



Human-Computer Interaction

(SECV2113)

2024/2025 Semester 1

Phase 3: Conceptual and Physical Design

Group 1: TOO

Student ID(s)

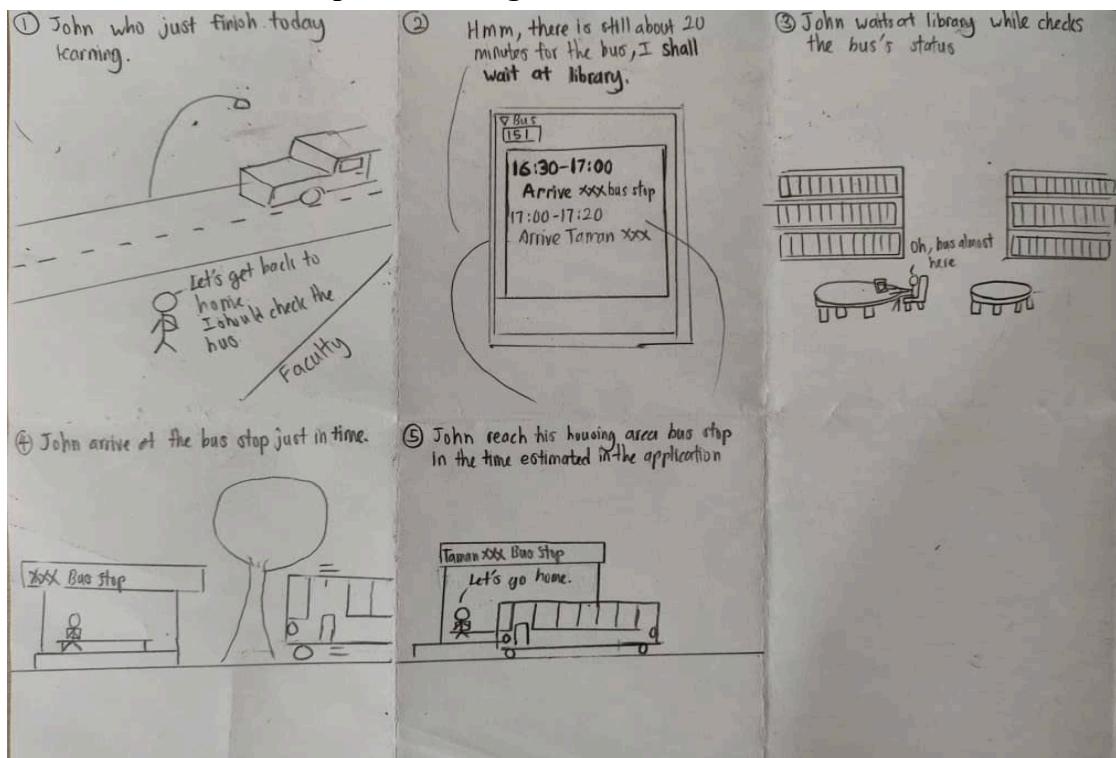
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1.0 Storyboards

1.1 Task 1: Public Transport Planning



Scene 1

User just finished today's class, wanted to check the bus schedule and current status.

Scene 2

User opens the application, searching the specific bus to get its real-time information.

Scene 3

By having the real-time update of bus status, user could use their time more wisely.

Scene 4

User able arrive at the specific public transport station just in time.

Scene 5

User reach at destination near as the real-time update information provided by the application

1.2 Task 2: Report Problem Faced



Scene 1

The user is walking back to their home after work.

Scene 2

On the sidewalk the user is walking on, there appears to be a fallen tree that has blocked the whole sidewalk, making the user to walk around it.

Scene 3

There is not any reporting hotline number to be seen. The user wanted to help in solving the problem.

Scene 4

The Smart Community Assistance app have a report problem faced in community function.

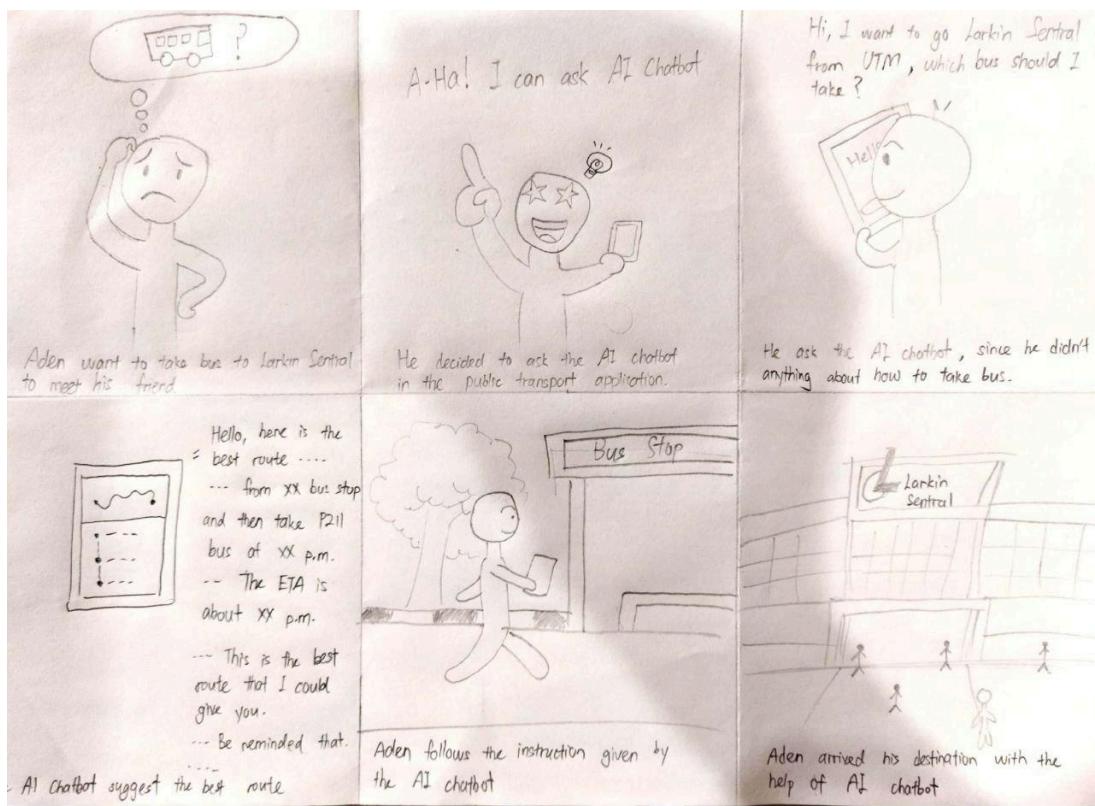
Scene 5

The user snaps a picture of the problem, writes a suitable description, and pinpoints the happening location. Then, the user submits it.

Scene 6

After a few days, the fallen tree has been moved away, thus the sidewalk is accessible again.

1.3 Task 3: AI Chatbot



Scene 1

The user tried to figure out how to take public transport since the user had no experience.

Scene 2

The user decided to ask an AI chatbot and see if the AI chatbot can give him instruction.

Scene 3

The user gives the AI chatbot information about where to go and any other detailed information.

Scene 4

The AI Chatbot will suggest the best route to the user, the ETA of the bus, which bus stop to wait for the bus, and also some detailed information about accessibility for special needs.

Scene 5

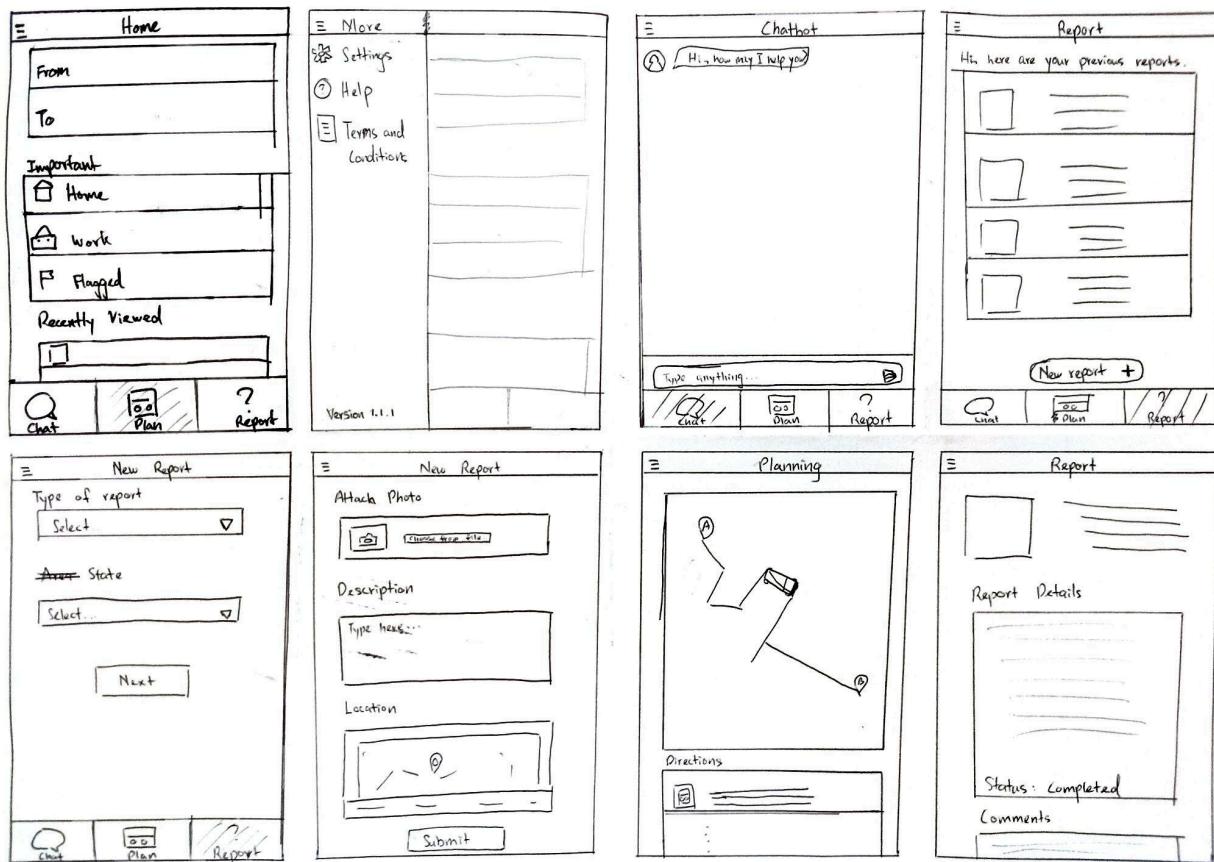
Users follow the instructions of the AI chatbot and head to the particular bus stop at the time given.

Scene 6

After boarding the bus, follow the route and get off the bus once reaching the destination.

2.0 Alternative Design

2.1 Lee Jian Ai



Screen 1

This page will show the default landing page of the application, which is the home page, or also the trip planning page. On this page, there are a few important parts: where the trip starts from, where the destination is; the important places that users have saved, and their recently viewed places. On the bottom panel, it is the main tabs, which are the chatbot page, trip planning page, and reporting page. The top left corner also housed the hamburger menu.

Screen 2

When the hamburger menu is clicked, it will show the user three more functions, along with the current version of the app on the bottom. The functions include settings, help, and terms and conditions.

Screen 3

This is the AI Chatbot page, where the users will get to chat with you to gain more information about the application and help the users navigate. It is also integrated with a text-to-speech function, which will help those with special needs.

Screen 4

This is the report page, where if the user has any previous reports, it will be listed with the picture they attached, along with a brief description. On the bottom of the page, a button that prompts the user to file a new report is shown.

Screen 5

On the new report page, the user will be given two required choices, the first being the type of report, and the second being the state where the reported cases are in, to make it easier for the administrators to sort it to their respective council. The next button will light up when both of the questions are answered.

Screen 6

On the continued page, the user will be greeted by 3 mainframes. The first part asks the user to attach an evidence photo, where the user can choose to take the photo directly or choose from their local files. The second part is the description, and the user is required to give the details of the problem they have found. The last part is the location, where users will get to pinpoint the exact place where they encounter the problem. After all the details are filled in, the submit button will light up and be ready to be clicked and submitted.

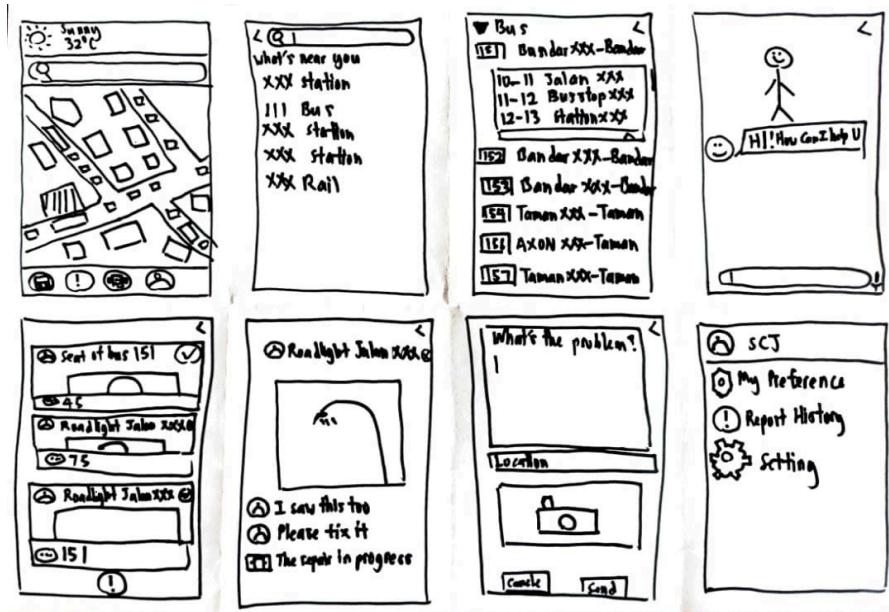
Screen 7

This is the planning page, which will continue from the home page if the user has provided the trip details and hit search. This page will be taken up by the integrated Google Maps API, with the exact route and where the location of the public transport will be shown. The lower part will be the directions to guide the user through their journey.

Screen 8

This page is for the users to check what they have written in their report, and check the status of it, along with some comments from other community members.

2.2 Sou Cheng Jie



Screen 1

This is the first page users will encounter when opening the application. First, there is the current weather and temperature shown to users. The second part of the page is the search bar for users to search the specific things that they need. Below the search bar, there will be a map that shows the current road situation at your location while showing nearby stations/bus stops and buses on the road at the same time. The below part of this page contains 4 icons, starting from the left, the first is the bus icon for real-time public transport tracking sessions. The second icon with the exclamation mark is for the community report session. The third icon will be the icon of a robot that is for the AI chatbot session. The fourth icon is the icon for the user profile.

Screen 2

This page is the page when users use the search bar function. Here, users can search for the specific station, bus, and many other things if the user knows the code or the name of the specific public transport and the station. User can press the < beside the search bar to back to the first page.

Screen 3

This page is showing the layout for the real-time public transport tracking session. At the first part of this page, user can press □ to select the public transport they needed for example here the bus. When users press the specific bus, there will be a list of the public transport real-time information. When user do not want to see the list they can press the bar located at the bottom of the list to close the list. User can press the < at the right upper corner of the page to back to the first page.

Screen 4

This page is the page showing the layout for the AI chatbot session. At the page, the user can see an AI avatar at the middle of the page. There will be the chat record for the AI chatbot and user below the AI avatar. After that, at the below part of the page, there is the input session for the user to ask their questions. Users can use the word key for their questions or ask the questions in voice by pressing the microphone icon beside the word bar. User can press the < at the right upper corner of the page to back to the first page.

Screen 5

This page is the page showing the layout for the community report session. For community report sessions, users could see the other users' reports at the same time. At each report column, there will be 2 types of icons which are ✓ and X indicating the progress of the report. Each report column also contains the number of comments of other users at the below part of the column. At the most below part of the page, there is a button with an icon ! to let users make their report. User can press the < at the right upper corner of the page to back to the first page.

Screen 6

This page is the page showing the report details of the users when pressing the report column. This page will show the reporter's account name, the specific destination or public transport facilities, the photo and the description for the situation the user faced. The ✓ and X icon beside the specific destination or public transport facilities indicating the progress of the report. Below this part, there will be the comment sections for the other users and there will be a special robot icon comment which will have a special comment with a robot profile saying the current progress of the report. User can press the < at the right upper corner of the page to back to the first page.

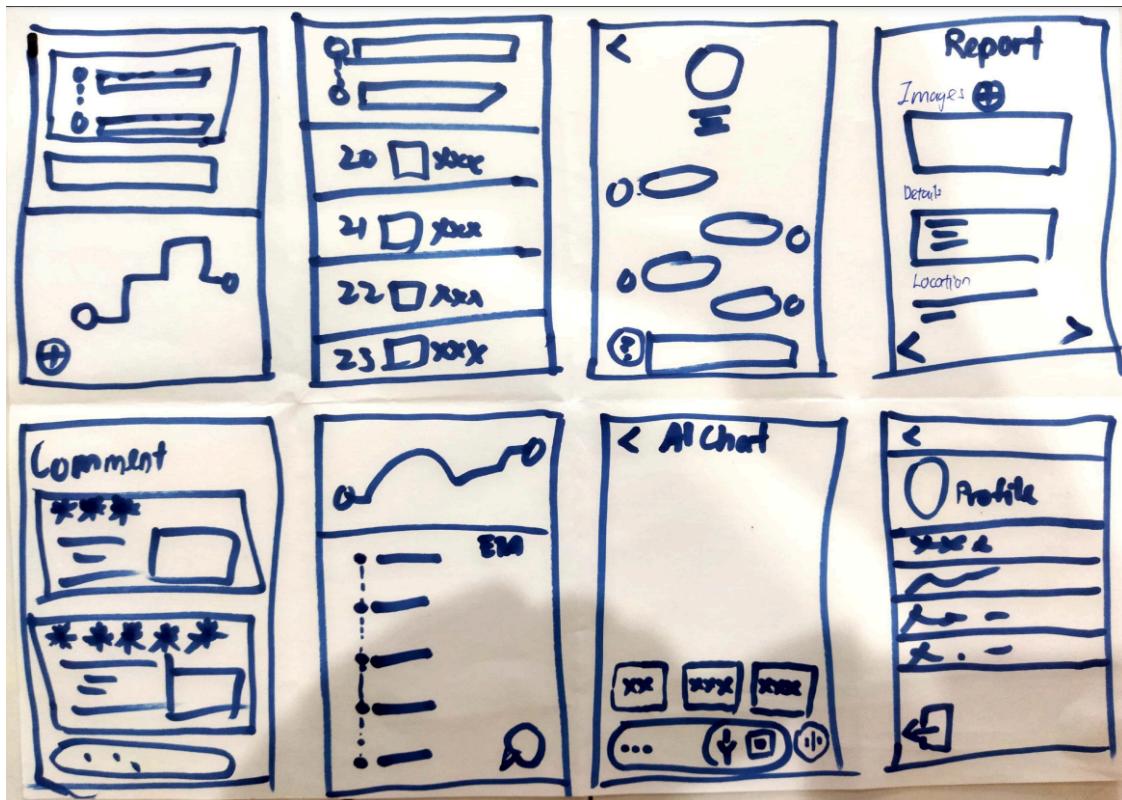
Screen 7

This page is the page for user reports. On this page, there are 4 sessions. The first session is the description of the problem users faced. Below this session is the part to ensure the specific location or public transport user encounters the problem. After that, there will be the photo session to let users put the image of the problem. When all the things have finished, users can choose to submit or cancel the report. User can press the < at the right upper corner of the page to back to the community report page.

Screen 8

This page is the page for the layout of the user profile. At this page, the first part will show the profile picture and the user name. After that, users can change the theme color of the application by pressing My Preference to change. Report History is to let users track their reports status. Setting will be the part to let the user to delete the account or check the version of the application.

2.3 Liew Choon Pang



Screen 1

For the first screen, the upper part will prompt the user to enter the start location and destination. Then, press the “SEARCH” button. At the lower part, the application will then show the route to the destination point, and how long it takes for the route. At the bottom left corner, the plus(+) button will show the user all the trips available, which will show in screen 2.

Screen 2

Once the user key is in the start location and destination, this page will show all the search results, including the code of the vehicle, the time of arrival, the stops/terminals of departure.

Screen 3

This page will let the user contact the customer service, if the users got any problems regarding the application, they can ask customer service by chat or call.

Screen 4

This page is for making a new report, users are required to enable location service for accurate position, or they can type in manually. Users are required to take pictures of the problems and state the details about the situation. Once all the required information is filled in, users can click the next button.

Screen 5

This page will allow users to leave reviews or provide comments in several contexts, depending on the purpose. To leave a review, you must navigate to a location on the application. Select the option to "Write a Review" where you can provide a star rating, add text comments, and attach photos. Comments here are typically public and help other users decide on visiting or using the service.

Screen 6

The upper part of this page will show the direction of the selected route and the lower part will show all the bus stops along the route. All the stops will be listed with ETA.

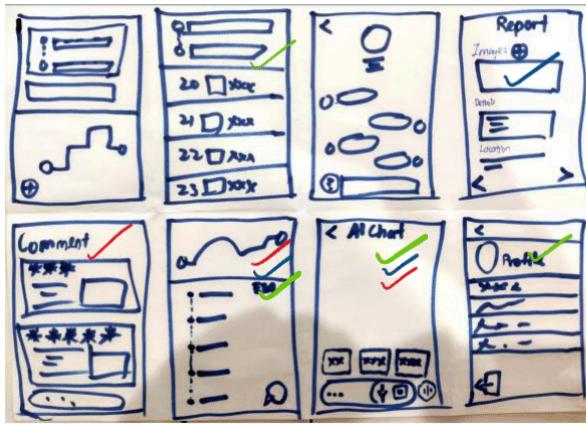
Screen 7

This page is the AI chatbot, the rectangles are suggestions/quick actions for the user, these are context-based suggestions or popular queries you might want to try with the assistant. Tap one of these options to explore further without needing to type or speak a command. At the bottom, the input bar, user may type, speak or upload a photo to the AI chatbot. User may click the top left arrow to quit this AI chatbot.

Screen 8

This page will show the profile of the user, at the top will show the profile picture and name of the user and then go down will have Settings, About, Help, Edit Profile and so on. At the bottom left corner, the icon functions as logout.

2.4 Scan of voted design layouts



1. Lee Jian Ai - voted for Liew Choon Pang and Sou Cheng Jie

Reason: Their design will give a good user experience and the design is detailed enough.

2. Sou Cheng Jie - voted for everyone

Reason: Everyone's design has its own details, all designs combined together should result in a better one.

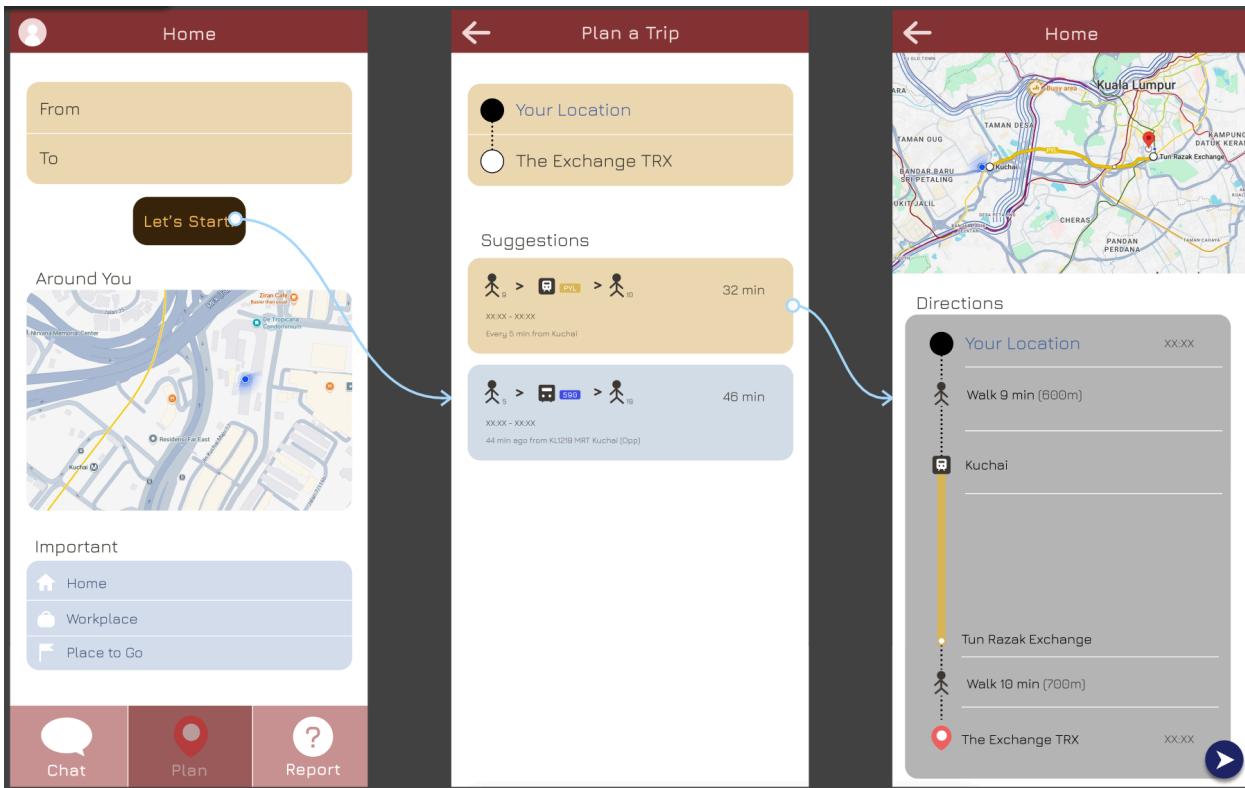
3. Liew Choon Pang - voted for everyone

Reason: All of the designs are nice, and if all of them are combined neatly, the best design will be the product.

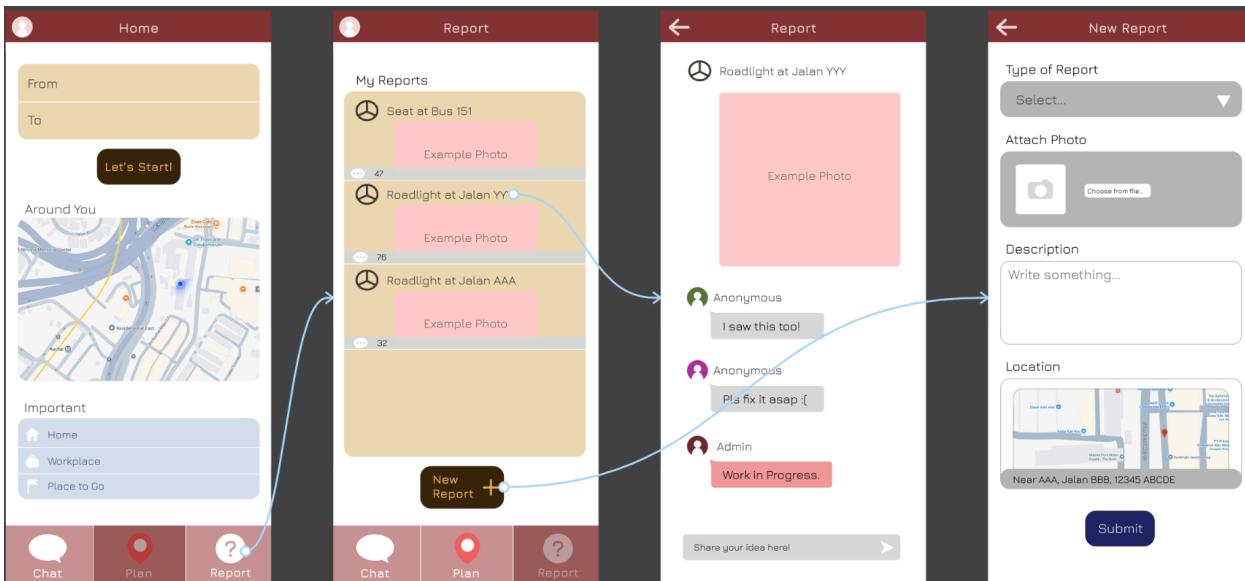
Result: We decided to use Sou Cheng Jie's design as a base, then combine all of the good parts from the other's design to make the wireframes.

3.0 Wireframes

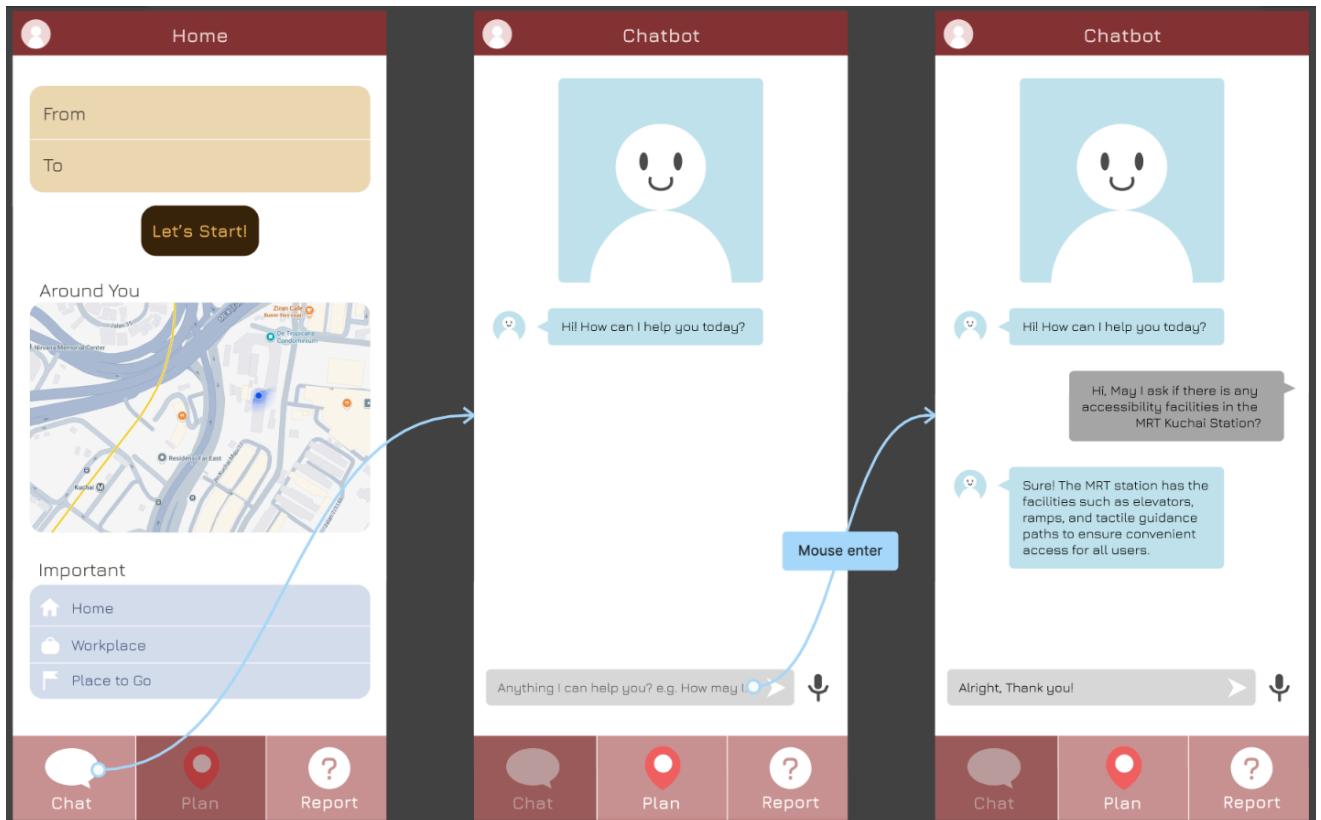
3.1 Task 1: Public Transport Planning



3.2 Task 2: Report Problem Faced



3.3 Task 3: AI Chatbot



3.4 Justification of Design

For the design of our application, we prioritize intuitive usability and user experience, we achieve this by using Gestalt principles, Shneiderman's Golden Rules, and established usability goals.

First, to ensure the application feels visually consistent and easy to navigate we apply Gestalt principles. For example, we used similar-looking icons for features like the AI Chatbot, reporting, and trip planning, so users can quickly recognize what each icon does. Moreover, the related features are grouped together. For instance, all the main functions are accessible through the bottom menu, so the users do not have to spend time on finding those buttons. We make the interface navigation flow smoothly with screens connected in a logical order, letting users move between tasks like planning a trip or reporting a problem without feeling lost. We also kept the interface clean and used contrasting colors to make important buttons and icons stand out from the background, so it's easy to focus on what you need to do.

Next, we also followed Shneiderman's Golden Rules to create a design that's practical and easy to use. Consistency was a main priority, for example, things like the microphone icon for voice input and the placement of back buttons are exactly where you'd expect them to be. The app provides clear feedback so when you submit a report, you'll see a confirmation message along with the report's progress status. If you're a regular user, we've added shortcuts, like quick access to saved locations or your reporting history, to make repetitive tasks faster. And if you make a mistake, it's easy to go back or undo actions, like editing a report before submitting it or returning to the previous page with one tap.

Finally, we wanted the app to feel advanced and accessible. The AI Chatbot supports both text and voice inputs, which is great for users who might prefer speaking over typing or have accessibility needs. The real-time updates in the trip planning feature help users make informed decisions, like when to leave for a bus. And the reporting feature makes it simple for anyone to report an issue in their community, with clear steps to attach photos, add a description, and pinpoint the location.

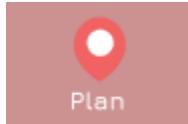
In conclusion, we aimed to create an app that feels easy to access and works seamlessly, whether you're professional or not. By focusing on accessibility, clarity, and efficiency, we're confident the app delivers a great experience for all users.

4.0 Interaction Metaphors



Chatbot Icon

Function: Direct user to the AI Chatbot session to let users be able to ask their questions.



Plan Trip Icon

Function: Direct user to the public transport planning session to let user plan their trip using public transport with real-time update information of the bus.



Report Icon

Function: Direct user to the report session to let users be able to see others' reports and make the new report they had met at the same time. Users could view the progress of the report in the comment box.



Return Button

Function: Let users be able to go back to the previous page of the current page.



Trip Start Button

Function: When users found the desired route they needed, users will press this button to let the application start providing navigation to users.



Microphone Icon

Function: Let users use voice as the input for the questions they wanted to ask to the AI Chatbot instead using keyboard input only.



Enter Button

Function: When users finish their sentence, users can press this button to send the message. This can help users to send the correct message they wanted to send before pressing anything on the keyboard or accidentally send the message due to wrong input.