Advance Software Engineering (CS 5910)

Project Title: CARPOOL ARRANGEMENT SYSTEM

Proposal Document

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Work Statement:

Carpool arrangement system allows the users to book a ride with more than one passenger sharing the ride along the way in their journey. This system allows the user to reduce travel cost.

Users can request a ride and drivers who are nearby and willing to provide a ride will accept the request. A driver can accept the request of another user depending on the availability of capacity in the car. A user can request at most two seats per request.

The user can see all the nearby cars that are ready to their request and user can select the car that is nearby and arrives at his/her location in less time. The system also shows the approximate fare estimate, arrival time and the destination time before accepting the request.

The user receives a text message about the details of the car and the driver immediately after the driver accepts the request. The system also shows the location of the car that is coming for pickup. The user needs to enter his/her payment method details during the process of a request. Once the user reaches his/her destination the payment transaction will be automatically processed.

Terminology:

Passenger: The person who uses the system to request a ride.

Driver: The person who uses the system to provide a ride to the user.

System: Carpool Arrangement System the provides communication between the user and the driver.

Request: User entering the details of a source, destination, and number of passengers.

Ride: Journey between a source address and destination address entered by the user during the request.

Functional Requirement:

Use Case 1: User shall Login into the system to use the application service

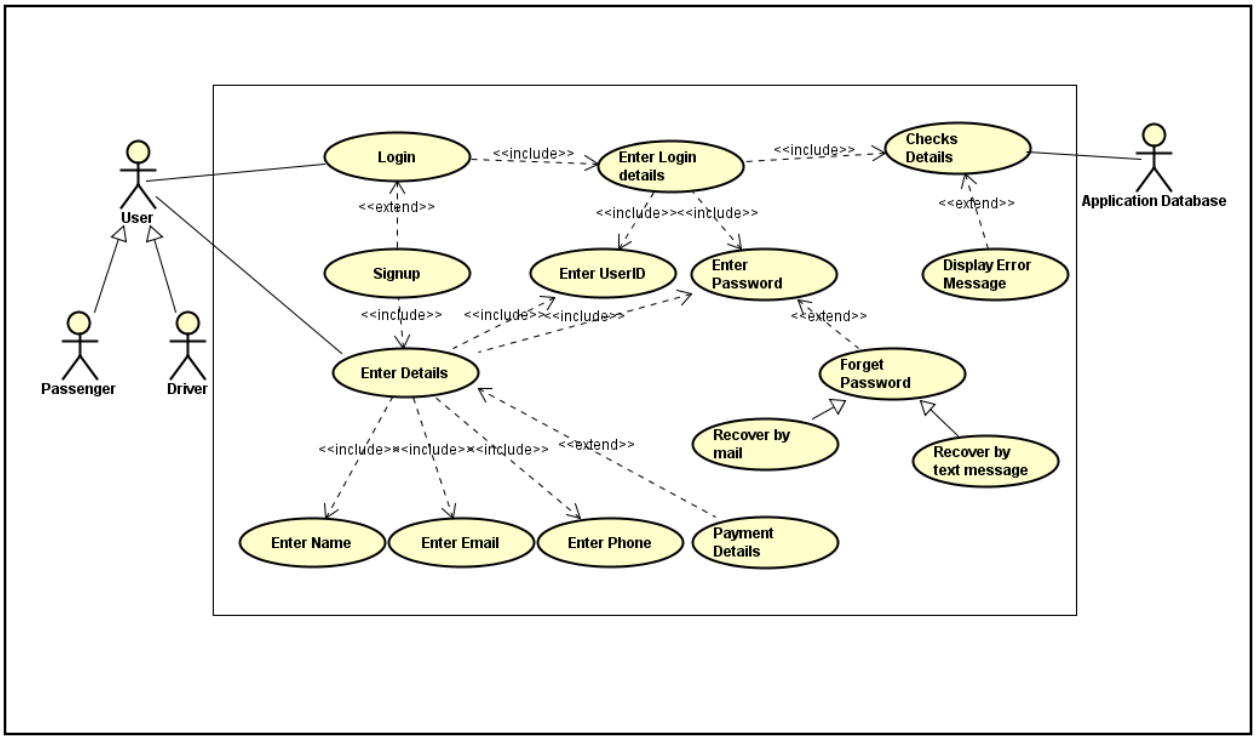

Figure 1: Login Use Case

Use Case Text

1. User can be passenger or driver.
2. User enters Login Details
   2.1 User enters User ID and password.
      2.1.1. User can recover the password either by email or test message through forget password link.
   2.2 Application database checks the details and display error message, if entered wrong.
3. User need to sign up if they do not have account.
4. User enters signup details.
   4.1 User enters name, email and phone number.
   4.2 User can save payment details for faster payment during making the payment.

Login

This use case diagram describes the process of user logging into the system and actions performed while a user logs in into to the system.

Identifier

UC-1

Actors

- Passenger
- Driver
- Application Database

Priority

Normal

Extension Points

- User enters signup page
- User can recover password through forgot password link

Pre-Condition

User need to have login details

Post-Condition

System need to display home page accordingly to the type of user

Use Case 2: Passenger shall request a ride

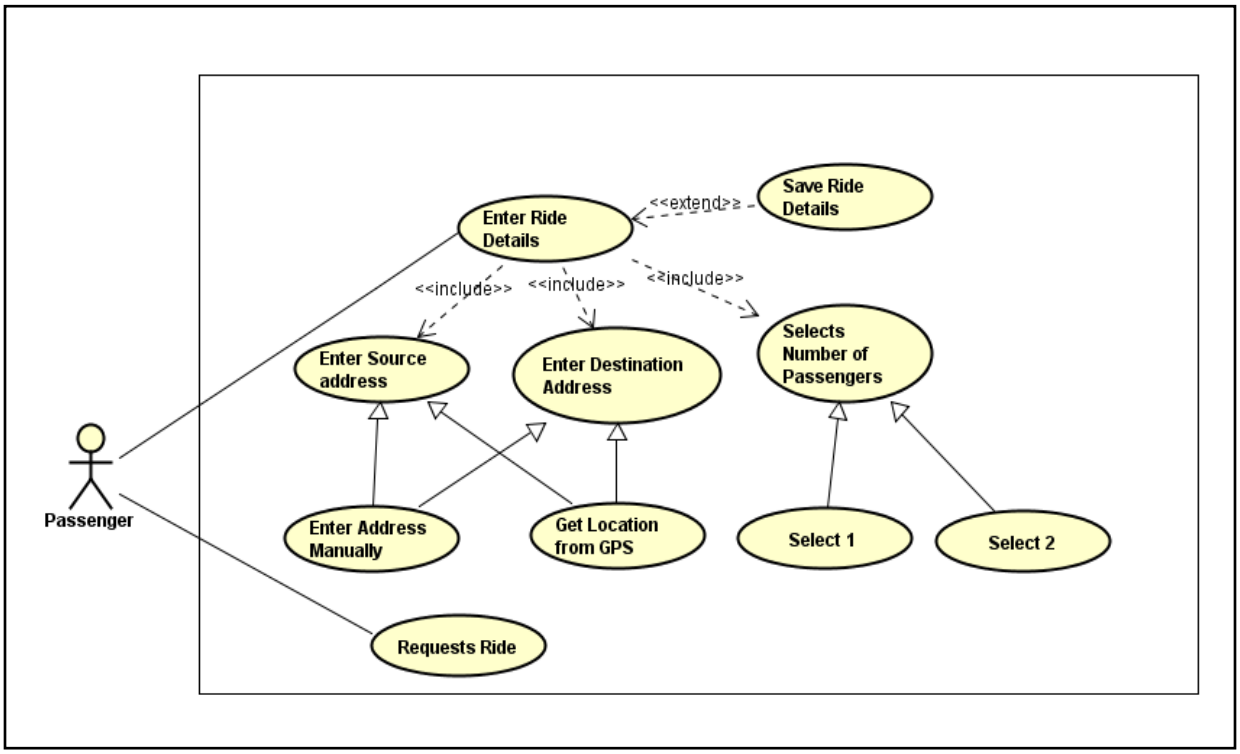

Figure 2: Request Ride Use Case

Use case Text:

1. Passenger enters the ride details.
    1.1 Passenger enters source address, destination address.
    1.2 Passenger selects number of passengers 1 or 2.
2. Passenger saves ride details for further reference.
3. Passenger enters source and destination address
    3.1 Address can be manually entered in source and destination.
    3.2 Passenger can use GPS location in source and destination.
4. Passenger requests ride.

Request Ride

This use case diagram describes the actions performed by user in requesting a ride

Identifier

UC-2

Actors

- Passenger

Priority

High

Extension Points

- User saves ride details

Pre-Condition

User need to login as a passenger

Post-Condition

None

Use Case 3: Passenger shall view estimated fare for the requested ride

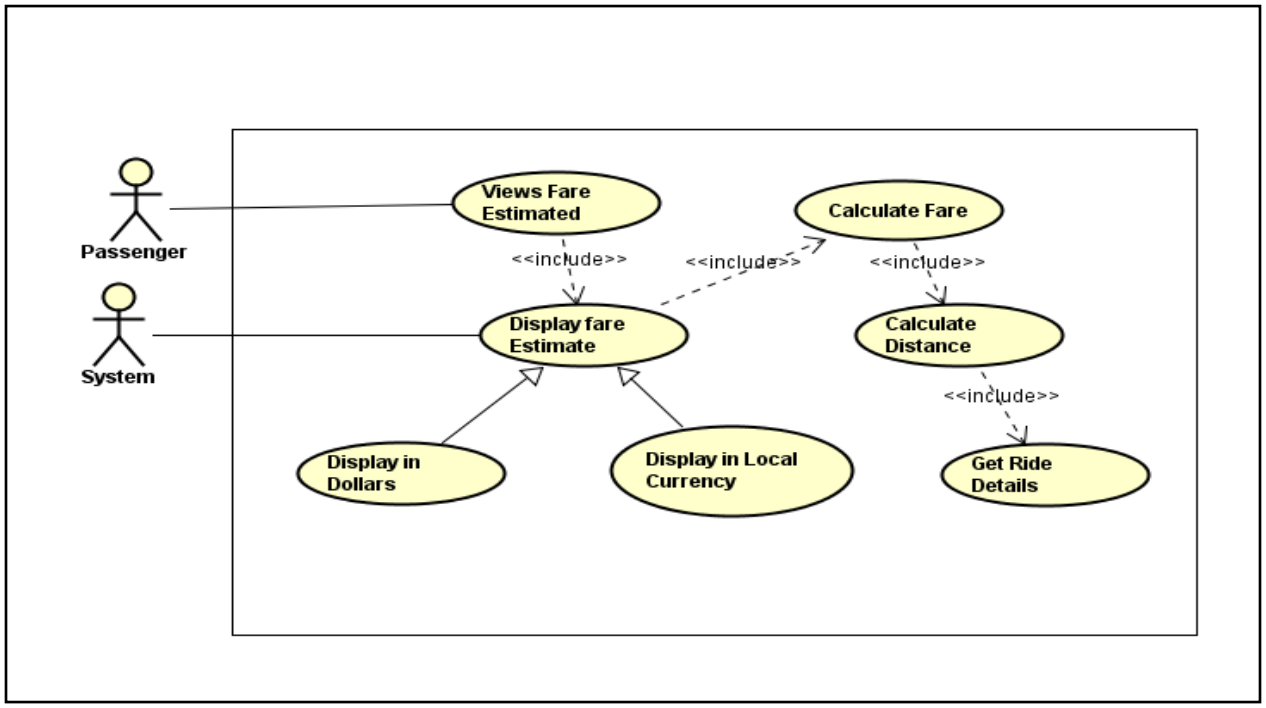

Figure 3: Fare Estimate Use Case

Use Case Text:

1. Passenger views the fare estimation in the display.
2. System displays the fare estimation.

   2.1 System calculates fare by calculating distance

   2.2 System calculates distance based on ride details.

   2.3 System displays fare in dollars and in local currency.

Fare Estimate

This use case diagram describes the process of user viewing the estimated fare for the requested ride.

Identifier

UC-3

Actors

- Passenger
- System

Priority

Normal

Extension Points

- None

Pre-Condition

User need to enter ride details

Post-Condition

None

Use Case 4: Driver shall view the ride requests and shall accept a request

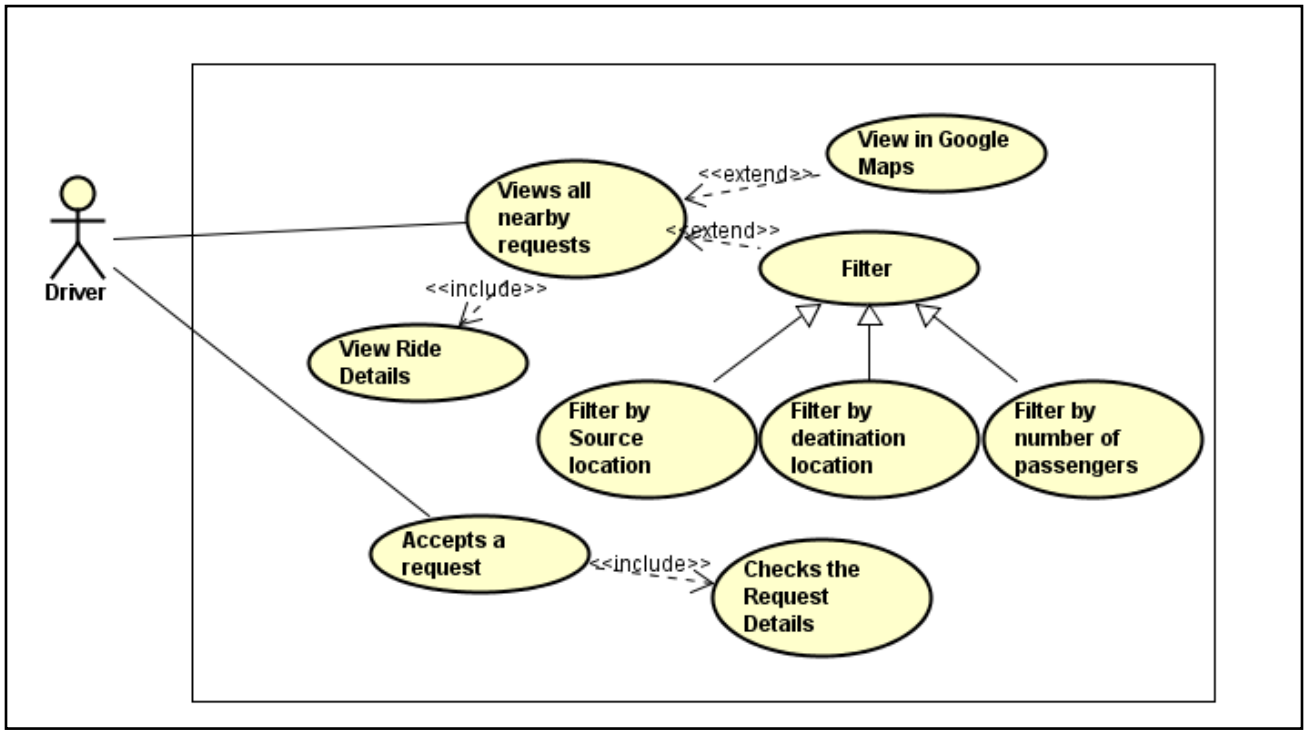

Figure 4: Accepting Ride Request Use Case

Use Case Text:

1. Driver can view all the nearby requests, and the requested ride details.
2. Driver can also filter the requests.
   2.1 By source location.
   2.2 By Destination location
   2.3 By number of passengers.
3. Driver can view in the google maps about all the nearby requests.
4. Driver checks the request details before accepting and then accepts the request.

Accepting Ride Request

This use case diagram describes the process of driver accepting the requested ride of a passenger.

Identifier

UC-4

Actors

- Driver

Priority

High

Extension Points

- Driver can filter the requests
- Driver can check the requested ride details before accepting
- Driver can view all the requests in Google Map

Pre-Condition

Passenger need to request a ride.

Post-Condition

None

Use Case 5: Passenger shall select a cab

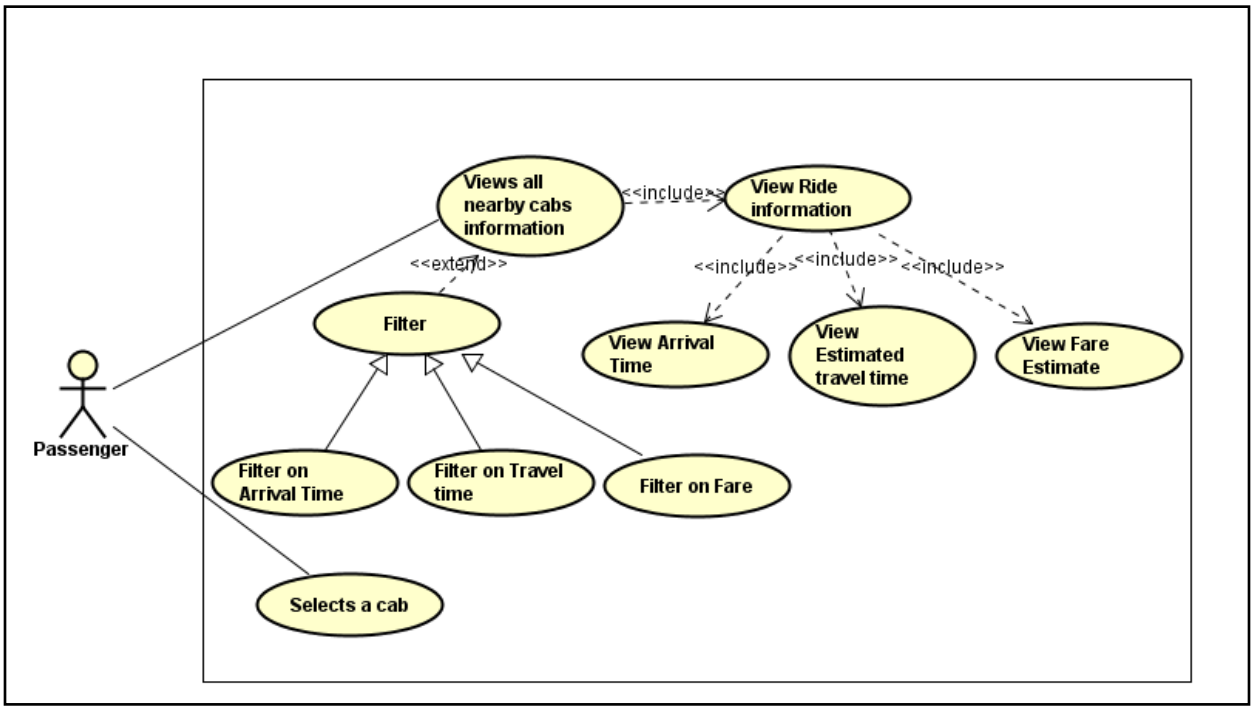

Figure 5: Selecting a cab Use Case

Use Case Text:

1. Passenger views all nearby cabs information.
2. Passenger views ride information.
   2.1 Passenger views arrival time, estimated travel time and fare estimate.
3. Passenger can also filter the cabs while viewing all nearby cabs information.
   3.1. Passenger can filter on arrival time, travel time and fare.
5. Passenger selects a cab.

Selecting a cab

This use case diagram describes the process of passenger selecting a cab

Identifier

UC-5

Actors

- Passenger

Priority

High

Extension Points

- Passenger can filter the available cabs

Pre-Condition

Driver need to accept the ride request

Post-Condition

None

Use Case 6: Passenger shall make the payment and confirms ride

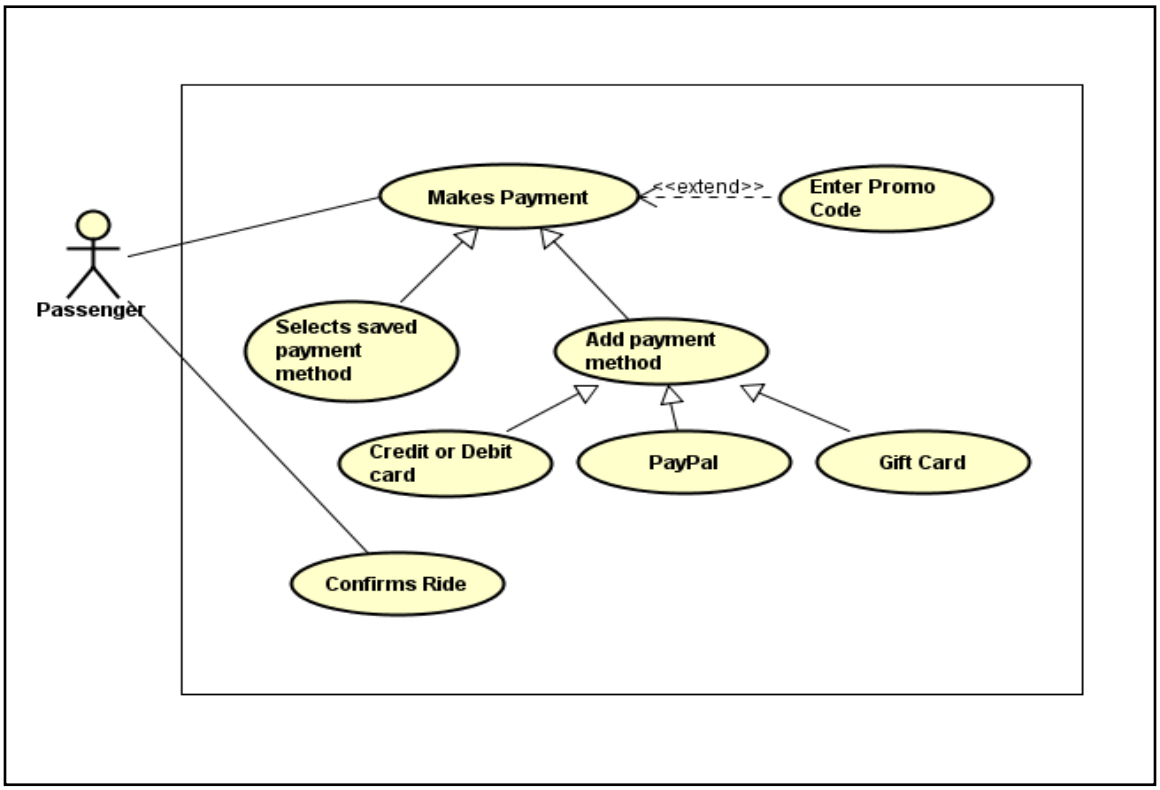

Figure 6: Making payment Use Case

Use Case Text:

1. Passenger makes a payment
    1.1 Passenger can select from saved payment method
    1.2 Passenger adds a payment method.
        1.2.1. Passenger can pay using credit or debit card
        1.2.2. Passenger can pay using PayPal
        1.2.3. Passenger can pay using Gift card
2. Passenger can enter a promo code while making payment.

3. Passengers confirms ride.

Making Payment

This use case diagram describes the process of passenger making the payment

Identifier

UC-6

Actors

- Passenger

Priority

High

Extension Points

- Passenger can enter promo code

Pre-Condition

Passenger need to have enough balance to make payment

Post-Condition

None

Use Case 7: Passenger shall get ride confirmation details

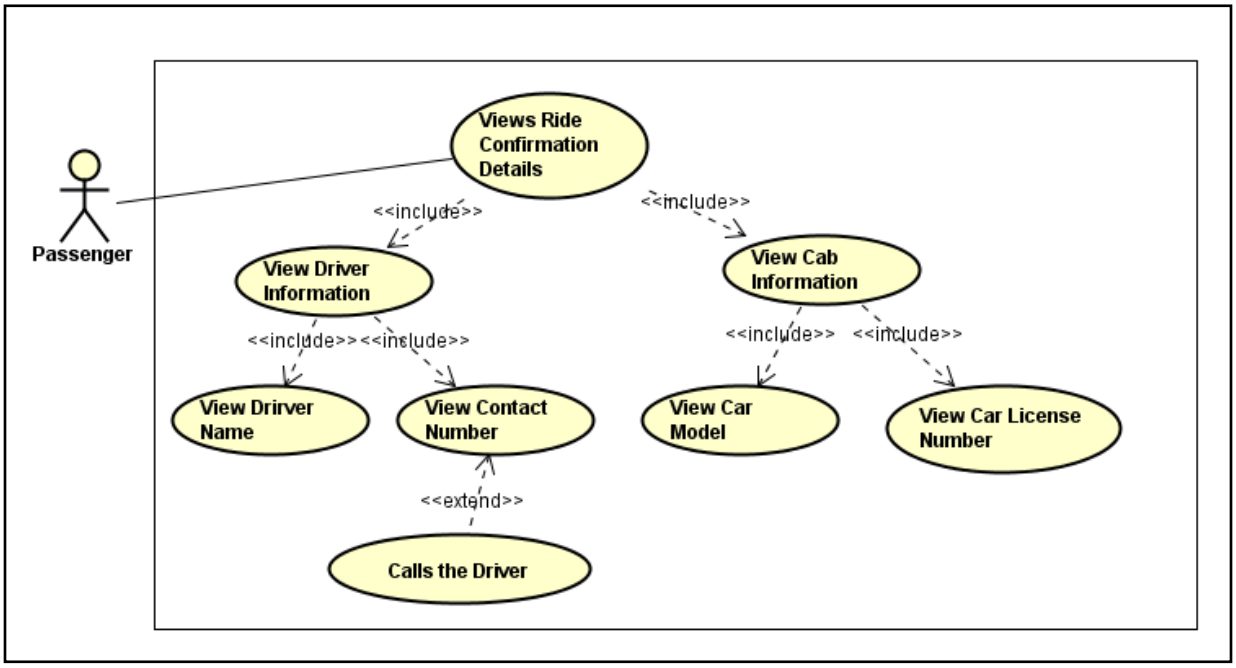

Figure 7: Ride Confirmation Details Use Case

Use Case Text:

1. Passenger views ride confirmation details.

2. Passenger views driver information.

    2.1 Driver information can be driver name and driver contact.

        2.1.1 Passenger can also call the driver with contact number.

3. Passenger views the cab information.

    3.1 Passenger views car model and license number.

Ride Confirmation Details

This use case diagram describes the process of passenger viewing the ride confirmation details

Identifier

UC-7

Actors

- Passenger

Priority

Normal

Extension Points

- Passenger can make a call to driver who confirms the ride

Pre-Condition

Passenger need to make the payment

Post-Condition

None

Use Case 8: Passenger shall take the ride

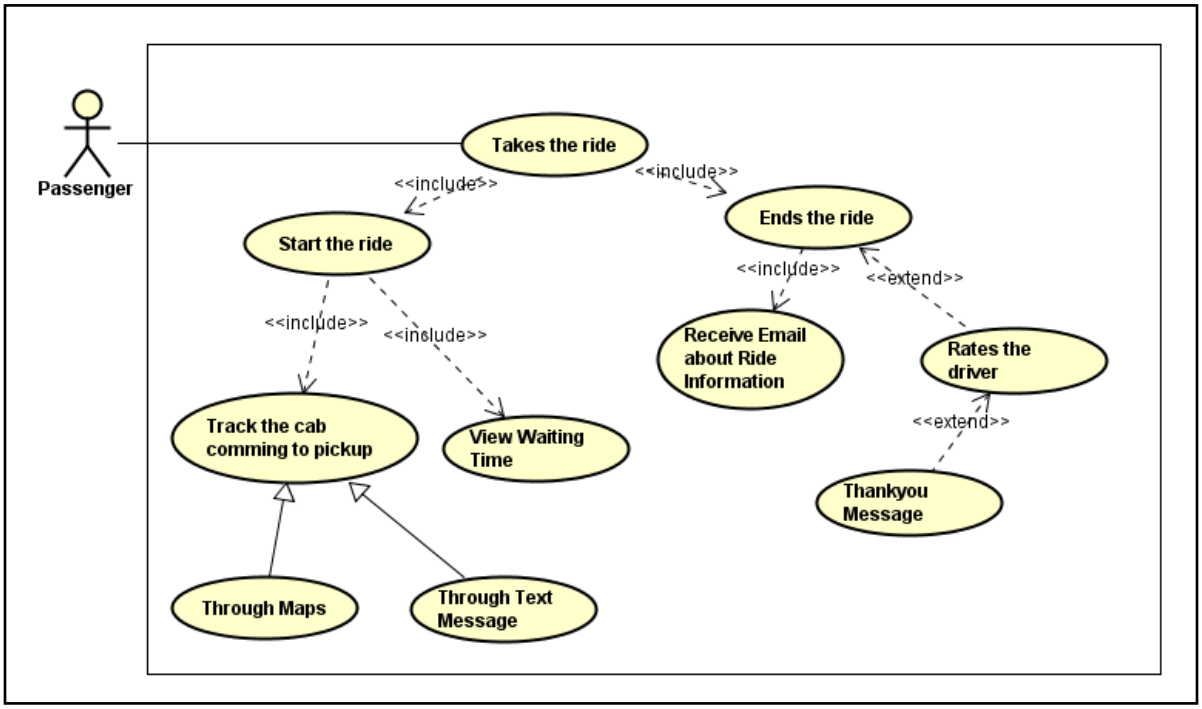

Figure 8: Taking the ride Use Case

Use Case Text:

1. Passenger takes the ride.

2. Passenger can start the ride after taking the ride.

   2.1 Passenger can track the cab coming to pick up.

   2.2 Passenger can view the waiting time for pickup.

3. Passenger tracks the cab through maps or through text message.

4. Passenger can end the ride.

   4.1 Passenger receives email about the ride information.

   4.2 Passenger can also rate the driver and get a thank you message.

Taking the ride

This use case diagram describes the process of passenger taking the ride

Identifier
UC-8

Actors

- Passenger

Priority
High

Extension Points

- Passenger can rate the driver
- Passenger gets thank you message

Pre-Condition
Passenger need to book a ride

Post-Condition
None

System Requirements:

- Operating System: Windows -64 bit
- RAM: 4GB and above
- System must enable location services
- Language: JavaScript
- Tools used: Astah Community to draw Use Cases