

CARPOOLING MOBILE APPLICATION

BY

LOH XIN YI

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Address:

110B-13A-2 Summerton,
Persiaran Bayan Indah,
11900 Bayan Lepas, Penang.


Dr Kh'ng Xin Yi
Supervisor's name

Date: 22/4/2024

Date: 24/4/2024

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Name : Loh Xin Yi

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ABSTRACT

Due to the increasing private ride nowadays, the challenges concerning traffic congestion and environmental pollution are becoming more and more critical. Hence, a carpooling mobile application will be developed in this project, with the aim to connect the commuters with similar routes and promote carpooling in individual cars. Furthermore, this application will help in reducing the traffic congestion, minimizing carbon emission and lessen the stress of individuals on current transportation infrastructure.

In this application, there are two user roles, which the users can choose to be a driver or a passenger. As a driver, the user can post ride by entering the ride details, such as origin, destination, departure date and time, number of empty seats, and price per pax. Besides, the driver can manage the ride request made by the passenger. On the other hand, as a passenger, the user can search for relevant rides by entering search details such as origin, destination, departure date, number of passengers and the acceptable radius from the origin and destination points. The passenger can then make request on the preferable ride.

In addition, when driver starts the ride, both driver and passengers can track the ride location on the route shown at the map view and view the estimated distance and duration. After the ride ends, both driver and passengers are required to rate on the ride experience. Furthermore, an in-app messaging features is also included to allow both drivers and passengers to communicate with each other.

In conclusion, this carpooling mobile application addresses the challengers of traffic congestion and environmental pollution by promoting shared ride. The main features of this application include post ride, search ride, route tracking, user-rating feature, and in-app messaging feature. It ensures convenience, safety, reliability, and effective communication for both drivers and passengers. Furthermore, by following agile methodology in the development, the application will be more flexible, adaptable, and able to have continuous improvement throughout the project lifecycle.

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Chapter 1

Introduction

Carpooling is the idea of sharing private car to accommodate more than one person at a time [1], which will eliminate the drivers to drive individually in different vehicles. Nowadays, carpooling is encouraged to be implemented as it will bring many benefits to individuals and society in terms of environment, road conditions, infrastructure, financially and positive mental health.

First and foremost, from individual point of view, carpooling enables individuals to save money [2] by splitting the fuel costs with other passengers as the fuel prices are getting higher nowadays. According to a survey conducted by AAA in March 2022, 29% of Americans between the age of 18 and 34 will consider carpooling and change how they commute due to the rise of petrol prices [2]. In addition, carpooling costs lesser comparing to a taxi or a ridesharing service and more convenient than public transportation as passengers can be dropped off right at the destination. Hence, carpooling is a better option for individuals. Furthermore, carpooling will enable individuals to connect with others and make new friends [3]. An individual can carpool with people who have similar interests or have similar goals to make the ride experience more enjoyable. Besides, carpooling will reduce the number of vehicles on road, and eventually lead to reduction in traffic congestion [3] and therefore time on road will also be saved. From environmental point of view, reduction of traffic will also reduce the emission of harmful pollutants like carbon emission [3], so the air pollution will be reducing as well. Hence, there are more and more individuals start to do carpooling.

However, carpooling has also brought some challenges to individuals. Firstly, schedule conflicts might be one of the difficulties faced on carpooling since each individual who carpools together may finish their work at different times or may need to reach their destination at different times [3]. Hence, timely communication between carpool members is important to ensure that the carpool ride runs smoothly. Besides, another challenge of carpool is that the individuals may not be familiar with others who are

commuting to the same area. It will make individuals be difficult to coordinate rides and find potential carpool partners.

Hence, a carpooling mobile application will be developed in this project in order to address the challenges mentioned above. The car owners will be able to post their car details and the ride details that will be offered, such as date, time, origin, destination, and number of passengers. On the other hand, the passengers will be able to search for available rides based on date, origin and destination and make carpool request to the car owners on the preferable ride.

1.1 Problem Statement and Motivation

Carpooling is facing the following problems,

Difficulty in finding carpool partners: First of all, individuals may not have a large network of friends or acquaintances that live nearby and have similar commuting schedule [2]. Therefore, they may face difficulties in finding suitable carpool partners due to lack of pre-existing connections. Next, traditional methods for finding carpool partners, such as posting notices on bulletin boards or depending on word-of-mouth, can be time consuming and ineffective. It may be challenging to connect with potential carpool partners and limiting the chances of finding a suitable carpool partners. As a result, a centralized platform which provide efficient carpooling services by connecting individuals who are looking for carpooling opportunities is needed to address the difficulties of finding carpool partners.

Lack of flexibility on schedule: Carpooling required every carpool partners to have a consistent and synchronized schedule. However, everyone may have different work or arrangements, so it will lead to the conflicts on departure and arrival times [3]. In this case, there will be difficulties in establishing a consistent carpooling routine and may require frequent adjustment to accommodate every carpool partner's schedules. Moreover, the carpooling arrangement may also be affected by some unexpected events or last-minute changes [4] faced by any carpool partners. It will cause other passengers inconvenient if any carpool partner has schedule delay or the partner leaves early. Hence, lack of flexibility on schedule will create uncertainty and it will be challenging to maintain a reliable carpool system.

Safety concerns: First and foremost, passengers will worry about personal safety [4] during the ride since carpooling shares a vehicle with strangers. Therefore, passengers may have concerns about theft, harassment, or any other unpleasant behaviour from other passengers. Hence, it is important to verify the identity of each passenger to make the carpool partners feel safe and trustworthy. Besides, passengers may also have concerns on driver's driving skills since driver's skills and behaviour plays an important role in the safety of carpooling [4]. Hence, a responsible driver who practices good driving habits and adheres to traffic rules is crucial for a safe carpooling.

1.2 Objectives

1. To develop a mobile application which allows users to find suitable carpool partners.

The carpooling application allows drivers to post ride offer and allows passengers to search for available rides and make request on preferable rides. It helps users to reach the potential carpool partners easily. Besides, the in-app messaging feature will also be included in this application to facilitate the communication between users.

2. To offer carpooling services which is safety and convenience by providing real-time location tracking and emergency assistance

The carpooling mobile application provides real-time location tracking for both drivers and passengers. Users can track the ride's location and route, and view the estimated distance and duration, which will be updated time by time. Besides, it also helps users to identify the pickup and drop-off location easily. Additionally, a SOS button is also be included in the application to allow users to access and make a call quickly when facing emergency.

3. To implement a user-rating feature that enables users to provide valuable feedback on their carpool partners and overall experiences.

The carpooling application allows drivers and passengers to rate each other after the rides end. This rating feature will provide valuable feedback for other users when searching and selecting for carpool partners. Moreover, the drivers will be able to view their ride ratings in a line chart in selected month to track their performance.

1.3 Project Scope

In this project, a carpooling mobile application will be developed to help users in finding potential and suitable carpool partners. In order to use the application, the users are required to register as a new user, by providing their email, password, username and phone number.

Upon logging into the system, the users can choose whether they want to be a driver or a passenger. As a driver, the users can post ride offers by filling in all the ride details, such as origin, destinations, departure date and time, available seats, and price. Additionally, the drivers have the option to add another stop along the route which can enhance the flexibility for passengers who may want to join the ride at the intermediate stop. Besides, the driver can also edit or cancel the published ride.

On the other hand, as a passenger, the users can search for available rides based on origin, destination, departure date, number of passengers and radius. The radius is the acceptable distance from both the origin and destination points. The passengers will be able to view all relevant rides within the preferred radius and make requests on the most suitable rides. This will ensure the convenience and flexibility of passengers in finding suitable carpool options. Besides, the passengers can also cancel the ride requests or bookings before the ride starts.

When the ride starts, both driver and passenger will be able to track the ride's location on the route and view the estimated distance and duration that will be updated from time to time. After the ride ends, the driver and passengers will be able to rate on each other according to the ride experience. Each user's rating will act as a reference for other users in finding a reliable and trustworthy carpool partners. The driver and passengers can receive the notification when the ride starts and ends. Moreover, there will be an in-app messaging feature for the communication between users. This feature helps carpool partners in enhancing the convenience and coordination throughout the carpooling, therefore if any schedule changes, they can communicate each other and make adjustment timely.

In addition, there will be a SOS button at the main page of driver and passenger. The users can access and make a call immediately when facing any emergency. This will enhance the users' confidence and security while using this application.

1.4 Contributions

In this project, a carpooling application will be developed. The users can choose to be a driver or passenger. As a driver, the users will be able to post the ride offers, which helps potential carpool partners to reach the driver easily. The drivers can add another stop along the route to increase the ride flexibility. As a passenger, the users will be able to search for available rides and make request on preferable rides. Users can search for related rides which the origin and destination points are within their preferred distance range. After making requests, the driver will be able to accept or reject the carpool request made by passengers according to the ratings shown in passengers' profile. It helps drivers in filtering the reliable passengers.

When using the application, the users are mandatory to give permission to the application to access the location. Therefore, the drivers and passengers can track the ride location when the ride starts and view the estimated distance and duration of the route which will be updated time to time. Furthermore, the application includes the in-app messaging feature which can enables the users to communicate with each other. In addition, there will be a SOS button at the main page of the application, so that users can call immediately when any emergency happens.

1.5 Report Organization

This report is organized into 6 chapters: Chapter 1 Introduction, Chapter 2 Literature Review, Chapter 3 System Design, Chapter 4 System Methodology/Approach, Chapter 5 System Implementation, Chapter 6 Conclusion and Recommendation. The first chapter is the introduction of this project which includes problem statement and motivation, objectives, project scope, contributions and report organization. The second chapter is the literature review carried out on several existing carpool mobile applications in the market to evaluate the strengths and weaknesses of each application. The third chapter is discussing the overall system design of this project, which includes use case diagram, flowchart and activity diagram. The fourth chapter is regarding the methodology used to develop the application, system requirements and Gantt chart. Furthermore, the fifth chapter is the screenshot of the application developed with explanation on each feature. Lastly, chapter 6 is the conclusion and recommendation that can be further improved in the future.

Chapter 2

Literature Review

2.1 BlaBlaCar

2.1.1 Brief

BlaBlaCar is an application which offers carpooling services in 21 countries [5]. It also offers bus journey services to provide an alternative travel solution which are more affordable and sustainable. The drivers can offer a ride and decide whether allow the passengers to book instantly or review their booking request, while the passengers can search and book for available rides through this application. The services are only provided in Western countries.

2.1.2 Strength

This application provides an in-app messaging for the communication between drivers and passengers which will make users more convenient and safety. In this case, the passengers can message drivers if there are any queries regarding to the ride before booking. Besides, both drivers and passengers can rate on each other after the ride, it will help others to check whether the driver or passenger is reliable and on time. In addition, the passengers can also set up a ride alert to receive notifications when the ride is available. It is useful when there are no available rides currently.

2.1.3 Weaknesses

The verification of profile is not mandatory. Furthermore, there are no driver validation available on this application, such as driving license. Thus, in this case, the safety of passengers is not assured. In addition, both drivers and passengers can't publish or search for routine ride in this application, so if the schedule of ride is the same every week, they will have to manually type in the ride details again and again, which is quite troublesome and not user friendly.

2.1.4 Recommendation

The profile validation, including phone number, email and IC validation, is recommended to be mandatory for each user before using this application. It is useful to ensure that only verified users are allowed to use the application. Besides, the application should add a driver validation before the user can publish any ride offer. This will ensure that only driver which have a valid driving license can offer the ride and ensure the safety of passengers. In addition, the developers can add a routine ride feature, so that the users will not require to enter the same ride details again and again.

2.2 TangoRide

2.2.1 Brief

TangoRide is a real time carpooling application [6] which aims to reduce household expenses and minimize vehicle GHG emissions through real-time choreographed commuting. It only offers the services to passengers and drivers with cars or trucks. Besides, the fares of rides are kept in low fares as this Tangoride aims to share the costs among driver and passenger, instead of earning money.

2.2.2 Strength

The drivers are mandatory to make a validation before offering any ride, including driving license verification, and facial biometric verification. Besides, the real-time matching of this application can help drivers in matching passengers along the route while driving to location. In addition, the users have the option to send the ride information to a chosen contact number to ensure their security for both drivers and passengers.

2.2.3 Weaknesses

There are no cancellation charges in this application, it means that either drivers or passengers can just simply cancel the ride or bookings anytime with no reason. This may affect the schedule of the users especially if it is cancelled at last minute. Besides, the users are unable to set on the ride preferences. In this case, the passengers may not have a good ride experience.

2.2.4 Recommendation

The application is recommended to include cancellation fees to prevent users from cancelling the ride for no reason. For instance, the passengers will get full refund if they make the cancellation more than 24 hours before departure, 50% refund if they make the cancellation more than 1 hour before departure, and no refund otherwise. Next, the developers are suggested to include a set preferences feature, such as chattiness, music, smoking, and pets, so that the passengers will seek for the available rides based on the preferences and more likely to have a good ride experience.

2.3 PopaRide

2.3.1 Brief

Poparide is a mobile application that connects drivers with empty seats in their vehicles to passengers heading in the same direction. It is a carpooling service that allows people to share rides and split the cost of travel. The app is designed to make travel more affordable, social, and environmentally friendly by optimizing the use of existing vehicles. This application only provides services in Canada [7].

2.3.2 Strength

This application has a simple, clear and minimalistic user interface design. All the features are clearly stated and easy to use for each user. Besides, the drivers are allowed to add stops when posting a ride offer to get more bookings by picking up or dropping off people along the way. Furthermore, students who have verified their student email will be able to filter rides offered by other students based on their universities.

2.3.3 Weaknesses

There is no verification made on the contact details of users, this may lead to the drivers and passengers can't reach each other for any emergency. Besides, the drivers can't share the current location with the passengers, so it may have some difficulties for passengers on finding the ride in some circumstances. Furthermore, the refunds of fees due to cancellation rides take a long time to return to users' account.

2.3.4 Recommendation

When adding the contact number, it is suggested to have an SMS verification to ensure that the contact number is from the respective users. Besides, it is recommended to allow the location sharing between drivers and passengers, so that they can easily locate each other and prevent delaying the time in finding the ride. The developer is suggested to add a wallet on the application, where can store money to pay, so that the users can immediately get the refund and use the money on another rides.

2.4 WeRide

2.4.1 Brief

WeRide is a carpooling platform which aims to facilitate the planning and arrangement of shared rides efficiently and effectively. The ultimate objective is to encourage carpooling and lessen the number of cars on the road. WeRide promotes the "You Decide Your Ride" concept [8], which means that it will not be involved in selection of driver or passenger, carpool arrangements, payments and transactions. The application works only in Malaysia and Singapore.

2.4.2 Strength

By using this application, users are able to view the traffic camera images available in Malaysia and Singapore. Thus, the users can be kept away for congestions using this feature. Besides, the passengers are able to search for carpool based on the filter which specify the km radius from origin or destination instead of searching the exact location. It helps the passengers to find not only the rides with exact routes, but also the nearby rides.

2.4.3 Weaknesses

There are no in-app messaging in this application, the users can only communicate using WhatsApp, which is not that convenient as the users need to switch between applications just for communication purpose. Next, the user interface is not designed properly, there are too much information stated on a page, so it may make the users confused. In addition, the users are not able to search for carpool based on the departure and arrival place.

2.4.4 Recommendation

The developers are suggested to include an in-app messaging feature to allow the communication between drivers and passengers. Besides, the developers can consider reducing the information stated in a page. For instance, after the users searching for carpool, only a list of relevant drivers with basic ride details, such as date and time, are shown on the page, and for other exact ride details, such as origin, destination, and number of passengers, are only shown after clicking into the posts.

2.5 CAPO – Carpool Community

2.5.1 Brief

CAPO is a community which aims to utilize every vacant vehicle seat on the road [9]. It brings together vehicle owners and riders on a single platform helping both environment and people by reducing traffic, sharing fuel cost, saving money, time, environment and making new friends. By using this application, the users no need to use overcrowded public transport and expensive cabs.

2.5.2 Strength

There is an SOS button in this application, which enables the user to make an emergency call when in danger. Besides, the drivers are able to select preferences when creating a ride offer, while the passengers can also share their travel preferences when requesting the ride, so that they will be notified for upcoming matching rides. These preferences are useful for both drivers and passengers to select and have a good and comfortable ride experience.

2.5.3 Weaknesses

The weakness of CAPO is that there is no in-app messaging available, thus users can only communicate with each other through WhatsApp, phone call or email. Besides, there is no FAQ for this application. In this case, users will need to contact the admin and required to wait for their response if there are any queries. It is quite time consuming and troublesome especially for some simple questions. Furthermore, there are no rating features in this application, which may cause users selecting a carpool partner which are not reliable or responsible.

2.5.4 Recommendation

The recommendation for this application is to develop an in-app messaging feature to enable the communication between users. Next is to create a FAQ page, which includes the basic questions that mostly will be asked by users. Lastly, the developer is recommended to develop a rating feature, so that both driver and passenger can rate on each other after a ride ends.

2.6 Comparison

Table 2.1 The comparison table of feature in literature review

	BlaBlaCar	TangoRide	PopaRide	WeRide	CAPO	Proposed App
Search Available Ride	√	√	√	√	√	√
Ride Alert	√	x	√	x	√	x
Offer Ride	√	√	√	√	√	√
Make Payment	√	√	√	x	x	x
Driver Validation	x	√	x	x	√	x
Notifications	√	√	√	√	√	√
In app messaging	√	√	√	x	x	√
Rate on Ride Experience	√	√	√	x	x	√
SOS button	x	x	x	x	√	√
View Traffic Camera	x	x	x	√	x	x

Chapter 3

System Design

3.1 Use Case Diagram

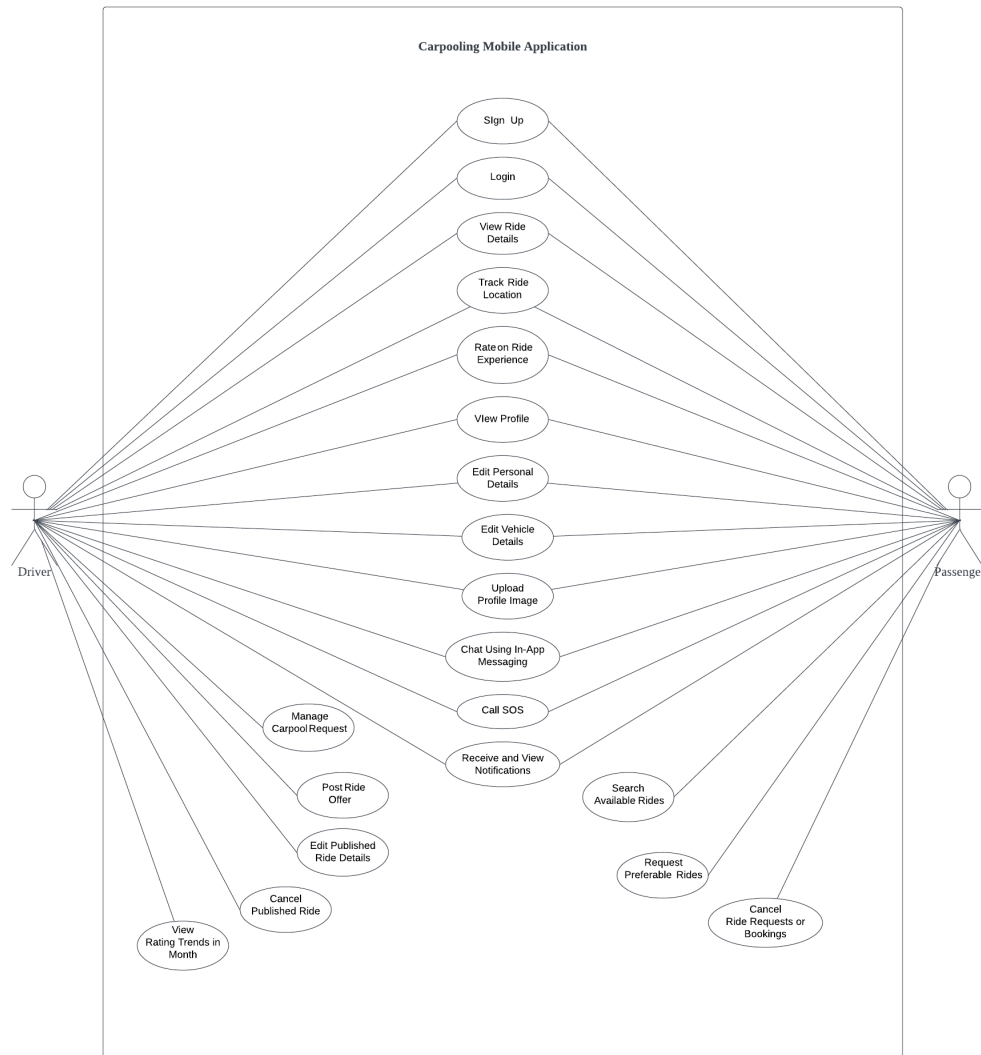


Figure 3.1 Use Case Diagram

Figure 3.1 shows the use case of the carpooling mobile application. In this project, there are two user roles, which are driver and passenger. Each of them is required to login using their email in order to use the application. If the driver or passenger is a new user, they are required to sign up using email and password to register themselves.

As a driver, the user is able to post a ride offer by filling in the ride details, including origin, destination, departure date and time, number of empty seats, and price per pax. After posting the ride, the user can edit the ride details or cancel the ride before the ride starts. In addition, the driver can also manage carpool requests from passenger by accepting or rejecting it.

On the other hand, as a passenger, the user can search for available rides based on the origin, destination, departure date, number of passengers and the acceptable radius from the origin and destination points. If there are any matching results, the relevant rides will be shown. After viewing the ride details, if there is any preferable ride, the user can make carpool request. Moreover, the passenger can also cancel the ride requests or bookings before the ride starts.

Both driver and passengers will receive and view the notifications when the ride starts and ends; but only driver will receive notifications when the passengers make requests. When the ride starts, both the driver and passengers will be able to track the ride location at the Ride Details page; and when the ride ends, they can rate on the ride experience. Next, if there is any emergency, both driver and passengers can call SOS, which will be redirected to make emergency call for help. Besides, there is also an in-app messaging feature which enable the users to communicate with each other.

Last but not least, the users are able to view their profile details in the Profile page. In this page, the users can edit their personal details, vehicle details, and upload profile image. However, only driver has a 'View Rating Trends' button, which can navigate to the Rating Trend page to view the rating trends in monthly basis through a line chart.

3.2 Flowchart

3.2.1 Register and Login Module

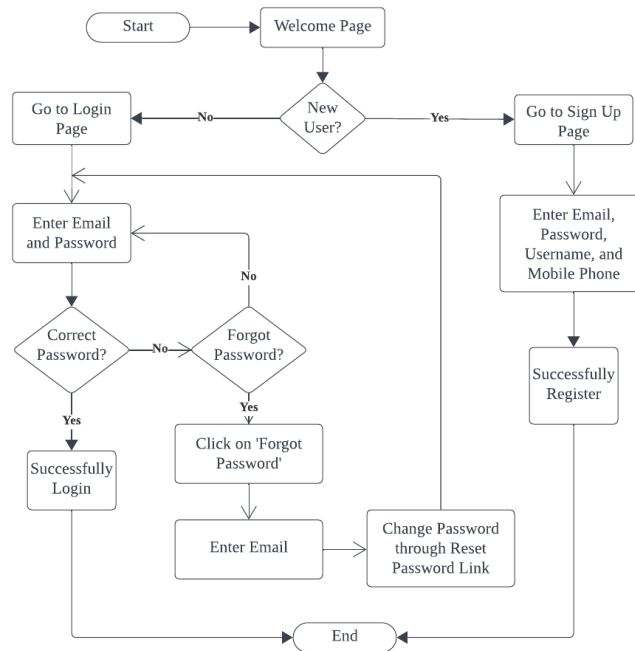


Figure 3.2 Register and Login Module Flowchart

Figure 3.2 shows the flowchart of register and login module. When the users enter the application, they will first enter the Welcome page. For new users, they need to go to Sign Up page to register an account. They need to filled in their email, password, username, and mobile phone to successfully register an account.

On the other hand, for existing users, they can go to the Login page. After filling in the email and password, the user can click on 'Login' button and the system will check whether the password is correct. For users who forgot password, they need to enter their user email and a reset password link will be sent to their email. The users can reset their password through the link. After resetting their password, the users can proceed to login.

After successfully register an account or login, the users will be redirected to the Home page.

3.2.2 Driver Module

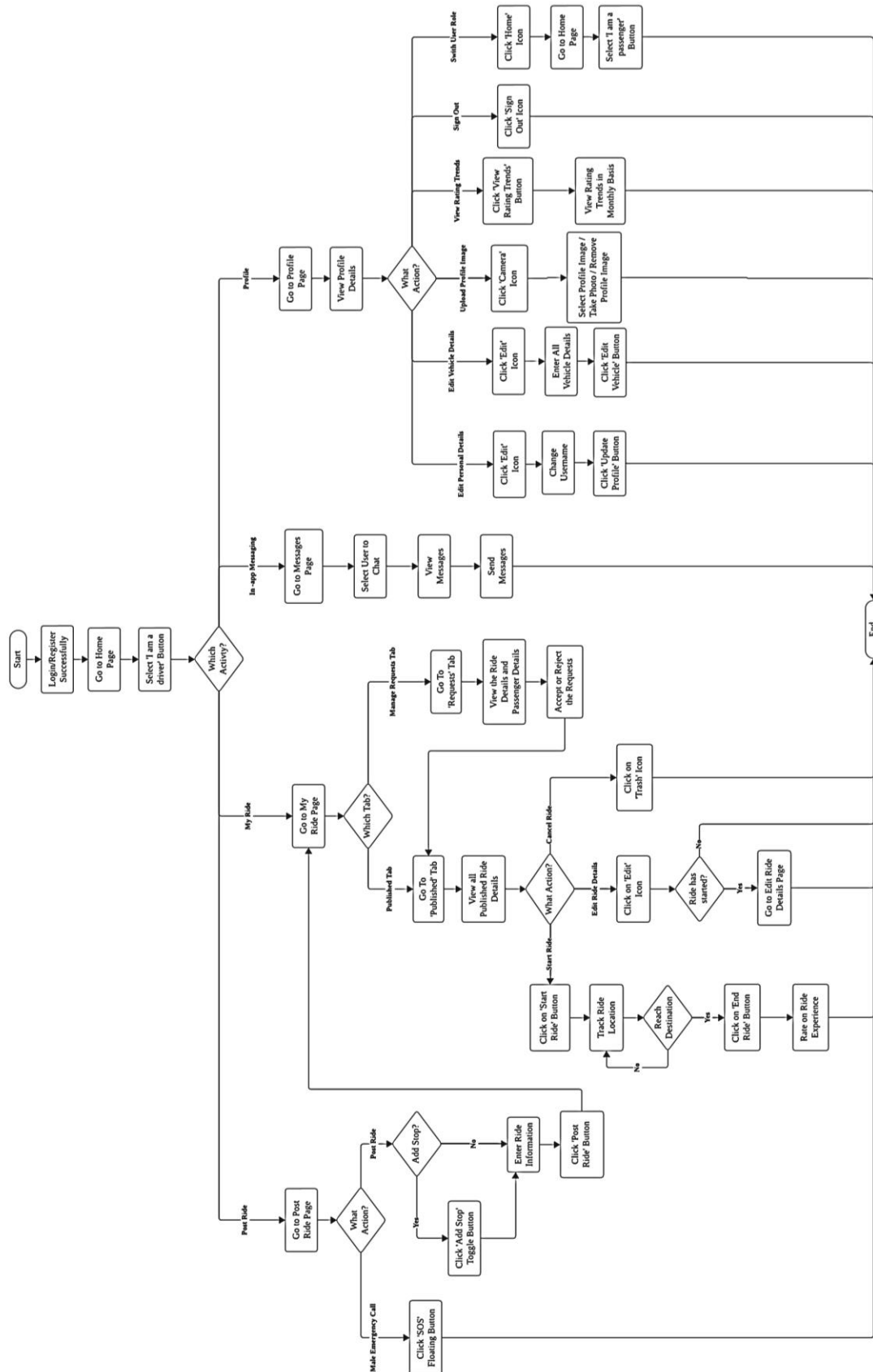


Figure 3.3 Driver Module Flowchart

Figure 3.3 shows the flowchart of driver module. After successfully register or login, the user will be redirected to Home page. As a driver, the user needs to select the 'I am a driver' button.

In the driver module, there are four main activities, which are 'Post Ride', 'My Ride', 'In-app Messaging' and 'Profile'. In the 'Post Ride' page, the user is required to enter all the ride information, including origin, destination, departure date and time, number of empty seats, and price per pax. After that, the user can click on the 'Post Ride' button to post the ride. If all the information is entered, then the ride will be posted successfully, and the user will be redirect to the 'My Ride' page. In addition, there is a SOS button at the bottom right corner of this page, which will redirect the user to the phone app with emergency number after clicking on it.

Next, in the 'My Ride' page, there are two tabs, which are 'Published' tab and 'Requests' tab. In the 'Published' tab, the user will be able to view all the posted ride details. The user can start the ride by clicking on the 'Start Ride' button. After that, they can start to track the ride location. When the driver has reached the destination, they can click on the 'End Ride' button and rate on the ride experience. Besides, the user can edit and cancel the ride before the ride starts. On the other hand, in the 'Requests' tab, the user will be able to view all the carpool requests made by the passengers. The user can view the passenger username and ratings as a reference and accept or reject the carpool requests.

Furthermore, there are a chats list in the 'Messages' page. The user can select a chat item to view messages and send messages in the chat room.

Last but not least, in the 'Profile' page, the user can view the profile image, personal details, and vehicle details. In order to edit the personal details or vehicle details, the user can click on the 'Edit' icon of each section. The user will be able to change their username at the 'Edit Personal Details' page; while vehicle model, color and plate number can be changed in the 'Edit Vehicle Details' page. Besides, by clicking on the 'Camera' icon at the bottom right of the profile image, the user can update the profile

image through selecting an image, taking a photo or remove profile image. Additionally, there is a 'View Rating Trends' button, that will navigate the users to 'Rating Trends' page, which enable users to view the rating trends in monthly basis. Lastly, the user can switch the user role by clicking on the 'Home' icon; and sign out by clicking on the 'Sign Out' icon at the top right of the page.

3.2.3 Passenger Module

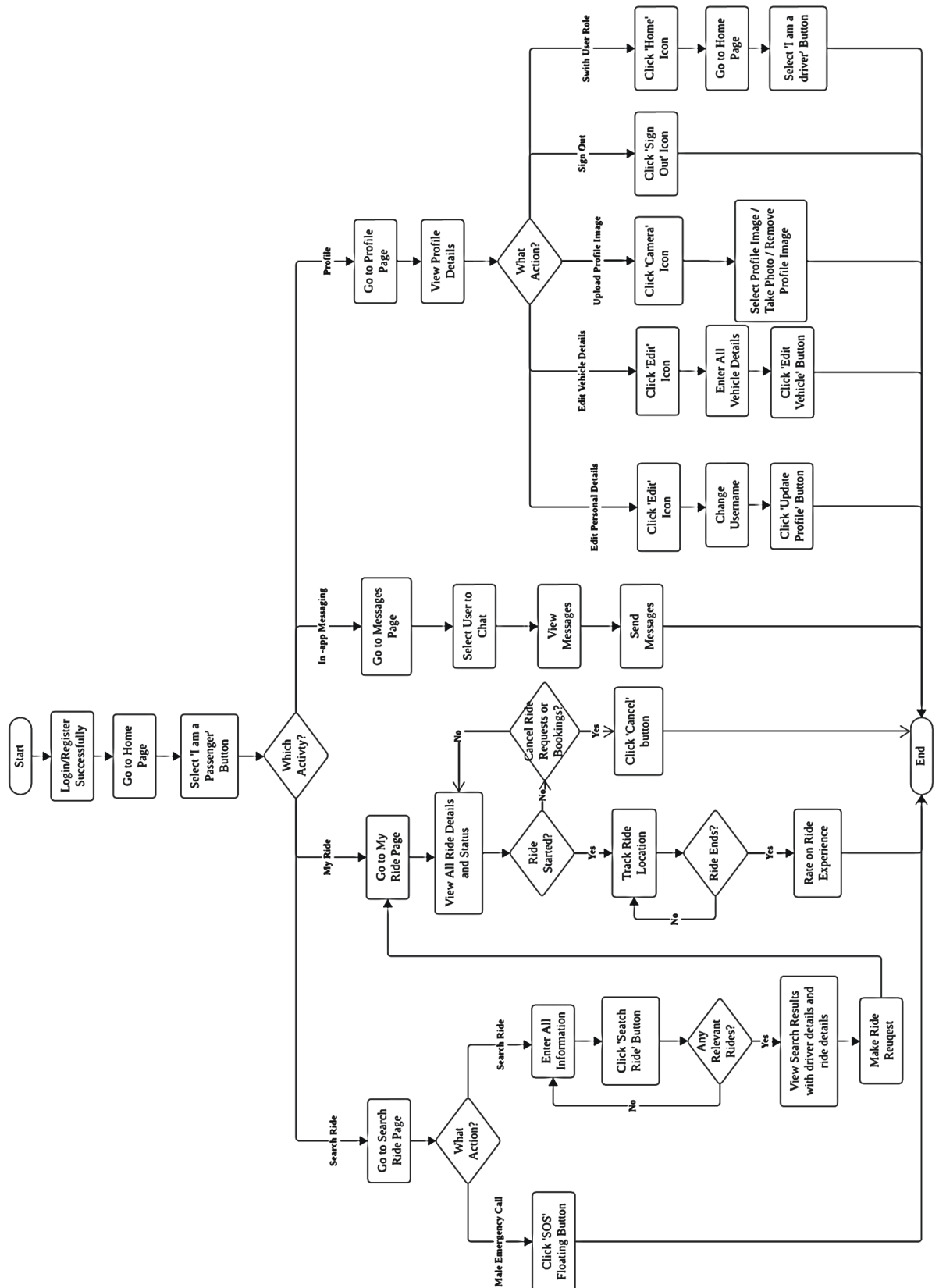


Figure 3.4 Passenger Module Flowchart

Figure 3.4 shows the flowchart of passenger module. After successfully register or login, the user will be redirected to Home page. As a passenger, the user needs to select the 'I am a passenger' button.

In the passenger module, there are four main activities, which are 'Search Ride', 'My Ride', 'In-app Messaging and 'Profile'. In the 'Search Ride' page, the user is required to enter all the search information, including origin, destination, departure date, number of passengers and the acceptable radius from the origin and destination points. After that, the user can click on the 'Search Ride' button to search the ride. If there exists any relevant rides, the user will be able to view the search results with ride details and driver details. Then, the user can make a carpool request on the preferable ride. After making request successfully, the user will be redirected to the 'My Ride' page. The requested ride will have a status shown as 'Pending'. In addition, there is a SOS button at the bottom right corner of this page, which will redirect the user to the phone app with emergency number after clicking on it.

Next, in the 'My Ride' page, the user will be able to view all the ride details and status. The ride status will be shown as 'Pending' for requested ride; 'Accepted' when the request is accepted by the driver; 'Rejected' when the request is rejected by the driver; 'Ongoing' when the ride starts; and 'Completed' when the ride ends. When the ride starts, the passengers can track the ride location' and when the ride ends, the passengers can rate on the ride experience. Besides, the passengers can cancel the ride requests or bookings before the ride starts.

The 'Messages' and 'Profile' page of the passengers have the same functions with the driver. The only difference is just that the 'Profile' page of passenger doesn't have a 'View Rating Trends' button, which means the passenger doesn't have the function to view the rating trends.

3.3 Activity Diagram

3.3.1 Register and Login

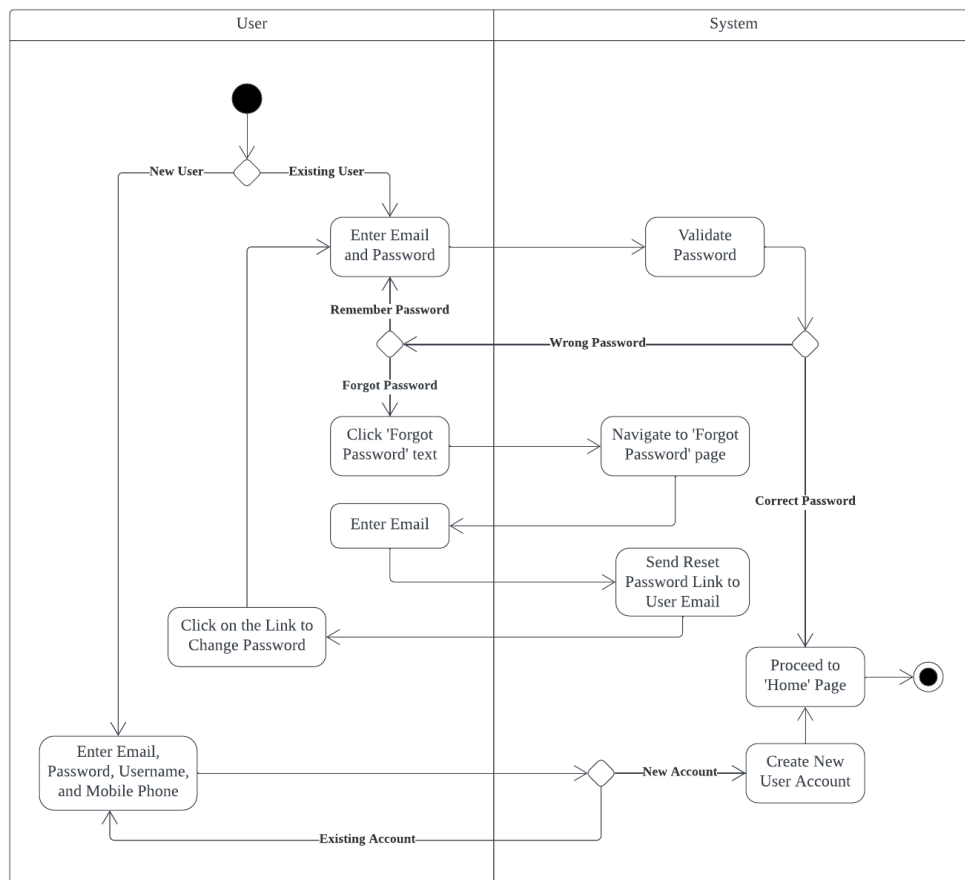


Figure 3.5 Register and Login Activity Diagram

Figure 3.5 shows the activity diagram of Register and Login. In the register page, the user can register an account by filling in email, password, username, and mobile phone. After clicking on the 'Sign Up' button, the system will check whether the email has been registered, if no, the system will create a new user account.

In the Login page, the user can login by filling in their email and password. After clicking on the 'Login' button, the system will check whether the password is entered correctly. For user who forgot password, they can click on 'Forgot Password' text, the system will navigate user to 'Forgot Password' page. After the user enter email, the system will send a reset password link to the email. User can change password through the link. After the user sign up or login successfully, the system will proceed to the 'Home' page.

3.3.2 Profile

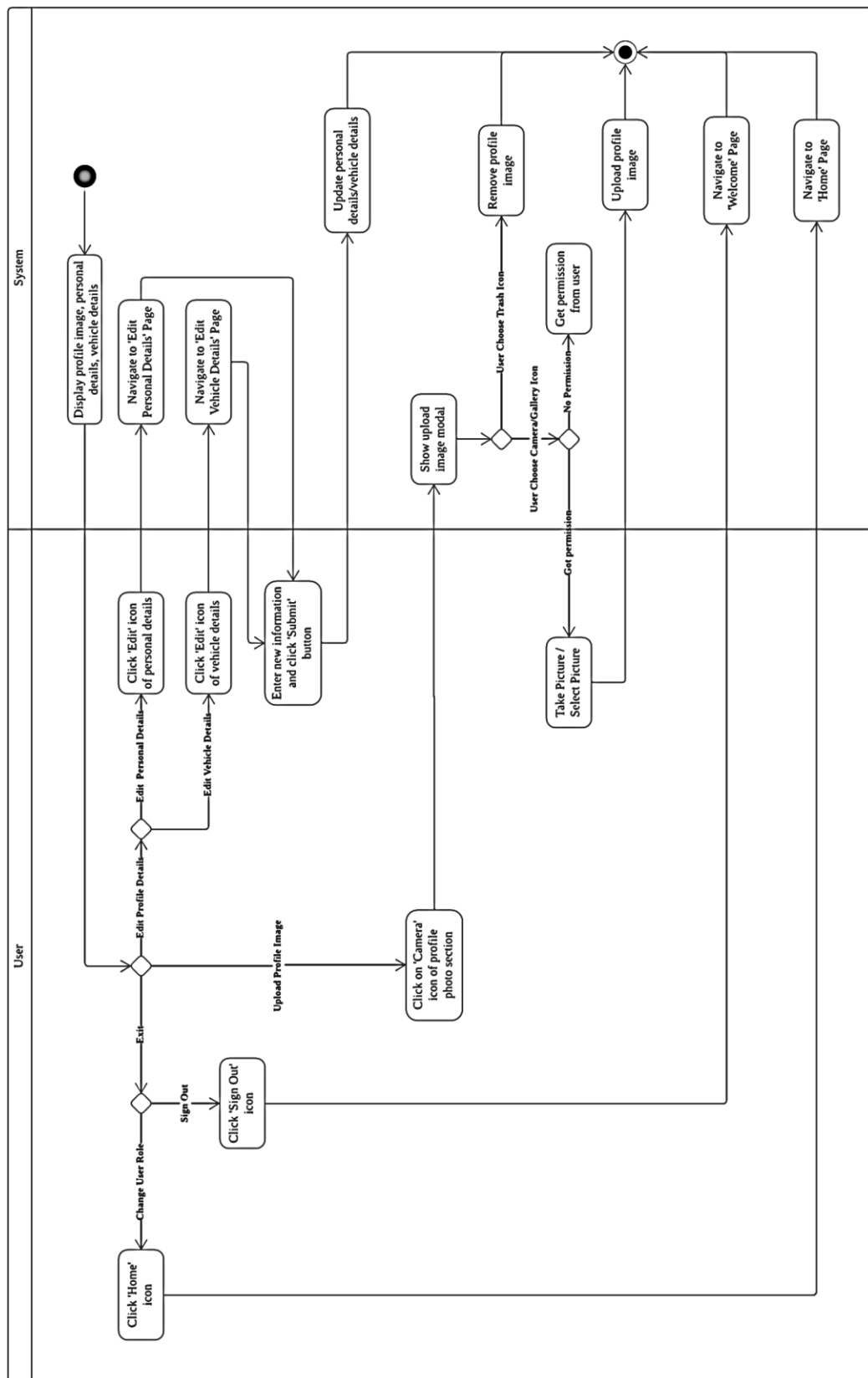


Figure 3.6 Profile Activity Diagram

Figure 3.6 shows the activity diagram of Profile. In the Profile page, the system will display user's profile image, personal details, and vehicle details. In this page, user can edit personal details and vehicle details, upload profile image, change user role and sign out from the application.

In order to edit profile, the user can click on the 'Edit' icon of the correspond section. User will be navigated to 'Edit Personal Details' page if click on 'Edit' icon of personal details section; and be navigated to 'Edit Vehicle Details' page for icon of vehicle details section. When click on the 'Submit' button after entering the new information, the system will update the details shown in 'Profile' page.

Next, in order to upload profile image, the user need to click on the 'Camera' icon at the bottom right of the profile image. After that, the system will show a modal, which have the options of take photo, choose image from gallery, and remove profile image. If user choose to take photo or choose image from gallery, the system will request for permissions for accessing the camera or media library if the permission is not yet granted. After users taken a photo or selected an image, the system will upload the profile image to be shown at the 'Profile' page.

Lastly, users can click on 'Home' icon to be navigated to the 'Home' screen to change the user role; and click on 'Sign out' icon to sign out from the application.

3.3.3 In App Messaging

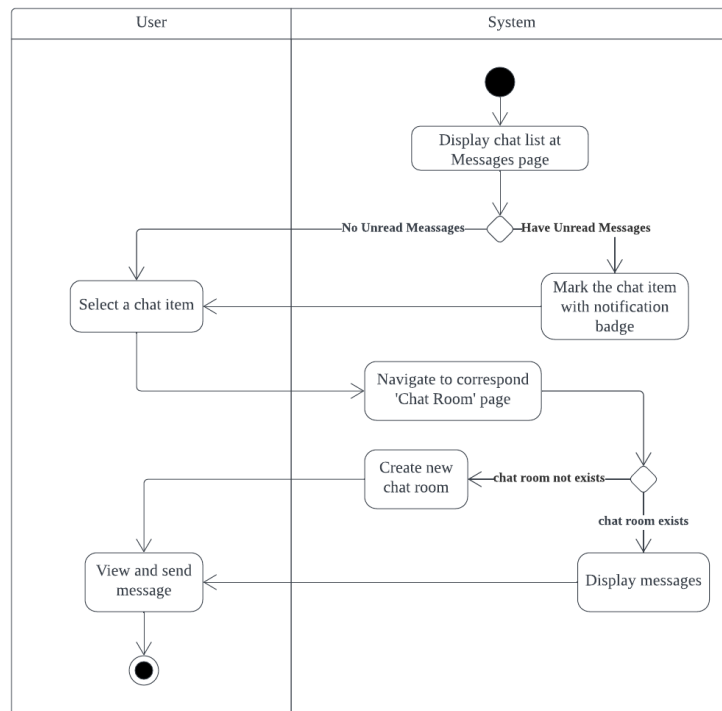


Figure 3.7 In-app Messaging Activity Diagram

Figure 3.7 shows the activity diagram of Messages page. The system will display chat list and will check for unread messages. If the user has unread messages, then the system will mark the corresponding chat item with notification badge.

In this page, the user can select a chat item, which is the person to chat with, then the system will navigate the user to correspond 'Chat Room' page. When entering this page, the system will check whether the chat room exists, if no, a new chat room will be created; otherwise, the system will display all the messages. In this Chat Room page, the user can view and send message.

3.3.4 Driver: Post Ride

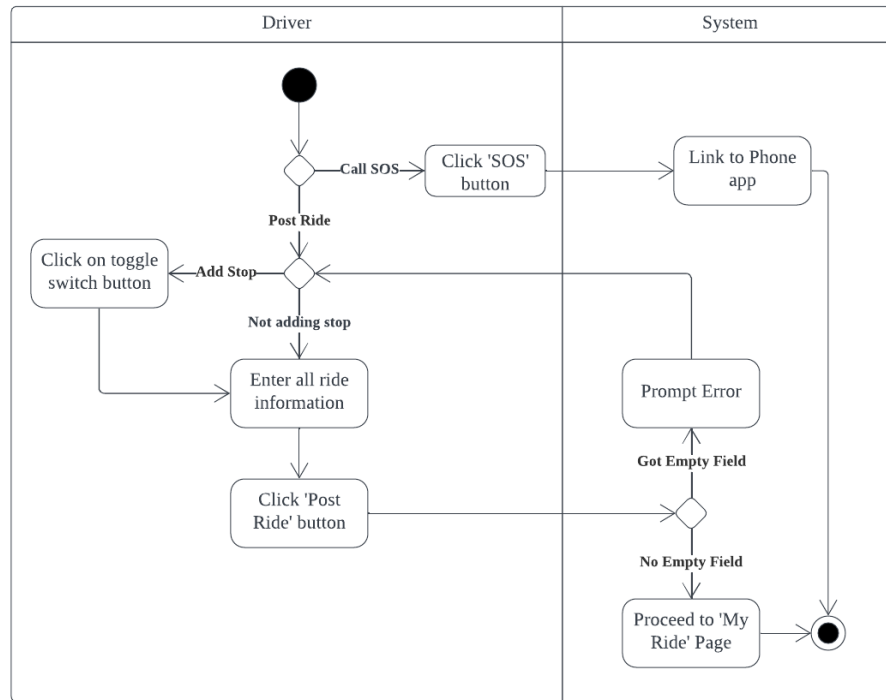


Figure 3.8 Driver: Post Ride Activity Diagram

Figure 3.8 shows the activity diagram of Post Ride. In 'Post Ride' page, the user can call SOS if facing any emergency. The system will link user to 'Phone' app with emergency number dialed. Besides, in order to post ride, the driver is required to enter all the ride information. When user clicks on the 'Post Ride' button, the system will check whether there is any empty field, if yes, the system will prompt an error; if no, then the system will proceed to My Ride page.

3.3.5 Driver: My Ride (Published Tab)

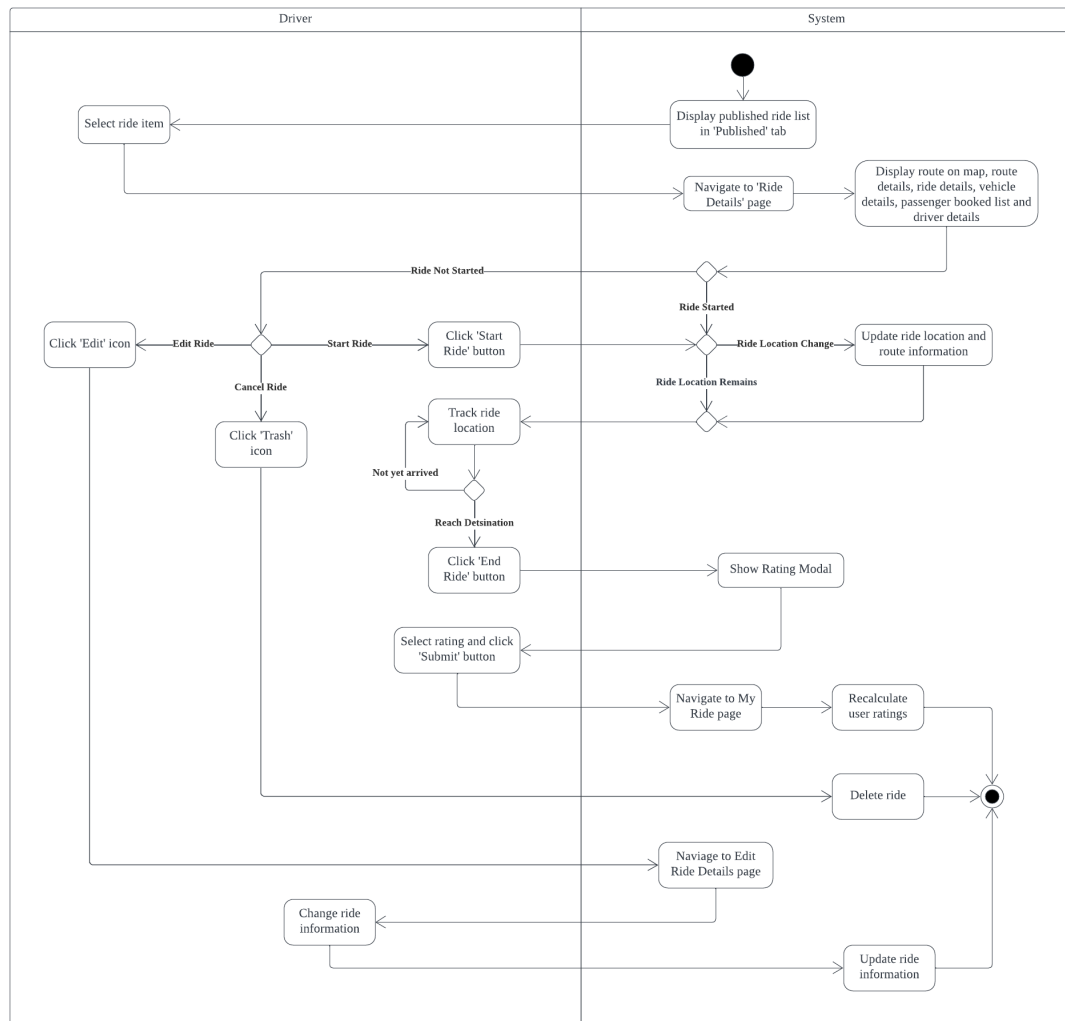


Figure 3.9 Driver: My Ride (Published Tab) Activity Diagram

Figure 3.9 shows the activity diagram of Published Tab in My Ride page. In ‘Published’ tab, the system will display the published ride list. The driver will be navigated to the ‘Ride Details’ page after selecting a ride item. The system will display the route on map, route details, ride details, vehicle details, passenger booked list and driver details in this page. If the ride not yet started, the driver could edit ride details and cancel ride. In order to start the ride, the driver can click on the ‘Start Ride’ button. After that, the ride status will change to ‘Start’ and the system will update the ride location and route information from time to time, so that the driver can track the ride location along the route. After reaching the destination, the driver can click on ‘End Ride’ button to end the ride, then the system will show a rating modal for the driver to rate on the ride

experience. After rating, the driver will be navigated back to 'Published' tab and the user ratings will be recalculated.

3.3.6 Driver: My Ride (Requests Tab)

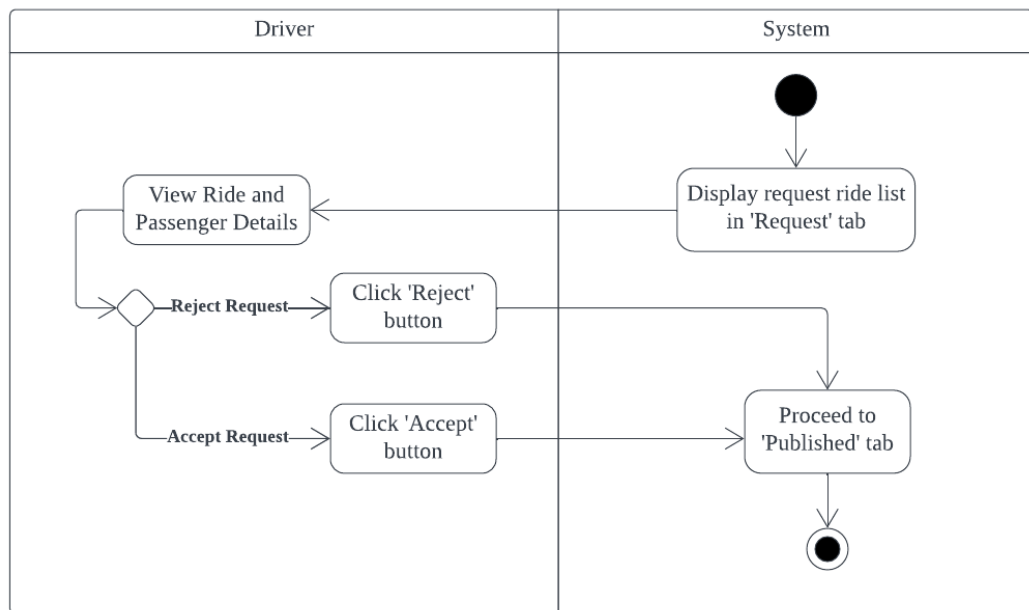


Figure 3.10 Driver: My Ride (Requests Tab) Activity Diagram

Figure 3.10 shows the activity diagram of Requests Tab in My Ride page. In the 'Requests' tab, the system will display the request ride list made by the passengers. The driver can view the ride details and passenger details. Driver can click on the 'Accept' button to accept the carpool request, or click on the 'Reject' button to reject the carpool request. Then, the system will proceed to 'Published' tab.

3.3.7 Driver: View Rating Trends

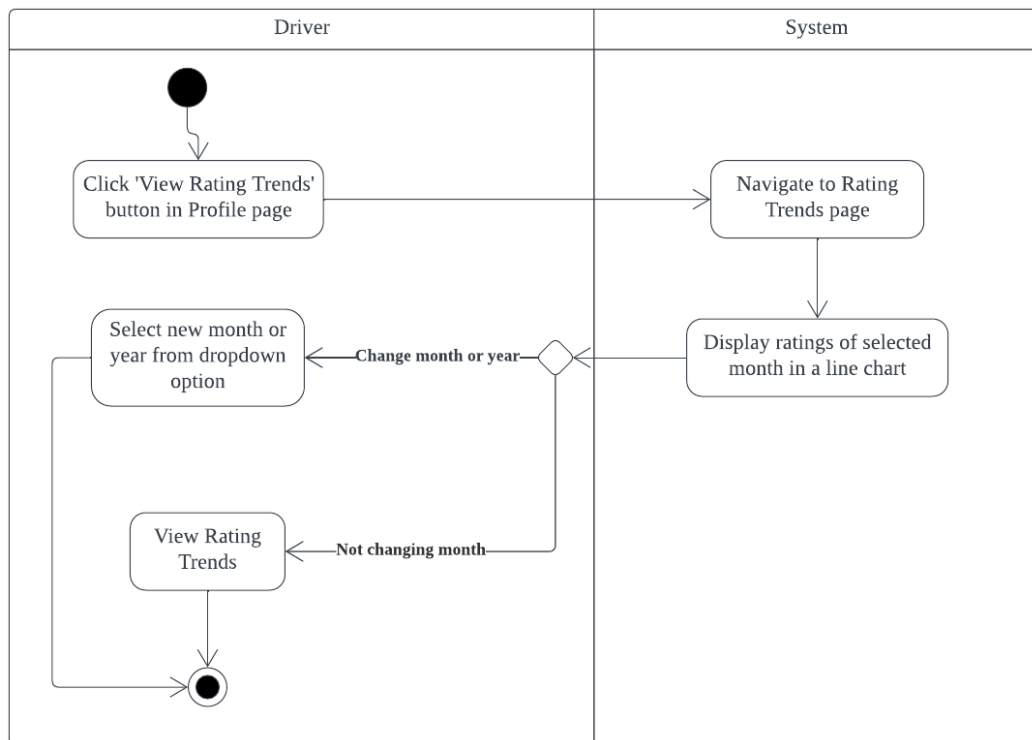


Figure 3.11 Driver: View Rating Trends Activity Diagram

Figure 3.11 shows the activity diagram of View Rating Trends. The driver can click on the 'View Rating Trends' button in Profile page, then the system will navigate to 'Rating Trends' page. In this page, the system will display the driver's ratings of selected month in a line chart. The driver can view the rating trends of other month by selecting month or year from dropdown option.

3.3.8 Passenger: Search Ride

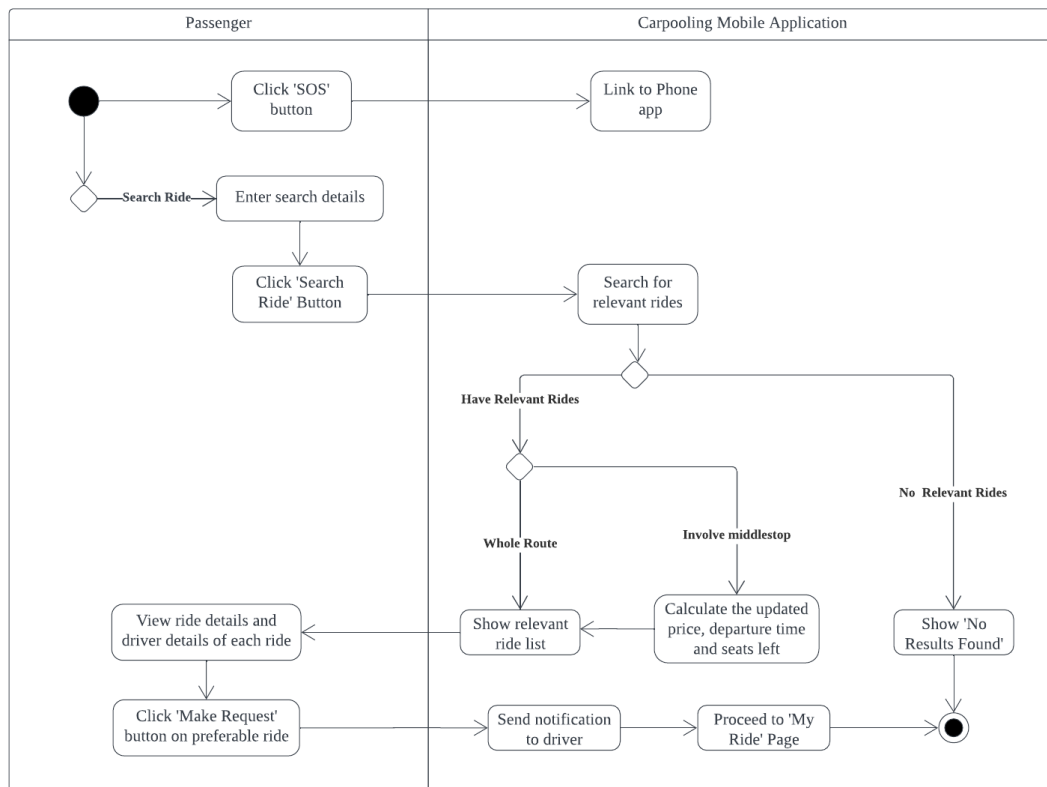


Figure 3.12 Passenger: Search Ride Activity Diagram

Figure 3.12 shows the activity diagram of Search Ride. In ‘Search Ride’ page, the passenger can call SOS by clicking on the SOS button if facing any emergency. In order to search for a ride, the passenger need to enter the search details, including origin, destination, departure date, number of passengers and the acceptable radius from the origin and destination points. After clicking on the ‘Search Ride’ button, the system will search for relevant rides. if there are no available ride, the system will show No Results Found’ on the page. Otherwise, the system will check whether the search details origin or destination involve middle stop of the relevant rides. If yes, the system will calculate the updated price, departure time and seats left before showing the relevant rides. After viewing on the ride details and driver details, the user can click on ‘Make Request’ button for the preferable rides. Then, the system will send a notification to the driver, and redirect the user to ‘My Ride’ page.

3.3.9 Passenger: My Ride

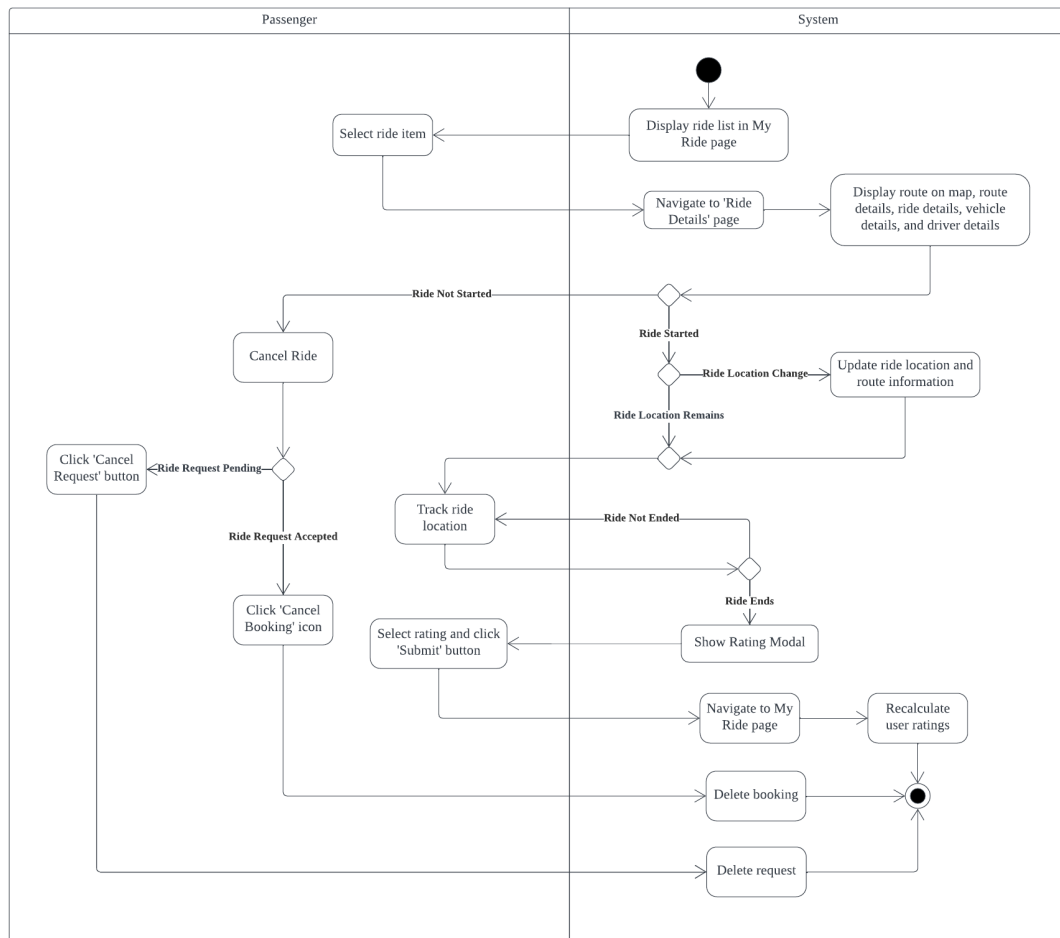


Figure 3.13 Passenger: My Ride Activity Diagram

Figure 3.13 shows the activity diagram of My Ride page of passenger. In this page, the system will display the ride list. The passenger will be navigated to the ‘Ride Details’ page after selecting a ride item. The system will display the route on map, route details, ride details, vehicle details, and driver details in this page. Then the system will check for the ride status. If the ride not yet started, the passenger will be able cancel the ride request or booking. If the ride has started, the system will update the ride location and route information from time to time, so that the passenger can track the ride location along the route. When the ride status changed from ‘Start’ to ‘End’, the system will show a rating modal for the passenger to rate on the ride experience. After rating, the passenger will be navigated back to ‘My Ride’ page and the user ratings will be recalculated.

Chapter 4

System Methodology/Approach

4.1 Methodology

Agile methodology will be chosen as the system methodology for this project due to its flexibility. It implements iterative development, so that the project can be continuously improved throughout its lifecycle and adapt to changes quickly [10]. Therefore, adjustments and enhancement on the project can be made throughout all the stages of development process. Besides, agile methodology enables us to identify and correct mistakes early in the development process. This will reduce the risk of significant issues being identified at later stages of the development process. In short, implementing agile methodology enables flexible, ongoing improvement and adaption throughout the project lifecycle.

4.2 System Requirements

4.2.1 Hardware Involve

The hardware that will be used in the implementation of this project is a Windows 11 laptop and two Android mobile device.

4.2.2 Software Involve

The software that will be used in the development of this project includes:

1. Visual Studio Code, which is used for coding and debugging purpose;
2. Firebase, which the Authentication and Firestore Database are used in the project development;
3. Android Studio, which used to test the application developed on a virtual android mobile device.

4.2.3 Programming Language

The project is developed using Java Programming in FYP1, but I decided to use React Native Expo in FYP2. This is because I found that React Native Expo offer many tools and libraries which greatly facilitate the development tasks. Besides, it can create reusable components, which is helpful in minimizing code duplication.

4.3 Gantt Chart

Table 3.1 FYP2 Project Timeline

Task Description	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	WEEK 11	WEEK 12
Review previous FYP1 work	■											
Develop the UI in FYP1 using React Native Expo		■	■	■								
Develop the features logic in FYP1 using React Native Expo				■	■	■						
Develop real-time location tracking UI and logic							■	■				
Improve the logic of searching related rides									■			
Develop ratings feature UI and logic										■		
Add function of 'Add Stop' to post ride page											■	
Add line chart of ratings trends to driver's profile page												■
System testing and debugging							■	■	■	■	■	
Write report												■

Chapter 5

System Implementation

5.1 Welcome Page



Figure 5.1 Welcome Page

Figure 5.1 shows the Welcome page, which is the first page of the application. A new user can click on the Sign Up button to navigate to Sign Up page to register an account; while an existing user can click on the Log In text to navigate to Login page.

5.2 Sign Up Page

02:53

Sign In

Please sign in to your existing account.

Email Address

Enter Email

Password

Enter Password

[Forgot Password?](#)

LOGIN

[Don't have an account? SIGN UP](#)

☰ □ ◀

Figure 5.2 Sign Up Page

02:53

Register

Please register to create a new account.

Username

Enter Username

Email Address

Enter Email

Password

Enter Password

Mobile Number

Enter Mobile Number

SIGN UP

[Already have an account? LOGIN](#)

☰ □ ◀

Figure 5.3 Login Page

Figure 5.2 shows the Sign Up page. For new users, they are required to enter the username, email, password and mobile number to register an account. If the email has already been registered, the application will show an error.

Figure 5.3 shows the Login page. An existing user will need to enter the username and password in order to login to the application. If the password is incorrect, the system will prompt an error. For user who forgot the password, he/she can click on the Forgot Password text to navigate to the Forgot Password page.

5.3 Forgot Password Page

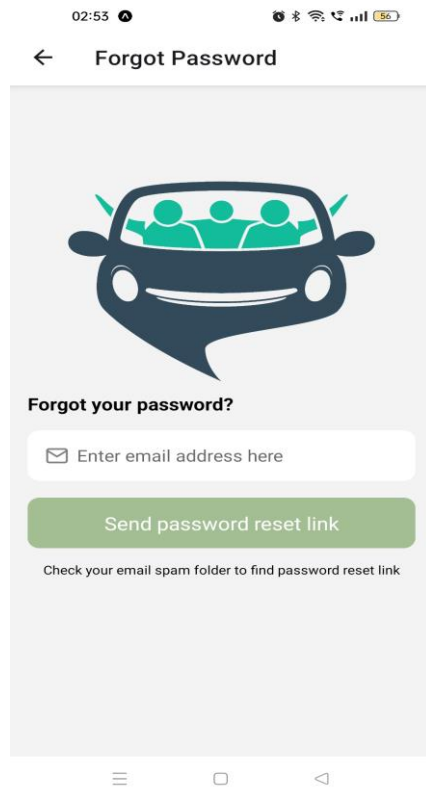


Figure 5.4 Forgot Password Page

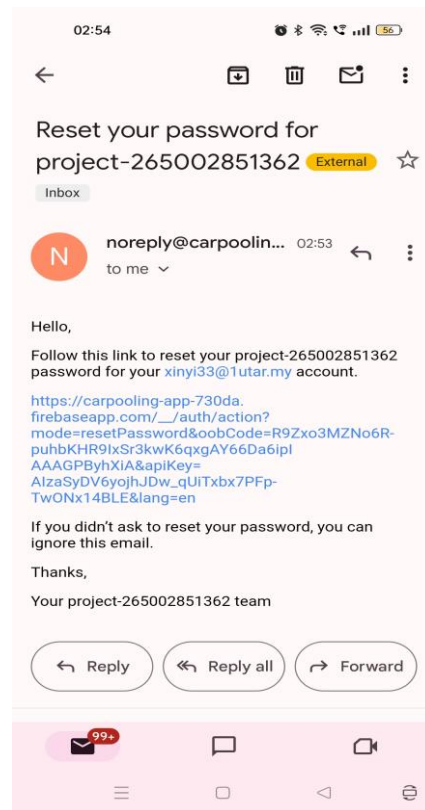


Figure 5.5 Reset Password Email

Figure 5.4 shows the Forgot Password page. User is required to enter the email address. Then, a reset password link will be sent to the email as shown in Figure 5.5.

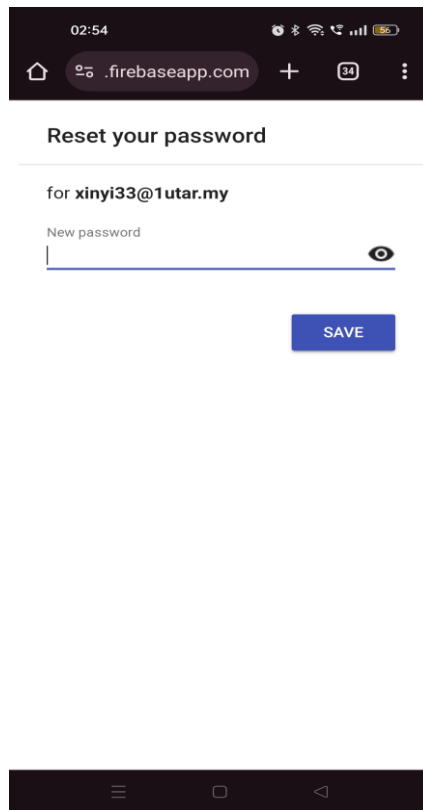


Figure 5.6 Reset password Page

After clicking on the reset password link, the user will be redirected to enter the new password as shown at Figure 5.4. After saving the new password, the user can get back to the login page to login using the new password.

5.4 Home Page

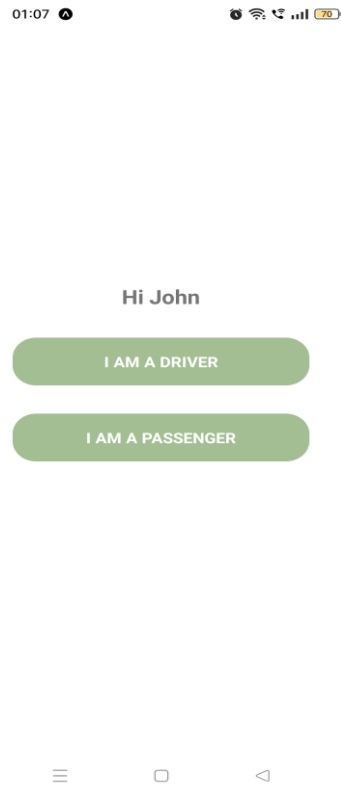


Figure 5.7 Home Page

Figure 5.7 shows the Home page. The user will be redirected to this page after successfully login or register an account. In this page, the user can choose whether they tend to be a driver or a passenger. As a driver, user needs to click on the ‘I am a driver’ button; while as a passenger, user needs to click on the ‘I am a passenger’ button.

5.5 Post Ride Page

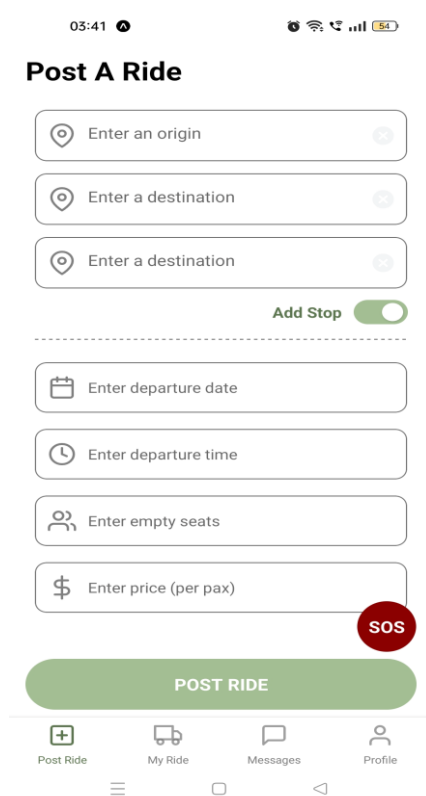


Figure 5.8 Post Ride Page

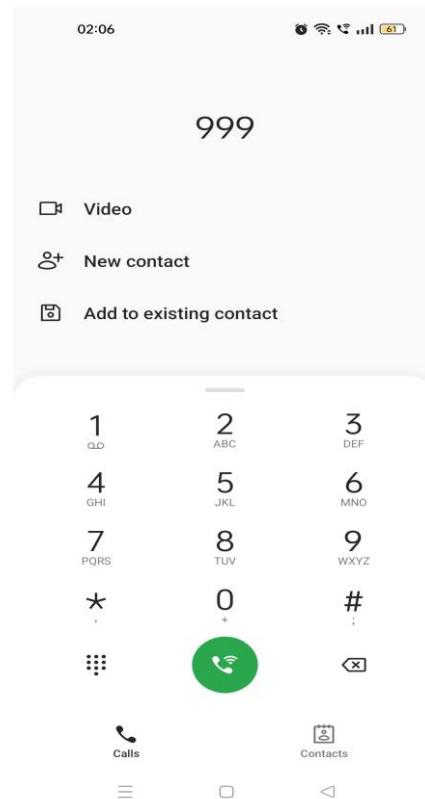


Figure 5.9 Phone App

Figure 5.8 shows the Post Ride page which is the main page of driver module. As a driver, the user can post ride by entering the ride information, including origin, destination, departure date and time, number of empty seats, and price per pax. There is a toggle switch button under the destination, which give the user an option to add a stop to the ride. After clicking on the 'Post Trip' button, the system will check whether there is any empty field, if yes, then an error will be prompted.

Besides, the SOS button which located on the bottom right of the page in Figure 5.8 is an emergency button. When the user clicks on it, the system will redirect the user to the phone app with emergency number dialed. The user can just call directly to make an emergency call.

5.6 My Ride Page (Driver)

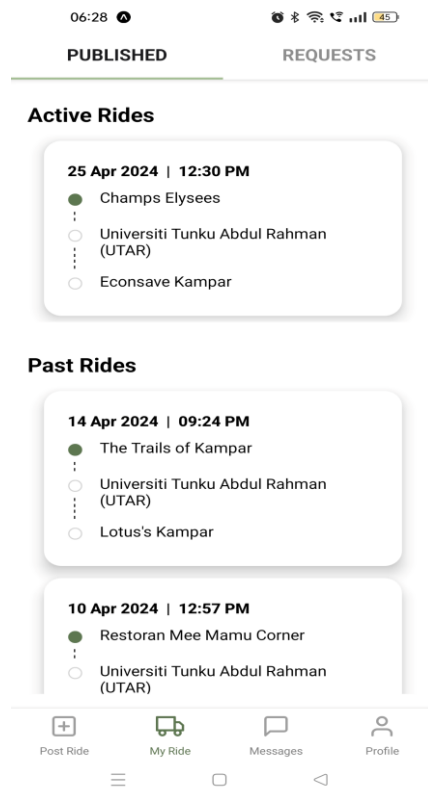


Figure 5.10 Published Tab

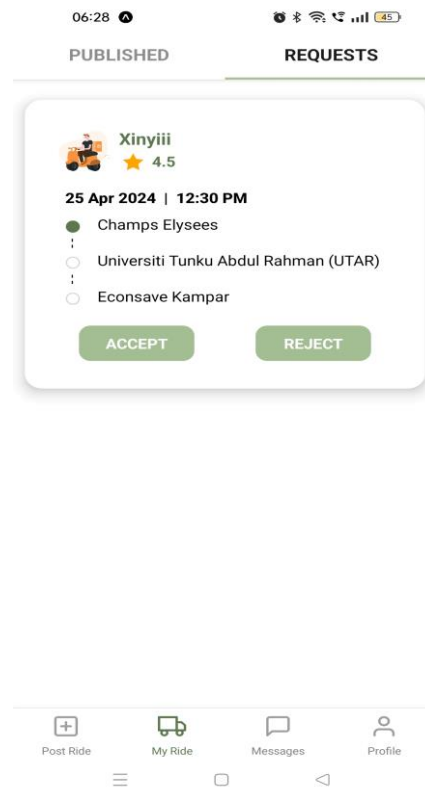


Figure 5.11 Requests Tab

In the My Ride page of driver module, there are two tabs, which are 'Published' and 'Requests'. Under the 'Published' tab, all the posted ride with simple ride details will be shown at this page, as shown in Figure 5.10; while under the 'Requests' tab, the carpool requests that have been made by the passengers are shown here with the simple information of the passenger and ride, as shown in Figure 5.11. The user can click on the 'Accept' button to accept the carpool request, and 'Reject' button to reject the carpool request.

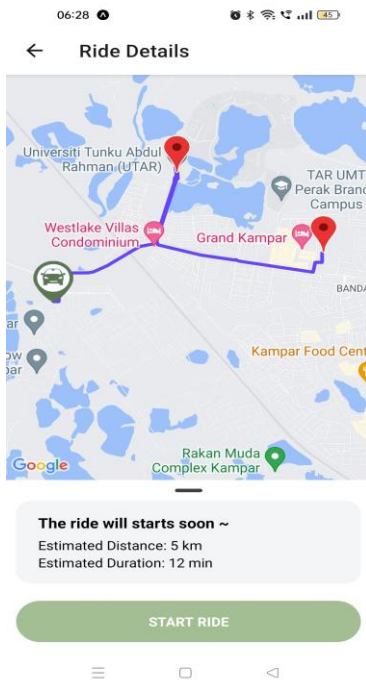


Figure 5.12 Ride Details Page

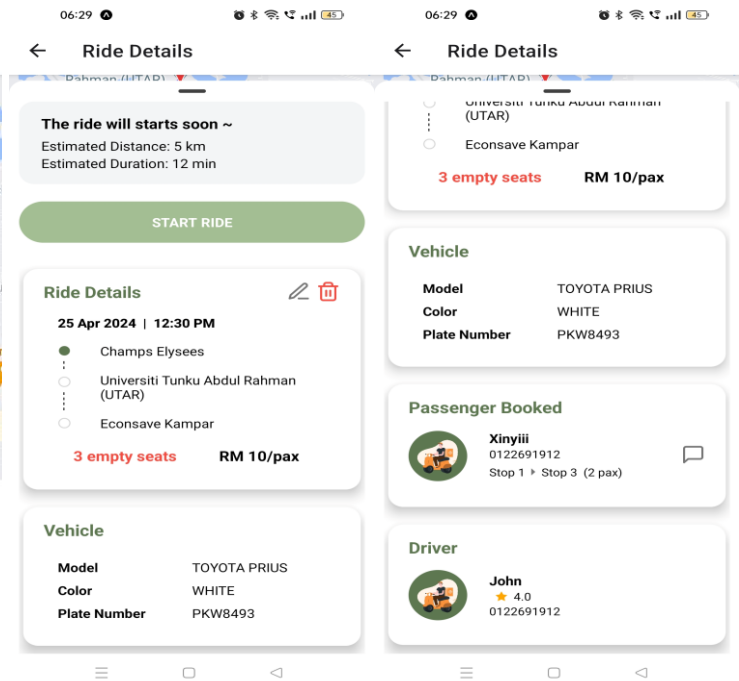


Figure 5.13 Ride Details Bottom Sheet

When driver click on the ride item at ‘Published’ tab, the system will navigate to Ride Details page. In this page, the driver can view the route on the map as shown in Figure 5.12. Besides, the driver can also view route details with estimated distance and duration, ride details, vehicle details, passenger booked list and driver details at the bottom sheet as shown in Figure 5.13. Before the ride starts, the driver can edit or cancel the ride by clicking on the corresponding icon. Besides, the driver can communicate with the passenger by clicking on the message icon, which will be redirected to the Chat Room page.

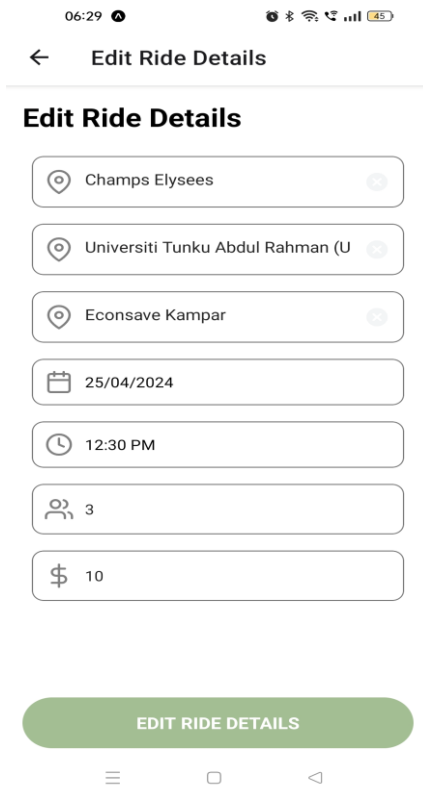


Figure 5.14 Edit Ride Details

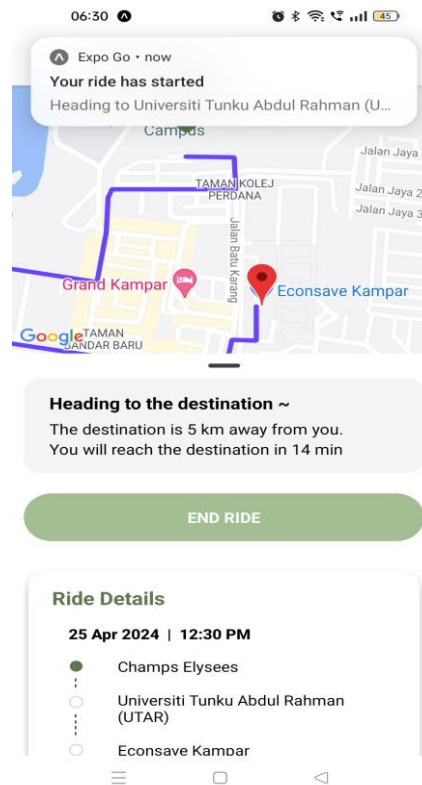


Figure 5.15 Ride Started

Figure 5.14 shows Edit Ride Details page. The driver can edit all the ride information in this page only before the ride starts.

Besides, the driver can click on the ‘Start Ride’ button to starts the ride. Both driver and passenger will receive a notification as shown in Figure 5.15 when the ride starts. The ride current location will be updated on the map from time to time, and the estimated distance and duration will also be updated too. This is useful for both driver and passenger to track the ride location.

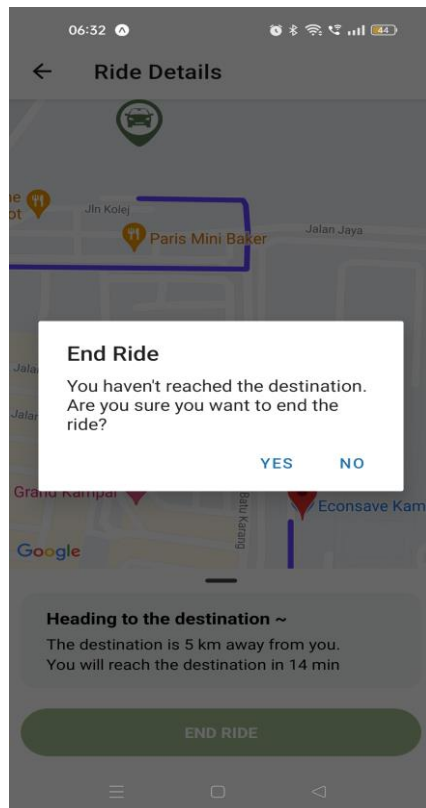


Figure 5.16 End Ride

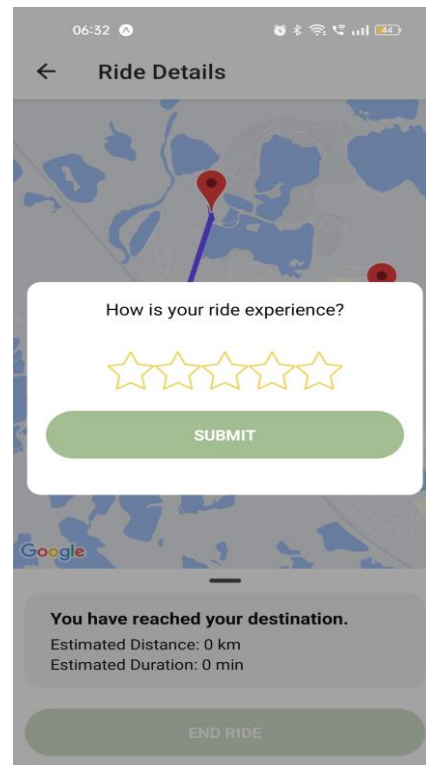


Figure 5.17 Rate

Furthermore, the driver click on ‘End Ride’ button to end the ride. The system will check whether the driver is within 1km from the destination. If the driver is still far away from the destination, the system will prompt an alert as shown in Figure 5.16.

After the ride ends, both driver and passenger will receive a notification and the system will shows a rating modal. The driver and passenger are required to rate on each other based on the ride experience. The driver will get an average rating from all passengers; while each passenger will get the same rating from the driver

5.7 Search Ride

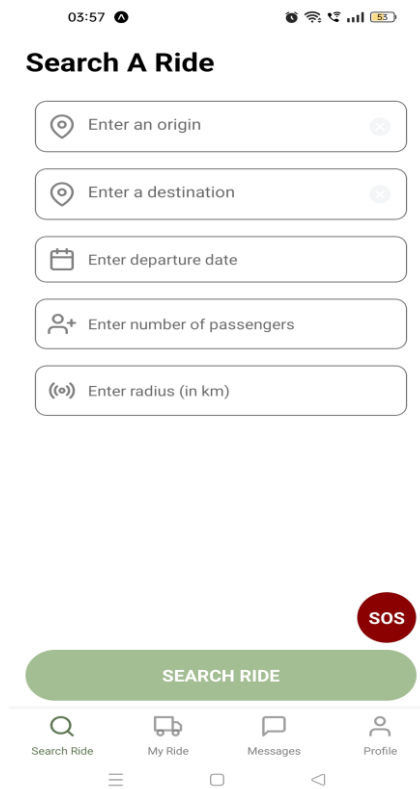


Figure 5.18 Search Ride Page

Figure 5.18 shows the Search Ride page which is the main page of passenger module. The user can search for ride by entering the search details, including origin, destination, departure date, number of passengers and radius in km. The radius is the acceptable distance from search origin or destination to the ride origin or destination point, so that the passenger can have more choices on relevant rides.

Besides, the SOS button at the bottom right corner of the page has the same function in driver module, which will redirect user to the phone app with the emergency number dialed.

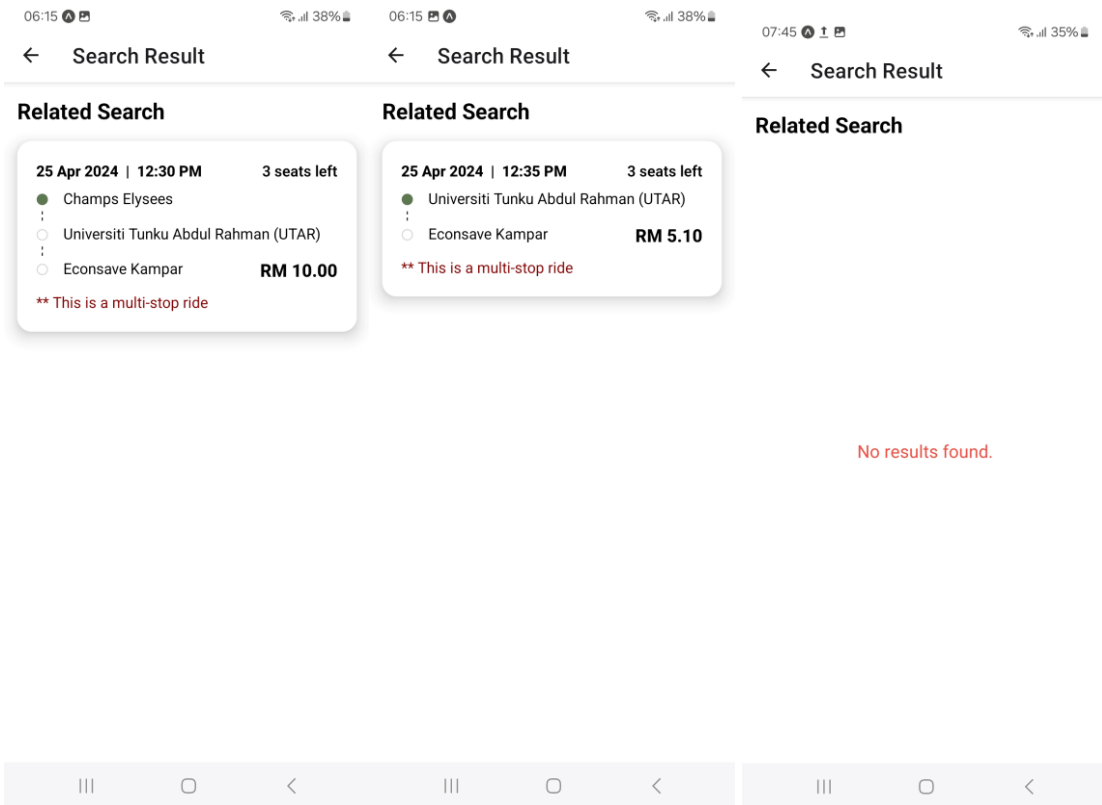


Figure 5.19 Search Result Page

Figure 5.20 No Results Found

After passenger click on the Search Ride button, the system will search for relevant rides. If there are relevant rides, it will be displayed as a list in Search Result page. If the search origin or destination is the middle stop of the ride, then the system will recalculate the departure time, seats and price. For instance, the passenger search for ride from Utar → Econsave Kampar; but the ride posted by the driver is from Champs → Utar → Econsave Kampar. In this case, the ride will also be shown in the search result, and the departure time and price are recalculated as shown in Figure 5.19.

To be mentioned that, if the passenger has entered the radius when searching for ride, the ride that doesn't have the same origin or destination, but within the radius will also be shown on the Search Result page. For each ride item in the list, if the ride involves multi-stop, it will shows “This is a multi-stop ride” at the bottom of the ride item.

On the other hand, if there are no relevant rides, the system will show No Result Found at the middle of the page as shown in Figure 5.20.

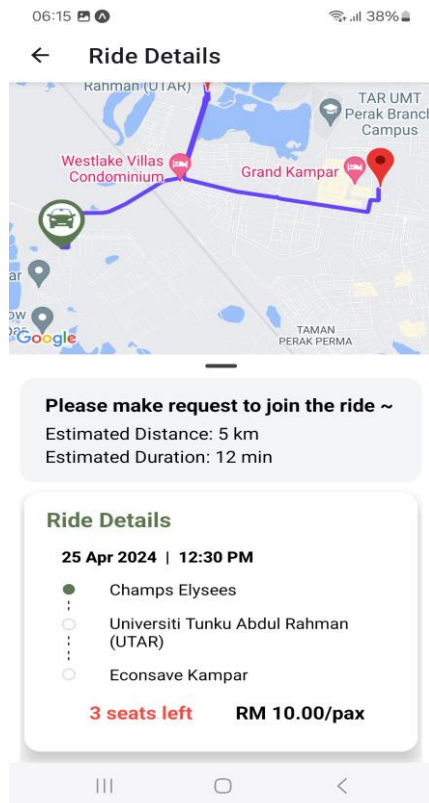


Figure 5.21 Ride Details page

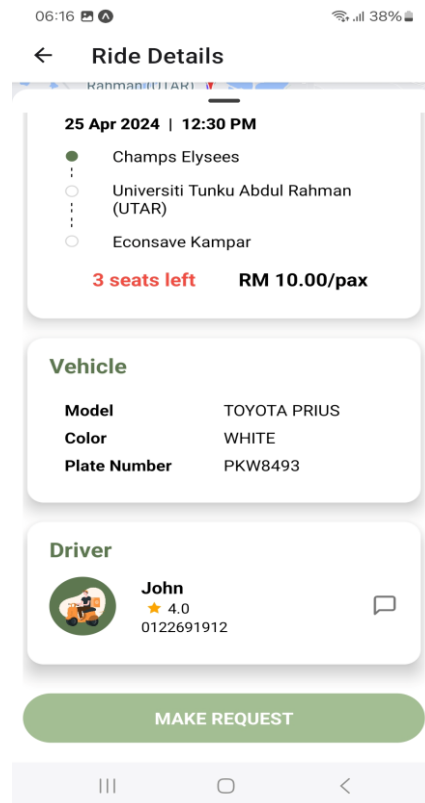


Figure 5.22 Make Request

After the passenger click on the ride item, the system will navigate to Ride Details page as shown in Figure 5.21. The passenger can view the route details, ride details, vehicle details and driver details in this page. By clicking on the Message icon beside the driver, the system will navigate to Chat Room page to enable passenger to communicate with the driver. Lastly, the passenger can make request by clicking on the Make Request button as shown in Figure 5.22, and a notification will be sent to the driver.

5.8 My Ride Page (Passenger)

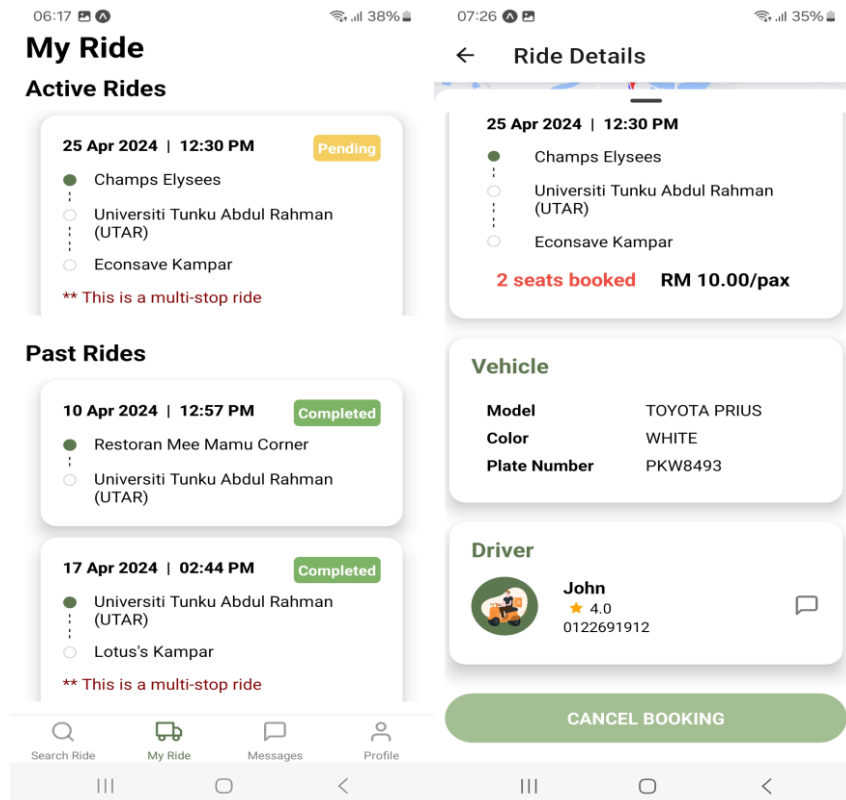


Figure 5.23 My Ride page

Figure 5.24 Cancel Booking

Figure 5.23 shows the My Ride page of passenger module. It is similar to the Published tab in driver module. The only difference is the ride item at passenger module have the status shown. There are 5 statuses in total: Pending, Confirmed, Ongoing, Completed and Rejected. Pending shows when the passenger is waiting for the driver to accept ride request; Confirmed shows when the driver has accepted the ride request of passenger; Ongoing shows when the ride has started; Completed shows when the ride has ended; and finally Rejected shows when the ride request of passenger is rejected by the driver.

Figure 5.24 shows the Ride Details page. Before the ride starts, the passenger can cancel the booking or requests in this page.

5.9 Messages Page (Driver and Passenger)

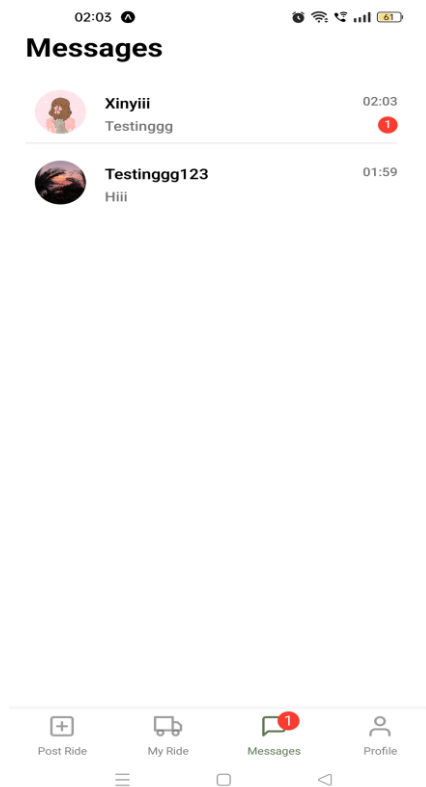


Figure 5.25 Messages Page

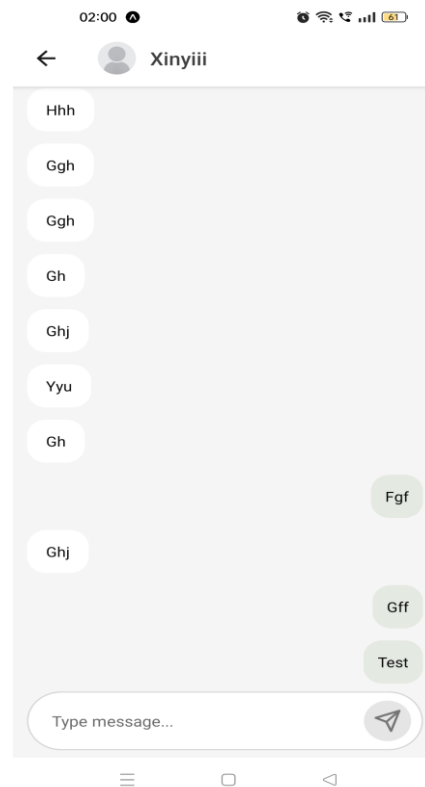


Figure 5.26 Chat Room Page

Figure 5.25 shows the Messages page. In this page, a chat list will be shown. Each chat item contains the last messages and time sent in the chatroom. If there are any unread messages, the notification badge will be shown at the bottom navigation tab and beside the correspond chat item as shown in Figure 5.25. After the user select the person to chat with, the system will navigate to the Chat Room page as shown in Figure 5.26. In this page, the user can view all the messages and send messages to chat with other user.

5.10 Profile Page (Driver & Passenger)

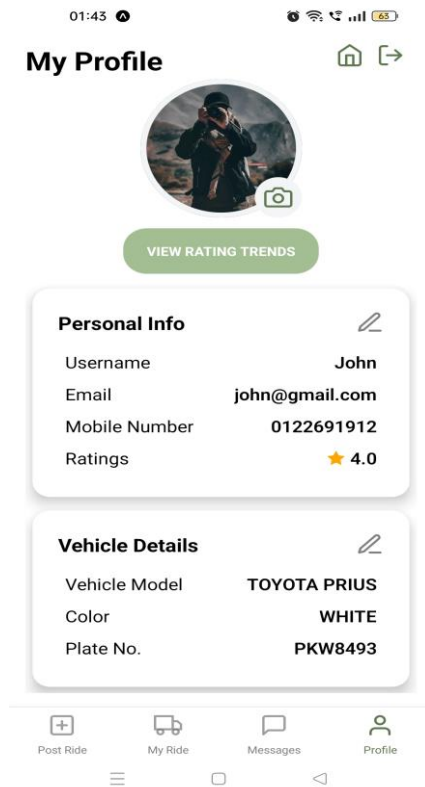


Figure 5.27 Profile Page (Driver)

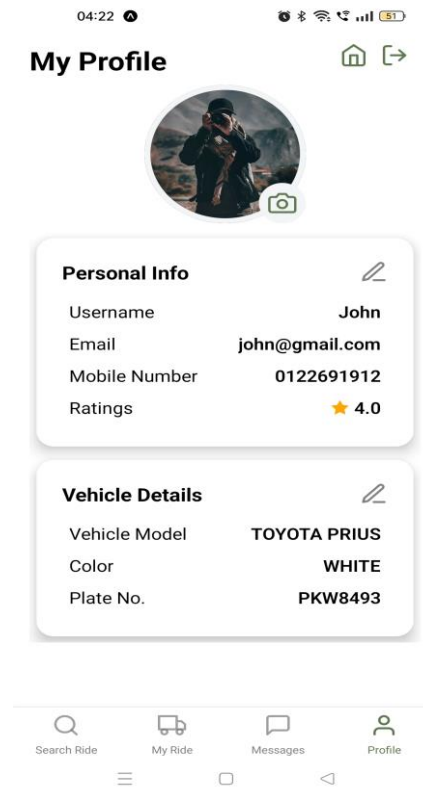


Figure 5.28 Profile Page (Passenger)

Figure 5.27 shows the Profile page of driver and Figure 5.28 shows the Profile page of passenger. In this page, the user can view profile image, personal info, and vehicle details. The only difference between the driver and passenger is just that the driver has a View Rating Trends button.



Figure 5.29 Rating Trends Page

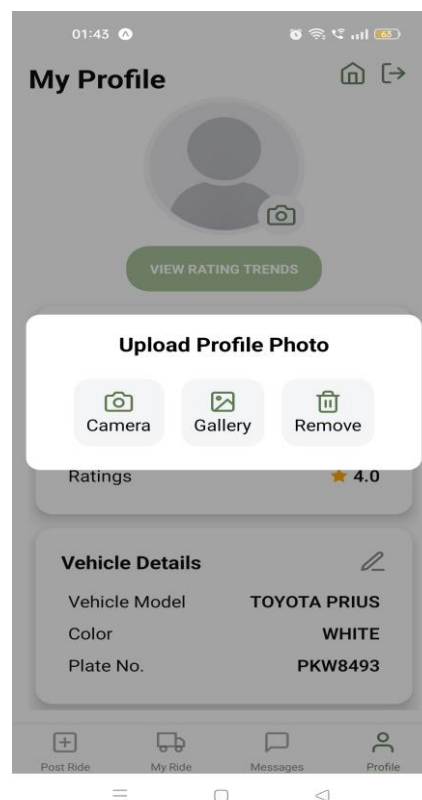


Figure 5.30 Upload Profile Photo Modal

As a driver, after clicking on the View Rating Trends button, the system will navigate to Rating Trends page as shown in Figure 5.29. In this page, the driver can view a line chart, which shows the ratings get by the driver in monthly basis. The driver can change the month or year by selecting other options in the dropdown field. Furthermore, the driver can also view the overall rating of all rides and average rating of ride involved in line chart.

Next, for both driver and passenger, when the 'Camera' icon located at the bottom right of the profile image is clicked, the upload profile photo modal will be shown as Figure 5.30. The user can choose to upload profile image through taking a photo using camera, pick a photo from the gallery, or remove the profile image.

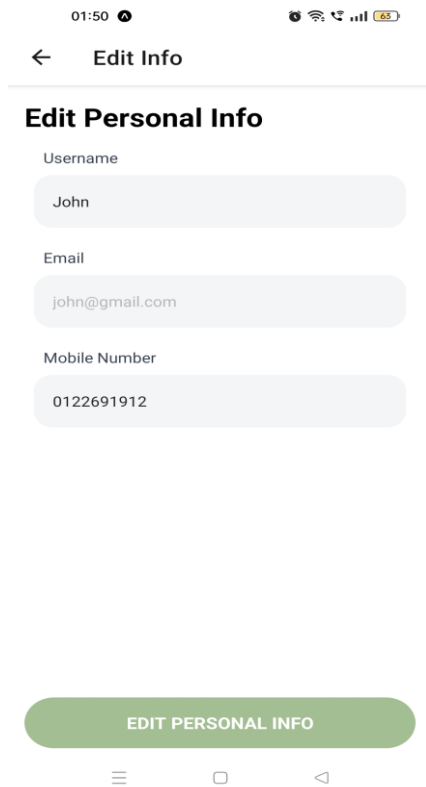


Figure 5.31 Edit Personal Info Page

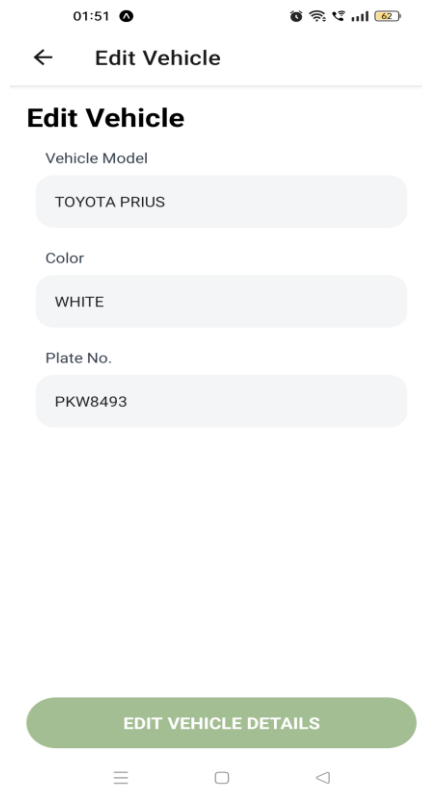


Figure 5.32 Edit Vehicle Details Page

After user click on the ‘Edit’ icon at the Personal Info section, the system will navigate to Edit Personal Info page as shown in Figure 5.31; while if the ‘Edit’ icon at Vehicle Details section is clicked, the system will navigate user to Edit Vehicle page as shown in Figure 5.32. In Edit Personal Info page, the user can edit the username and mobile number; while in Edit Vehicle page, the user can edit the vehicle model, color, and plate number. After editing successfully, the user will be redirected back to the Profile page.

5.11 Objective Reevaluation

The objectives of this project have been successfully achieved through the development of carpooling mobile application. Firstly, the objective of developing a mobile application which allows users to find suitable carpool partners has been met with the features such as post ride for drivers, search ride for passengers and in-app messaging function.

Next, the second objective to offer carpooling services which is safety and convenience has been achieved by integrating real-time ride location tracking for both drivers and passengers. They can track the route on map view and view the estimated duration and distance time by time. Additionally, an SOS button is also provided for emergency assistance.

Lastly, the objective of implementing a user-rating feature that enables users to provide valuable feedback on their carpool partners and overall experiences has also been achieved by showing a rating modal after the ride ends, so that both driver and passenger can rate on the ride experience. The rating obtained will be shown as a reference for other users when finding carpool partners in future.

Overall, a safety, dependable and convenience carpooling mobile application is developed by achieving these objectives. It addresses the issues of finding carpool partners, making sure the flexibility of the route, and improve safety through real-time ride location tracking.

Chapter 6

Conclusion and Recommendation

6.1 Conclusion

Due to the rising of fuel costs, environmental concerns, and traffic congestion, carpooling is a way to address these challenges by maximizing the use of private vehicles. Thus, a carpooling mobile application is developed in this project to help individuals to find potential and suitable carpool partners efficiently and conveniently.

In the carpooling mobile application, there are two user roles, which are driver and passenger. The driver can post ride by entering ride details such as origin, destination, departure date and time, number of empty seats, and price per pax. Besides, the driver can manage carpool requests by accepting or rejecting it. On the other hand, the passenger can search ride by entering search details such as origin, destination, departure date, number of passengers and the acceptable radius from the origin and destination points. Then, the passenger can make carpool requests on preferable ride in order to find carpool partners.

In addition, in order to offer carpooling services which is safety and convenience, the system provides features like real-time location tracking to allow both drivers and passengers to track the ride by viewing the route on map view and view the estimated duration and distance of the route. Besides, an SOS button is also provided for emergency assistance. Furthermore, the system also provides an in-app messaging features, that allows the driver and passenger to communicate with each other. Last but not least, both driver and passenger can rate on each other when the ride ends, which serves as a reference for other users when finding carpool partners.

In a nutshell, this carpooling mobile application helps users to find carpool partners. By connecting drivers and passengers efficiently, it promotes the shared use of vehicles, leading to cost savings, reduced emissions, and less traffic on the roads.

6.2 Future Work

From this carpooling mobile application developed, there are several enhancements or improvements that could be implemented in future to further improve the user experience and functionality of the application. One potential enhancement is the integration of payment feature, which allow users to handle transactions directly within the app. The secure in-app payments between drivers and passengers could simplify the process and reduce the need for cash exchanges, which is more convenient to the users.

Additionally, while the driver is the one who set the price, so a pricing recommendation tool based on factors such as distance, time, and market trends is suggested to be included in the mobile app. This feature will assist driver in setting a competitive and reasonable price.

Lastly, another improvement could be a driver validation system, which could enhance safety measures within the app. By verifying the identity and credentials of drivers, especially the driving license, passengers can feel more confident and secure when choosing carpool partners.

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FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

Trimester, Year: Y3S3	Study week no.: 2
Student Name & ID: Loh Xin Yi 21ACB01663	
Supervisor: Dr. Kh'ng Xin Yi	
Project Title: Carpooling Mobile Application	

1. WORK DONE

[Please write the details of the work done in the last fortnight.]

Review previous FYP1 work and develop the UI in FYP1 using React Native.
(Welcome, Login, Sign Up page)

2. WORK TO BE DONE

Develop the UI done in FYP1 using React Native. (Driver and Passenger module)

3. PROBLEMS ENCOUNTERED

No problem encountered.

4. SELF EVALUATION OF THE PROGRESS

Progress is on track.



Supervisor's signature



Student's signature

FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

Trimester, Year: Y3S3	Study week no.: 4
Student Name & ID: Loh Xin Yi 21ACB01663	
Supervisor: Dr. Kh'ng Xin Yi	
Project Title: Carpooling Mobile Application	

1. WORK DONE

[Please write the details of the work done in the last fortnight.]

Develop the UI done in FYP1 using React Native. (Driver and Passenger module)

2. WORK TO BE DONE


Develop the logic done in FYP1 using React Native.

3. PROBLEMS ENCOUNTERED


No problem encountered.

4. SELF EVALUATION OF THE PROGRESS

Progress is on track.



Supervisor's signature



Student's signature

FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

Trimester, Year: Y3S3	Study week no.: 6
Student Name & ID: Loh Xin Yi 21ACB01663	
Supervisor: Dr. Kh'ng Xin Yi	
Project Title: Carpooling Mobile Application	

1. WORK DONE

[Please write the details of the work done in the last fortnight.]

Develop the logic done in FYP1 using React Native.

2. WORK TO BE DONE

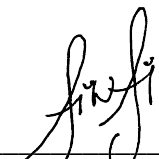
Develop new feature: real-time location tracking.

3. PROBLEMS ENCOUNTERED


No problem encountered.

4. SELF EVALUATION OF THE PROGRESS

Need to develop faster.



Supervisor's signature



Student's signature

FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

Trimester, Year: Y3S3	Study week no.: 8
Student Name & ID: Loh Xin Yi 21ACB01663	
Supervisor: Dr. Kh'ng Xin Yi	
Project Title: Carpooling Mobile Application	

1. WORK DONE

[Please write the details of the work done in the last fortnight.]

Develop new feature: real-time location tracking.

2. WORK TO BE DONE

Develop new feature: ratings.

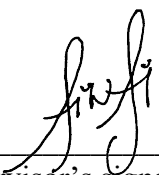
Improve the logic of search ride (add passenger count and radius)

3. PROBLEMS ENCOUNTERED


No problem encountered.

4. SELF EVALUATION OF THE PROGRESS

Progress is on track.



Supervisor's signature



Student's signature

FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

Trimester, Year: Y3S3	Study week no.: 10
Student Name & ID: Loh Xin Yi 21ACB01663	
Supervisor: Dr. Kh'ng Xin Yi	
Project Title: Carpooling Mobile Application	

1. WORK DONE

[Please write the details of the work done in the last fortnight.]

Develop new feature: ratings.

Improve the logic of search ride (add passenger count and radius)

2. WORK TO BE DONE

Add function of 'Add Stop' at driver Post Ride page.


Add line chart that shows rating trends for driver.

3. PROBLEMS ENCOUNTERED


No problem encountered.

4. SELF EVALUATION OF THE PROGRESS

Need to manage time well.



Supervisor's signature



Student's signature

FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

Trimester, Year: Y3S3	Study week no.: 12
Student Name & ID: Loh Xin Yi 21ACB01663	
Supervisor: Dr. Kh'ng Xin Yi	
Project Title: Carpooling Mobile Application	

1. WORK DONE

[Please write the details of the work done in the last fortnight.]

Add function of 'Add Stop' at driver Post Ride page.

Add line chart that shows rating trends for driver.

2. WORK TO BE DONE

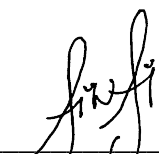
Write Report

3. PROBLEMS ENCOUNTERED


No problem encountered.

4. SELF EVALUATION OF THE PROGRESS

Need to manage time well.



Supervisor's signature



Student's signature

POSTER



FACULTY OF INFORMATION COMMUNICATION AND TECHNOLOGY

CARPOOLING MOBILE APPLICATION

INTRODUCTION

Carpooling involves sharing private cars to reduce individual trips, which bring benefits such as cost savings, convenience, social connections, reduced traffic congestion, and environmental impact. However, challenges like schedule conflicts and coordination issues can arise. To address these challenges, a carpooling mobile app is developed in this project, to enable car owners to share ride details and passengers to find suitable rides based on their preferences.

OBJECTIVES

1. Allow users to find suitable carpoll partners
2. Offer carpooling services which is safety and convenience
3. Implement user-rating feature to provide valudable feedback

METHODOLOGY

- Agile Methodology
- Android platform mobile application developed using React Native Expo
- Visual Studio Code
- Firebase as database

CONCLUSION

The main functions of this application are as follow:

- Passenger: search ride, make carpool request
- Driver: post ride offer, manage carpool request, view rating trends
- Both Driver and Passenger : track ride location, rate on ride experience, view end edit pofile & in-app Messaging

Create By: Loh Xin Yi (21ACB01663)
Supervise By: Kh'ng Xin Yi

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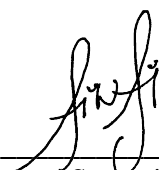
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Name: KH'NG XIN YI

Date: 24/4/2024

 Signature of Co-Supervisor

Name: _____

Date: _____



UNIVERSITI TUNKU ABDUL RAHMAN

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