Use Cases:

Use Case: Turn on Car

Primary Actor: Use

Goal in Context: To turn in the car and make it ready for use.

Preconditions: Car must have fuel in it and the user must provide a correct digital key.

Trigger: The user wants to use the car

Scenario:

1. The users presses the on button in the GUI. The car GUI then prompts to enter a digital key. The user enters his/her digital key then the car is ready for use. This initializes the rest of the GUI displaying the current speed, radio station and volume, a phone book, fuel level. The car is in a state now where it is waiting for more user input to do something. The system also begins logging the session information for this user.

Exceptions: None

Priority: Essential must implemented.

When available: First iteration of software

Frequency of use: once during a session.

Channel to actor: via GUI

Secondary actors: N/A

Channels to secondary actors: none

Open issues: none

Use Case: Using the radio

Primary Actor: User

Goal in Context: Turn on the radio so the user can listen.

Preconditions: Car must be turned on for use

Trigger: User wants to listen to FM or AM radio

Scenario:

1. User presses the on button for the radio on the car GUI. The car’s radio turns on.
2. The user press the AM or FM button to change between FM and AM bands.
3. The user presses the arrows to change the station that he/her is listening to.
4. The user presses the down or up arrow decreasing or increasing the volume respectively.

Exceptions

1. If the user is in a certain area where that radio station is unavailable.

Priority: Essential must be implemented

When available: Second iteration of software

Frequency of use: As much as the user desires

Channel to actor: Through GUI

Secondary actors: None

Channels to secondary actors: None

Open issues: None

Use Cases: Change Radio Band and Channel

Primary Actor: User

Goal in Context: To change the radio to FM or AM and/or to change the station

Preconditions: The car and the radio must already be on.

Trigger: User wants to change the radio to FM or AM and/or to change the station

Scenario

1. User presses the arrows on the GUI to change the radio station. Just like a real radio this will allow the user to choose which station to listen to. The current station that the user is listening to will be displayed on the GUI.
2. User presses either the AM or FM button to change which radio band they want to listen to. Just like a real radio is capable of doing. The current radio band will be displayed to the user on the GUI

Exceptions:

1. Some radio stations might not be available based on the car and user location. Just like a real radio.

Priority: Should be implemented

When available: Second iteration of software

Frequency of use: Whenever the user wants to change what they are listening to.

Channel to actor: Through GUI

Secondary Actors: None

Channels to secondary actors: None

Open Issue: None

Use Cases: Change Volume +/-

Primary Actor: User

Goal in Context: To raise or lower the volume

Preconditions: Car and radio must be on

Trigger: User wants to raise or lower the volume

Scenario:

1. User presses either the + or – buttons to either raise or lower the volume of the radio respectively. This allows the current volume level of the radio to be displayed to the user on the GUI. The lower limit of the volume will be 0 and the upper limit will be a predetermined value.

Exceptions:

1. If either the upper limit or lower limit are reached the volume will not be increased or decreased respectively.

Priority: Should be implemented

Frequency of Use: Whenever the user wants to change the volume level

When Available: Second iteration

Channel to actor: Through GUI

Secondary Actors: None

Channels to secondary actors: None

Open Issue: None

Use Cases: Using the Phone

Primary Actor: User

Goal in Context: To use the phone to call a person

Preconditions: The car must be on

Trigger: The user wants to call a person using the phone

Scenario:

1. User dials a number to call someone through buttons on the GUI. The duration of the call is recorded and stored for each user..
2. User selects a number from a list of numbers displayed on the GUI and calls a number. Just like a contact list in a normal phone.
3. User can raise and lower the volume of the speaker and microphone through buttons on the GUI.

Exceptions: None

Priority: Essential must be implemented

Frequency of Use: However many times the user wants to make phone calls.

When Available: Third iteration

Channel to actor: Through GUI

Secondary Actors: None

Channels to secondary actors: None

Open Issue: None

Use Cases: Change the Speaker Volume

Primary Actor: User

Goal in Context: To change the speaker volume

Preconditions: The car must be on

Trigger: The user wants to change the speaker volume

Scenario:

1. The user pushes the + or – button to either raise or lower the speaker volume respectively. This allows the current speaker volume be displayed on the GUI so that the user’s desired volume can be reached. The lower limit of the volume will be 0 and the upper limit will be a predetermined value.

Exceptions:

1. If either the upper limit or lower limit are reached the volume will not be increased or decreased respectively.

Priority: Should be implemented

Frequency of Use: Whenever the user wants to change the volume level

When Available: Third iteration

Channel to actor: Through GUI

Secondary Actors: None

Channels to secondary actors: None

Open Issue: None

Use Cases: Change the Microphone Volume

Primary Actor: User

Goal in Context: To change the microphone volume

Preconditions: The car must be on

Trigger: The user wants to change the microphone volume

Scenario:

1. The user pushes the + or – button to either raise or lower the microphone volume respectively. This allows the current microphone volume be displayed on the GUI so that the user’s desired volume can be reached. The lower limit of the volume will be 0 and the upper limit will be a predetermined value.

Exceptions:

1. If either the upper limit or lower limit are reached the volume will not be increased or decreased respectively.

Priority: Should be implemented

Frequency of Use: Whenever the user wants to change the volume level

When Available: Third iteration

Channel to actor: Through GUI

Secondary Actors: None

Channels to secondary actors: None

Open Issue: None

Use Cases: Accelerate

Primary Actor: User

Goal in Context: To make the car go faster.

Preconditions: The car must be on

Trigger: The user wants the car to accelerate.

Scenario:

1. The users selects a speed at which the car accelerates until the maximum speed is reached. The car’s current acceleration and speed will be displayed.
2. The user selects a speed that he/she wants the car to reach the car will accelerate at a rate until that speed is reached. The car’s current acceleration and speed will be displayed.
3. The rate of fuel consumption is directly related to the acceleration of the vehicle.

Exceptions:

1. If the desired speed is reached the car will not accelerate anymore keeping the speed at that value.
2. If the max speed is reached the car will not accelerate anymore keeping the speed at that value.

Priority: Essential must be implemented

Frequency of Use: Whenever the user wants to go faster.

When Available: First Iteration

Channel to actor: Through GUI

Secondary Actors: None

Channels to secondary actors: None

Open Issue: None

Use Case: Decelerate/Brake

Primary Actor: User

Goal in Context: To slow the car down

Preconditions: The car must be on and the car must be moving

Trigger: The user wants to slow the car down

Scenario:

1. The user slows down the car by pressing the button corresponding with deceleration on the GUI. The car decelerates at a constant rate.

Exception:

1. The car must have a speed value greater than zero to decelerate, so no negative speeds are allowed.
2. If the speed reaches zero the car will stop decelerating so that the speed does not go negative.

Priority Essential must be implemented.

Frequency of Use: Whenever the user wants to slow down.

When Available: First Iteration

Channel to actor: Through GUI

Secondary Actors: None

Channels to secondary actors: None

Open Issue: None

Use Cases: Turning Car Off

Goal in Context: To turn off the car

Preconditons: The car is on and has a speed value of zero

Trigger: The user wants to turn off the car

Scenario:

1. The user presses the off button. The car turns off.

Exceptions: None

Priorities: Essential must be implemented

When Available: First iteration

Frequency of Use: Once during a session

Channel to actor: Through GUI

Secondary Actors: None

Channels to secondary actors: None

Open Issue: None