SCSV 2113

HUMAN COMPUTER INTERACTION

(Session 2020/2021 Semester 2)

School of Computing
Universiti Teknologi Malaysia

P3 – CONCEPTUAL AND PHYSICAL DESIGN

TOTAL PRO FOOD DELIVERY SYSTEM

(Section 01)

GROUP 02 (0.0)

Prepared by

AFIF HAZMIE ARSYAD BIN AGUS	A20EC0176
AHMAD AIMAN HAFIZI BIN MUHAMMAD	A20EC0177
HONG PEI GEOK	A20EC0044
LOW JUNYI	A20EC0071
LEE JIA XIAN	A20EC0200
MUHAMMAD IMRAN HAKIMI BIN MOHD SHUKRI	A20EC0213
YONG ZHI YAN	A20EC0172

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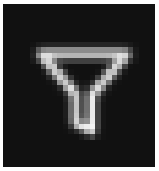
1.0 Interaction Metaphors

We use a variety of interaction metaphors to further enhance our explanation and justification of such function by providing basic and well-known icons used in the Total Pro Food Delivery System application. This is essential to our workflow guidance for the users to have a sense of familiarity of using the application. In addition, this method helps users to feel at ease without lengthy words. Arguably, we implemented the icons and diagrams more often for users satisfaction, easier for users to communicate and initiate actions within the application and providing an easy access platform to do any debugging processes.

Our main focus when developing the Total Pro Food Delivery System application is to improve and provide the best possible satisfaction for the users. These criterias include management, observation, regulatory and experience. All the main functions of this app are categorically illustrated at home screen, decreasing the amount of time spent for users to discover them. To illustrate the following claim, we implemented some commonly used icons such as a house icon for home button, pie chart for displaying the price of food or total expenditure of the user, a single puzzle representing add ons and wallet icon represents any kinds of currency transaction options to be perform like paying for food and top up credits. These icons are particularly helpful as users can use it as a shortcut. Thus, reducing the number of steps of visual interactions needed to further accomplish users desired action.

Apart from that, the designated food delivery system is also easier for users to communicate and initiate actions within the application. The users are provided with some features objectively for the users' peace of mind. For example, users are able to manually adjust the settings of this application at the gear icon that symbolizes settings button on normal computer interface. Apart from that, this application includes Augmented Reality (AR). Users are given the option to view certain items in certain angles either using the AR or normal view. The icon for AR is a 3D cube. Users can virtually view the food before deciding to place it in their order or not. During this view mode, users can also rotate the food in 2D shape or 3D shape or even adjust the size of the food using 2D rotate button, 3D rotate button and magnifying glass button respectively. Placing order button is shown with an arrow pointing into a box and discard button represented as a dustbin icon to finalize the user's decision upon placing their legitimate food on delivery.

Summary of Metaphors:

Metaphor	Justification
Login via Google 	This Google logo tells users that they can login with a Google account and this is a common logo that is known by most of the people.
Take photo	When a user needs to take a photo, they can press this icon and the meaning is the same as the camera which is an open camera function.
Face recognition 	During the process of registration and payment, this icon tells the user to scan their face in order to proceed to the next stage and it clearly shows a face and scanning process.
Home button 	As illustrated by this home picture, it will bring the user to the homepage and its shape is the same as the real world home.
Search 	This can help users to find the food they want by typing and most of the applications are using this icon to help users understand.
Augmented reality(AR) 	Users can press this button in order to view food in AR form and it is accompanied with a 3D cube which will lead the user to know what will happen after pressing this.
Filter 	This icon is about a filter function which helps users to select their food. It is a shape with a wide rectangle at the top and becomes shallow when it comes to the end so users will

	know this is the process to choose their best menu.
Help service 	Users can click this when they met a problem and this enables users to have a talk with the staff of the app.

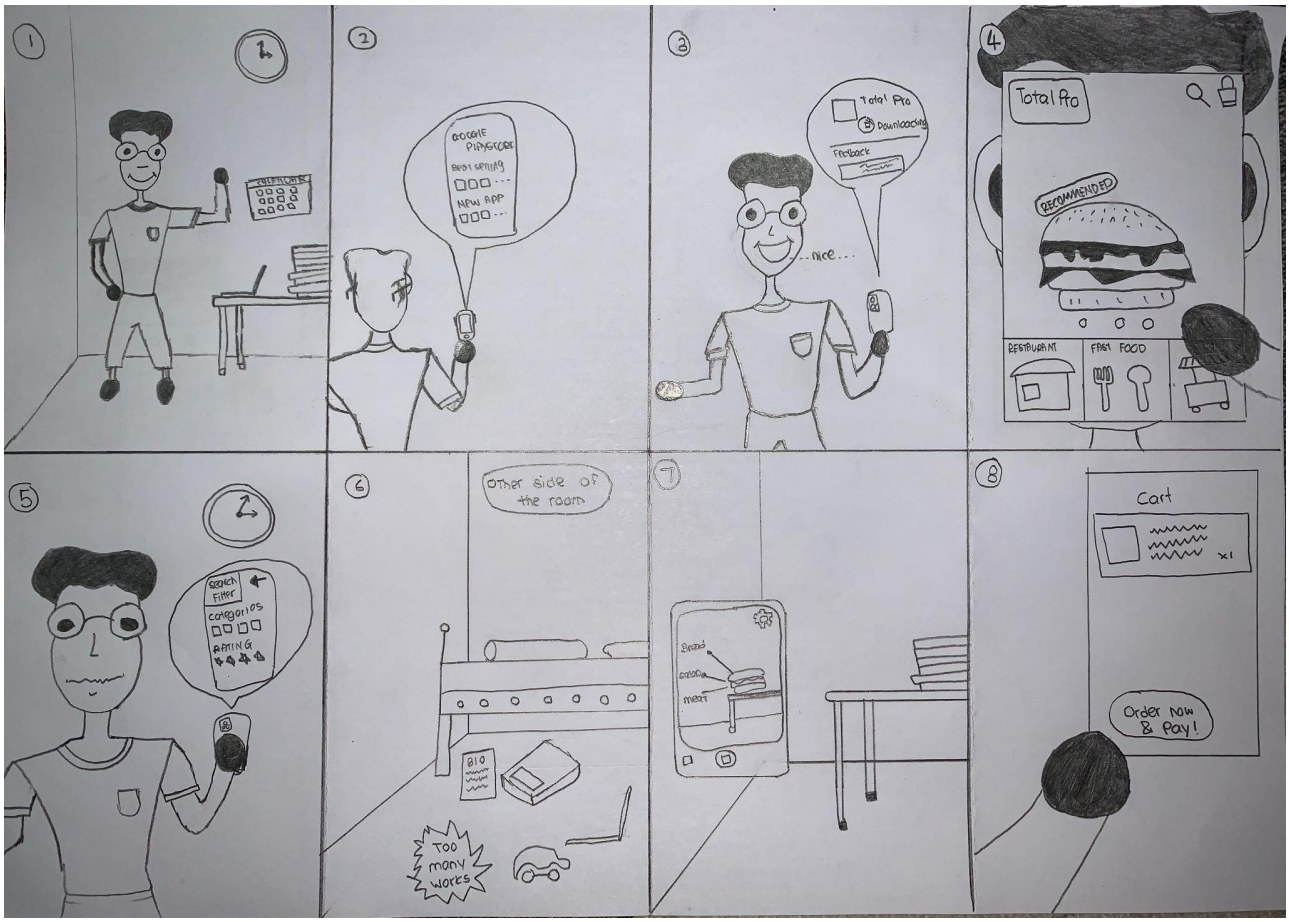
2.0 Storyboard

2.1 Task 1: Register as member

1. Joseph is a careful person and always worries about being scammed. Thus, he will not buy something online easily as he is afraid of leaking personal information.
2. However, Joseph is an office worker and responsible for many tasks and sometimes he does not have enough time to take away food.
3. One day, his colleague found his difficulty and suggested to him an application called Total Pro Food Delivery System.
4. Joseph downloaded that application and started registration. This app enabled Joseph to register through his Google and he knows Google is expert in data security.
5. During the process, he found that the app required him to upload his IC and he felt a bit worried but he still proceeded with it.
6. Joseph saw the app also provided a face recognition function and he thinks it will be safer as he does not need to worry about IC or handphone being stolen.
7. During payment, Joseph is satisfied with the requirement of face recognition before completing the payment. He feels this function will reduce the chance of being scammed.

8. Finally, the thing that he needs to do is just wait for the arrival of food and this app helps him to overcome the safety problem and also save his time.

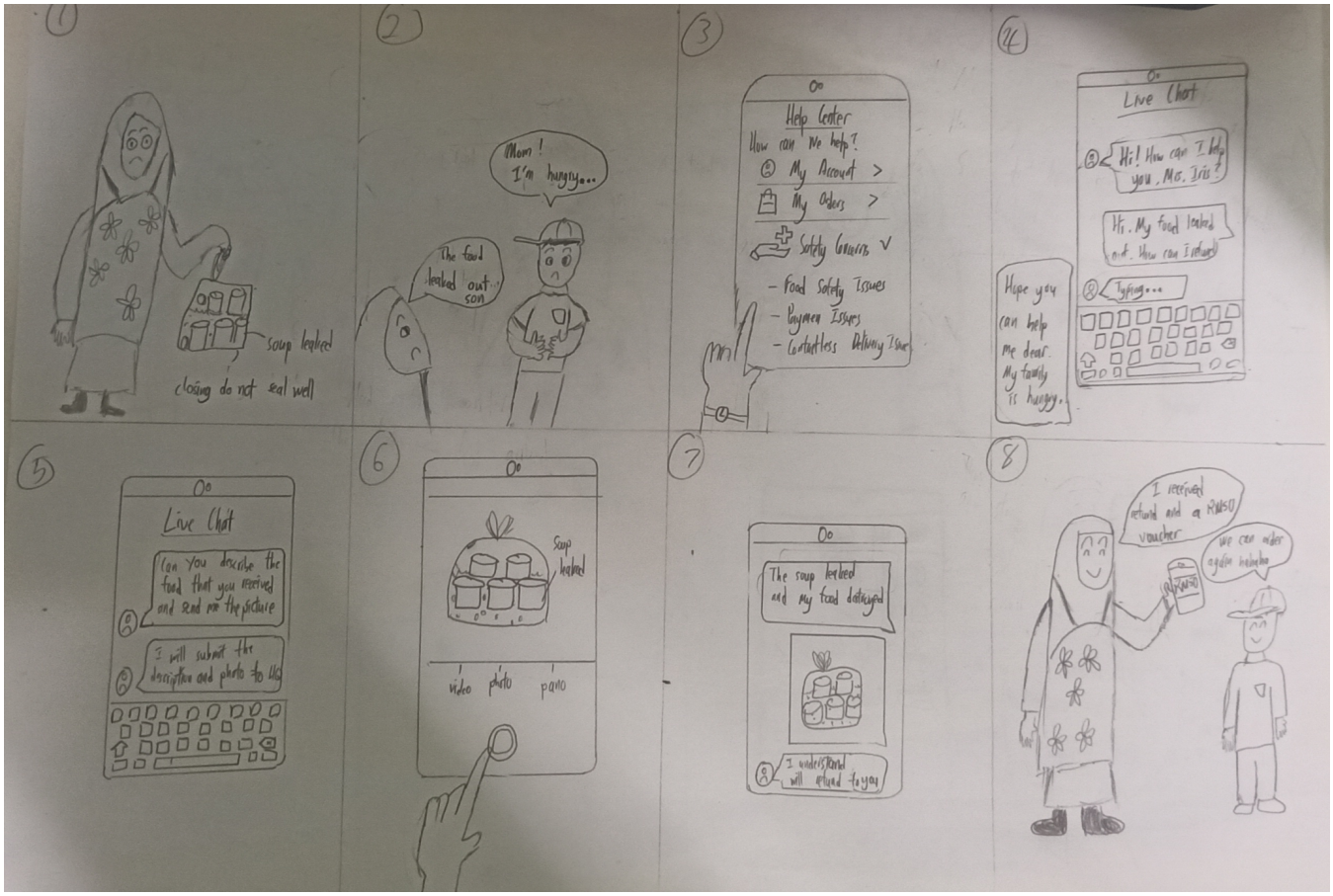
2.2 Task 2: Making an order



1. Vincent is a university student studying for a Bachelor Degree of Electronic Engineering in University Technology Malaysia with a ton of projects and assignments at the moment because it was the last semester of his study. This means that he does not have free time or extra time to waste it on anything else.
2. With that being said, he is trying to order food via an online food delivery application for lunch. Vincent picks up his phone and searches for the right application.
3. He discovered a delivery application in his mobile store called Total Pro Food and started downloading it.After downloading and registering an account on the application, Vincent tried to explore the homepage of the app.
4. Luckily, the application homepage is ‘user friendly’ which means it does not contain many buttons and new users can easily navigate through the application without any problems. Vincent does not have to spend more of his time to understand the application.

5. Vincent tries to search for his favourite fast food brand which is ‘Subway’ on the search box. He used the filter function and tick on the subject that he desired.
6. Upon choosing his lunch food from the restaurant menus, he is trying to see the content of his food. This is because Vincent is trying to eat healthy that can help him study and provide more energy for him to do his project and assignment.
7. The new AR function implemented in Total Pro Food enables Vincent to project the food on a flat surface and see it in 3-D image with information about the portions of the food. Vincent can easily get to know about the food content using the AR function.
8. After choosing and confirming about the food that he wants, he then continues to click on the order button and make a payment. Lastly he just waits for the food to arrive while doing his assignments.

2.3 Task 3: Use help services

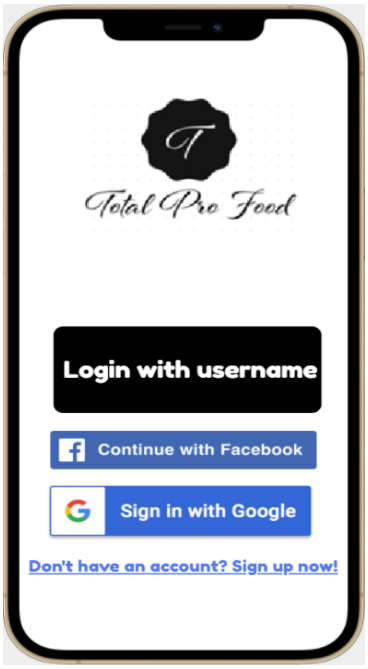


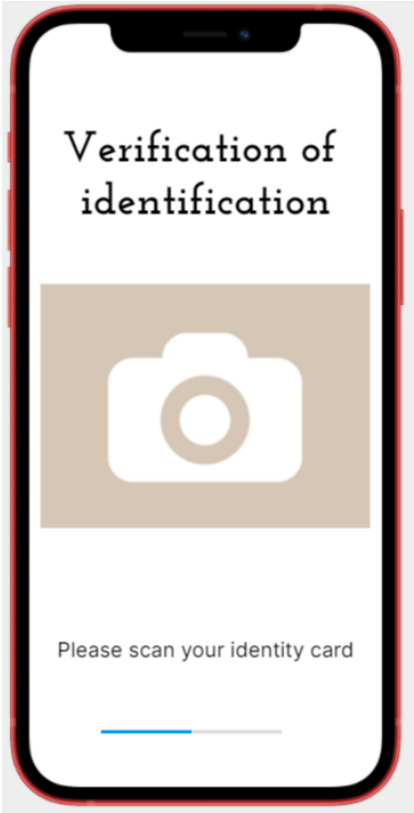
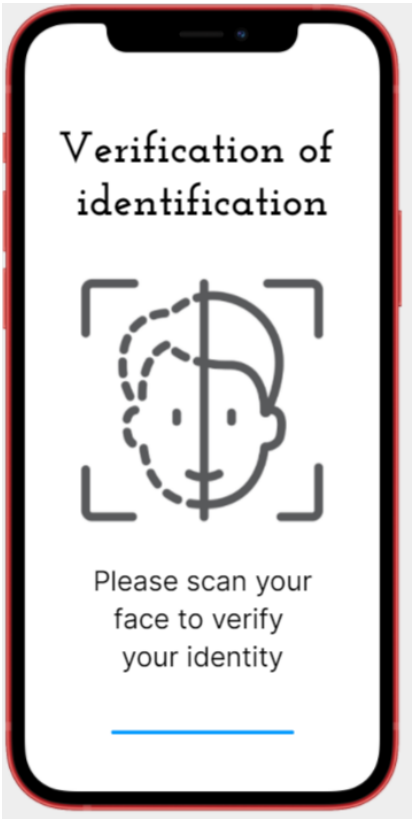
1. Mrs. Iris received a packet of food from the food delivery rider. But the soup had leaked out and the closing did not seal well and the rice poured out to the plastic bag.
2. Mrs. Iris was disappointed as the food was wasted and she needed to reorder the food but her family can't have their lunch in time.
3. She searches for "Help Center" and proceeds to "Safety Concerns" to make a report about her food. She continues by selecting "Food Safety Issues".
4. She selected "live chat" to talk with the Total Food Delivery Apps customer service agent.
5. In this process, the customer service agent tells Mrs. Iris to describe the food that she received and send a picture of the food as the proof of complaint.
6. Thus, Mrs. Iris takes a photo of the food and sends it to the agent.

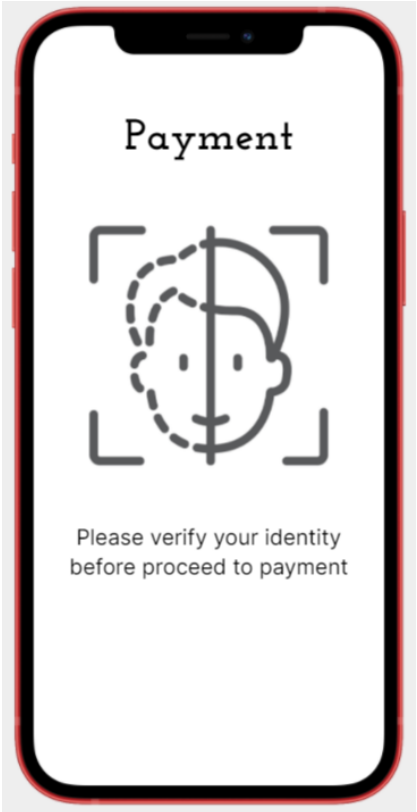
7. The agent understands the situation and will submit these issues to the return and refund department.
8. After the whole process had taken place, Mrs. Iris received the refund and received one more RM50 voucher as an apology.

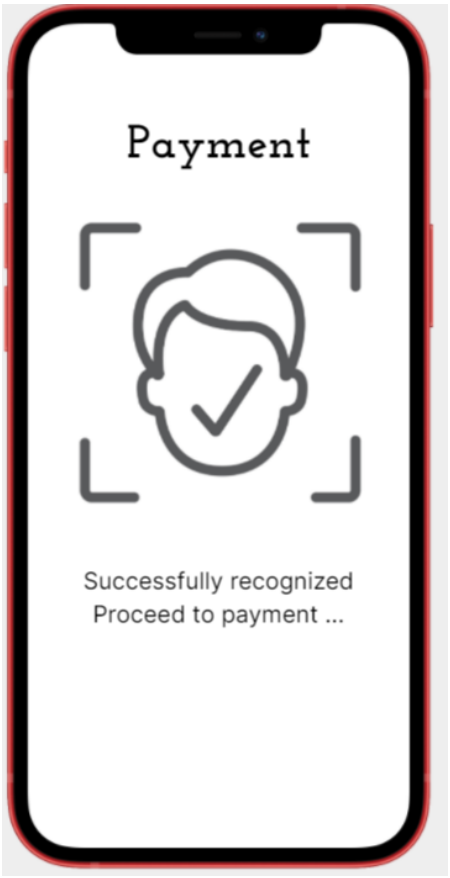
3.0 Interface Design

3.1 Task 1: Register as member

	This is the interface of the login phase. The user is required to choose either login or sign up as a new member if he does not own an account in this app. He can choose to sign up as a member via his Google account or Facebook. He also can sign up with the form provided.
	This is the interface of the sign up form. The user is required to enter his personal information including the user id, password, mobile number and email.

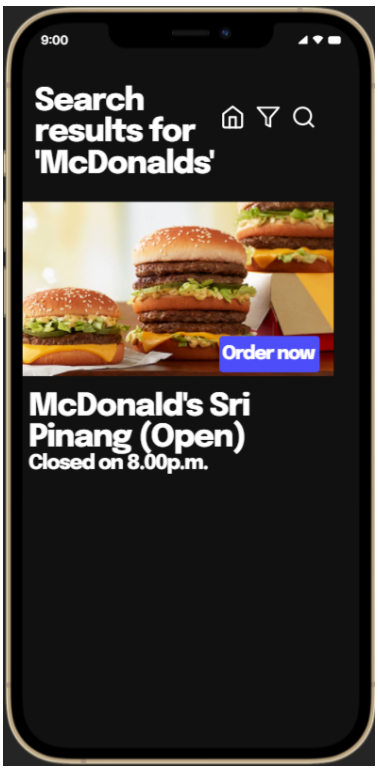
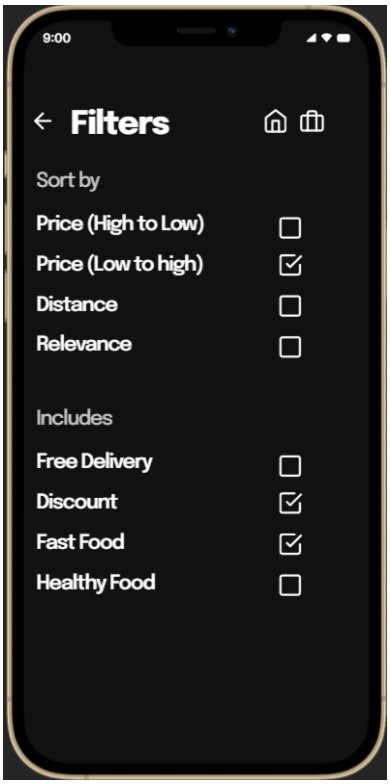
	This is the interface of verification of user's identification. After the user has signed up via Google/Facebook account or the form, he is required to scan his identity card for verification purposes.
	This is the interface of verification of user's identification. After the user has scanned his identity card, he is required to scan his face using the front-face camera to further verify his identity.

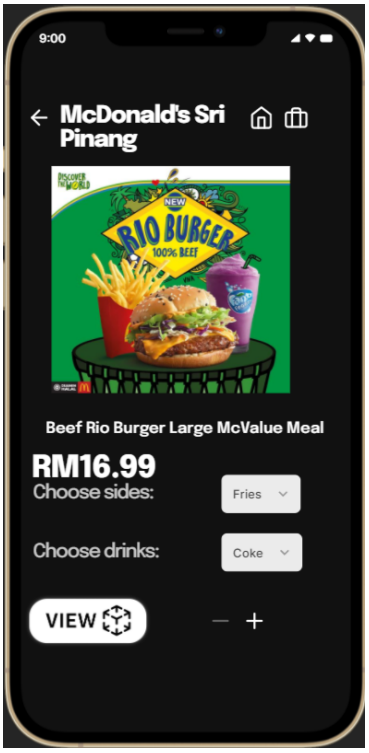
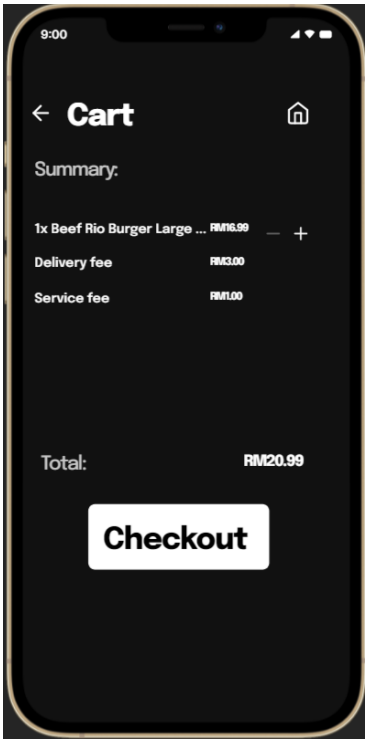
	This is the interface of detecting the user's location. After the user has logged in or successfully signed up as a new member, he will be directed to this interface to detect his location for delivery purposes.
	This is the interface of payment, which will be shown after the user chooses to check out. The user is required to scan his face for verification purposes before he can proceed to the payment via online banking, e-wallet, credit card, etc.

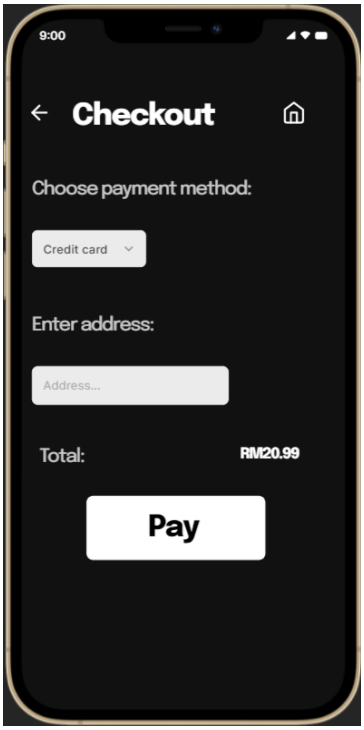
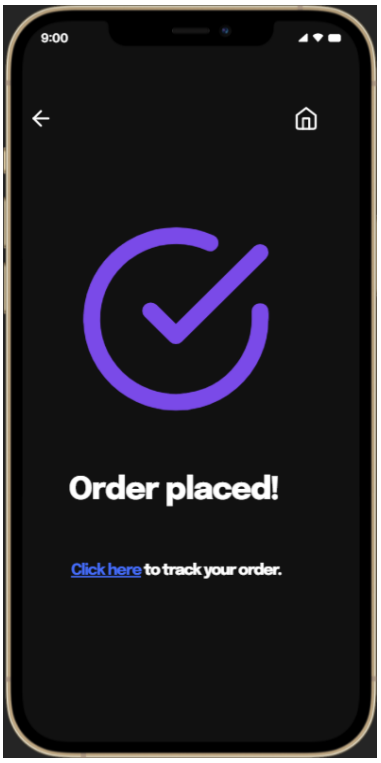
	This is the interface of payment in recognizing the user identity. After the user has scanned his face, the system will automatically recognize his identity and will only proceed to payment once it is successfully recognized. This feature enhances the security as fake identities can be prevented from placing the order successfully.

3.2 Task 2: Making an order

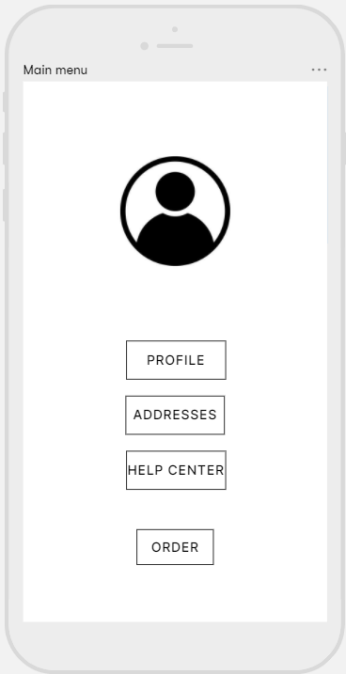
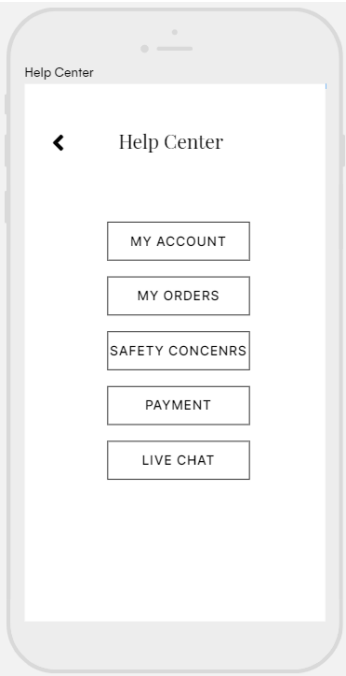
	Interface when users first launch the application. Users can choose to login with their created Total Pro Food account with username. Also, users can login into Total Pro Food by using their Facebook or Google account. This is to ensure users' first experience much easier.
	Home interface of Total Pro Food apps. Restaurant picks will be randomized every single day. Clutter-free, simple and easy to navigate home interface. More restaurants can be found by clicking at the search button at the top right of the home page. Placed at the left of the search button is the cart button. Click to see added items before check out.

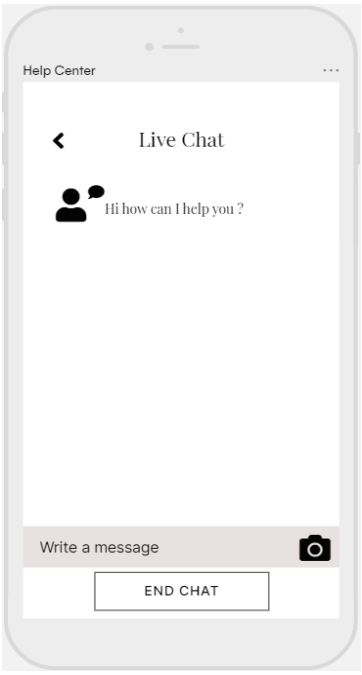
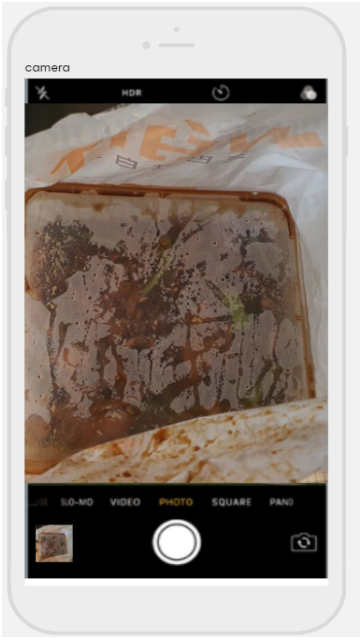
	Search results page. Nearby restaurants will be displayed. If there are other nearby restaurants, they will also be displayed and can be chosen as the users' wish. The filter icon is used for easier browsing.
	Filters feature helps users to find their desired food characteristics. This is handy especially if the users cannot make up their decision on what to eat.

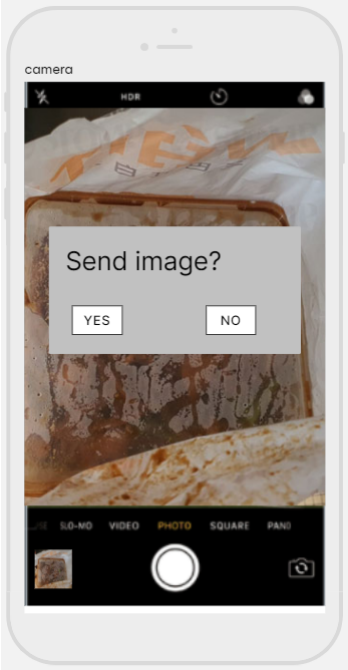
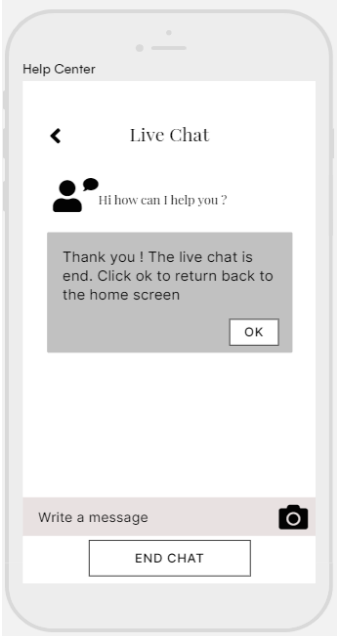
	Food selection menu interface. Users are able to customize and change the quantity of their order. To see the real-life portion and ingredients, users may click at the "View AR" logo. The apps will then use the phone's camera to display the food in the form of Augmented Reality. With that being said, users are now aware of their meal size and ingredients of their meal.
	Cart interface. Users can edit their order, see extra fees if any, check their order total or even store in the cart for future order. Users can proceed to the checkout page to make payment for their order.

	Checkout interface. Users are able to choose their desired payment methods such as online banking and credit or debit card. Users also must enter their valid address for the delivery to take place. Click pay to secure order.
	Orders confirmed will display as per shown. Users can track their order to budget their time.

3.3 Task 3: Use help services

1. 	This is the interface of the main menu. Users can update their profile and address here. Since the user in task 3 encountered some problems, he can click the “HELP CENTER” button to find help services.
2. 	This is the interface of the help center. The users can select the type of help needed according to their problem encountered. If the user has no idea, he/she can click the “Live Chat” button to communicate directly with the customer service’s staff.

3.  	In the live chat interface, the user can communicate with the staff by sending messages. The user can also take a photo by clicking the camera button. If the problem has been settled, the user can click the "END CHAT" button.
4.  	After clicking the camera in the live chat interface, the system will link to the phone's camera for the user to capture the image of food.

5.  	After taking an image, the confirmation message will pop up to get the permission from the user to send the image.
6.  	The "Thank You" message will pop up after the user clicks the "END CHAT" button. Then, the user can click the "OK" button to return back to the main menu phase.

3.4 Justification of interface design based on Shneiderman's 8 Golden Rules

1. **Consistency**

   When designing similar scenarios and sequences of action, aim for consistency by using recognisable icons, colours, menu hierarchy, call-to-actions, and user flows. This is important for users to get more familiar with our product, making it easier for them to achieve their objectives. For example, we used the search icon that the user is familiar with in our design.

Search icon

2. **Shortcuts**

   Shortcuts are created to decrease the number of processes to complete a task. Likewise, the user's desire to reduce the number of interactions and speed up the task. For example, we provided the home button for users to get back to the home screen easily.

Home button

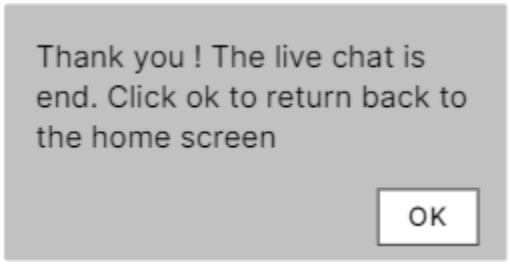
3. **Informative Feedback/Visibility of system status**

   Feedback is important to inform users what is going on and they can know what is the thing that the system does currently. For example, the progress bar used in our system can tell users about the current state.

Progress bar

4. **Dialogue**

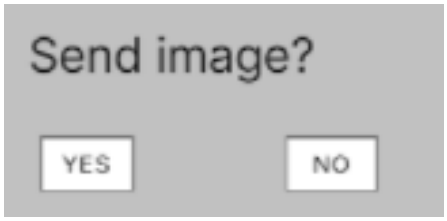
The informative feedback given to users at the end of a set of actions gives them a sense of accomplishment, a sense of relief, a signal to forget about contingency plans and options, and an indication that the path is clear to prepare for the next set of tasks. For example, a message will pop up to tell the user the live chat has ended.



Message to inform user

5. **Error Handling**

Error handling is used to avoid errors by telling or asking users what they want to do. It will find the problem and ask the user for confirmation. For instance, our system has asked users whether want to continue send image or not to avoid user send a wrong picture.



Message to confirm

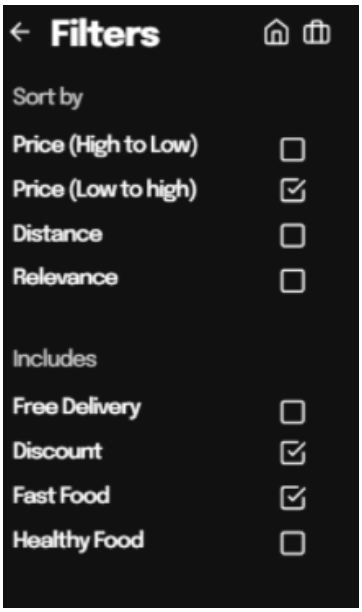
6. **Permit reversal of actions**

Permit reversal of actions aim to provide users with an easy way for reversing their actions. When users make a mistake, they can return to the previous stage rather than being "punished" by having to start over. For example, we provided the "Back" button for users to return back to the previous screen if they made an error (select wrong option).

"Back" button

7. **Support internal locus of control**

Users should have their freedom when using applications or the web. Thus, supporting internal locus of control is important for users to feel they are initiators but not just a respondens. For example, we provide the freedom for users to choose their favourite food by ticking the checkbox themselves.



Filter Interface

8. **Reduce short-term memory load/Recognition rather than recall**

Humans have limitations in memory, systems should minimize user memory by making things simple. For instance, our home page only shows the important message and if users want to know more, they should click the search icon.

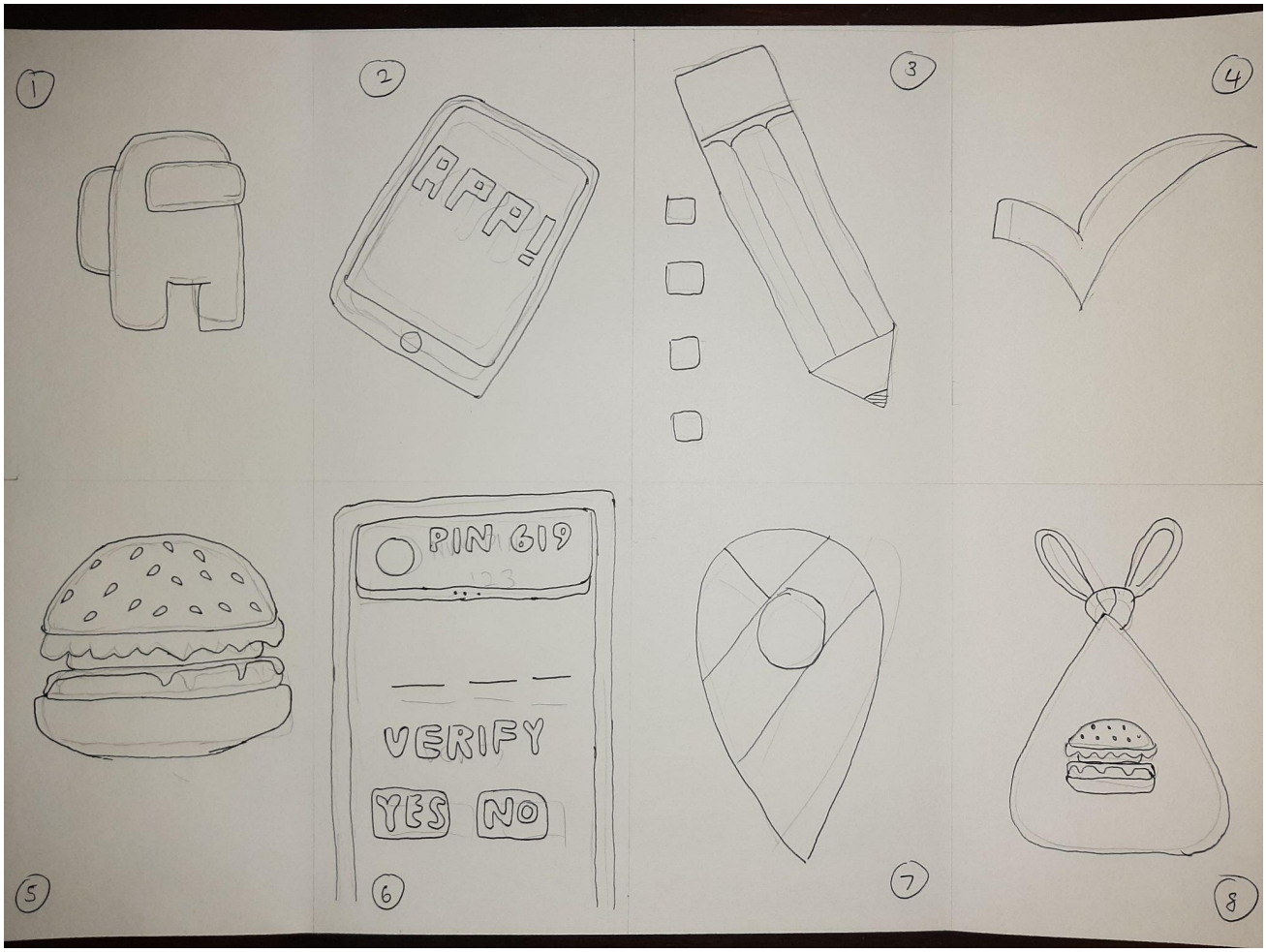
Homepage

4.0 References

Euphemia Wong (August 2, 2020). Shneiderman's Eight Golden Rules Will Help You Design Better Interfaces. Interaction Design Foundation. Available : https://www.interaction-design.org/literature/article/shneiderman-s-eight-golden-rules-will-help-you-design-better-interfaces

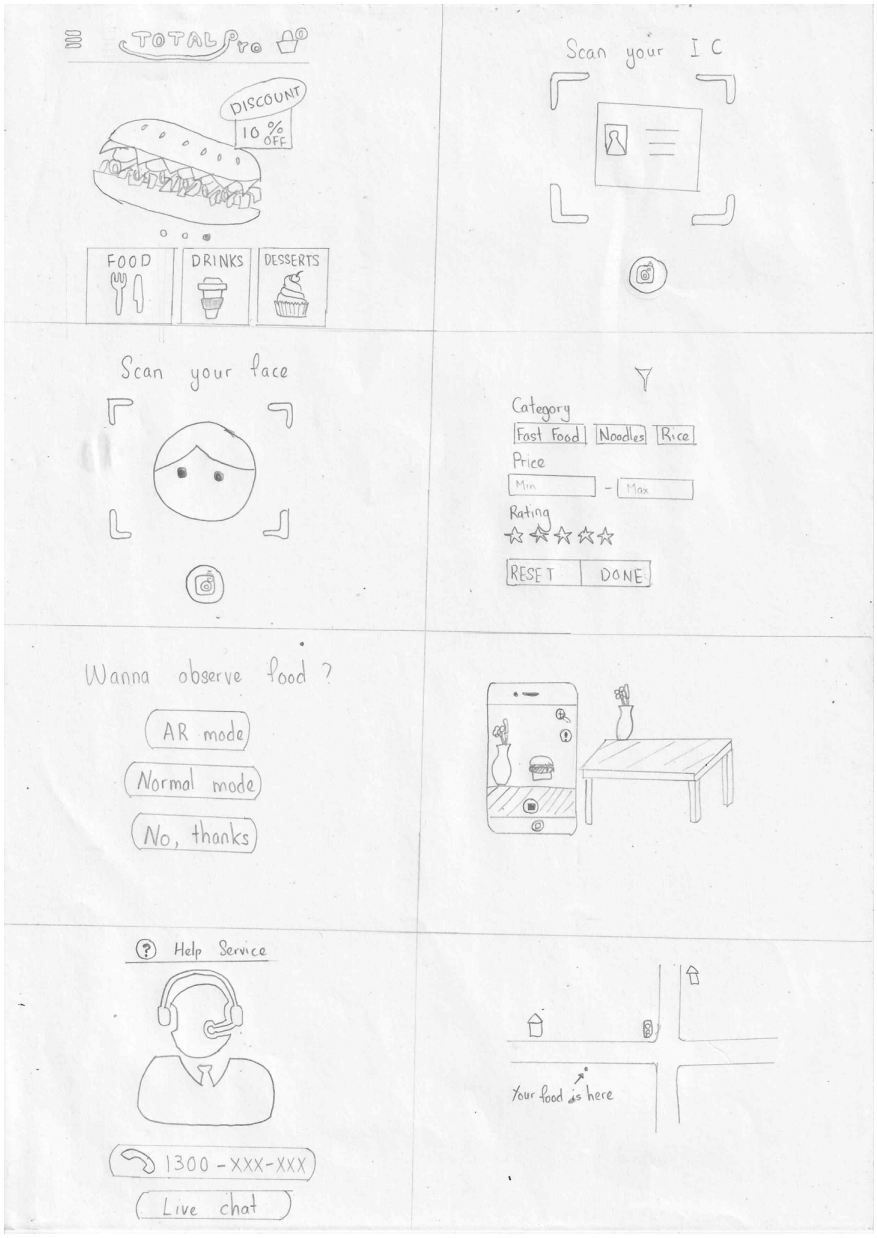
5.0 Appendix

Some of the interfaces sketched by our members:



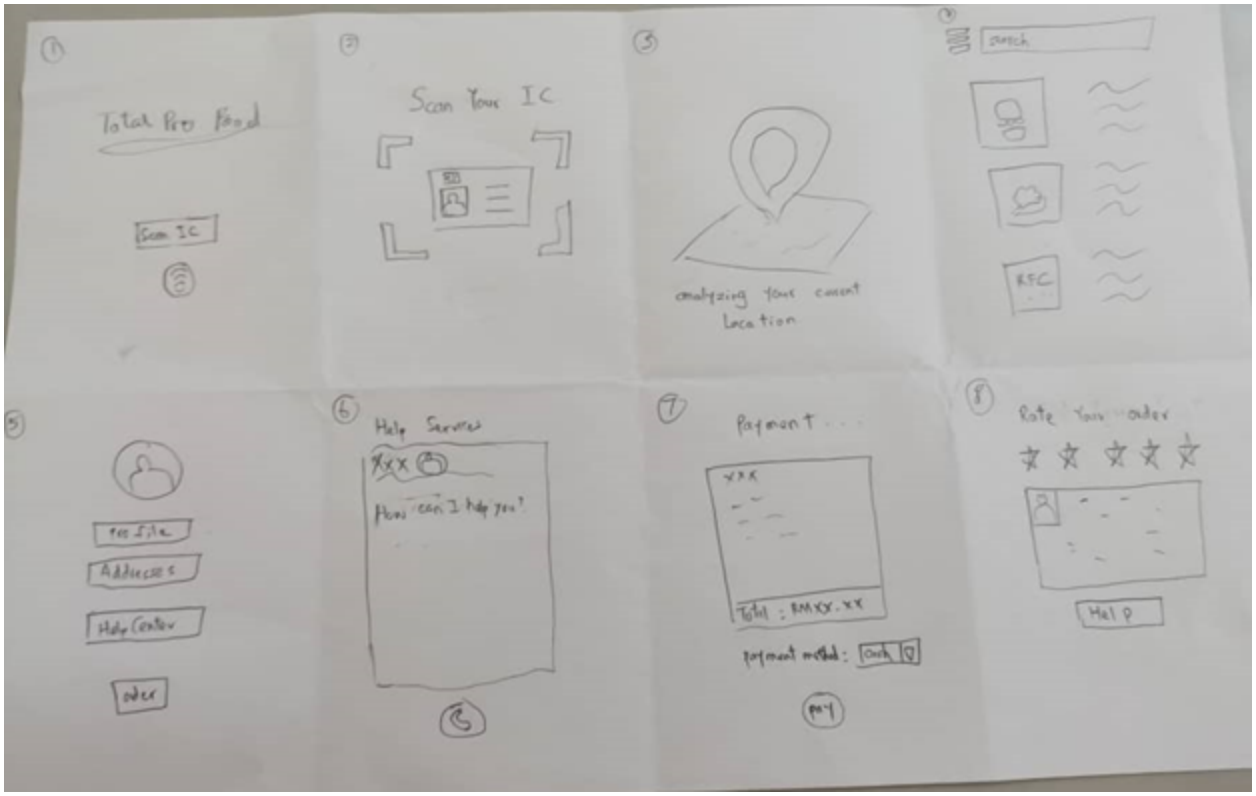
1. This is Red. Red is very concerned about his time management. Red likes to do everything according to plan. Strict with rules, Red prefers everything works automatically so Red can complete all tasks easily.
2. Red is hungry. Red found Total Pro Food Delivery System application. The apps promise simple but secure food delivery. Red is interested. Red quickly downloaded the app.
3. Red fills in all required information and allows all necessary permission especially IC photos, Red's face photo and location. Red feels frustrated to fill in the data but Red still finished it.
4. Red finally registered as a member.

5. Red wants a burger really much. Specifically the Kraby Patty Burger from Krusty Krab. Red places his order using the app.
6. Red only needs to verify his order. Red is amazed that he no longer has to fill in his information again whenever he reorders his food.
7. Red waits eagerly for his food while his phone displays his location and the food courier location. Food courier will find Red using location and his face photo.
8. Red gets his food. Red verifies his face before the transaction. Red has the option to pay cash or credit. Red has no cash so Red pays with his credit card.
9. Red is happy. Red is satisfied. Be like Red. Download the app today.



1. This is the homepage of our application. It will display the name of our system “Total Pro” and it will also provide some advertisements of discount food. Basically, it shows three options which are food, drinks and desserts. There is also an icon of the cart to show the order made by users. If a user wants to find out more functions inside our app, he can click the left top menu.
2. Interface that requires the user to upload his IC in order to complete the registration process. User can click the camera icon to scan his IC.

3. This is also an interface during the registration process to ensure the IC uploaded is matched with the user face and it will also appear during the payment process to make sure the identity of the user is correct.
4. Interface for ordering food. Users can customize or filter the list of foods by choosing which category, price range and rating that they wanted.
5. This is the interface to ask the user if they want to observe food by using AR or normal mode. If they don't want to continue to know the details of food, they can just choose the "No, thanks" button.
6. This is an interface which shows an AR environment. If the user wants to know more information about food, he can choose the icon below the magnifier because AR mode can let users interact with food in different dimensions.
7. If a user encounters an emergency problem when using our system, he can directly contact or have a live chat with our manager by calling the number provided.
8. This is an extra function of our system. It enables users to track their food by displaying a map to show the location of ordered food. Thus, users can estimate the time that food will arrive and prepare to take it.



1. This is the interface for the login phase of the TotalProFood app. We only need an IC and fingerprint to log in our app. You can scan your IC with the “Scan IC” button. The app will read your fingerprint and match it with the IC’s recorded fingerprint.
2. This is the interface to scan your IC. Once your IC is scanned clearly within the box, the system will record your IC automatically
3. After you log in successfully, the system will trace your current location for food delivery.
4. This is the interface to order food. The user can search for a specific restaurant at the top searching bar.
5. This is the Menu’s interface. You can update your profile, address, and enter help center here. If you want to make an order, just click the “order” button.
6. If you meet any problem, you can have a live chat with our customer service’s staff here. You can also make a call with the call button if you want to.
7. This is the interface to make a payment. The system will list all the prices and foods clearly and automatically total them up. You can choose your payment method too. Click the “pay” button to make the payment (it will trace your fingerprint).

8. This is the interface to rate your order. Once your order is completed, you can rate your order from 1 to 5 stars. The system will show the information of the store and delivery man. If there is any problem with your order, just click the “Help” button.