

# COSC368 Semester 2, 2024: Human Computer Interaction

## Assignment One

### Interface Design Concepts Café Self Ordering Kiosk

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## Background

A self-ordering kiosk is a type of point-of-sale (POS) public display that allows customers to place orders and make payments without the need for human interaction. These kiosks are commonly found in various locations such as retail stores, hotels, cafés, and airports. They are changing the hospitality industry through efficiency in customer self-service. A new café on campus, The CAF, sees an opportunity to leverage self-ordering kiosks to better serve their customers and improve operational efficiency. They have contracted your interaction design consultancy, Group 3, to design the user interface for their new self-service kiosks. The CAF is eager to understand the tasks their customers and staff will perform using the kiosks and would like to see some initial design concepts.

## Executive Summary/Abstract

The purpose of this report is to document the process of designing a self-service kiosk for a cafe. In order to successfully design and create a kiosk, the users have been identified to optimise their usage of the kiosk, through an efficient, intuitive and usable design. Additionally, the tasks that users partake in are identified and prioritised, so they can be taken into consideration for the design process. This document includes a brainstorm of conceptual ideas about the design of the kiosk before it is fully implemented.

The outcome of this report is a primary preliminary design that encapsulates all the important functionalities that the kiosk needs to perform best for its users. This outcome provides a starting point for the actual implementation of the kiosk, where the design will be further refined, so testable prototypes can be created.

# Introduction

The CAF is a new cafe on campus. It wants to better serve its customers and improve operational efficiency by implementing self-ordering kiosks. It has commissioned an initial project to design the interface of such a kiosk. This report documents phase 1 and phase 2 aspects of a task-centred design approach for this project, as well as initial sketched design alternatives leading to a preferred preliminary design alternative.

This report begins with a detailed exploration of likely users. These are divided into disjoint and overlapping categories to clearly show their specific needs. User groups that will not be supported have been discussed. A variety of user personas have been developed that show the variety of people who might be expected to engage with the kiosk.

The next stage moves on to outline the types of tasks that might be achieved via the kiosk. These have again been divided into specific categories for further analysis. A series of enumerated scenarios have been presented that show the user personas directly pursuing their goals via the kiosk.

The report then goes into detail analysing the prioritisation for each task. This is achieved by calculating a quantified priority based on the assumed frequency of use and user importance. Tasks that will not be supported are discussed.

The next section demonstrates six design sketches, each pursuing a different approach to the kiosk design. Some background behind the designs is included, and a list of advantages as well as disadvantages listed.

Our primary design alternative combines the best aspects of the design alternatives, building on their advantages. This design pursues efficient interactions that cater for different levels of digital literacy while being streamlined and visually appealing.

## User and Task Identification

### 1. Identification of Representative Users

#### User Categories and importance

Students are likely to be the main user group as the café is located at university. It's important to support them as to encourage more students to share positive experiences and boost business with the CAF. Most students in university are aged 18-25, so they will have limited income and generally have good digital literacy. Additionally, they will also be under time pressure due to studies. As they are the largest user group increasing the efficiency for them in ordering, minimizes the interaction with the staff. This would speed up service during peak times, provided that the kiosk is student friendly.

The second largest user group are likely to be the teaching staff. Like students they may be under even more time pressure due to teaching responsibilities. Teaching staff can vary widely in age, ranging from assistant professors who may be around their late 20s to the senior faculty. The younger faculty can be more tech-savvy and would be more familiar with kiosks however other staff may be completely unfamiliar with ordering through a kiosk. Therefore, it is important that the design supports people of different digital literacies.

Café staff are responsible for running the café. Their digital literacy is unknown as café staff vary widely in digital experiences. For example, while some might be familiar with kiosks or other point-of sales systems (which can be similar to kiosks), other staff may be used to in-person tasks that doesn't leave them necessarily fluent in digital systems. It is very important the design supports the café staff as customer satisfaction is highly dependent on them and without an appropriate design the café wouldn't function.

Visitors vary widely in ages and stages of digital literacy. Some examples of common visitors to keep in mind are prospective students, guest speakers, professional representatives that come during career fairs or local communities attending a university event and many more. Visitors are important as majority of them will be newcomers to the café. It is important for the kiosk to be a good experience for them as it will contribute greatly to their first impression of The CAF and would be likely to come back. So, while it is important for the design to accommodate a range of visitor types the design should also be unique and grab their attention.

There are also users that may not speak English at all or very well. It may be important to support them as they may benefit from the ability to change the language that the kiosk is displayed correctly understand what information it is trying to convey. This group is a small intersection of the larger disjoint user groups: Students, Teaching Staff, Cafe Staff, and Visitors.

An important user group are people with additional support needs. This group includes those with impaired sight, impaired mobility, colour blindness, and other disabilities that may require additional support and considerations to effectively use a kiosk. This group is a small intersection of the larger disjoint user groups: Students, Teaching Staff, Cafe Staff, and Visitors.

## Chosen Unsupported User Categories

The users we have chosen not to support include those who are not fluent in English. Although this user group may make up a small but significant proportion of users, we believe adequate solutions are available through translation services like Google translate or through the presence of a support person with local knowledge. This user group can still interact and navigate through the different sections by photographing the kiosk and using services to translate the text. Another consideration as to why they are not supported is the fact there are photos of each of the food items, which are universal and, as such, do not require a language-specific explanation. In deciding not to include different language options for the kiosk there is no need to hire a fluent translator; to create translations or check the accuracy of online translations. Furthermore, there are culturally specific considerations that need to be considered which extend past simply providing translations; these include reading direction, colour psychology and culturally specific conceptual models, that would make the UX design more difficult, timely and costly.

We have decided not to support every user with various accessibility needs, including those that are visually impaired; either blind or have failing eyesight, in the design of our kiosk. This is due to the additional complexity and extended requirements that result from accommodating these user groups. Including features such as screen readers or alternative input methods would introduce significant additional development, testing, and maintenance requirements. Therefore, in order to ensure efficiency and streamline the process for other user groups that make up the majority they will not be included.

## User personas

### **Bob (University Student)**

Bob is a 19-year-old engineering student and is always on the go. He often stays up late, resulting in him consuming large amounts of caffeine and buying lunches daily to keep him going whilst at uni. Bob is currently unemployed and relies on student loans for all of his expenses; as such, he is more interested in getting a good deal and ensuring the meals are filling. Despite his busy schedule, Bob enjoys catching up with friends between classes and likes having spaces where he can meet and eat.

### **Maggie (Academic at the University)**

Maggie is a 37-year-old academic who likes structure and routine. She is detail-oriented and has every half hour of her day planned out. Maggie starts her day with her favourite matcha before heading to the lab to start the day's research. She thrives in comfortable and familiar settings and values the half-hour she sets aside every morning to grab her coffee order.

### **Reuben (The CAF's chef)**

Reuben is a 25-year-old cook who is passionate about his work at the CAF and takes pride in the food he prepares. Reuben can sometimes get overwhelmed with the management of the restaurant, something he hopes the kiosk will help to manage. Reuben ensures that he is always aware of the customers' dietary concerns, as he has celiac disease himself. Reuben has big ideas for new menu items and always enjoys experimenting with innovative food options. Reuben aspires to own his restaurant one day, but for now, he is content with saving up money and working the flexible hours that the university cafe provides.

### **Sandy (A campus visitor)**

Sandy is a 45-year-old campus visitor who loves trying new places to eat, however, her dietary restrictions mean she has to be very careful about what she orders. Being gluten and dairy-free with a severe peanut allergy, Sandy must always check the menu closely before ordering, often wanting clear assurances that her needs will be met. Sandy values when a café is transparent and accommodating with their ingredients as it leaves her feeling more comfortable.

### **Mikey (Staff member at the CAF)**

Mikey is a 22-year-old part-time student who is studying business management whilst working at the local cafe to help pay off his student loan. Being a highly extroverted and social person, Mikey enjoys interacting with customers, but often ends up spending more time chatting than completing his work tasks. While Mikey always manages to make customers feel welcome with his friendly vibe, his tendency to get distracted by conversations sometimes causes him to fall behind on duties like restocking and cleaning.

### **Kate (Visitor)**

Kate is a high school student who is on campus for the University Open Day. She would like to buy a takeaway drink before she goes to an event. This is her first time visiting campus so she's very eager to see if there's anything unique about The CAF. While she is a new user, she has experience ordering with other kiosks. She wants to take her time looking through all the options before making her choice.

### **John (Professor)**

Professor John is a science professor who has been teaching for 15 years and is eager to check out the new place on campus. He likes to start his day with coffee and values healthy meals to take out for his lunch. He appreciates it if all the dietary information is displayed as he is lactose intolerant. He prefers having his morning coffee at the cafe separate from his office to wake up before he starts his day.

### **Craig (Professor)**

Craig is a long-time professor at the University but is nearing the age of retirement. He is not very technologically literate and sometimes struggles with understanding how to use all of this 'new technology'. As Craig is getting older, his eyesight is not as good as it used to be and sometimes, he struggles to read the menu when he forgets his glasses. Craig is not used to ordering on a kiosk, he typically goes somewhere he can order at the counter instead but would be more inclined to use the technology if it feels familiar to him. Craig prefers to eat his food 'in-house' as this allows him to relax while he eats and not have to carry his order too far from the cafe.

### **Mark (The CAF's Financial Manager/Accountant)**

Mark is the financial manager at The CAF and his primary role includes ensuring that the current prices of the food at The CAF will keep their profits in the positive. Mark does this by analysing the previous sales data of each item and using this to predict their ideal price increases and decreases so that he can let Reuben know to change these.

## 2. Identification of Task Categories

### Task Categories

Table 1 - Task Categories, their unique symbols, and specific tasks they contain

| Task Category                 | Symbol | Tasks  |
|-------------------------------|--------|--|
| Welcome                       | W      | Provide welcome message<br>Select dine-in/takeaway<br>Give estimated wait time for food/drinks   |
| Placing an order              | O      | Filter food categories<br>Filter for specific dietary needs<br>Make selections<br>Remove selections<br>Confirm selections  |
| Making a payment              | P      | Select payment type<br>Change payment type<br>Confirm proceed with payment/cancel payment (dialog box to confirm)<br>Provide payment details (e.g. indicate use of EFTPOS/PayWave device)<br><br>Payment received/payment not received (dialog box to identify and help fix problem if possible) |
| Confirming an order           | C      | Order number provided to customer  |
| Creating new account          | N      | Guest users can bypass<br>Provide user identification<br>Confirm user identification<br>Sign in automatically after successful registration  |
| Sign into an account          | S      | Authenticate user<br>Display user dashboard  |
| Log out of account            | L      | Log out of account   |
| Notify staff to make order    | M      | Order number and details (split into preparation tasks/kitchen areas) provided to cafe staff   |
| Notify staff to deliver order | D      | Provide feedback that order is being processed<br>Provide alert when order is ready to either the staff members delivering or the customer to pick up  |
| Order Management              | X      | View current orders and status<br>Change status of orders from received to preparing to ready  |

|                    |   |   |
|--------------------|---|---|
| Menu Management    | Y | Add specials of the day/week to the online menu<br>Update food availability to sold out when needed<br>Add discounts to specific food items or combos |
| Shift Management   | T | Employee clock in<br>Employee clock out<br>Automatically assign breaks  |
| Purchase Analytics | A | Discover most frequently order item in each category<br>Discover every cost of meals<br>Identify trends in consumption                                |

## Task Scenarios

**(OPC1) - Bob Changes His Mind:** Bob is looking to order a regular oat milk latte with a triple shot of coffee. After he added this to his order, he decides that he only wants the normal number of shots due to the extra cost. He wants to be able to go back and edit his latte to reduce the number of shots and then confirm that he only ordered a regular oat milk latte with the normal number of shots. Due to being a University Student, Bob is running low on funds and wants to ensure that his total is less than \$7 before he makes his payment.

**(OPC2) - Sandy's Busy Schedule:** Sandy is a visitor to the campus and wants to quickly grab some lunch between meetings. Sandy realises she is short on time and wants to be able to order her lunch as a takeaway option. As she is new to the campus, she has never visited The CAF before and needs to be able to figure out how to order quickly so she can make it back in time for her next meeting. Because Sandy is not from New Zealand, she would like to pay for her order using cash as she tends to have issues trying to use her overseas card.

**(NSL1) - Tilly Creates an Account:** Tilly is a first-year student who wants to create a new account with The CAF. She wants to sign in and see if there are any special deals that she can receive as a student. She does not want to order anything at this stage and wants to easily sign out of her account so that no one else is able to access her information.

**(MD1) - Ruben Manages the Wait Staff:** Ruben is the head chef at the CAF and wants to be able to keep track of the order he needs to make, as well as be able to tell the wait staff where an order needs to be delivered to and whether to prepare as takeaway or dine in. He doesn't want to spend too much time finding where this information is so as to not take away from the time he spends doing other tasks.

**(SOP1) - Dave's Regular Order:** Dave, a regular at The CAF, has signed up for an account and often repeats the same order. He finds having to do this every time he visits a very tedious, and irritating task. Dave would like to save his regular order to a preset item in his account so improve his experience with using the kiosk.

**(WOPC1) - Bob's Bad Day:** Bob has just handed in his COSC368 Assignment, and he is not happy with the final product. He decides to visit The CAF to treat himself and cheer up. Bob would appreciate it if the kiosk he orders from had a welcoming design that accounts for the lack of human contact that ordering from a kiosk has rather than a cashier employee. He would also like to take away his order so he can take it to meet up with his friends to talk about the assignment and would appreciate it if this selection was made readily available to him.

**(OPC3) - Kate's Drink Order:** Before her next event, Kate has come to The CAF to get a drink. Kate would like to easily be able to find all of the drinks available and view them all in one area so she can take her time comparing them before making a final decision.

**(A1) - Mark's Site Visit:** Mark needs to do his monthly review of The CAF's financials, so he decides to do a site visit and have a meeting with Reuben. He would appreciate it if there was a system that displayed their recent analytics that Reuben was familiar with which he could use to easily communicate the business' current financial situation to him and help him plan which item's prices need to be changed.

**(A2) - Reuben's Specials Analysis:** Reuben is looking to change up The CAF's menu. Viewing the recent sales data, he can see which items are the least popular and considers removing them from the menu. He also can see which items' popularity has dropped so he can give limited discounts or revamp recipes to make them more desirable. Reuben can keep track of which items are the most popular and ensure that the ingredients needed to make these items are kept in high stock.

**(W1) - Craig's Order:** Craig is not used to ordering food on a kiosk, the extent of his technological skills involves controlling which channel his television is on. When Craig goes into The CAF for the first time to have lunch with his co-workers, he would like it if the system was familiar to him so that it doesn't take him a long time to learn to use. As Craig wants to dine-in, he would prefer if the option to do this was clearly visible, and that other similar selections are not too hard to read so that he doesn't strain his eyes.

**(OPC4) - Maggie's Regular Morning Order:** Every morning, Maggie orders the same matcha latte and appreciates having the flexibility of a pre-saved order she can efficiently reorder. Maggie likes to check that the café has logged her dietary requirement for almond milk and as a result values a receipt every day to ensure the accuracy of her re-order.

**(SOP2) - Bob's Budget-Conscious Reorder.** Bob has found a budget-friendly meal combo, which he regularly orders at The CAF. He wants the ability to reorder this meal combo easily, ensuring that the total cost remains under \$15, as he relies on his student loan. Before finalising the purchase, he wants to confirm that there are no additional charges and that the price fits his budget; if not, he requires the ability to void the order completely or remove items to reduce the total cost.

**(MW3)- Mikey completing task roles:** Mikey's tendency to get distracted sometimes causes delays in completing tasks. To stay on track, Mikey needs regular alerts telling him when customer orders are ready for pickup or need special attention (e.g., dietary restrictions or order modifications). The system Mikey uses to view this information needs to be efficient to use so he does not waste too much time. This way, Mikey can focus on providing excellent customer service while ensuring that he doesn't fall behind on his other duties.

**(Y1) - Ruben Updates Menu Due to Stock Changes:** Ruben, as the chef at The CAF, notices that one of his key ingredients has run out, resulting in some items needing to be temporarily removed from the menu. At the same time, Ruben has just created a new dish and needs to update and add this daily special to available items on the kiosk. Due to his hectic preparation schedule, he needs to quickly be able to edit and manage menu items on the kiosk; that is, he requires the ability to mark items as "out of stock," and feature the new daily special without interrupting his work.

**(WONSC1) John re-orders:** Professor John is having a bad day and wants something quick and easy. He accidentally orders a coffee with normal milk and so he wants to cancel the order to be doubly sure that he doesn't accidentally alter it wrong and end up ordering it with normal milk. He then decides to create an account before he reorders his coffee with oat milk and his regular take-away item for lunch.

### 3. Prioritisation of User Tasks

For both the tasks executed by customers and by staff, a quantified priority was calculated for each. These were based on the assumed frequency of use and importance to users using Equation 1 where  $P$  is priority,  $F$  is frequency, and  $I$  is importance. The numerical representations of each frequency, importance, and priority are expressed in Table 3. The rationale for these priorities is given in descending order and are explained in Table 4 and Table 5.

Equation 1 - Expression of Priority in terms of Frequency and Importance

$$P = F + I$$

Table 2 - Numerical Representation of Frequency and Importance

| Category   | Name           | Numerical Representation |
|------------|----------------|--------------------------|
| Frequency  | Infrequent     | 1                        |
|            | Occasional     | 2                        |
|            | Frequent       | 3                        |
| Importance | Not Important  | 1                        |
|            | Important      | 2                        |
|            | Very Important | 3                        |
| Priority   | Low            | 2                        |
|            | Medium         | 3 - 4                    |
|            | High           | 5 - 6                    |

Table 3 - Prioritisation of Customer Tasks and their Reasonings

| Customer Task  | Frequency  | Importance     | Priority | Reasoning  |
|--|------------|----------------|----------|--|
| <b>Viewing food/drink options</b>                                      | Frequent   | Very Important | High: 6  | It is an essential function of the kiosk as customers need to be able to see what food and drink is available before making a purchase, making it <b>Very Important</b> . For this same reason, it is a <b>Frequent</b> task as most customer use of the kiosk requires this task, making it <b>High</b> priority overall.   |
| <b>Adding items to Order</b>   | Frequent   | Very Important | High: 6  | This is another core function of the kiosk, items must be able to be added to a customer's order so the Kiosk can function as a self-service system, so it is <b>Very Important</b> . It is also a <b>Frequent</b> task as most customer use of the kiosk requires this task, making it <b>High</b> priority overall.  |
| <b>Making Payment (EFTPOS)</b>   | Frequent   | Very Important | High: 6  | Making and completing a payment is a <b>Very Important</b> feature to finalise orders on the Kiosk. This allows the order to be fully completed on the Kiosk and removes the need for human interaction. EFTPOS is the preferred payment method for the majority of people as it tends to be the most convenient and commonly used, leading to being used <b>Frequently</b> , and is a <b>High</b> priority task.  |
| <b>Physically Printing a Paper Receipt</b>                             | Frequent   | Very Important | High: 6  | All orders should have some form of receipt given upon finalisation of payment, making this a <b>Frequent</b> task. This task is also <b>Very Important</b> as some users may require a physical receipt for tax claims and record keeping. Users who do not have a mobile device would also require a physical receipt as confirmation of their order. This is <b>High</b> priority functionality.  |
| <b>Making custom dietary changes to food/drink</b>                     | Occasional | Very Important | High: 5  | Not all users have dietary needs or want to make changes to items in their order, making this an <b>Occasionally</b> used task. In saying this, it is a <b>Very Important</b> task as The CAF should be accommodating to different dietary requirements to prevent triggering allergies and allows users who just want to be able to customise their food without having to interact with the staff. This functionality makes the kiosk more inclusive and user-friendly and is a <b>High</b> priority for customer satisfaction and keeping customers coming back to use the kiosk. |
| <b>Confirming an Order</b> (shows your items, with total <b>before</b> | Frequent   | Important      | High: 5  | This would be a <b>Frequently</b> used task as all customers who complete an order on the kiosk would see their order confirmation before payment. This task is <b>Very Important</b> as it reduces errors by allowing users to review their order before payment. It would be a required step of the ordering process and is <b>High</b> priority for a positive user experience on   |

|   |            |                |           |  |
|---|------------|----------------|-----------|--|
| payment)  |            |                |           | the kiosk.   |
| <b>Signing into Member Account</b>  | Occasional | Very Important | High: 5   | It is an <b>Occasional</b> task as the largest user base for this system is expected to be students who would likely have an account to get access to better deals and rewards, though not all users will. This task is <b>Very Important</b> as it would allow The CAF to reward their loyal customers and makes it convenient for frequent users to keep track of their previous orders and loyalty points promoting brand loyalty and improving the likelihood of users reusing the kiosk, so it is <b>High</b> priority overall. |
| <b>Singing out of Account (manually)</b>                                      | Occasional | Very Important | High: 5   | Although this functionality may only be <b>Occasionally</b> used as most users who sign into an account would complete an order which automatically signs them out, signing out manually for those who want to void their order ensures privacy and security for users which is <b>Very Important</b> , and places an emphasis on The CAF's perspective for protecting user data justifying the <b>High</b> priority.  |
| <b>Notification when the Order is ready</b>                                   | Frequent   | Important      | High: 5   | This is <b>Very Important</b> as it gives the user feedback and enhances user experience by offering control over the order pickup process. It also minimises wait times and crowds of people waiting around for their order as the user has freedom to move around until they get the notification. This means that users may be likely to use this often, Making it <b>Frequent</b> and overall, <b>High</b> priority.   |
| <b>Wheelchair Button (makes whole screen UI lower)</b>                        | Infrequent | Very Important | Medium: 4 | This is <b>Very Important</b> as it allows a diverse range of people to use the kiosk who otherwise would not be able to, promoting inclusivity and accommodating all types of users. Though it may be <b>infrequently</b> used as the target user group is a minority, making this <b>Medium</b> priority overall.  |
| <b>Sending Confirmation Number (to saved contact method e.g. phone/email)</b> | Occasional | Not Important  | Medium: 3 | Not functional for those who don't have accounts or aren't signed in so would only be used <b>Occasionally</b> . Also, <b>Not Important</b> as a paper receipt will always be printed and is therefore <b>Medium</b> priority  |
| <b>Creating New Account (on the kiosk)</b>                                    | Infrequent | Important      | Medium: 3 | Although <b>Infrequently</b> used as each user will likely use this task once at most, it is an <b>Important</b> feature especially for first-time users to not have to cancel the order and sign up through a staff member and also promotes loyalty programs on the kiosk directly. This task is <b>Medium</b> priority.   |
| <b>Making Payment (CASH)</b>  | Occasional | Not Important  | Medium: 3 | Cash payments are outdated with electronic payments becoming much more common reducing frequency to <b>Occasional</b> and necessity of this feature to <b>Not Important</b> . Overall,   |

|   |            |                  |           |  |
|---|------------|------------------|-----------|--|
|   |            |                  |           | it is a <b>Medium</b> task.  |
| <b>Viewing/<br/>Editing Account<br/>Details</b> | Infrequent | Not<br>Important | Medium: 3 | Users would <b>Infrequently</b> need to update account details on a kiosk as very few contact details are stored in their account and this task does not contribute to the main functionality of ordering food and is therefore <b>Not Important</b> . Overall, this is a <b>Medium</b> priority task.   |
| <b>Multiple<br/>Language<br/>Support</b>        | Infrequent | Not<br>Important | Low: 2    | For users who need alternative language support, it would be more appropriate for them to seek external support rather than ordering through the kiosk, making this task <b>Not Important</b> . This task would also be <b>Infrequently</b> used as most university students and staff would speak English, making this a <b>Low</b> priority task. Additionally, the computational power and human resources required to implement this reduces its priority. |
| <b>Edit Order (after<br/>payment)</b>           | Infrequent | Not<br>Important | Low: 2    | This task is not practical as staff may have already begun making the order and not commonly used in industry, making it <b>Not Important</b> . May still require staff assistance reducing the need for it to be included on the kiosk. It is not common that an order needs to be changed after it is confirmed so it is <b>Infrequent</b> and therefore <b>Low</b> priority.  |

Table 4 - Prioritisation of Staff Tasks and their Reasonings

| Tasks for Staff                                     | Frequency  | Importance     | Priority  | Reasoning  |
|---|------------|----------------|-----------|--|
| <b>View Orders</b>                                  | Frequent   | Very important | High: 6   | It would be the most <b>Frequently</b> used task by staff and the main purpose of the staff kiosk portal. It is a <b>Very Important</b> task for smooth operations as staff need to view orders and its status quickly, frequently and easily to ensure meals are delivered or prepared in a timely manner, making it <b>High</b> priority overall.  |
| <b>Updating Menu Items (stock and availability)</b> | Occasional | Very Important | High: 5   | Only <b>Occasionally</b> used as stock unavailability shouldn't happen often. It is <b>Very Important</b> for the staff to have the ability to keep the menu up to date to prevent customers from ordering items they are unable to make. This means it is <b>High</b> priority as it prevents confusions about item availability and impossible orders occurring.   |
| <b>Sale Reports/Analytics</b>                       | Frequent   | Important      | High: 5   | Tracking sales and item trends are very useful in analysing financial data, improving services, optimising stock, and adjusting staff needs, however while this task could be <b>Frequently</b> used, these uses can be handled outside of the kiosk through The CAF's main Point of System (POS), where sales for both the main POS and kiosk will be shown, rather than only the kiosk's sales being shown, making this task <b>Important</b> . It still has an overall <b>High</b> priority but less than other priority tasks.                         |
| <b>Updating Menu Price (specials/discounts)</b>     | Occasional | Important      | Medium: 4 | Offering specials/discounts can increase sales, especially when a large proportion of users are students that appreciate a special, though this is not as important as other essential tasks, making it <b>Important</b> . It would be used occasionally as it is not very frequent that prices on menu items need to be changed. This makes it <b>Medium</b> priority overall as it is important to be able to create and update promotions to encourage repeat customers and recurring use of the Kiosk.   |
| <b>Inventory Tracking</b>                           | Occasional | Important      | Medium: 4 | Inventory Tracking for individual ingredients should be done occasionally to ensure correct stock making this task <b>Important</b> , however despite its importance for daily operations, it can often be done manually where staff manually check the ingredient levels with pen and paper or outside of the Kiosk system through a separate inventory tracker. Therefore, it has a <b>Medium</b> priority overall as it is not a necessary task for the kiosk as it can be done outside but would be a useful function for the kiosk to have for staff. |
| <b>Track Preparation</b>                            | Frequent   | Not Important  | Medium: 4 | This task would be <b>Frequently</b> used on all orders by the staff. It may take  |

|   |            |               |           |   |
|---|------------|---------------|-----------|---|
| <b>Status for each order</b>                                      |            |               |           | unnecessary time to update order statuses ( <i>e.g. Pending, In Progress, Ready for Pick up, Completed</i> ) every time and the staff may have other efficient ways to do this so it is <b>Not Important</b> . This task is <b>Medium</b> priority for keeping the workflow organised providing feedback to both staff and customers.   |
| <b>Shift Management (Clocking in/out)</b>                         | Occasional | Important     | Medium: 4 | This task would be <b>Occasionally</b> used throughout a working day as not all staff would work at the same times. Efficient tracking of staff's clock in and out is <b>Important</b> for correct payroll and scheduling staff shifts, but there are other systems that can be used to do this rather than the kiosk portal, so it is <b>Medium</b> important overall.   |
| <b>Communication between staff (e.g. front house and kitchen)</b> | Occasional | Important     | Medium: 4 | Although communication between staff is crucial and <b>Important</b> , it can typically be done verbally without the need for a separate communication system on the Kiosk. This task would also only be <b>Occasionally</b> used throughout a working day, considering The CAF will likely have a small number of staff making verbal communication sufficient for most situations. However, verbal communication is not entirely error-proof as per Miller's Law, which highlights the limitations of human short-term memory. While a digital communication system on the Kiosk could reduce communication error, it remains a <b>Medium</b> priority as verbal communication is likely more effective in The CAF's context. |
| <b>Task Assignment</b>  | Occasional | Not Important | Medium: 3 | Assigning certain tasks to specific staff members can often be communicated verbally, making it <b>Not Important</b> to be a feature on the kiosk, though it may be <b>Occasionally</b> used as task assignment is something that occurs in a working environment often. Therefore, this task is of <b>Medium</b> priority overall.   |
| <b>Update Customer Account details</b>                            | Infrequent | Not Important | Low: 2    | Updating customer account details and managing loyalty points or feedback is not typically done at the kiosk by the customer but rather on a separate system with the assistance of external staff, making it <b>Not Important</b> . It would also be <b>Infrequent</b> feature on the kiosk as most customers would prefer to update their details through the staff members to get security that their details have been correctly updated and saved, making it a <b>Low</b> priority task.   |

## Chosen Unsupported Tasks

### **Cash payments.**

Supporting cash payments would require additional hardware (such as a cash dispenser or collection unit), which could increase maintenance costs and the complexity of the kiosk system. Whilst this could be solved by having a dedicated staff member at a till in instances where people wish to pay cash, it defeats the purpose of streamlining the process and reducing interaction. Furthermore, more and more campuses are becoming cashless, which therefore means that there is no requirement to support such payment options.

### **Multi-language Support:**

It is possible that a number of the system users will be fluent in a different language; however, we have chosen not to include multi-language options at this stage in the process as a biproduct of choosing not to support users unable to speak English. The rationale for exclusion is discussed above. Furthermore, as stated above there are features such as product images that will help identify different menu options visually without the need for written text.

### **Creating account:**

Creating an account is an important aspect of the cafe and essential to providing shortcuts for expert users; however, it is decided that the functionality will not be completed within the kiosk system. Instead, the creation of an account will be done by a staff member. This was decided on as it would reduce the complexity of the system and increase its usability and efficiency. Furthermore, when handing over tasks to employees, there will be reduced wait times as users will not have to spend time at the kiosk setting up their accounts. Whilst the whole point of a kiosk is to reduce employee interaction the system must remain simple and focused on its core function which is efficient order processing.

### **Editing Account:**

The functionality to edit an account is useful; however, we have decided to limit the data stored in the system to include a name, phone number and email address. This is due to security considerations and simplicity and efficiency factors. While it is possible that numbers and email addresses, as well as names, can change, this is an uncommon situation and, as such, not a core feature of the system. However, much like the creation of an account, staff members can manually update information for users.

### **Editing order after payment:**

Whilst possibly required in some situations, it is an infrequent task and not of high priority for the system. Consideration for excluding such tasks includes the potential for kitchen mess-ups and increased confusion amongst staff members regarding the current order state. There are also additional considerations, both legal and technical when working out refunds.

## **Employee Management Tasks**

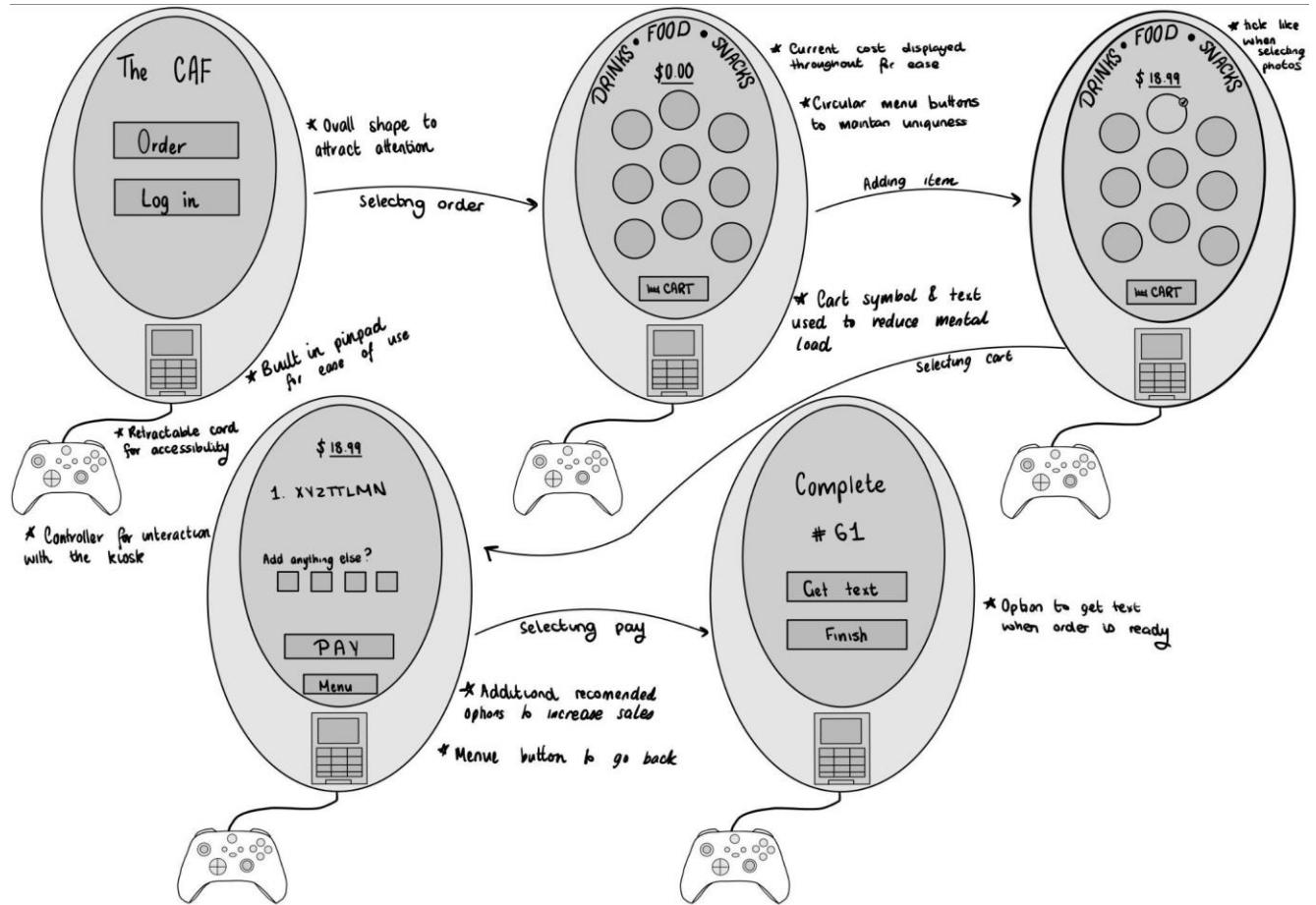
Employee management tasks: shift management, task assignment and staff communication, have been chosen to be omitted from tasks directly supported by the system. Whilst it is useful for businesses to have central systems to manage all aspects of the business, the technical considerations in integrating such tasks into the kiosk system outweigh the possible benefits. The kiosk is purely centred around food and order-related tasks; therefore, employee management is not a priority for the kiosk and is not supported to streamline and increase efficiency. By separating these business functions, the kiosk better maintains a clear, focused design that is dedicated to the core purpose of ordering and payment.

### **Marking Orders Process:**

While keeping track of the process of orders is an important feature, the task detailed run down of each stage of the process is not central to running the kiosk or the business. In deciding to exclude this task there was the consideration that staff members will waste valuable time identifying and changing the status of orders, which would decrease overall efficiency. Given the kiosk's focus on fast and efficient service, the detailed tracking of order statuses (e.g., kitchen received, preparing, plating) might not align with users' needs. Providing more granular status updates may instead create unnecessary cognitive load for users who prefer simplicity. Therefore, whilst it was decided that a simple notification when the order is ready for collection is the extent of information users require, this is in line with Don Norman's interaction models and understanding of feedback, as there is still an interaction provided to users however it is not as in depth as originally envisioned.

## 4 and 5. Preliminary Design Alternatives and Rationale

Isabella's design: The "Controller"

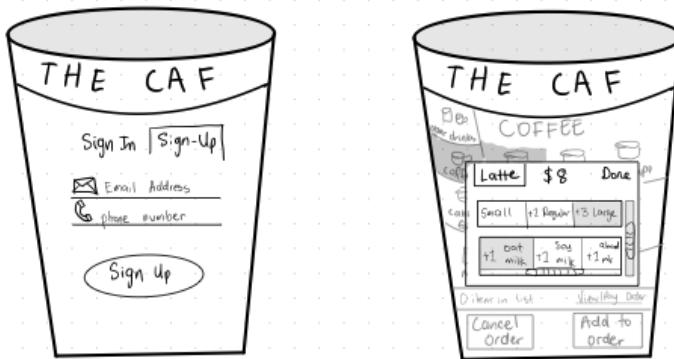
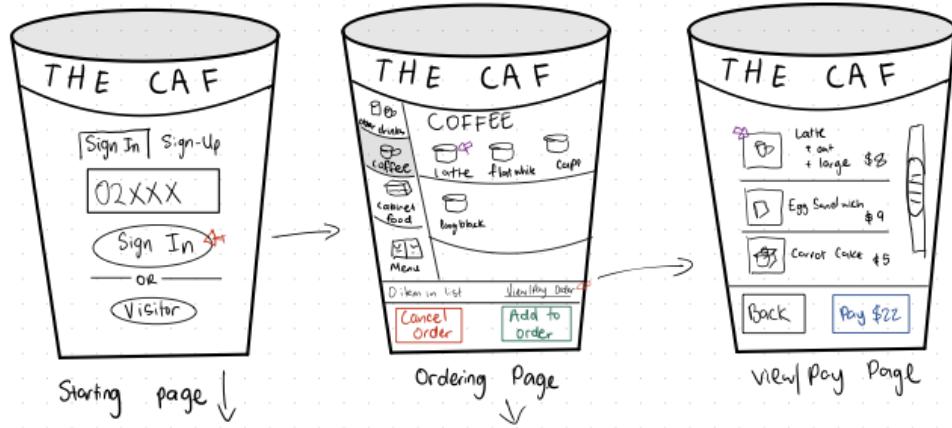


This design goes against traditional norms with its oval shape and use of a game controller for navigation. It was created to stand out and attract attention from users; especially from university students who might find the game controller fun to use. It is expected to work well in cafes that aim to create a memorable and unique customer experience. However, it assumes users are okay with non-traditional controls, which might be a bit confusing for people unfamiliar with gaming controllers; thus, there may be a learning curve. Overall, the design is more playful and engaging, which can be a unique selling point in the right setting. Another benefit is the reduction of sticky fingerprints on the screen, which can be distracting and create additional glare.

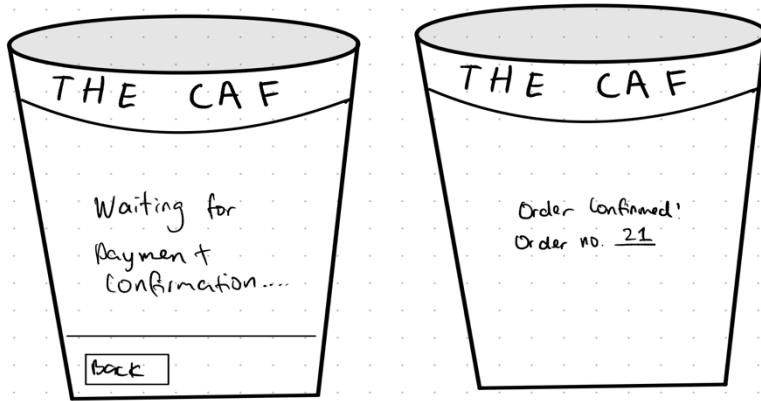
| Pros  | Cons   |
|---|--|
| Unique shapes combined with unique interaction methods may attract more attention, especially from digital natives and younger generations. | Oval-shaped screens are harder and more expensive to produce and buy, which may be a necessary consideration.  |
| The use of a controller means the screen does not need to be cleaned, which reduces the tasks needing to be completed by staff.             | Those who haven't used a controller before may have a higher learning curve. Especially since the Xbox controller indicated has a large number of buttons. Therefore, some people might be sceptical about trying the systems. |

|   |   |
|---|---|
| Reduces cognitive load by relying on skeuomorphism (cart icon) and abiding by common practices (tick in the right-hand upper quarter of photo indicating selection)             | Oval shapes are inefficient for displaying information as there is lots of unused space. However, this could also be good as it means there will be an uncluttered layout.                      |
| Accessibility features are considered for those in wheelchairs. Users have a retractable controller, meaning there is no height restriction for interaction with the interface. | There is no consistent use of undo/redo buttons or emergency exits, making those unfamiliar with the system more hesitant to explore and discover it.   |
| The integrated pin-pad facilitates easy and clear payment interactions and offers a payment option for debit cards that do not have PayWave enabled.                            | Inconsistent internal consistency as the buttons switches between being rectangular and circular in shape; this can leave users confused and wondering if the buttons have different uses, etc. |

## Claire's design: Coffee Cup



When selected menu item is clicked it creates a pop-up window.  
Shows if a menu item has add-ons, dietary requirements etc.



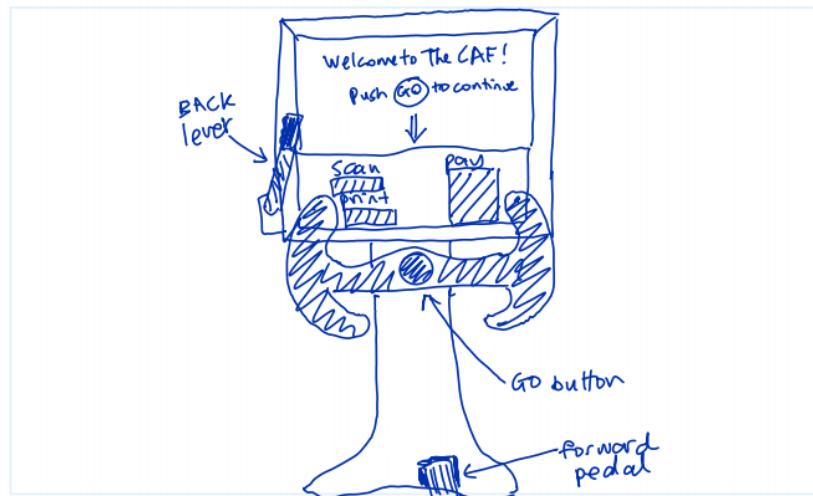
- Order Confirmed
- goes back to start after 5 seconds
- prints order num + receipt?

The kiosk shape is meant to imitate a coffee cup shape with the intent to make it easier for customers to identify The CAF's possible main purpose – which is providing good coffee for customers. The oval shape at top is not a touch screen and can be customised design to look like a coffee cup lid. The overall interface is intuitive and has similar page flow to other kiosks at other food places.

| Pros   | Cons  |
|--|---|
| Coffee cup shape is attention-grabbing, unique shape can make it memorable. Which can create a brand identity based on coffee.   | However, it may neglect other aspects of the menu item as its shape advertises rests on coffee. Additionally, once the novelty dies off or if the coffee at this place is not good for some it can have the opposite effect and decrease the popularity of The CAF. |
| To sign in, the customer must enter their phone number and click "Sign In." Using a phone number for sign-in is one of the fastest and most efficient methods, as it eliminates the need for remembering complex usernames or passwords.         | Just needing a phone number to sign in can be a security risk as it can be seen by others in comparison to passwords that become a circle when you type it in.  |
| The food and drink categories on the left side of the ordering page should not exceed to more than the categories: cabinet food, coffee, menu and other drinks. This is good for people on the go as these are the most popular café categories. | If in the future more food and drink categories are added, would have to implement extra features such as the scroll bar or minimizing the size in the future.  |

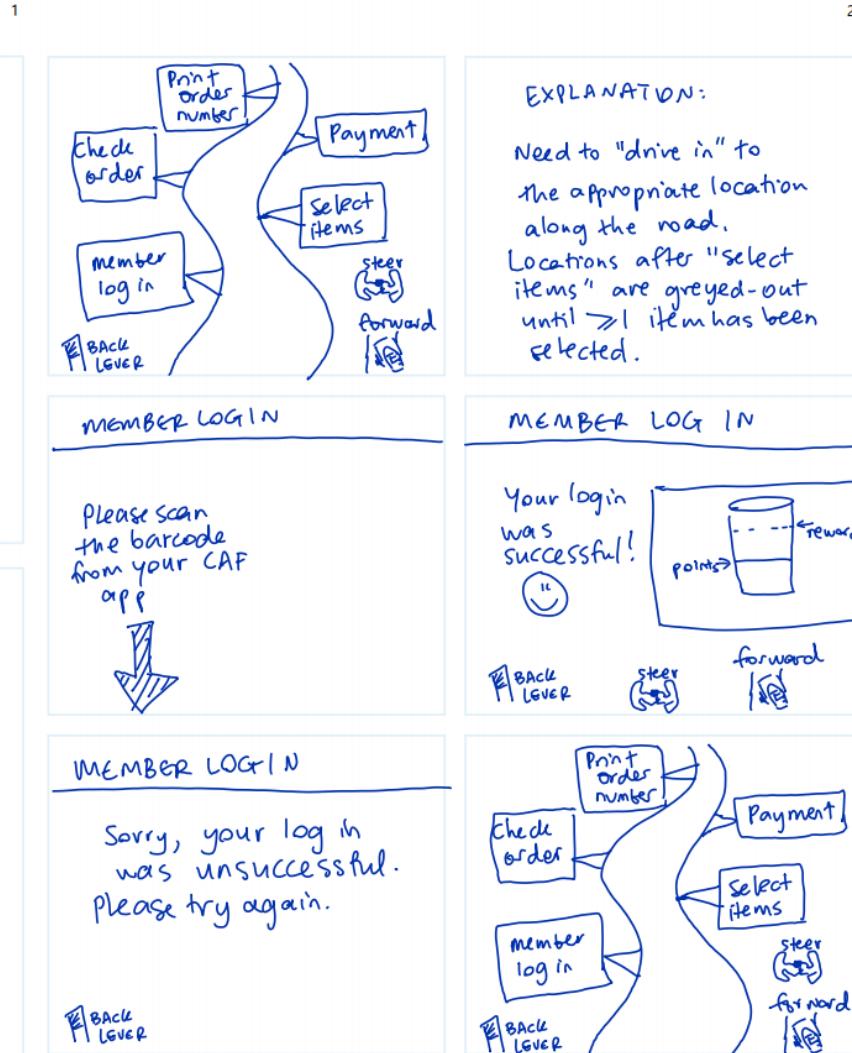
## Mel's design: Digger

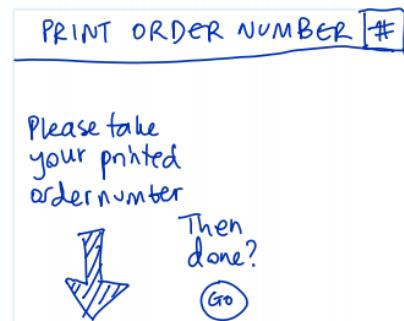
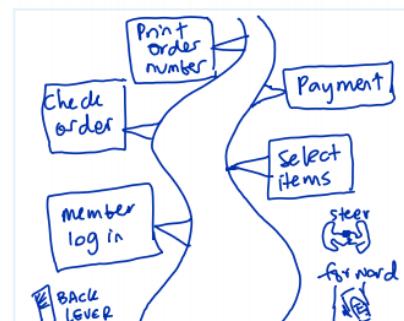
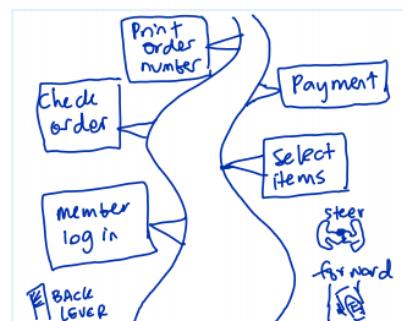
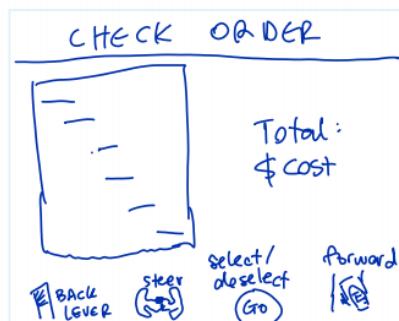
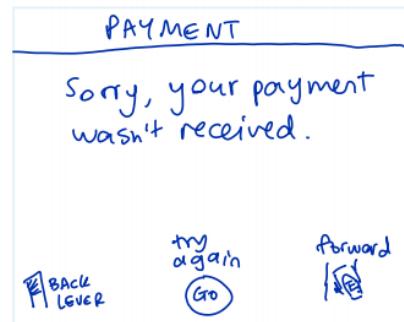
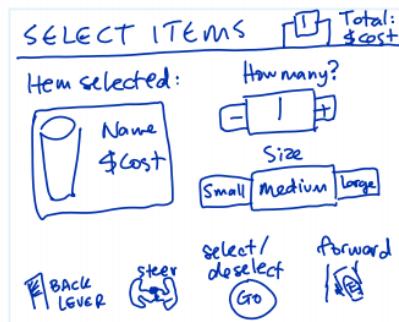
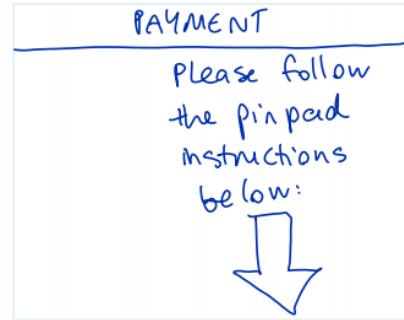
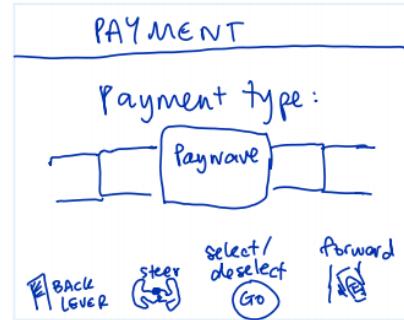
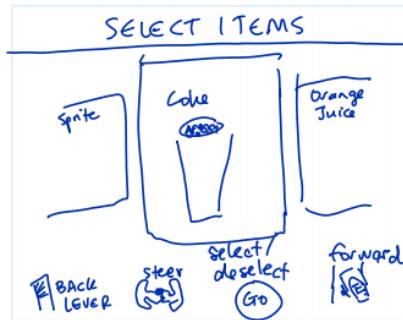
The "digger" design



- 5 controls:
- GO button
- BACK lever
- STEERING WHEEL
- FORWARD pedal

- 4 interactive items:
- Screen
- payment device (smken)
- QR code scanner
- printing slot for order number





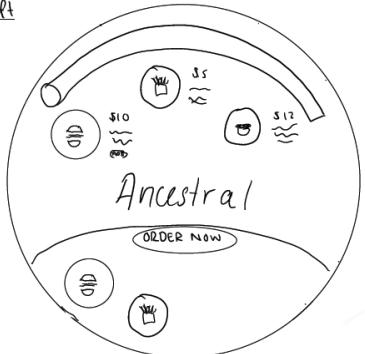
The CAF is a campus cafe, and its primary customers are university students and staff. In this digital world, students and staff tend to spend large amounts of time in front of screens, sitting in office chairs, and performing repetitive actions with keyboard, mouse, and/or touch screen. Both staff and students are expected to perform cognitive work that is complex and demanding, requiring sustained focus. When taking a break from this work, there is a need to unwind, to move and stretch, to allow the brain to enter a more diffuse and creative mode. This would often be the context when customers are coming to the cafe.

This interface design aims to engage the body and encourage play. It has large tactile controls that activate a user's muscles and help them reconnect with their body. The user experience is designed to help the user feel autonomous, that they are directing the control of the order and purchase process. With this design, the user has a steering wheel and an accelerator that they use to move from one item and one screen to the next. Each screen has a clear label at the top that facilitates a clear visuo-spatial conceptual model for the user, as well as reminders of the control functions at the bottom to assist recall for new users.

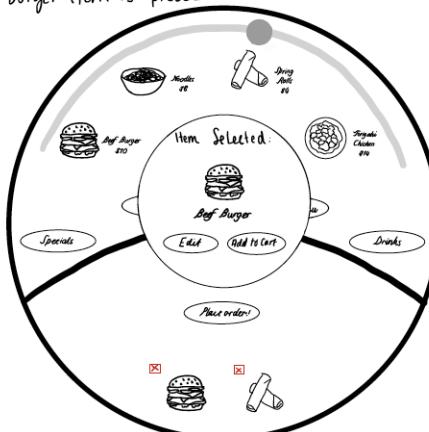
| Pros   | Cons   |
|--|--|
| Tactile, interesting shape, game-like, attracts attention            | Accessibility: difficult to manoeuvre controls from wheelchair/limited upper body strength   |
| Mapping: mimics car controls   | Health & safety: multiple areas that someone could bump into, catch fingers  |
| Accessibility: large controls, prevents fat finger problem           | Mapping: touch screens provide the most direct mapping, and are commonly used: users are likely to expect a touch screen and be confused |
| Not hand-ist (doesn't favour right or left hand)                     | Has a bit of a steep learnability curve: user needs to get the hang of driving in/out of options, selecting, etc.                        |
| Road overview helps with navigation and conceptual mapping for users | Encourages the comparison with/use of cars - not ideal from an environmental perspective   |

## Laura's design: The circle

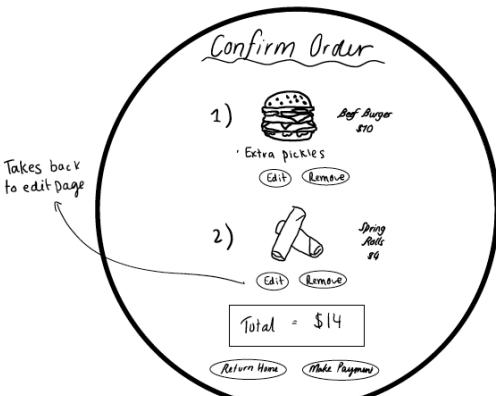
Rough Draft



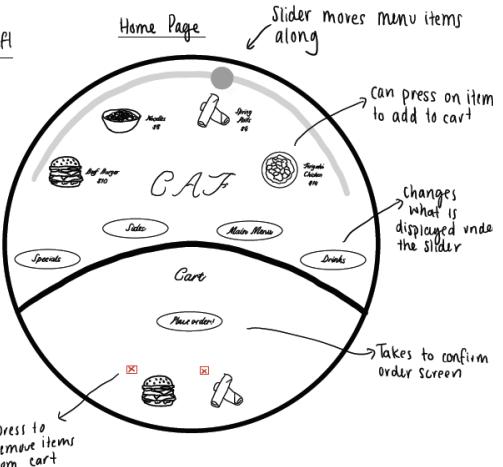
Once beef burger item is pressed



Once place order is pressed



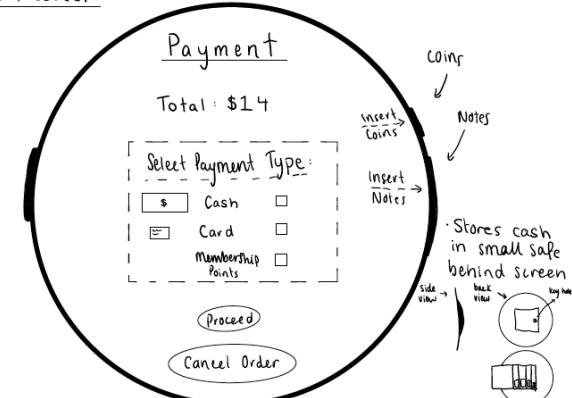
Detailed Draft



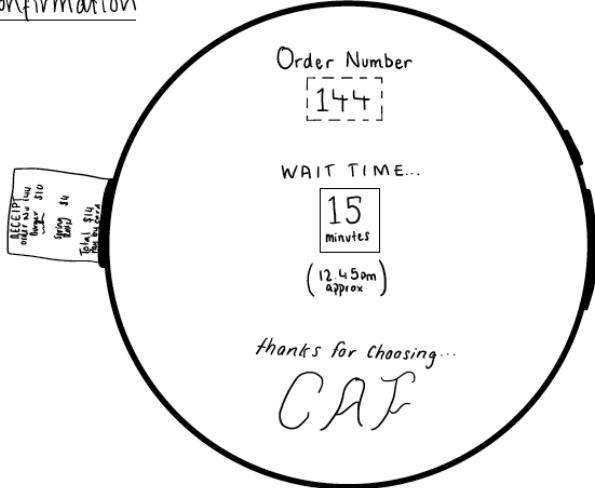
Edit Item Page:



Payment Screen:



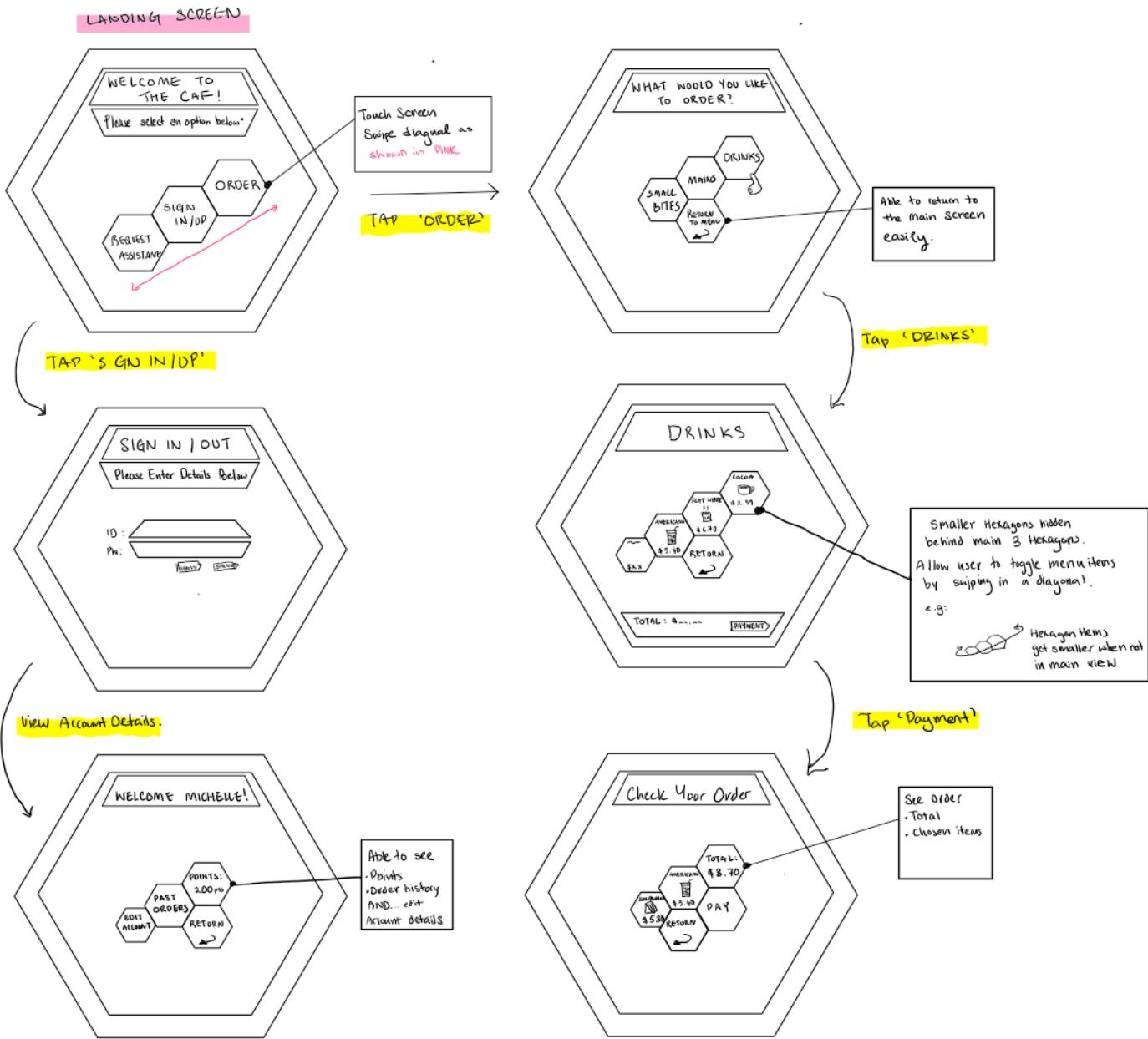
## Confirmation



The rationale behind this design is to create a unique kiosk that encapsulates a variety of functionalities in one. These functionalities include the option for cash payments, printing receipts and making an order. The circular design creates a more modern display and is an intriguing alternative to users as compared to a rectangle. A variety of screens are displayed in my sketches, each attempting to incorporate the unique circular design into the organisation of the items that are displayed on the screen. A slider has been included on the homepage, to allow more interactivity for users, and to present a variety of menu items without the page becoming too cluttered.

| Pros  | Cons   |
|---|--|
| The whole interaction only involves the kiosk. The payment and receipt interactions occur on the kiosk itself, rather than an external device. This reduces the complexity of the interaction as the user does not need to familiarise themselves with a variety of devices.              | The slider might not be intuitive for some users (i.e. older users), therefore it may be more effective to scroll vertically through items as this may be more familiar for users, or to have a show more button instead.  |
| The edit item screen is clear and easy to interpret what needs to happen. It is intuitive for users so they can easily edit their item before adding to their cart. This is beneficial to users with allergens, so they can easily change the item to accommodate for their requirements. | The main menu may be too cluttered for space, and it might be more efficient to have a button to show the cart on a separate page instead, improving how the space is utilised. With less information displayed on each page, the design would be simplified, which may benefit users. |
| Red crosses are user friendly and easy for users to understand that it removes an item. This familiarity reduces the amount of information the user needs to process and allows them to recognise what they need to do rather than recall.  | There could be an area to display discount codes on the payment screen. This would benefit the student user group who orders from this cafe regularly. Being able to apply discount codes to your order would increase customer attention and attraction to order from the CAF.        |
| The overall design focuses on a visual way for ordering, rather than text based. This is done through imagery. As less information is displayed it would take less time for the user to process the information, and hence their ordering experience becomes more efficient.              | Including a membership sign in option to allow users to generate points from using specials would be beneficial for this design, as stated previously for recurring users this would allow them to benefit from being repeat customers.  |

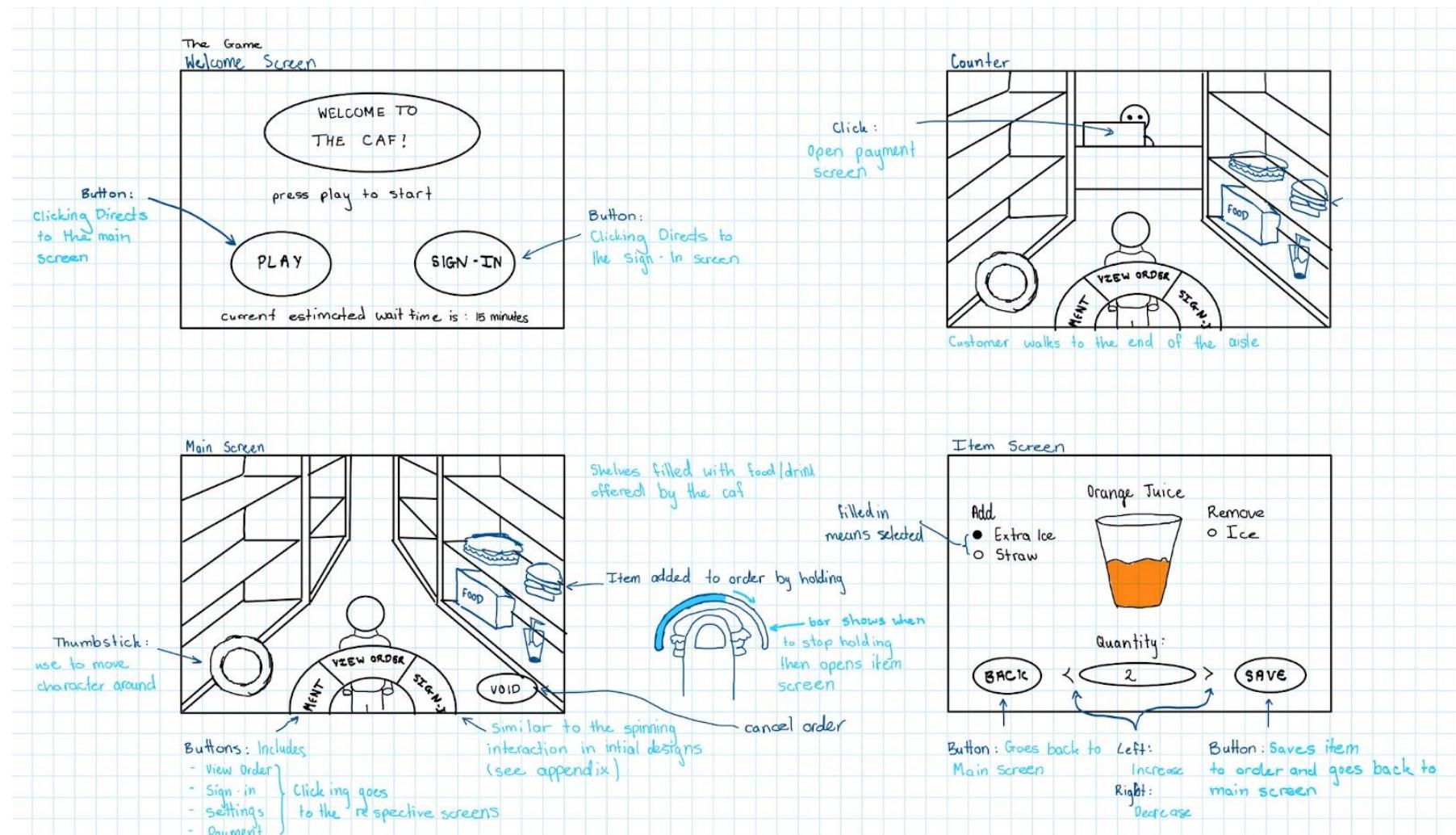
## Michelle's design: Hexagon Shaped Kiosk

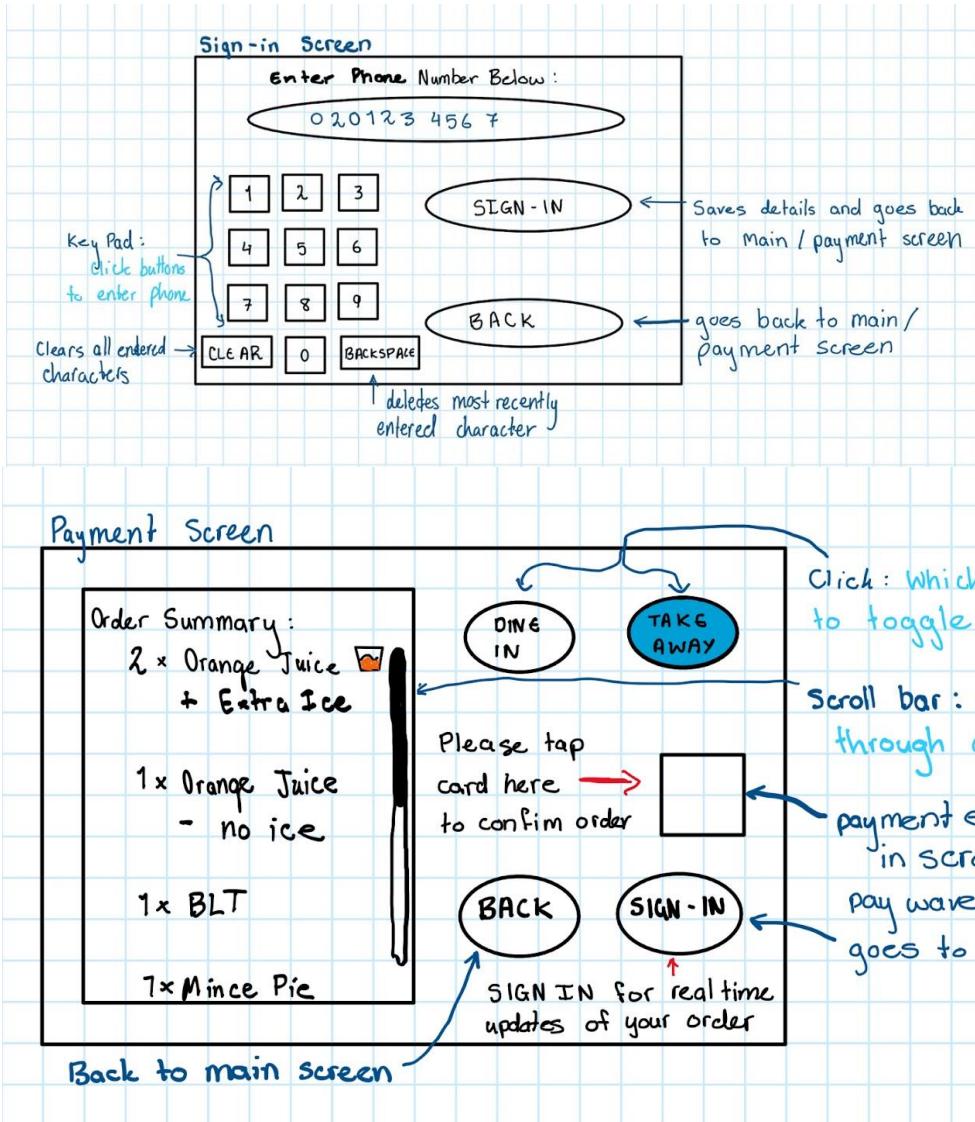


The hexagonal layout of the Kiosk is a unique, modern design that encourages user interaction through swipe gestures and smooth animations. There are three larger hexagons that appear in the middle of the screen that highlight the main options while smaller hexagons present secondary options. The smaller hexagons are accessible by swiping diagonally, creating a sliding effect that allows users to explore all available options. This design is intended to provide a new, satisfying and engaging experience and encourages users to explore the interface without feeling overwhelmed.

| Pros  | Cons  |
|---|---|
| The hexagonal design is modern and draws users in as it is different from the traditional rectangle Kiosks. It provides a unique experience and could increase engagement and sales.  | For users who are looking for the traditional Kiosk, they may find the diagonal swipes and hexagonal layout confusing and overwhelming. As a result, it is not too intuitive for older users or those unfamiliar with touch gestures and may lead to a higher learning curve. |
| Having three main hexagons enlarged and in the middle of the screen with smaller hexagons attached to the side and accessible through swiping helps the user to focus on the three main hexagons and helps avoid overloading the user.        | Although the screen is designed to not overload the user, for some, the interface may still feel busy or cluttered, especially for new users.   |
| The swipe gestures are simple, continuous and intuitive and remain the same throughout the whole experience. ( <i>A single diagonal swipe and taps are the only touch interactions available</i> )  | Due to the hexagonal layout of the kiosk, it may provide less room for detailed descriptions of menu items or have smaller lower quality images.  |
| The design naturally encourages users to explore more options due to the linked hexagon elements, which could lead to more items being added to the cart.   | For some users who just want to place a quick order without having to understand how the Kiosk's layout works, this may feel unnecessarily complex, and they may resort to ordering via staff or not ordering at all.   |
| Even if a user has not seen a hexagonal layout Kiosk before, the consistent use of the hexagons throughout the whole Kiosk design creates a uniform design that makes it easier for users to understand the layout and get used to the Kiosk. | If more menu items or options are added to the Kiosk in the future, the hexagonal layout may become too crowded or may feel like a 'never-ending' swipe making it difficult to manage and exhausting to use.  |

## Hannah's design: The game





#### Design Rational -

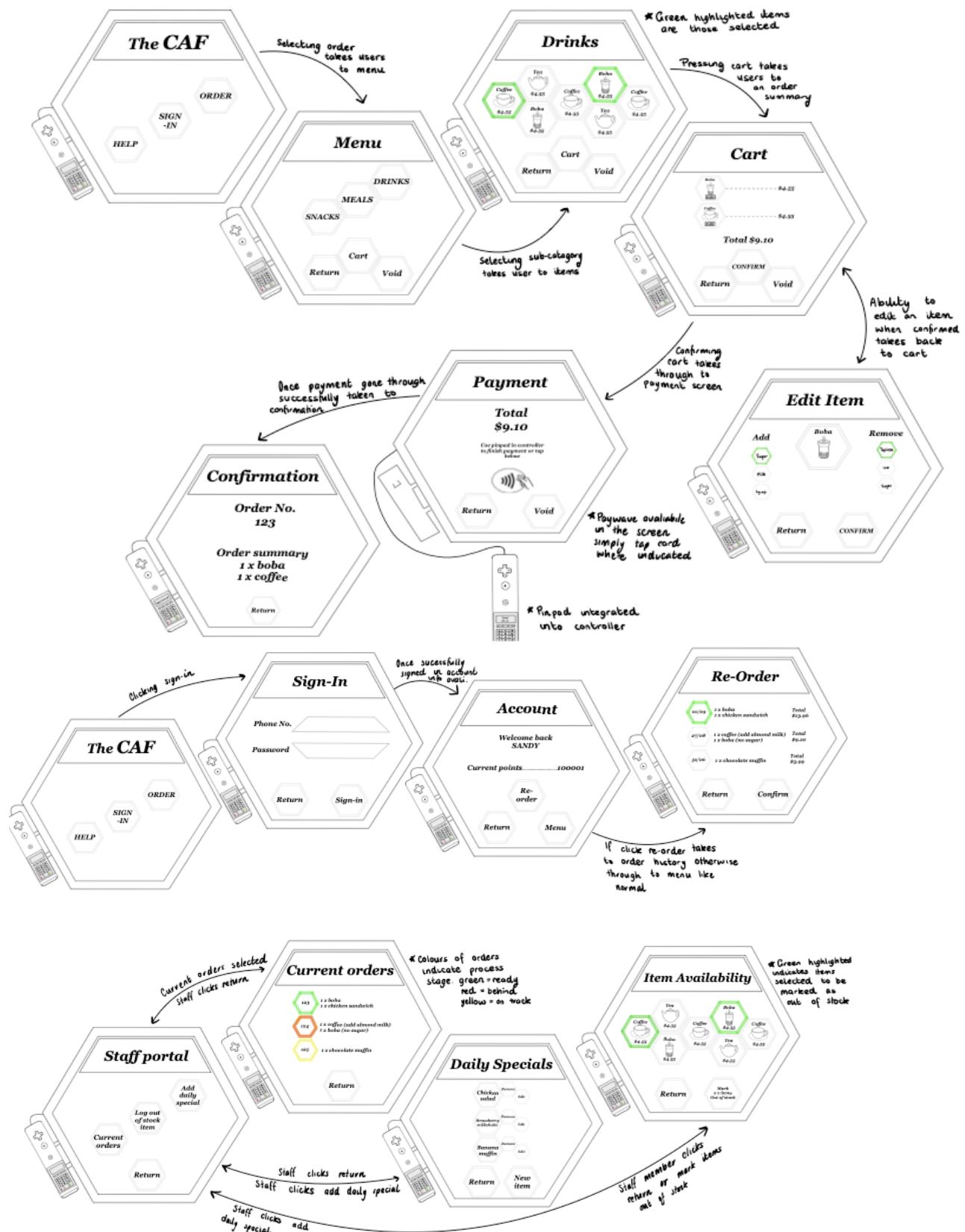
The main design idea of interacting with a shop through a game interface was inspired by the Roblox Ikea: The Co-worker game where game interaction has been used to enhance customer experience. The implementation of a shopping game into the kiosk has been greatly simplified from this initial idea to make it both easier to develop and use without previous experience.

As the majority of the predicted user base of this kiosk are students, the main purpose of this design is to promote fun through the game interactions. The use of a shopping game creates good cognitive mapping, it simulates the common real world experience of shopping in a store. This makes the experience more intuitive to the user.

| Pros   | Cons  |
|--|---|
| <b>Entertaining for children:</b> The game interaction would be more entertaining for children than a traditional kiosk which would benefit people ordering with children as it keeps them entertained during what is typically a boring task. | <b>Hard to learn how to use:</b> The average person is unlikely to have experience with conventional game interactions before. The implementations of the task interactions differ greatly from the standard kiosk and it may take new users a long time to figure out how to use it. |

|  |   |
|--|---|
| <p><b>Novel Idea:</b> The idea of executing a cafe order though a game is novel which could garner attention from the community and increase sales.</p>  | <p><b>Software quite complex:</b> The software required to implement a fully functional, animated game is quite complex and could cost a lot more, in both time and money to complete.</p>  |
| <p><b>Rectangular shape:</b> The rectangular shape of the screen is familiar to most people who have ordered on a kiosk before and may also be easier to source/make than a non-rectangular screen.</p>    | <p><b>Time to use:</b> If a user misses an item they want to select, their character will have to walk all the way up the aisle again to find it. This wastes a lot of time, particularly for those who are not familiar with the layout.</p>   |
| <p><b>Targets Largest User Demographic:</b> The largest user base for this kiosk was identified to be university students. Most students belong to a younger demographic that have used similar games.</p> | <p><b>Line Build-up:</b> Because the time taken to learn to use the system, and use the system in general are both identified to be long, this could cause a line for the kiosk to build up. The efficiency of the overall system may be very low.</p>  |
| <p><b>Intuitively:</b> The idea of walking down an aisle and selecting items from a shelf is familiar to most people and it simulates a real world shopping environment.</p>                               | <p><b>High Computational Power:</b> The computational power required to execute and display a functional game would be a lot higher than a standard two dimensional page based kiosk. This could mean that the hardware cost to build the system are high, or the size of the system is large to accommodate for size inefficient hardware.</p> |

## 6. Primary Preliminary Design



The preliminary primary kiosk design was created by analysing the sketched design alternatives and combining elements that best fit the task scenarios and the users' needs. From discussions within the group the main items deemed essential were:

- Affordances for efficiency
- Multiple interaction methods to cater for different abilities/levels of digital literacy
- Streamlined design that was still visually appealing and effective in gaining user interest.

The final preliminary kiosk design for the university café was chosen to provide accessibility, ease of use, and flexibility for a diverse user base. With multiple interaction options, such as a touchscreen and game controller, it accommodates users of varying preferences and abilities. Ensuring that the design was interactive and unique was high on the priority list but had to be balanced with ensuring familiarity and ease of use. The WII-shaped controller aims to take people back to their childhood, with a refined number of buttons compared to that of a PlayStation and Xbox remote; thus, it became a middle ground in establishing efficiency and novelty. The controller includes a retractable cord, which is an accessibility feature for wheelchair users as it prevents the need to reach up high to interact with the system. The addition of a pin-pad within the controller means that payment can also be made from a shortened height position whilst maintaining novelty. This ensures users with varying mobility challenges can comfortably interact with the kiosk.

Core features like simplified menu navigation and the ability to easily view, add, edit, and confirm orders before payment make the kiosk user-friendly and efficient. With the expected high demand for the cafe, an efficient and streamlined user interface was needed to ensure shorter queues and limited wait times. There were additional considerations, such as two-step order confirmation, which is aimed at reducing the likelihood of mistakes. Ensuring home and undo buttons are available at every stage of the process means that users can have faith and not be worried about doing something wrong as there is an emergency escape, which aligns with usability heuristics. These functionalities cater to busy students and staff who need a streamlined process that utilises affordances and easily understandable interactions.

The kiosk includes a backend portal for staff members, which allows for real-time updates to menu items and stock availability, such as marking items as out of stock or adding daily specials. This feature helps maintain an accurate and responsive service, improving overall operational efficiency. Furthermore, the system's simplicity means that any staff member can complete the tasks with a limited learning curve. Whilst visual presentation is less critical in backend design, the internal consistency of items and design features ensures efficiency and understandability for staff members.

However, even with these features, there were a number of possible changes that could be considered in the future. These include considering different size components for those with varying needs. Progress indicators during the checkout stage of the process should also be considered in future iterations to enable a clear understanding of where in the system users are. Skeuomorphism is an additional consideration that should be utilised to improve users' efficiency when using the system. A final consideration is ensuring Flexibility and Efficiency of Use, whilst users can sign in and reorder previous orders, the system's flexibility could be extended to enable further shortcuts.

## Conclusion

Throughout our document, we identified the main groups of users that will use our kiosk system. The user groups outlined include students, cafe staff, teaching staff and visitors. Each group of users plays an important role in how they interact with the system, as they all have different requirements and needs based on our kiosk design. To facilitate these needs, we have identified a variety of tasks that the users will partake in to complete their experience with the kiosk. These main tasks include making an order, editing an item, creating/signing into an account, making payment, and accessibility extensions such as multiple language options, wheelchair accessibility usage and many more, however, these tasks are our main focus, as we believe that they are the most important to the users.

To create a final design that aligns with the user and task requirements, a brainstorming process was needed to create various alternatives, which could be further analysed in terms of their effectiveness as a kiosk. Each of our group members made 2-3 detailed sketches, taking into consideration the users, but also most importantly attempting to provide a creative alternative to the basic kiosk. Combining creativity with the design engages the users with the ordering process and is likely to attract most customers. For each of our main designs created, we identified the rationale behind the design, as well as some pros and cons for how each of our designs works. To create this final design, we brainstormed as a group by reviewing each design made. From there, we selected the ideal and applicable aspects of each design and combined these aspects into one final design.

Our chosen design meets all the high-priority required user tasks identified, with additional lower-priority tasks also included. This was important to ensure that the most important tasks are emphasised within the design, so users have the most efficient and easy experience possible. As a result of this, the expected impact of our design will be positive for the user's ordering experience at the CAF. The design is clean and impactful because of its unique character and use of shapes. It is effective as it prioritises simplicity, ensuring that customers are not overwhelmed by excessive information. Focusing on a clean and minimal layout, allows users to quickly find what they need, enhancing their overall experience without creating cognitive overload. As a result, users will be able to decrease the time it takes to make an order, due to this reduced cognitive overload, it is ensured that the number of mistakes is reduced due to the simplicity of the information displayed. The use of a controller in addition to the kiosk increases the accessibility for a variety of users, who may suffer from disabilities. The controller also creates a fun aspect to the design, which will help to engage users more in the process. As the controller can be used as an alternative to the touchscreen, this will prevent the time taken for users to learn how to use the controller if they choose not to use it. The consistency between each of our kiosk's pages helps to meet the customer's expectations by ensuring that our design is predictable and learnable.

Overall, the design process of creating a kiosk for the CAF has been successfully outlined throughout the document. Firstly, we identified users and their needs, and then took these needs and transformed them into specific tasks that our kiosk would need to complete. Secondly, we brainstormed various kiosk designs that could be used to meet these user requirements. Lastly, we created our final design whilst taking into consideration all of the high-priority tasks that our design needed to encapsulate.

## Primary Contribution of Each Member

Laura:

- Two detailed preliminary designs, showing a variety of pages for the kiosk, along with rationale, pros and cons to describe the effectiveness of the designs
- Executive Summary/Abstract for the document
- Detailed conclusion summarising what the document and design achieved
- Contribution to group discussion, such as brainstorming users, tasks, prioritisation of tasks, and discussion how to create the preliminary design method used, as well as contribution to the final review and editing of the document

Isabella:

- Three initial designs with rationale including potential pros and cons.
- Five personas and explanations for the user groups chosen to be excluded
- Five of the task scenarios
- Providing and writing up the rationale behind not including certain tasks within the design of the kiosk
- Sketch of the preferred design concept and explanation of why it was chosen and the features evident.
- Active participation in group discussions, including group prioritisation of tasks and identification of features needed in the primary preliminary design
- General editing and proofreading

Melanie:

- Three designs
- General organising/summarising ideas for report
- Introduction
- Contribution to group discussion, such as brainstorming users, tasks, prioritisation of tasks, and choosing the preliminary design method, as well as suggestions from TCUID book content and The Design of Everyday Things book content
- 

Michelle:

- Developed two designs for the Kiosk interface (*Hexagon Layout Kiosk, Stacked Design*)
- Completed Question 3, analysed the frequency, priority, and importance of each task with the group to determine which user tasks should be supported in the application.
  - Provided clear Rationale for each prioritisation and presented it neatly in the structured table
- Actively participate in group discussions, contributing to the pool of ideas for user tasks
- General editing of the final document

Hannah:

- Two Full Designs (The Game, The Bear)
- Interaction design ideas
- Personas (x1) + Expanding on the other persona ideas
- Task Scenarios (x5) + Expanding on previous scenario ideas
- Quantification of task priorities and expansion of the initial reasonings/rationales written.
- Contributions to group discussions: brainstorming users, tasks, prioritisation of tasks, choosing the idea of the preliminary design
- General editing

Claire:

- Two preliminary designs with rationale and pros and cons
- Added personas and task user scenarios.
- Writing and editing for user categories identification based on notes and discussions
- Participate in all group discussions and brainstorming
- Final formatting from google doc to word document



## Appendix

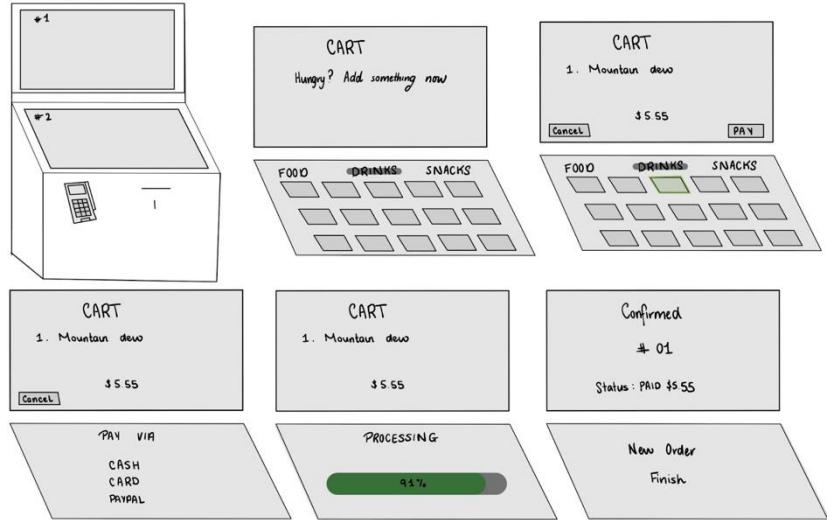
### Isabella #1: Dual screen design

#### Pros

- Familiar shape
- Clear navigation
- Current order status always visible

#### Cons

- Space utilisation low (rectangular box takes up more space)
- Multiple screens may increase complexity
- Predictable therefore less engaging



The dual-screen design has a sleek and modern look that makes it perfect for a university cafe, where looking up-to-date is important. Having two screens means users can see different things at the same time, like the menu on one screen and their order summary on the other. Having the upper screen designated to be the order summary screen means that users have an easy and intuitive way to recognise what is in their cart and how much their order total is. Due to the size of the machine there is the added ability for people to pay with cash without having to talk to one of the cafe staff. This design is all about efficiency and multitasking, which could make it ideal for busy places where people are in a hurry and need the kiosk to be as quick and straightforward as possible.

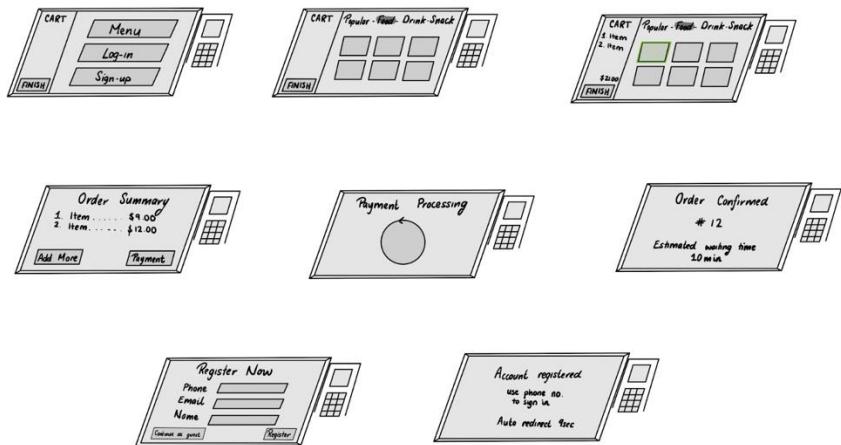
### Isabella #2: Rectangular design

#### Pros

- Familiar shape
- Clear Navigation
- Compact system (may be cheaper and can have more concurrent devices)

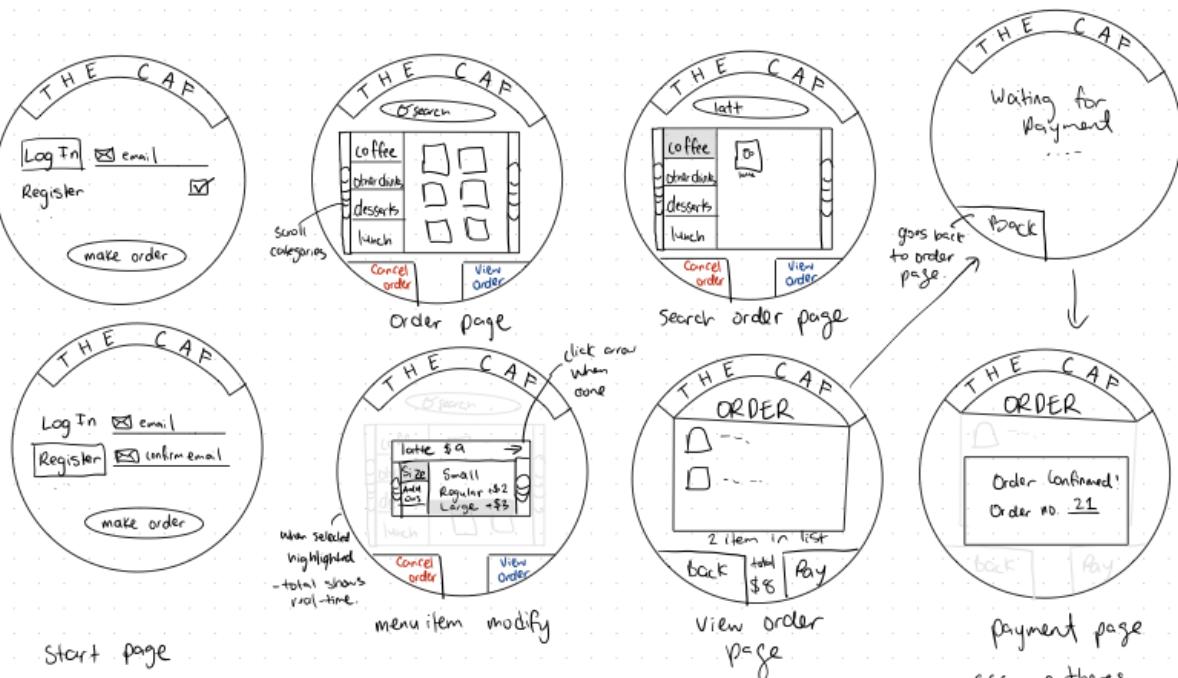
#### Cons

- Boring (is familiar and has been done before)
- No ability of cash payments therefore users may have to have human interaction



This design goes with a pretty standard rectangular touchscreen, which most people are already familiar with from using tablets and smartphones. It keeps things simple and easy to navigate, with clear menu categories and options for logging in or signing up. This makes it great for places like cafes, where customers just want to quickly see the menu, make their order, and pay. Since it uses a familiar layout, even people who aren't super tech-savvy will probably find it easy to use. Plus, having options to log in or sign up could help businesses build customer loyalty by offering personalised experiences.

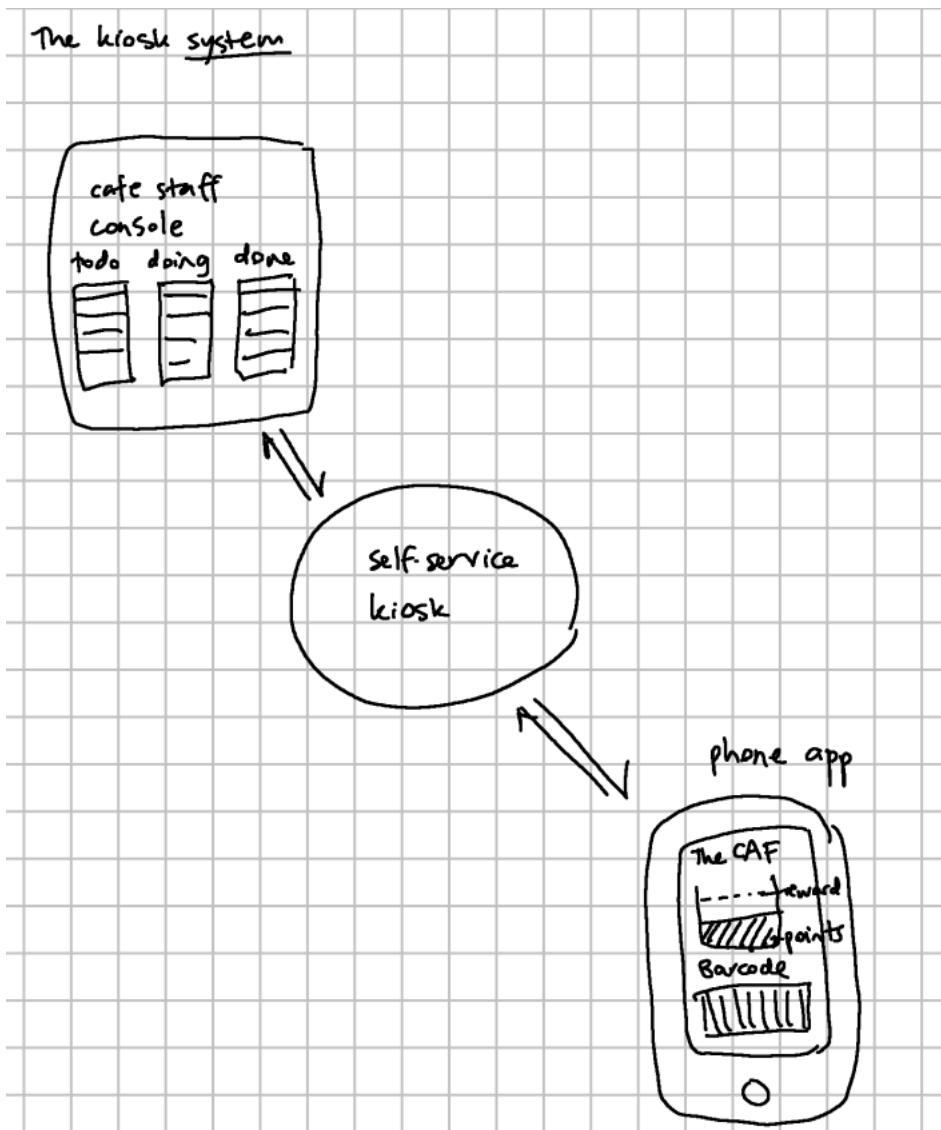
## Claire #1: 'Circle' design



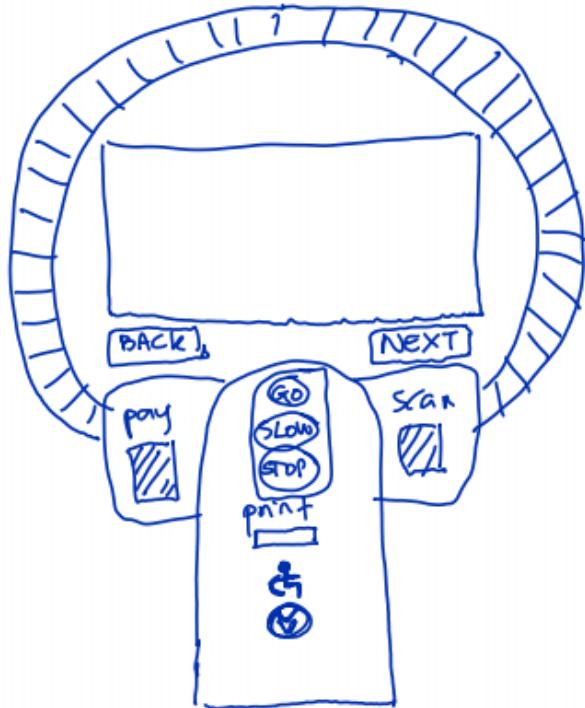
I have aimed to design a kiosk that can try to fit with the theme of a general modern café. The shape could be more visually appealing than standard rectangular kiosks while blending seamlessly into a modern interior version of The CAF.

| Pros  | Cons  |
|---|---|
| As the shape is a simple circle, this makes it highly customisable for future design improvements, such as a 360 progress bar on the outer circumference etc. | The circle shape however can be harder to implement new design features such as buttons as the composition would be challenging and will be dependent on the overall interface placement elements in the kiosk. |
| It may be good accessibility for a wheelchair user. This is because when brought lower it becomes an equidistant reach if user is centred.                    | However they can have different need for support for stability when reaching at the sides.  |
| The individual item details and add-ons window pop-up when the image is clicked. This makes it faster to edit selections on the go.                           | This may not be as intuitive and user might not initially realise to click the item image.  |

Mel #1: 'System' design



## The "lollypop" design

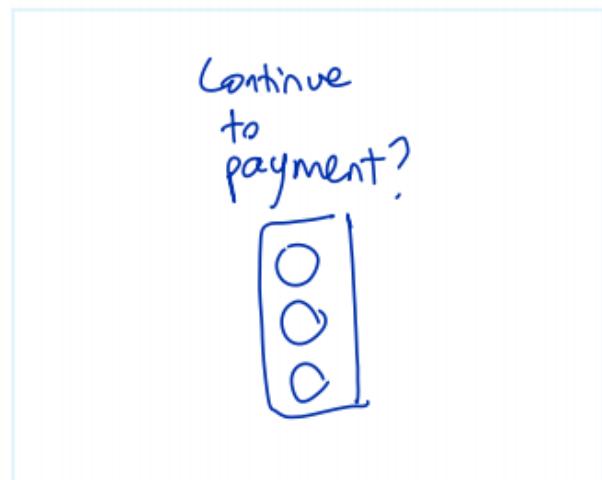
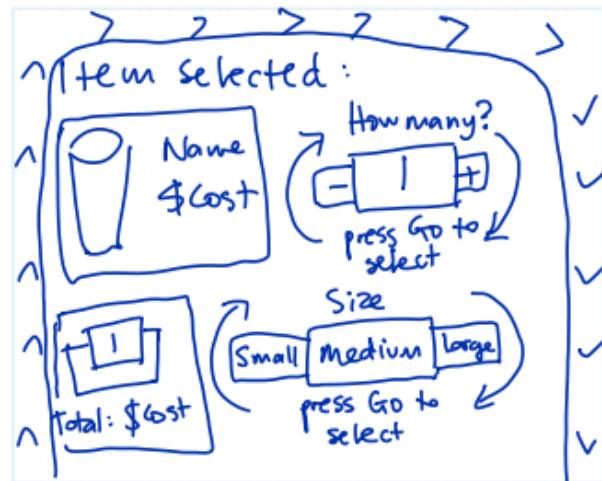
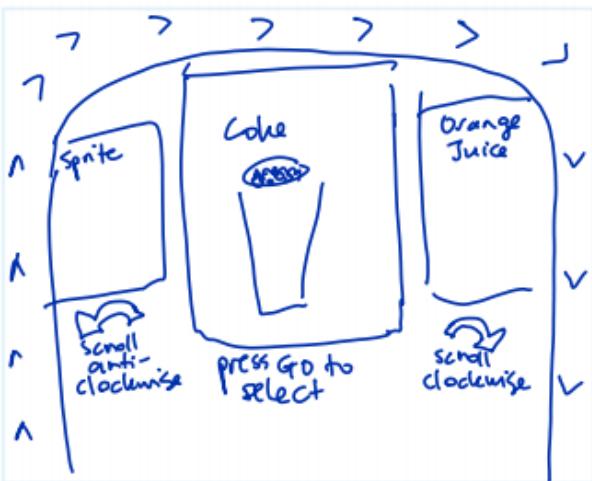
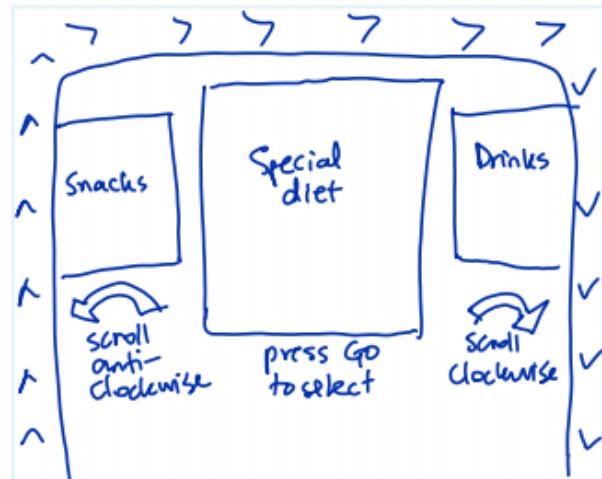


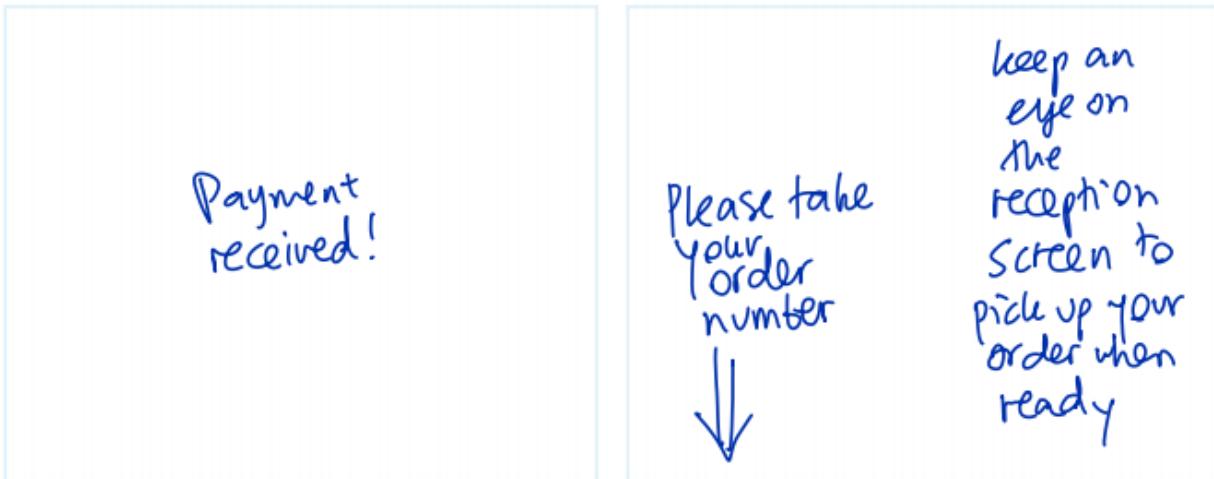
5 controls:

- BACK button
- NEXT button
- GO button
- SLOW button
- STOP button
- SCROLL bar  
(around edge)

4 interactive items:

- Screen
- payment device  
(smken)
- QR code scanner
- printing slot for  
order number
- lowering for  
wheelchair users





Pros:

- Tactile, interesting shape, attracts attention
- Accessibility: large buttons, avoids touch screen, encourages human-machine collaboration (“slow” button), lowering for wheelchair users
- Health & safety: curved edges, injury seems unlikely
- Not hand-ist! (doesn’t favour right or left hand)

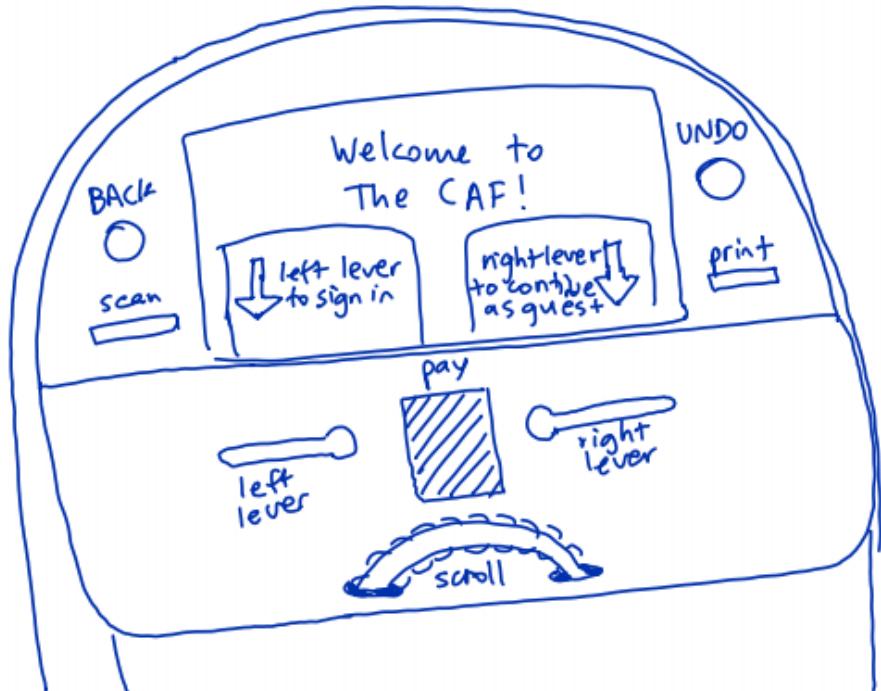
Cons:

- Accessibility: large scroll likely difficult for people with limited upper body strength
- Traffic light button idea doesn’t map clearly onto screen actions, needs lots of explanation
- “Slow” button encourages asking for help, but how much help can we actually provide via the interface?
- May take up too much space

Mel #3: The "Pinball" design

1

## The "pinball" design



5 controls:

- BACK button
- UNDO button
- LEFT lever
- RIGHT lever
- SCROLL bar

4 interactive items:

- Screen
- payment device (smken)
- QR code scanner
- printing slot for order number

Welcome,  
friend!



Please scan your  
app barcode here.



Welcome!

If you would like to  
download our app,  
please scan the  
QR code:



Welcome, <NAME>!

You are logged  
in!



Sorry, friend!

We couldn't log you  
in.

Please try again.



Snacks

Special  
diet

Drinks



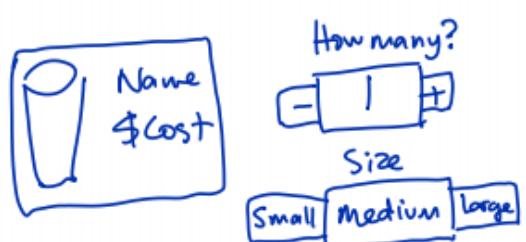
Sprite

Coke

Orange  
Juice



Item selected:

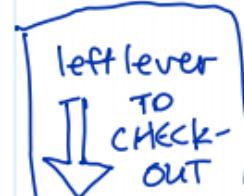


Total:  
\$cost

Review items:



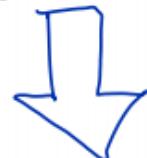
Continue shopping?

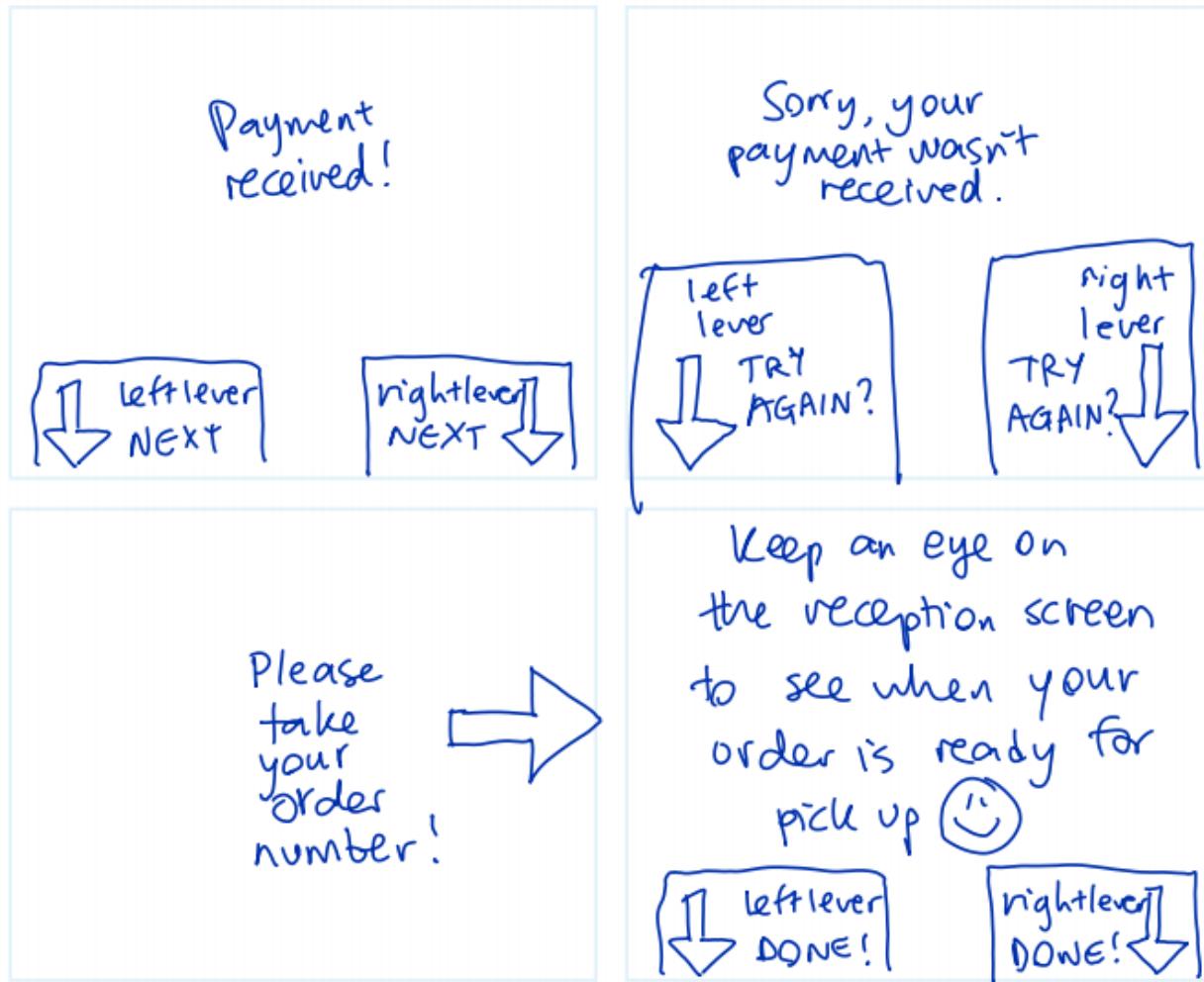


Payment type:



Please follow  
the pin pad  
instructions  
below:





#### Pros:

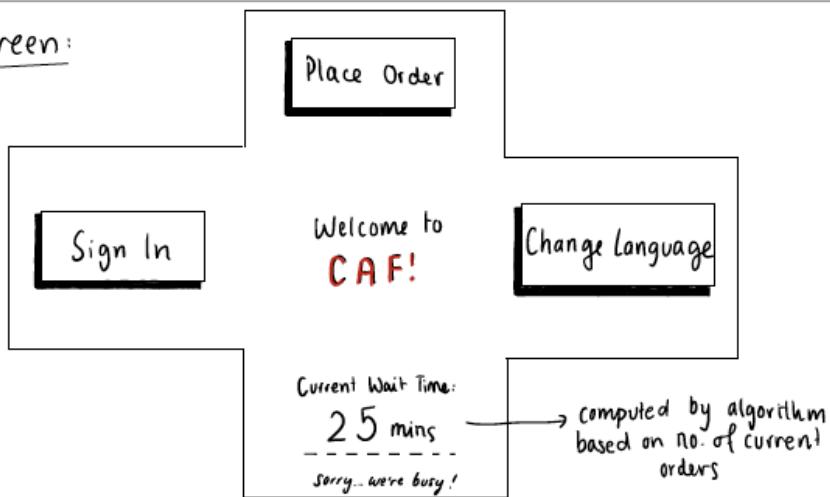
- Tactile, interesting shapes, game-like, attracts attention
- Accessibility: large buttons, avoids touch screen
- Health & safety: curved edges, injury seems unlikely (catch fingers in scroll device?)
- Not hand-ist! (can use right or left hand for levers)

#### Cons:

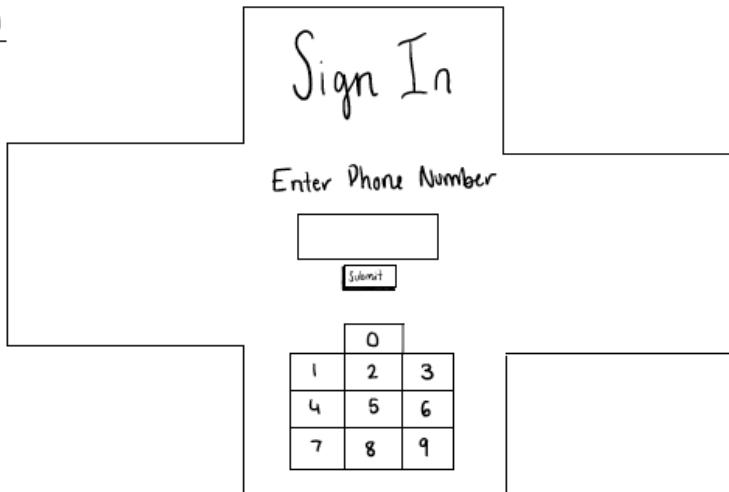
- Accessibility: difficult to manoeuvre controls from wheelchair/limited upper body strength
- Levers don't map clearly onto screen actions, need lots of explanation
- Users may not spot back/undo buttons (change location?)

Laura #1: 'Cross' kiosk

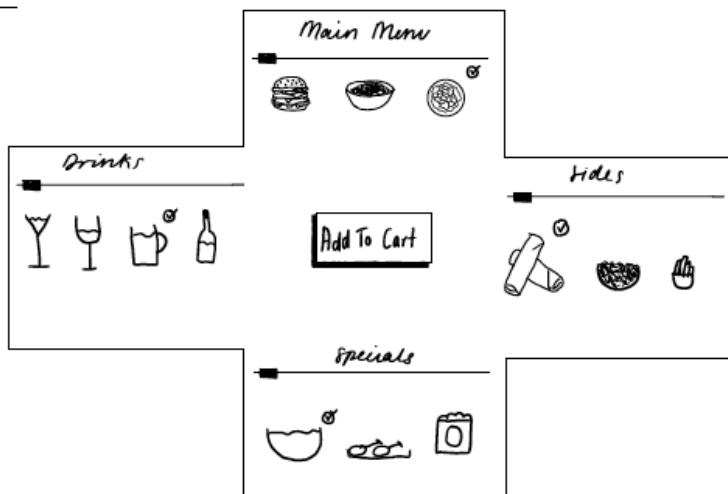
Home Screen:



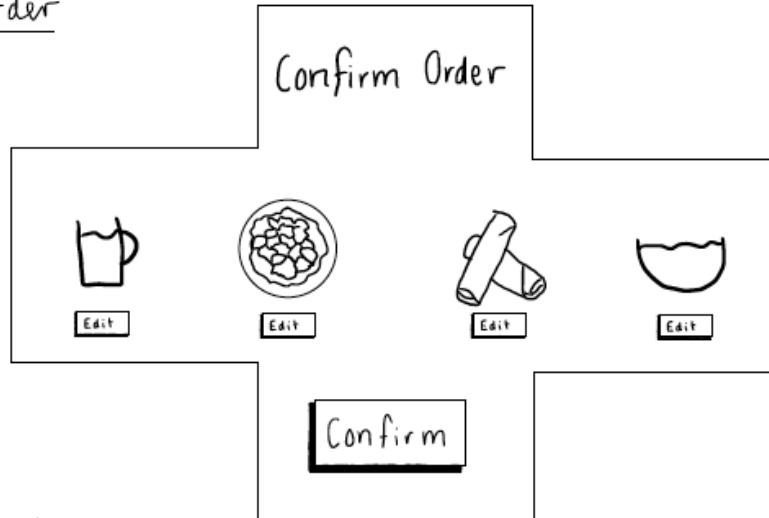
Sign In



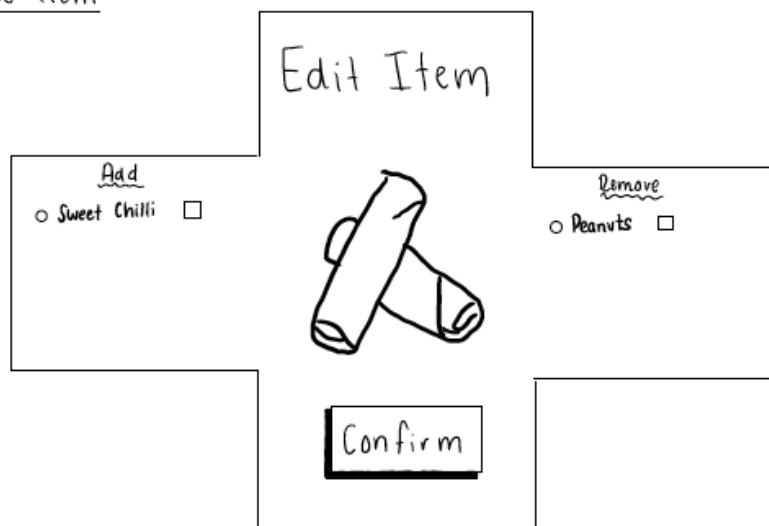
Place Order



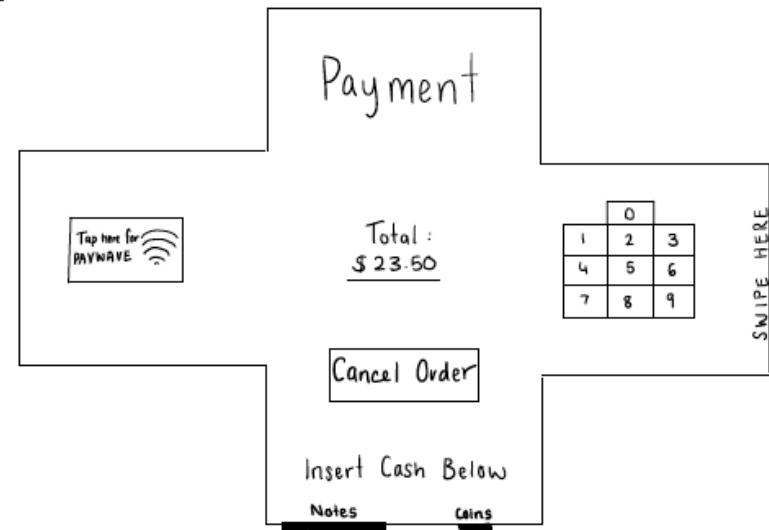
### Confirm Order



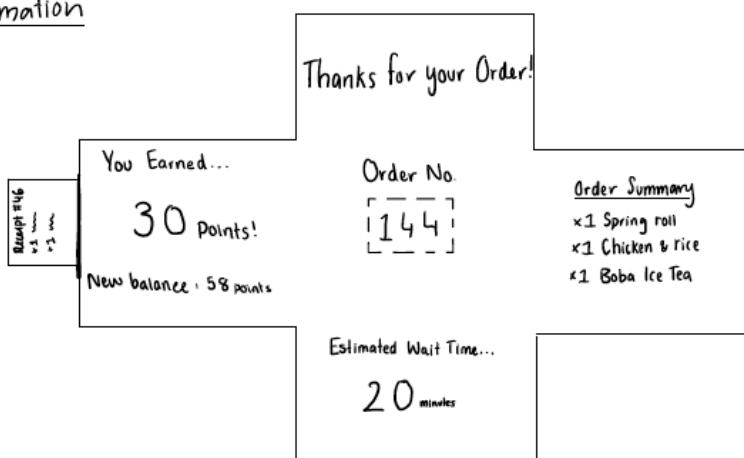
### Edit Menu Item



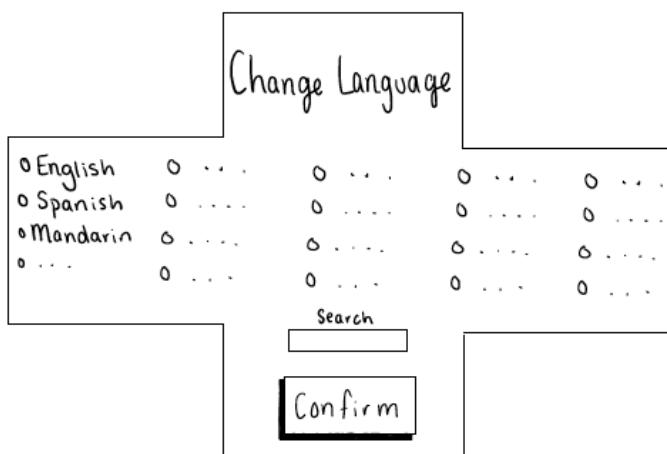
### Payment



### Confirmation



### Change language

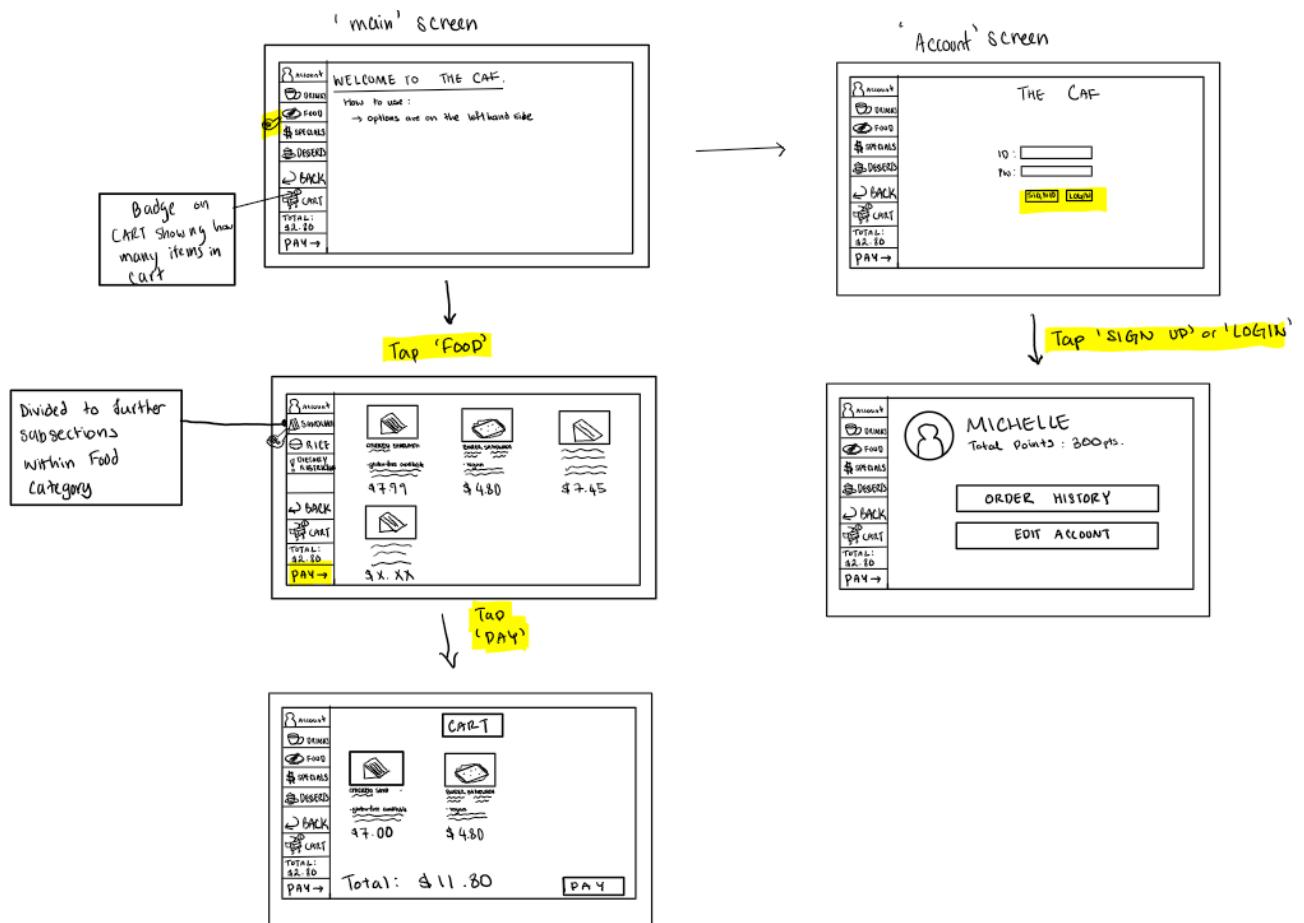


### **Design Rationale:**

A cross shape was used in this design in order to show a symmetric approach to balancing the elements on each page. This design keeps the kiosk features organised, and simplifies the process of ordering, as each section is used to display a different feature.

| Pros  | Cons   |
|---|--|
| A good variety of options for payments, including cash  | Using a cross as a screens shape may be interpreted as medical related                             |
| Separating the different categories into each section of the cross keeps the screen organised | Wait time on home screen makes the display not symmetrical as it is not displayed as a button      |
|   | Signing in before making a payment instead of at the beginning may be more inconvenient for users. |

## Michelle #1: 'Stacked' design



### Rationale:

The stacked design for the Kiosk follows a traditional, intuitive layout where the main sections (Account, Food, Drinks, Desserts, etc...) are displayed vertically on one side of the screen. When a section is selected, it expands into subcategories for further options. The shopping cart is clearly visible near the bottom of the Kiosk with a clearly visible badge showing the number of items, the total cost and the Pay button is also clearly displayed. This design aims to be efficient for regular users while providing easy access to other sections in the Kiosk. The design is inspired by Microsoft's OneNote application, mimicking the familiar "Notebook" and "Section" style. This approach is suited for The CAF's main user group, university students who tend to frequently use OneNote for note-taking, allowing for an intuitive experience that feels similar to their daily use of OneNote.

| Pros  | Cons   |
|---|--|
| Layout provides easy access to all parts of the kiosk and all sections are always visible | Can feel overwhelming or confusing for some users, especially if the size of the Kiosk is small, the text may feel cluttered and may make it harder to provide detailed information. |

|  |  |
|--|--|
| Large text labels and images help users quickly identify sections without needing to read too much text  | Too much visible information at once might lead to decision fatigue for some users   |
| Further organisation with subcategories ( <i>e.g. tapping 'Food' opens 'Rice', 'Sandwiches'</i> ) making it easier to see exactly what the menu offers | Could require more taps for users unfamiliar with the categories, slowing down navigation and reducing the efficiency of the Kiosks.   |
| Checkout Icon is clear and obvious and clearly shows how many items are in the cart. Pay and Total sections are also clear.                            | Having the Kiosk be simple and straightforward may make it feel less engaging.   |
| Designed for efficiency, especially for those used to the layout like OneNote.   | Although it aims to be simple and intuitive for first-time users without any familiarity it may not be intuitive but rather confusing. |

## Hannah #1: The Bear and interaction ideas

**Interaction Idea 1: Circular Menu**

Pros: non-complex shape but still novel  
Cons: may be hard to get used to non linear scrolling  
Can be spun around to select which page to view

**Interaction Idea 2: Embedded Screens in Characters**

Pros: cute/novel  
Cons: embedded in little characters

**Interaction Idea 3: Web Kiosk: Scan a QR code**

Pros: no limit on how many people can order at once  
Cons: customers can order from the comfort of the table  
Requires phone + internet connection  
Phone has small screen - may be hard to read menu  
May be hard to understand what to do for those unfamiliar with QR codes

**Interaction Idea 4: Interactive Shopping Game - Balotax idea**

Pros: little virtual animal that walks around the screen, offering help  
Cons:

**Interaction Idea 5: Sign-in (Scan code)**

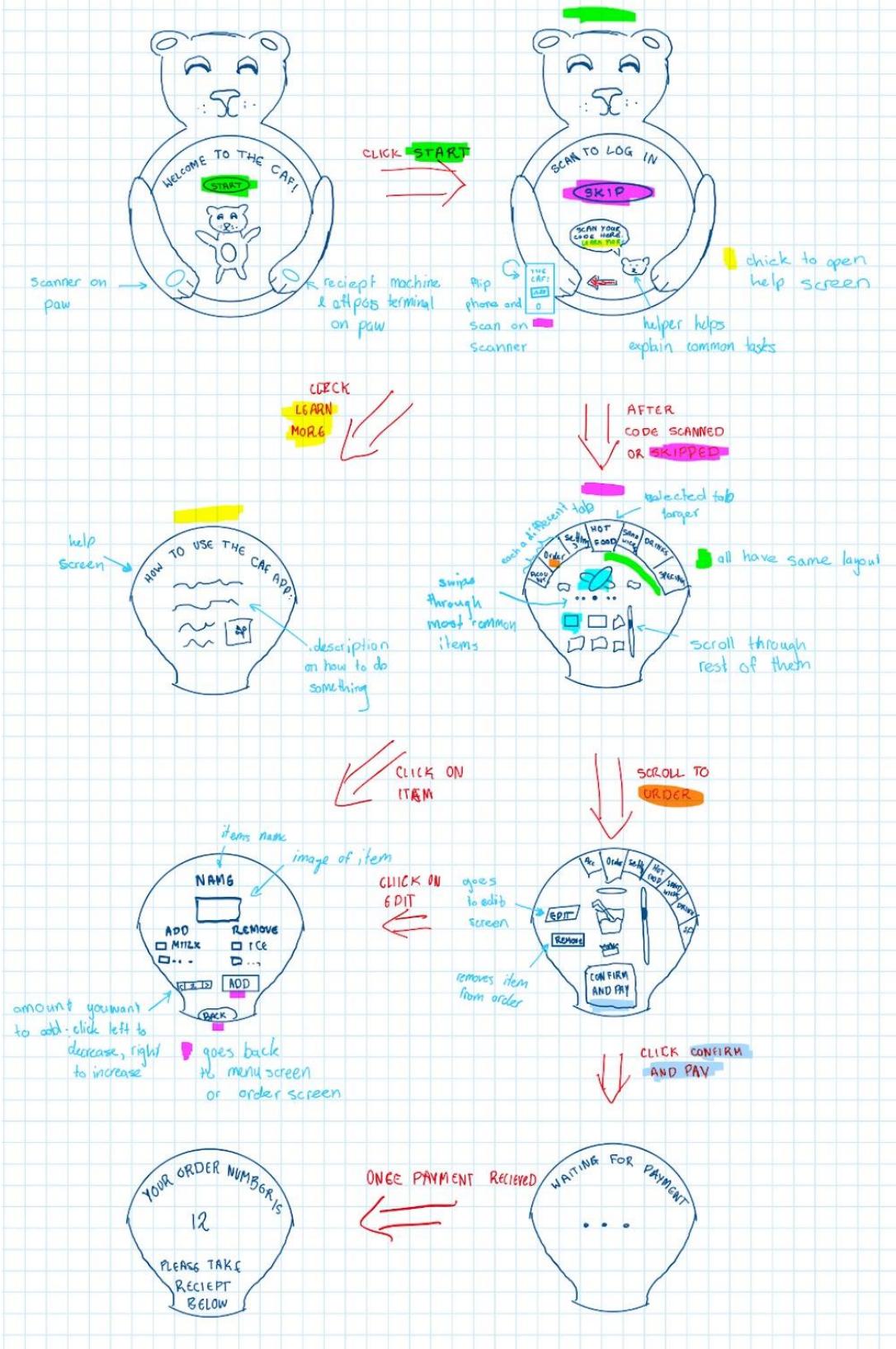
Pros: easy to sign in  
Cons: requires phone to sign in  
Users need to download an app on their phone (uses storage)

**Interaction Idea 6: Regular Sign-in**

Pros: familiar - easy to learn  
Cons: harder to type on large screen - typos harder to fix - irritating  
Takes long time to type credentials in

**IDEAS: Machines that buzz when order is ready**

The Bear :



**Design Rationale:**

The kiosk shape is meant to imitate a coffee cup shape with the intent to make it easier for customers to identify The CAF's possible main purpose – which is providing good coffee for customers. The oval shape at top is not a touch screen and can be customised design to look like a coffee cup lid. The overall interface is intuitive and has similar page flow to other kiosks at other food places.

| Pros   | Cons   |
|--|--|
| Coffee cup shape is attention-grabbing, unique shape can make it memorable. Which can create a brand identity based on coffee.   | However it may neglect other aspects of the menu item as its shape advertises rests on coffee. Additionally, once the novelty dies off or if the coffee at this place is not good for some it can have the opposite effect and decrease the popularity of The CAF. |
| To sign in, the customer must enter their phone number and click "Sign In." Using a phone number for sign-in is one of the fastest and most efficient methods, as it eliminates the need for remembering complex usernames or passwords.         | Just needing a phone number to sign in can be a security risk as it can be seen by others in comparison to passwords that become a circle when you type it in.   |
| The food and drink categories on the left side of the ordering page should not exceed to more than the categories: cabinet food, coffee, menu and other drinks. This is good for people on the go as these are the most popular café categories. | If in the future more food and drink categories are added, would have to implement extra features such as the scroll bar or minimizing the size in the future.   |