: 17

Warm-up Questions:

1. How often do you drive?
 - a. **Answer:** On weekends only for pleasure and transportation.
2. Do you own a car yourself?
 - a. **Answer:** Yes. Owns a 2008 BMW M3 (Modified, requires 94 Ultra)
 - c. If so, how often do you fill up on gas/electricity a month?
 - i. **Answer:** Usually twice a month.

Application Questions:

3. Could you describe what your average trip to a refueling station would look like?
 - a. **Answer:**
 - i. Would find an arbitrary gas station when needed on the way to a destination.
4. How would you decide when and where you refuel your vehicle?
 - a. **Answer:**
 - i. Would fuel up when the gas tank reaches $\frac{1}{4}$ as the BMW eats gas quickly so $\frac{1}{4}$ is the threshold before needing refuel.
5. Is there anything you find bothersome/inconvenient about refilling your vehicle?
 - a. If so, can you elaborate?
 - b. **Answer:**
 - i. One thing that really annoys this person is stopping at a gas station that doesn't offer 94 gas, forcing this person to look for a different gas station on the way. This user also gets nervous when his indicator goes to $\frac{1}{4}$ as it is not always accurate and sometimes fall short so he desperately needs a gas station.
6. We're interested in helping users plan and choose the most convenient way to refill their vehicles:
 - a. As a driver, would you be interested in using an application that displays refueling stations and their specifics, such as fuel prices, fuel types, bathroom availabilities, etc?
 - i. **Answer:** Yes. Locating the nearing station that offers 94 would help a lot
 - b. Are there any additional elements/functionalities you look for when it comes to choosing a refueling station?
 - i. **Answer:**

1. It would also be helpful if the gas station has a car wash as this person prefers his car to be clean all the time.

Closing Questions:

7. What do you mainly use your vehicle for?
 - a. **Answer:** Drive mostly for pleasure on the highway with friends and to get to friends' house.
8. If you could have a road trip anywhere, where would you go?
 - a. **Answer:** Would like to road trip from Vancouver to Seattle to Portland to San Francisco.

Citations

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