BTH545

Assignment 1 – Phase I

Jacob Robinson, Earle White, Nitish Bajaj, Kash Mahmood, Wilson Ho

PERSONA I:

User: Mary Jane Sanders

Age: Middle-Aged (40 years old)

Education: Bachelor of Software Development (Seneca College)

Debts: $20,000

Occupation: Senior Developer at BMO

Income: $80,000/year, plus bonuses

Interests: Soap Operas, saving money, travelling, and her children

Goals: To pay off the rest of her debts

Needs: Easy to use and responsive UI to help her drive with her increasing age, as well as a reliable vehicle that will last for many years.

SCENARIOS:

Scenario: Reviewing vehicle systems and connections.

Scenario Code: REVI101

The user has recently acquired the vehicle and wants to confirm that all systems are fully functional and intact. The user starts the car, and the interface starts up as well. From the default menu presented, the user taps on the “Settings” menu and is presented with multiple options. From there, the user connects to Wi-Fi for future GPS and navigational purposes. Afterwards, the user navigates to the “Specifications” menu to gain valuable identifying information in preparation for repair needs and crash incidents. Finally, the user navigates to the “Diagnosis” menu, where the user will learn about the current state of all the vehicles inner systems such as suspension and oil levels.

Case 1:

Use Case Name: Connecting to Wi-Fi.

Short Description: The user navigates from the default screen to the “Connections” screen to connect to Wi-Fi.

Actors: The user/driver.

Trigger: The user needs Wi-Fi.

Precondition: The car is on, all network systems are fully functional.

Postcondition: The user is successfully connected to Wi-Fi.

Results: The vehicle successfully establishes a stable connection.

Main Success Scenario:

1. The user turns on the car, and is presented with the default screen.
2. The user taps on the “Settings” option on the screen.
3. The user is presented with the “Connections” option, and taps on it.
4. The user is presented with multiple networks available and taps on one of the available open networks.
5. The system attempts to connect to the network, and the user is successfully connected if the connection is stable.

Alternate Flow:

1. The user turns on the car, and is presented with the default screen.
2. The user taps on the “Settings” option on the screen.
3. The user is presented with the “Connections” option, and taps on it.
4. The user is presented with multiple networks available and taps on one of the available networks that requires a password.
5. The user attempts to enter the password, and if successful moves on to the next step.
6. The system attempts to connect to the network, and the user is successfully connected if the connection is stable.

Case 2:

Use Case Name: Checking vehicle diagnostics.

Short Description: The user navigates the interface to acquire information about the vehicle.

Actors: The user/driver.

Trigger: The user wants to acquire general knowledge as a precautionary measure, or the vehicle is not running optimally.

Precondition: The vehicle is on, and the interface is fully functional and connected to the individual systems within the car.

Postcondition: The user is presented with the current condition of systems within the vehicle.

Results: The user gains adequate information about the vehicle.

Main Success Scenario:

1. The user turns on the car, and is presented with the default screen.
2. The user taps on the “Settings” option on the screen.
3. The user is presented with the “Diagnosis” option, and taps on it.
4. The user is presented with a diagram of the vehicle, and labeled options of the systems within.
5. The user selects one of the labeled options.
6. The user is brought to a screen with all relevant information about the current condition of the selected option

Alternate Flow:

1. The user turns on the car, and is presented with the default screen.
2. The user taps on the “Settings” option on the screen.
3. The user is presented with the “Diagnosis” option, and taps on it.
4. The user is presented with a diagram of the vehicle and labeled options of the systems within. Some of the labels are in red.
5. A notification appears telling the user to bring the vehicle into the nearest registered dealership for repairs.

Case 3:

Use Case Name: Display vehicle information.

Short Description: The user navigates to the “Specifications” page where they are presented with all relevant information regarding the vehicle’s specifications.

Actors: The user/driver.

Trigger: The user needs identifying information and specifications for either repair or for general knowledge.

Precondition: The car is on, and the interface is fully functional.

Postcondition: The system displays the “Specifications” page.

Results: The user gains adequate information about the vehicle.

Main Success Scenario:

1. The user turns on the car, and is presented with the default screen.
2. The user taps on the “Settings” option on the screen.
3. The user is presented with the “Specifications” option, and taps on it.
4. The user is presented with a list of all specifications and identifying information.

No alternate flow.

Case 4:

Use Case Name: Playing music from a mobile device.

Short Description: The user plays music from their vehicle through options presented by the interface.

Actors: The user/driver.

Trigger: The driver wants to play music.

Precondition: Car is on, music medium is present, vehicle interface is fully functional.

Postcondition: Music is playing, music medium is connected to audio system.

Results: Music plays through the car's speakers.

Main Success Scenario:

1. User taps on the music button from the home menu.
2. The user then selects the Bluetooth option to play music from his phone.
3. The system looks for Bluetooth signals, and connects once a device is found.
4. Playlist is presented, and the actor selects the desired song on their phone.
5. Song plays, and its name is displayed on the screen.

No alternate flow.

Case 5:

Use Case Name: Playing music from the built-in radio.

Short Description: The user plays music from their vehicle's radio through options presented by the interface.

Actors: The user/driver.

Trigger: The driver wants to play music.

Precondition: Car is on, radio is functional, vehicle interface is fully functional.

Postcondition: Music is playing, audio system is connected to the radio.

Results: Music plays through the car's speakers.

Main Success Scenario:

1. User taps on the music button from the home menu
2. The user then selects the radio option
3. Radio channels are presented, and the user selects the desired song radio station
4. Song plays, and its name and radio station are displayed on the screen

No alternate flow.

Case 6:

Use Case Name: Using the GPS (Global Positioning System) to navigate to restaurant while driving.

Short Description: The user uses the GPS systems to attain a list of restaurants nearby. He selects the restaurant he chooses to eat at and system gives prompts him with the direction.

Actors: The user/driver.

Trigger: The driver wants to navigate to their desired restaurant.

Precondition: Car is on and connected to GPS systems.

Postcondition: Car is utilizing GPS systems, User receives the directions to the restaurant.

Results: The GPS system successfully determines the fastest route to the destination, and the user has used these directions to arrive at the location.

Main Success Scenario:

1. User selects the GPS button.
2. The current location is displayed on the interface.
3. UI displays the option “Restaurants Nearby”.
4. The user selects this option.
5. GPS displays a sorted list of options for every restaurant in the area by proximity (with exact distance listed).
6. User selects a specific restaurant.
7. Multiple routes are displayed (such as fastest/shortest/no-tolls).
8. User selects a route.
9. System displays the directions, distance, and estimated time of arrival.
10. System provides the user with turn-by-turn directions, as well as visual and auditory cues while driving.

No alternate flow.

PERSONA II:

User: Bill Robertson

Age: Senior (68 years old)

Education: Master's degree from the University of Toronto

Debts: None

Occupation: Retired (Former Financial Advisor)

Income: Pension worth > $2 000 000. Upper-class background

Interests: Television shows, crossword puzzles

Goals: Enjoy life

Needs: To get from point A to point B SAFELY. Given that older people (generally speaking) have slower reactions and reflexes, additional, working safety features are necessary to assist them in having a safe and pleasurable driving experience

SCENARIOS:

Scenario: Activate Seatbelt Warning System (SWS), activate Collision Avoidance System (CAS).

Scenario Code: SAFE102

When Bill starts his car, the dashboard lights up. If he puts the car into "Drive" without first putting on his seatbelt, the "seatbelt" light will flash. After about 10 seconds, if he still has not put on his seatbelt, Bill will hear a "seatbelt" alarm in addition to the "seatbelt" light.

Once the car is in motion and Bill has his seatbelt on, he eventually drives along peacefully on the city streets. Suddenly, a car pulls out in front of him without first checking the blind spot. Bill is travelling AT about 50 km/h, and the distance between the two cars is too tight. The proximity sensors built into the car detect this. Before Bill can even react to the situation, the CAS kicks in and alerts him with a **loud** beep that a crash would be imminent.

Case 1:

Use Case Name: Activating seatbelt warning system (SWS).

Short Description: Bill turns on his car. He puts the gearshift into "Drive" without first putting on his seatbelt.

Actors: The user/driver.

Trigger: Bill not wearing his seatbelt.

Precondition: Car is on and SWS is active. User is NOT wearing seatbelt.

Postcondition: The flashing light or alarm shuts off after user wears seatbelt.

Results: User drives with seatbelt on.

Main Success Scenario:

1. User turns on vehicle.
2. User verifies that SWS is up and running.
3. User puts gear selector into “Drive”.
4. While driving, flashing “put on seatbelt” light flashes.
5. User puts on seatbelt within 10 seconds, before alarm activates.
6. Light shuts off.

Alternate Flow:

1. User turns on vehicle.
2. User verifies that SWS is up and running.
3. User puts gear selector into “Drive”.
4. While driving, flashing “put on seatbelt” light flashes.
5. User still does NOT put on seatbelt.
6. “Put on seatbelt” alarm activates after 10 seconds.
7. User puts on seatbelt after alarm activates.
8. Both alarm and light are shut off.

Case 2:

Use Case Name: Activating collision avoidance system (CAS).

Short Description: Bill drives along peacefully. A car suddenly pulls out in front, which activates the proximity sensors that then trigger the CAS on the UI. User attempts to avert collision.

Actors: The user/driver.

Trigger: The car pulling in front of Bill’s car suddenly.

Precondition: Car is on and CAS is active.

Postcondition: The alarm shuts off.

Results: User either avoids collision, or collides with car in front of him.

Main Success Scenario:

1. User turns on vehicle.
2. User verifies that CAS is up and running.
3. User drives along.
4. While driving, another car suddenly pulls out in front.

5. Proximity sensors trigger alarm.
6. User hears alarm then brakes and/or swerves immediately.
7. User does not collide.
8. Alarm shuts off.

Alternate Flow:

1. User turns on vehicle.
2. User verifies that CAS is up and running.
3. User drives along.
4. While driving, another car suddenly pulls out in front.
5. Proximity sensors trigger alarm.
6. User hears alarm then brakes and/or swerves immediately.
7. Despite best efforts, user still collides.
8. Air bags deploy.
9. Alarm shuts off.

PERSONA III:

User: Arthur Morgan

Age: Middle-Aged (35 years old)

Education: Bachelor of Arts in Classical and Computer Animation (Max the Mutt College of Animation, Art & Design)

Debts: $10,000

Occupation: 3D Animator - Full time

Income: $58,000/Year, 40hrs/week. Middle-class background

Interests: Art, Music, Video/Board Games

Goals: Continue working as 3D Animator towards the Animation Director position, have more children

---

SCENARIOS:

Scenario: Turning on Heated/Cooling Seats, Turning on Air Conditioner/Heater, Reversing out of a parking spot.

Scenario Code: RHA101

Arthur gets into his car and starts the car. It is cold, and he wants to turn on the heat for his seats. Arthur clicks on the “controls” button and is prompted with buttons like Heated Seat, Air Conditioner, Heater, etc. Arthur selects the “heated season” icon, and is prompted with Heating/Cooling seats Menu. On the menu, Arthur selects “Heat” for heated seats, “Cool” if he wants cooling seats. He can also select all seats or specific seats, to heat or cool. He can then use the slider to choose the exact temperature he would for the seat. The temperature is displayed, and Arthur can choose to view the temperature in Celsius or Fahrenheit, by changing the format in the settings menu. Moreover, he also wants to turn on the heater (fan). So, he clicks the back button, to return to the “Controls” Menu. Next, Arthur selects the Fan icon for Air Conditioner/Heater, and is prompted with Heating/Cooling Menu. On the Menu, Arthur is prompted with a slider that goes Red to Blue from left to right, representing the heat to cool. Arthur can also select which Fan the air to come out of, such as windshield, feet, back fans, etc. He can then select the speed of the fan using fan speed slider and other options. The temperature of inside of the car is displayed and Arthur can choose to view the temperature in Celsius or Fahrenheit, by changing it in the settings menu. Now that he’s ready to leave, he puts the car in reverse, and the display begins to show the back camera. The display has a padding on all sides, which turns red, depending on which side an object is coming close. Arthur releases the brake, and the car begins to reverse. Arthur continues to reverse while he looks at the back through the back camera. Once he is satisfied with how far the car has come out of the parking spot, he can put the car in drive, and the interface will go back to the previous application and display it. He can then turn his steering wheel if he needs to and drive away.

Case 1:

Use Case Name: Reversing out of a parking spot.

Short Description: The driver is able to reverse the car and look at the rear through the rear camera, ensuring no object is behind as the Arthur reverses.

Actors: The user/driver.

Trigger: The driver wants to get out of the parking spot and is parked perpendicular.

Precondition: The car is running, an automatic, in parking mode and the vehicle interface is functional.

Post condition: The car is out of the parking spot successfully and the Arthur can drive away.

Results: The car is out of the parking lot.

Main Success Scenario:

1. The drive puts the car in reverse, and the display begins to show the back camera.
2. The driver takes their foot off the brake and the car begins to reverse.
3. The driver continues to reverse and look at the back through the back camera.
4. Once the driver is satisfied with how far the car has come out of the parking spot, he can put the car in drive, and the interface will go back to the previous application and display it.
5. The driver can then turn the steering wheel if needed to turn and drive away.

Alternate Flow:

1. The driver puts the car in reverse, and the display begins to show the back camera.
2. The driver takes their foot off the brake and the car begins to reverse.
3. The driver continues to reverse and look at the back through the back camera.
4. A car approaches from the right side and the display's right margin begins to flash red and car makes a beeping alarm sound. The closer the object gets, the quicker the beeping alarm becomes. At this point, the driver can press on the brake.
5. If the object is within 1 foot, the car will press the brake itself. The car will not move until the object has moved or is farther than 1 foot. Once the object has moved, the padding will no longer show red and the car will stop beeping. The car will begin reversing once the driver puts their foot back on the brake pedal.
6. If the driver had their foot on brake pedal already, they'll need to take it off and push the brake pedal again, in order to notify the car that they acknowledge that the car stopped because an object got close to the car and they're ready to continue reversing the car.
7. Once the driver is satisfied with how far the car has come out of the parking spot, the driver can put the car in drive, and the interface will go back to the previous application and display it.
8. The driver can then turn the steering wheel if needed to and drive away.

Case 2:

Use Case Name: Turning on Heated/Cooling Seats.

Short Description: The driver is able to turn on heated seats through the display.

Actors: The user/driver.

Trigger: The driver is feeling cold and wants to turn on heated seats.

Precondition: The car is running and the vehicle interface is functional.

Post condition: The heated seats are on.

Results: The driver will begin to feel warmer as the seats become warmer.

Main Success Scenario:

1. The driver clicks on the controls button and is prompted with buttons such as heated seat, Air Conditioner, Heater, etc.
2. The driver selects the heat/cool seat icon, and is prompted with Heating/Cooling seats Menu.
3. On the menu, the driver selects “Heat” for heated seats.
4. The driver then selects the driver seat to heat.
5. The driver then uses the slider to choose the temperature he wants for the heated seat. The temperature is displayed.

Alternate Flow:

1. The driver clicks on the controls button and is prompted with buttons such as heated seat, Air Conditioner, Heater, etc.
2. The driver selects the heat/cool seat icon, and is prompted with Heating/Cooling seats Menu.
3. On the menu, the driver selects “Cool” for cooling seats.
4. The driver then selects the driver seat to cool.
5. The driver then moves the slider bar to the right (Cooling side) to choose the temperature he wants for the cooling seat. The temperature is displayed.

Case 3:

Use Case Name: Turning on Air conditioner/Heater.

Short Description: The driver is able to turn on heated seats through the display.

Actors: The user/driver.

Trigger: The driver is warm and wants to turn on air conditioner.

Precondition: The car is running and the vehicle interface is functional.

Post condition: The air conditioner is on.

Results: The driver will begin to feel warmer as the seats become warmer.

Main Success Scenario:

1. The driver clicks on the controls button and is prompted with buttons such as heated seat, Air Conditioner, Heater, etc.

2. The driver selects the Fan icon for Air Conditioner/Heater, and is prompted with Air Conditioner/Heater Menu.
3. On the Menu, the driver is prompted with a slider that goes Red to Blue from left to right, representing the heat to cool. The driver moves the slider to the cool (Blue) side.
4. The driver selects the driver side fan, for the air to come out of.
5. The driver then moves the slider bar all the way to the right, for fan speed.
6. The temperature inside of the car is displayed.

Alternate Flow:

1. The driver clicks on the controls button and is prompted with buttons such as heated seat, Air Conditioner, Heater, etc.
2. The driver selects the Fan icon for Air Conditioner/Heater and is prompted with Air Conditioner/Heater Menu.
3. On the Menu, the driver is prompted with a slider that goes Red to Blue from left to right, representing the heat to cool. The driver moves the slider to the left (Hot) side.
4. The driver selects the windshield fan, for the air to come out of.
5. The driver then moves the slider bar all the way to the right, for fan speed.
6. The temperature inside of the car is displayed.

PERSONA IV:

User: Doug Marino

Age: Young Adult (27 years old)

Education: York University, undergraduate degree in Liberal Arts

Debts: $50,000

Occupation: Professional YouTube vlogger

Income: $100,000/year plus bonuses

Interests: video editing, vlogging, travelling

Goals: To pay off all debts, save on gas money

Needs: affordable, environmentally friendly sports car with cutting edge technology

SCENARIOS:

Scenario: Manage driving habits records.

Scenario Code: HIST109

Doug is a Canadian YouTube vlogger, and has scheduled some video shoots all across Toronto. Doug needs to make sure that his trips will be cost and environmentally friendly. He starts the car and decided to that he would like to start tracking his driving habits(history). He clicks the quick control drop-down menu on the dash. He then clicks the driving button, is presented with a few options, and the permissions for the car to begin tracking. He is then presented with a full map of the city that will show his car in different colors, depending on his specific driving pattern.

Case 1:

Use Case name: Start driving habits tracking.

Short Description: Navigate from dashboard to 'Driving quick toggle' to start driving habit tracking.

Actors: The user/driver.

Trigger: The user needs to track driving habits.

Precondition: The car is on, and all GPS systems are activated.

Postcondition: The user successfully started the Driving tracking feature.

Results: The vehicle successfully establishes a strong GPS signal to track the car's position.

Main Success Scenario:

1. The user turns on the car, and is presented with the default dashboard with quick toggles.
2. The user taps on the “quick toggle” option on the dashboard.
3. The user is presented with the “driving button” option, and click it.
4. The user is presented with a few options and gives permission to start tracking.
5. The system attempts to connect to the GPS, and the user is successfully connected if the GPS signal is strong.

Alternate Flow:

1. The user turns on the car, and is presented with the dashboard.
2. The user taps on the “quick toggle” option on the dashboard.
3. The user is presented with the “driving button” option, and click it.
4. The user is presented with a few options and doesn’t give permission to start tracking.
5. The system asks the user if they are sure, and the user confirms.

Case 2:

Use Case name: check driving habit records.

Short Description: the user navigates from dashboard to ‘Driving quick toggle’ to view tracking records.

Actors: The user/driver.

Trigger: The user needs to view driving habits.

Precondition: The car is on, and all networks are working fine.

Postcondition: The user is able to successfully view driving records.

Results: The vehicle successfully displays a table with all save driving records.

Main Success Scenario:

1. The user turns on the car, and is presented with the default dashboard.
2. The user taps on the “quick toggle” option on the dashboard.
3. The user is presented with the “driving button” option, and click it.
4. The user is presented with a view all records button option.
5. The system displays a color coded table with date, car speed, drive number etc… for driving records.

Alternate Flow:

1. The user turns on the car, and is presented with the dashboard.
2. The user taps on the “all data” option on the dashboard.
3. The user is presented with the “save folder” and opens it.
4. The user is presented with a few options and clicks to view record.
5. The system displays a text file with all driving records.

Case 3:

Use Case name: delete driving habit records.

Short Description: the user navigates from dashboard to 'Driving quick toggle' to delete tracking records.

Actors: The user/driver.

Trigger: The user needs to delete driving habits.

Precondition: The car is on, and all networks are working fine.

Postcondition: The user is able to successfully delete driving records.

Results: The vehicle display records are deleted successfully.

Main Success Scenario:

1. The user turns on the car, and is presented with the default dashboard.
2. The user taps on the "quick toggle" option on the dashboard.
3. The user is presented with the "driving button" option, and click it.
4. The user is presented with a "delete records" button option.
5. The system displays a popup showing that records were successfully deleted.

Alternate Flow:

1. The user turns on the car, and is presented with the dashboard.
2. The user taps on the "all data" option on the dashboard.
3. The user is presented with the "saved folder" and open it.
4. The user is presented with a few options and clicks to delete record.
5. The system asks for password, and if successful, displays a popup showing text file was deleted successfully.

PERSONA V:

User: Arshad Abdi

Age: Young Adult (21 years old)

Education: High school, some college, completed courses in mechanical engineering

Debts: None

Occupation: Retired (College Student & Part time work at McDonald)

Income: 1100 per month. Middle Class

Interests: Ice Hockey, Skiing, Hiking.

Goals: Explore Life

Needs: Easy to use and responsive UI, to make driving safer from point A to point B.

SCENARIOS:

Scenario 1: Activate High Speed Alert system (HSA).

Scenario Code: SAS101

Arshad didn't wake up to his alarm on Sunday morning. He has to pick up his friend and go to Mont Tremblant for skiing. He picks up his friend and is on Highway 401. Since they are late, Arshad is trying to rush on the road. He is 30KM away from Kingston city and there are two police cruisers trying to catch people speeding. Arshad is speeding up and doesn't realize he is going over speed limit. He speeds up to 110km/hour. The car speed censors that detects car going over the speed limit. The SAS kicks in and alerts Arshad with a loud beep and displays red flashing light on the screen. Arshad slows down just in time before he gets pull over by the cops for speeding.

Case 1:

Use Case Name: Activate High Speed Alert system, success.

Short Description: The user driving on highway and rushing. The user goes over the speed limit, it activates the speed censors and triggers the SAS on the UI. The user slows down and avoids getting a speeding ticket.

Actors: The user/driver.

Trigger: The car is speeding.

Precondition: Car is on and has the SAS activated.

Postcondition: SAS alerts shuts off and user slows down.

Results: The user avoids getting a ticket.

Main Success Scenario:

1. User turns on vehicle.
2. SAS is on.
3. User drives along.
4. User is driver the car faster than the speeding limit.
5. Hight speed censor triggers alarm.
6. User hears the alarm and the red flashing light on the display and slows done.
7. User avoid getting a ticket.
8. Alarm shuts off.

Alternate Flow:

1. User turns on vehicle.
2. SAS is on.
3. User drives along.
4. User is driver the car faster than the speeding limit.
5. Hight speed censor triggers alarm.
6. User hears the alarm but doesn't slow down.
7. User gets pulled over by the OPP, and is issued a ticket.
8. Alarm shuts off.

No alternate flows.

Scenario 2: Activate Open Door Alert System (ODAS).

Scenario Code: ODA101

On the way to Mont Tremblant Arshad and his friend are really tired. They decided to take a break at Tim Hortons in Ottawa. They park and go inside Tim Hortons for lunch. Arshad while exiting the vehicle didn't close the door properly and it was still open. The ODA system kicks in and alerts the system that closes the door with remote. Arshad walking away from the vehicle decided to lock the car with his remote. He pressed the locked button but realize that the car didn't beep. The system that locks up the car is already alerted by the ODA that door is open. All other doors are locked except the driver side. Arshad figures that out because it didn't beep when he tried to lock the car from remote. He comes back to the car and notices the open door. He closes the door and avoid getting robbed. After lunch they get back in the car and starts to get out of parking lot. Arshad's friend didn't close the passenger door properly. The ODA systems kick in and alert Arshad about the open door and shows the location of the open door on the display. Arshad stops the car and asks his friend to close the door properly.

Case 1:

Use Case Name: Activate Open Door Alert system, while parked.

Short Description: User parks the car and tried to lock the car with remote. The car doesn't beep as it should do once it is locked properly. Arshad realizes that it is most likely because of the one or more doors are not closed properly. He closes the door properly and locks up the car to avoid getting robbed.

Actors: The user/driver.

Trigger: Arshad didn't close the driver's door and tried to lock up the car.

Precondition: Car is on and has the ODA activated.

Postcondition: Car is locked up properly and User avoids getting robbed.

Results: User avoids getting robbed and locks up his car properly.

Main Success Scenario:

1. User parks the car.
2. User and his friends exit the vehicle.
3. User didn't close the door properly.
4. ODA alerts the system that locks the car with remote that door is open.
5. User tries to lock the car with remote, but doesn't hear the beep.
6. After not hearing the beep that confirms that all doors are close, User comes back.
7. User locks checks the doors and closes the driver's door properly.
8. User locks the car with the remote and hears the beep.
9. Alarm shuts off.

Case 2:

Use Case Name: Activate Open Door Alert system, while in motion.

Short Description: User starts driving out of a parking lot. One of the passengers didn't close the door properly. The ODA systems trigger the alarm on UI. User asks passengers to close to door and avoids driving on the road with a door open/not close properly.

Actors: The user/driver.

Trigger: Passenger in Arshad car didn't close the door properly.

Precondition: Car is on and has the ODA activated.

Postcondition: The alarm and on-display alerts shut off **after** door is closed.

Results: User avoids driving off on the highway with the door open/not properly closed.

Main Success Scenario:

1. User turns on vehicle.
2. User is driving out of the Tim Hortons parking lot.
3. When car starts to move, open door alert censor get triggered.
4. A sound beep with flashing open-door sign in the display.
5. The display sign shows the location of open door in the vehicle.
6. Passenger closes the door.
7. Alarm shuts off.

No alternate flows.

Textual List of Requirements for Interface

- Customize car steering wheel volume button to control seat warmers or car temperature
- Customize car steering button to be used as car gear stick
- Adjust mirrors to auto or manual fold
- Display cars that are in front of you when driving
- Customize car locking options
- Turn parking brake on and off automatically
- View driver driving habits
- View and schedule car service maintenance
- Auto recommend car driving mode depending on current weather
- Proximity sensors triggers 360 view on the quickly change from km/h to mph
- Display change's color if car is going above speed limit
- Notify drive if any doors are open when car is put in drive mood
- Small icon to show if steering wheel is properly aligned
- Ability to use to record car 360 cameras as a dash cam
- Full control of DOM lights

Use Cases Completed

- Reversing out of a parking spot -Nitish Bajaj
- Heated/Cooling Seats -Nitish Bajaj
- Air Conditioner/Heater -Nitish Bajaj
- Quick display of VIN number and car information -Wilson Ho
- Connect to Wi-Fi -Wilson Ho
- Display vehicle diagnostics -Wilson Ho
- Activate seatbelt warning system (SWS) -Jacob Robinson
- Activate collision avoidance system (CAS) -Jacob Robinson
- Manage driver's driving habits (CRUD operations) -Earle White
- Activate High Speed Alert system (HSAS) -Kash Mahmood
- Activate Open Door Alert System (ODAS) -Kash Mahmood
- Connect to radio -from Lab4
- Connect to phone for music -from Lab4
- Utilize GPS -from Lab4