The Hawker Experience

Discover Singapore! Experience dining at the UNESCO heritage nominated center through the lenses of the locals.

By: Grace Foo, Kesler Johan, Adrian Antonio and Bhoomika Manot

The VR Hawker Experience

January 7, 2024

INTRODUCTION

Project description

The Virtual Hawker Experience is an innovative VR app designed to immerse its users in the vibrant world of hawker culture, a cornerstone of culture traditions in many regions, combined into one location, a hawker center which belong Singapore. The VR game which was made in unity, offers a unique educational experience into the hawker culture as well as a brief introduction to some of Singapore's most iconic local dishes through interactive gameplay elements such as the quirky tradition of 'choping' tables in

hawker centers and ordering dishes like a local. This approach is designed to appeal to players who are passionate about food or those interested in Singapore's local dishes, encouraging them to visit Singapore and explore a real hawker center in person.

This game is made to play on the oculus quest 2 and the game was created in unity 2022.3.11f1 with android installed into the version.

Background

The project's background is centered around Singapore's vibrant hawker culture, a significant aspect of the nation's identity. This cultural significance was internationally recognized when, on December 16, 2020, Hawker Culture in Singapore was officially inscribed as "Singapore's first element on the UNESCO Representative List of the Intangible Cultural Heritage of Humanity" (National Heritage Board, 2021).

Apart from its UNESCO recognition, Singapore's hawker culture is also gaining attention abroad. For instance, out of the 79 Gib Gourmand locations in Singapore by Michelin, 53 are hawker stalls. According to Michelin "The inspection team has discovered a great number of hawker stalls with flavorsome dishes from different ethnic groups, each with their own secret recipes. Beyond taste, these gems are also an inheritance of culture, which serves as a strong positioning of Singapore's cuisine to both locals and tourists." (Michelin Guide, 2023).This international acknowledgment emphasizes the importance of hawker culture to Singapore's identity and its growing appeal beyond national borders.

Hawker centers, a staple of Singaporean life, are often a topic of interest among foreigners, who express a desire to experience this unique aspect of Singaporean culture. However, factors such as busy schedules, travel expenses, or geographical distance often hinder these aspirations. Similarly, Singaporeans living abroad frequently reminisce about the hawker center experiences they miss from back home.

The choice of Virtual Reality (VR) as the medium for this project stems from its ability to provide a realistic and immersive representation of hawker centers. Research on virtual reality in education and training has found that spatial presence, the perception that the body is inside a mediated environment, increases engagement (Ahn, S. J., Nowak, K. L., & Bailenson, J. N., 2021). Additionally, studies have shown that VR can elicit 27% higher emotional engagement compared to traditional media (Persolja, 2019), making it a powerful tool for connecting users emotionally with the content. These aspects of VR are particularly relevant to the project's goals and objectives, which aim to inspire tourists and homesick Singaporeans to visit Singapore.

In line with these insights, our project aims to create a VR experience that allows users to virtually step into the role of a hawker, providing an immersive insight into the culture and food. This experience is not just about showcasing Singapore's culinary delights but also about fostering an emotional connection that could incentivize potential visitors to travel to Singapore and experience its rich hawker culture firsthand.

The reason why we want to teach people on what hawker culture is and ti visit Singapore, is that we are passionate about food and our hawker culture and want it to be more seen overseas and when they finally come to Singapore they will also understand and love Singapore's food and hawker culture as much as we do

Additionally it could possibly help increase Singpaore's ecnomomy through tourism since "The tourism sector currently contributes 4 per cent to Singapore's gross domestic product" (Singapore Tourism Board, n.d.), which estimated could be worth 15.88biliion USD looking at the gdp of Singapore in 2023. If we increase Singapore's economy it means we can continue building Singapore to be a better country for everyone.

Goals and Objectives

The goal is to let tourists learn and experience of what it's like being at a hawker center, such as buying and ordering food, and teaching them about Singapore food and trivia on it through a VR experience.

It is also to let home-sick Singaporeans to experience home from far away. If they enjoyed our project, it would incentivize those who tried it to travel over to Singapore to try doing so for themselves and to apply the knowledge that they had learnt

Target Audience

- Foreigners or tourists who are foodies and who are interested in learning about Singapore's food culture
- Singaporeans who have moved away who feel home sick and misses the food and the hawker centers
- Those who had visited Singapore in the past, who enjoyed Singapore and its hawker centers and want to experience the feeling of going to one again
- Those who want to experience a distant culture but cannot visit, due to being too far away, being too busy or that they can't afford to travel to Singapore

Design rational of Our logo

Initial sketch of our original logo

The reason why we decided not to go with this logo is because the logo is hard to read, especially for those who may have a reading disability or who are color blind.

Secondly, the background color doesn't match well with the main part if the logo and does not make sense.

Additionally the "savor traditions" part does not feel natural to read in the position and feels too short that some don't understand "what do you mean savor traditions?"

Final Logo
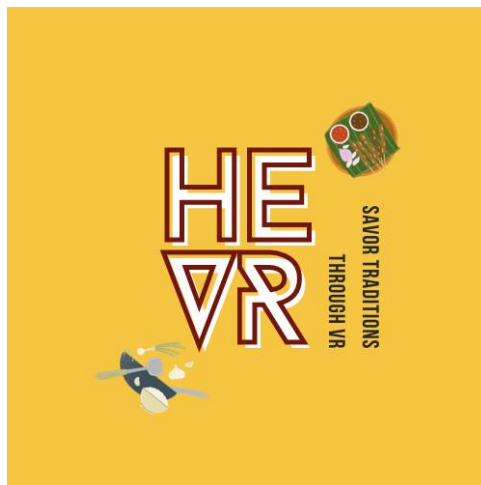
We decided to keep the red and white coloring to represent Singapore's flag, but to tone down the red so its easier to read, also because red is usually used for food and logos since "research shows that red is eye-catching and triggers appetite" (Minso, 2023).

The yellow color in the background is used, since it matches better with the red background. Yellow attracts attention, and is commonly used in fast food logos and to give of a cheerful

mood, which fits what we are going for, to make a hawker experience fun and educational and immersive, so that people who enjoyed may be motivated to come to Singapore

We changed the "savour traditions" to "savour traditions through vr" to explain slightly better what HEVR is about

COMPETITIVE ANALYSIS

1. VZfit

VZfit is a VR game where it combines physical activity, where you run, bike or do exercise while touring and exploring real world locations through the VR headset.

This is how the game roughly looks like, as you can see this man is exercising while traveling around the world on his vr headset

Here you can see the player avatar exercising and playing through the game

Advantages

- Let's people explore the outdoors from indoor biking/ exercise
- Let's users truly explore and tour around the world, from famous destinations that you could not afford to visit in real life due to circumstances, or even revisit locations that you loved

Disadvantages

- For some it can cause major motion sickness. In an article from The Washington Post it states that "After I was done with a 15-minute ride, I fought off a touch of motion sickness." (Hume, 2021)
- There is a subscription service that isn't appealing to everyone. The subscription is $10usd a month, and there are more modes, more places to see, and some added bonuses. Additionally, there is a need to buy extra hardware for this so this might leave a sour note in people's mouths
- When exploring around in cities and or built-up areas, the game doesn't play well with it
- Because they are using the engine from google maps for their 360 system, it gets very dull very quickly (The image below is from a forum post of someone stating their experience with VZfit)

I first tried out the Google maps ride which was a bit disappointing, to be honest. The maps are generated via a live feed so they update every few seconds. It felt like I was riding through a slide show. This is a bit disorienting and at one point freaked me out because the road just disappeared and I "crashed" into a wall that came out of nowhere.

https://www.reddit.com/r/OculusQuest/comments/ek541l/anyone_else_use_vzfit_my_mini_review/

2. Puzzling Places

Puzzling Places is a puzzle video game where the player must piece together puzzle pieces of real-world places using VR mechanics. These puzzle pieces can be the floor, roofs, and walls of the place and once the player is done with the puzzle, the player gets a miniature version of the place they finished building.

Advantages

- Fun and relaxing game with satisfying controls and sound effects.
- Gameplay has extra depth aside from just being a puzzle game with the implementation of VR technology.
- Enough content to ensure that customers of the game get their money's worth when they purchase the game.

Disadvantages

- The game is paid access which makes it inaccessible to a large portion of casual gamers that refuse to spend money on games.
- The game has additional content that requires the player to spend even more money to play it, which can turn off the players that had bought the game without the addons as they can't play the full game.

- The game is not fully optimized and still has bugs and can crash easily causing the player to lose all their game data.

3. National Geographic Explore

National Geographic Explore VR app is an immersive, interactive virtual reality experience that allows users to embark on expeditions to explore two of the most iconic places on Earth; Antarctica and Machu Picchu, Peru. In the Machu Picchu experience, users can discover the history behind Machu Picchu while capturing photographs of the ancient Inca citadel through detailed digital reconstructions. On the other hand, the Antartica adventure enables users to engage in a wide range of tasks and storytelling elements, including navigating a snowstorm and engaging with wildlife, creating a sense of being a real explorer.

Advantages

- The app is friendly and suitable for people of all ages with its wide range of exploration and photography activities, making it an excellent fit for families looking to engage in a shared activity that is both entertaining and educational.
- Utilizes photogrammetry which uses multiple photos of a location or an object which are then stitched together to form a 3D model of the real-world object or location, emulating a realistic environment for its users to experience and be immersed in.
- Provides an educational experience and cheaper alternative by allowing users to explore and learn about iconic locations such as Antartica and Machu Picchu

through its wide range of activities that would otherwise be quite costly if done so in real life.

Disadvantages

- The controls could be quite challenging and confusing for newer users, such as teleportation and snap turning.
- The app does not include a multiplayer feature, which might be a drawback for some looking to share the experience with their friends.
- National Geographic Explore is a high-quality VR experience and is thus resource-intensive, requiring more capable VR systems. Users with older or less powerful VR headsets might not be able to enjoy the app to its full intended extent due to the lag.

4. Space Explorers: The ISS Experience

"Space Explorers: The ISS Experience" is an immersive 4 part VR documentary series that provides viewers with a unique opportunity to explore life aboard the International

Space Station (ISS). This project offers a glimpse into the daily lives of astronauts living and working in space. This is made by Felix & Paul Studios, TIME Studios and NASA.
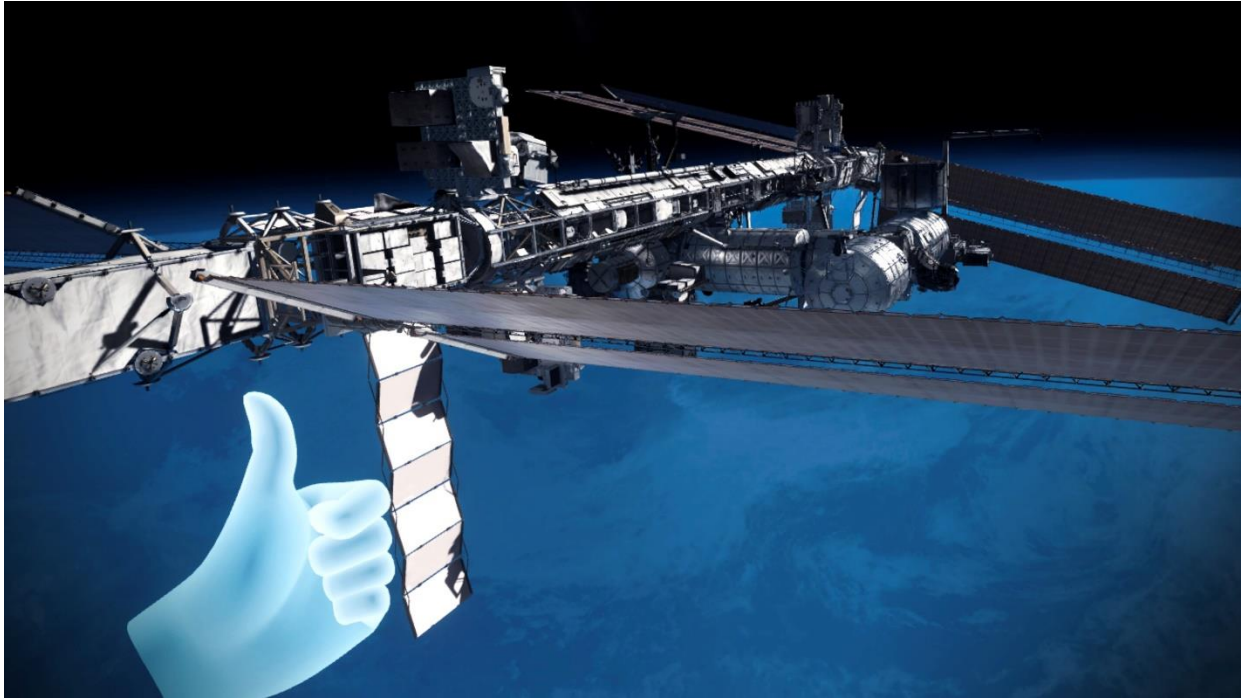
Features

- "Space Explorers" aims to educate viewers about space exploration, the challenges faced in space, and the scientific advancements made aboard the ISS.
- Viewers can experience life in space through a series of episodes that showcase different aspects of living and working aboard the ISS.
- Using VR Technologies, the series offers 360-degree footage, allowing viewers to look around and explore the space environment as if they were on the ISS themselves.
- The series features narration and insights provided by actual astronauts who have lived on the ISS, sharing their experiences and perspectives on life in space.

Advantages

- It offers an engaging and interactive experience, which allows users to make decisions in the experience. This henceforth provides a close-to-real experience of living and working in space.

- Allows users to experience the ISS environment firsthand, offering a unique educational experience, and ignites interest in STEM fields. This encourages students to learn more about space.
- The VR experience makes the ISS accessible to a broader audience, including those who may never have the chance to physically go to space.

Disadvantages

- The cost of equipment is high and may not be accessible to everyone.
- There might be technical limitations in graphics, resolution, or interactivity that could affect the overall immersive experience.
- It might lack physical interactions or sensory experiences that would be present in a real-world setting, limiting the depth of the experience.
- Some users may experience motion sickness or discomfort while using VR, especially if they are sensitive to virtual motion or have preexisting conditions.
- The experience might depend on a stable internet connection or specific software updates, which could hinder the accessibility or functionality of the experience.

Name	Advantages	Disadvantages
VZfit	1) Lets people explore the outdoors from indoor biking/ exercise 2) Lets people tour and explore places over the globe	1) Can cause major motion sickness 2) There is a subscription service, which to some are not worth it 3) Game doesn't play well in cities or built-up areas 4) Because of the google maps engine they borrow form, it feels dull at times when moving
Puzzling Places	1) Fun and relaxing casual game 2) VR mechanics add in even more depth to gameplay 3) Game is rich in content even without addons	1) Paid access making it inaccessible for most gamers 2) Additional content also requires payment which can be a turn of for players 3) Game still has bugs which can lead to crashes and data loss

National Geographic Explore	1) Immersive experience allowing users to explore realistic environments 2) Cheaper alternative than travelling to the locations 3) Allows you to see and interact with animals that are quite rare to find	1) The VR app is only a substitute for the actual experience, hence, there will be some compromises such as not being able to feel the temperature of the location's climate 2) National Geographic Explore utilizes photogrammetry to stimulate the environment and thus, the app is slightly laggy which might result in its users feeling motion sick or nauseous more quickly 3) Limited locations available for its users to explore
Space Explorers: The ISS Experience	1) Offers an engaging and interactive experience, which enhances the VR experience 2) Increases interest in STEM field 3) Accessible to all as it has no physical limitations	1) Expensive and inaccessible equipment 2) Technical limitations in visuals 3) Lack physical touch, that affects experience 4) May experience motion sickness 5) Requires fast and stable connection for seamless experience

PERSONA

The persona is Mark Foo. He is a Singaporean who has moved away for 37 years to Hong Kong. Due to his busy job of being a business owner, he does not have the time to come back to Singapore and to tour the hawker culture. Additionally, due to not visiting Singapore in so long, he hasn't seen how things in the hawker scene has changed, thus unfamiliar with today's Singapore's hawker experience, therefore he fits our target audience of those who want to experience todays Singapore's hawkers experience

Mark Foo

Age: 51

Children: two children

Employer: business owner

Personal Traits

Patience ▼70%

Flexibility ▼70%

Problem-solving ▼75%

Bio

Mark Foo loves food and coffee and is a Singaporean but has moved to Hong Kong 37 years ago. He has not visited Singapore in years, thus missing and forgetting parts of Singapore's hawker culture.

Needs

Will be great if the experience reflects the sound environment of a hawker center. It will be even better if there was the smell of a hawker center

Frustrations

Can't travel due to being busy with work

He wants to experience hawker culture again first hand

Free Time

During his free time, he will watch food videos of food from all over the world

He would also try to recreate Singapore's food

Empathy map

Think and feel?

thinks that the idea sounds great, it will feel nostalgic and interesting to play through

Hear?

his friends asks him what to do when visiting Singapore, especially on what food to eat

hears that many of their working peers are recently planning to go to Singapore for work events or for leisure

See?

He sees alot of food videos during his free time, he has seen that there is a trend of more videos on hawker food being posted in the past few years, especially foreigners who document their experience with the food here

Say and do?

they have said how they miss the hawker experience but is to busy to travel here. Even if he tries to replicate the food it doesnt give him the same feeling as if being there physically

Pain

the "Singaporean" food in his country does not taste the same and the feeling and environment doesn't feel the same as well

Due to being busy he hasnt had the chance to travel to Singapore

He has motion sickness so he is slightly afraid of trying it

Gain

-gets to see how Singapores food scene has evolved

-gets to experience first hand how it is like to order food at a hawker center

A day in a life of a buisness owner who is interested in Singapore and food

8:30 Wakeup

9:25 commute to work

10:00 check emails

11:00 start first meeting

13:30 lunch(would sometimes watch food videos during it)

14:50 second meeting

17:00 finish of any work left for the day

18:30 commute home

19:20 prepare dinner (sometimes he would prepare Singaporean food)

19:50 eat dinner

A day in a life of a buisness owner who is interested in Singapore and food

20:30 continues to do a bit of work at home

22:00 goes to relax by watching youtube videos with his wife, sometimes food/Singapore related

23:30 goes to sleep

MIND MAP

```
snap interactions for
choping table

quiz                                                           leaderboards

order food          interactions          website ideas        chat box

buttons                                                         contact page

                    hawker experience                          vote system
                         ideas
clicker game                                                   mini game within the
                                                                    html
                    which hawker center?

        newton circle    maxwell food center    lau pu sat

        -popular, especially from   -some stalls are      -historic
        crazy rich Asians           popular in videos and  -in city area
        -good varierty of food      has a stall
        there                       reccomended by
                                    michelin
```
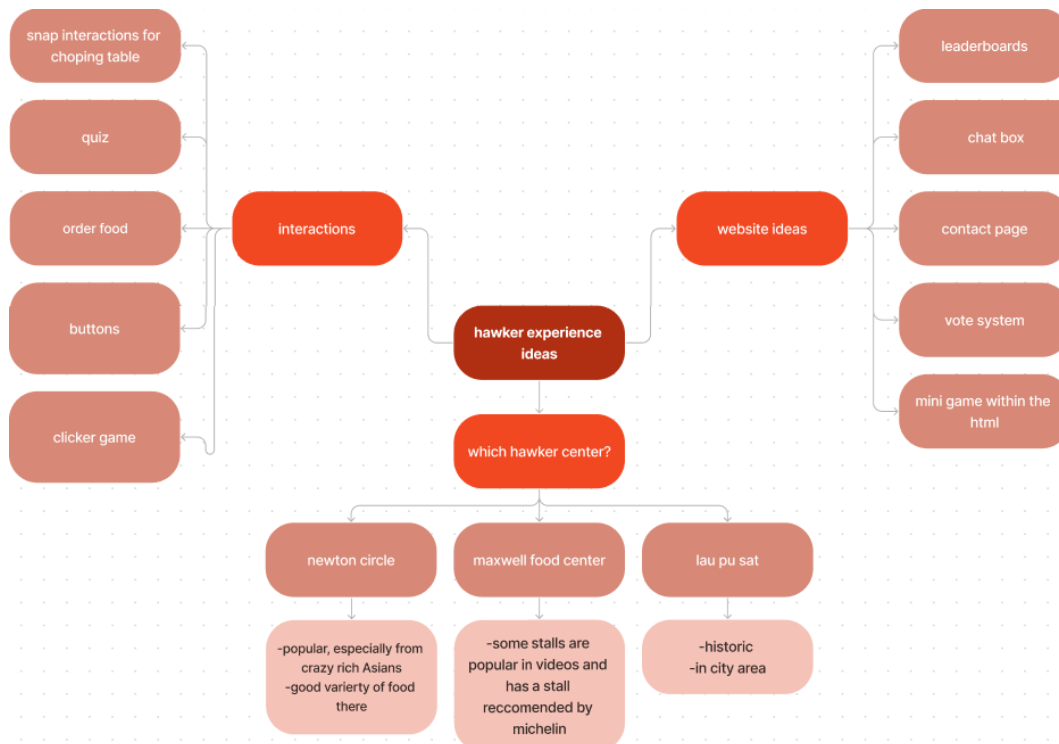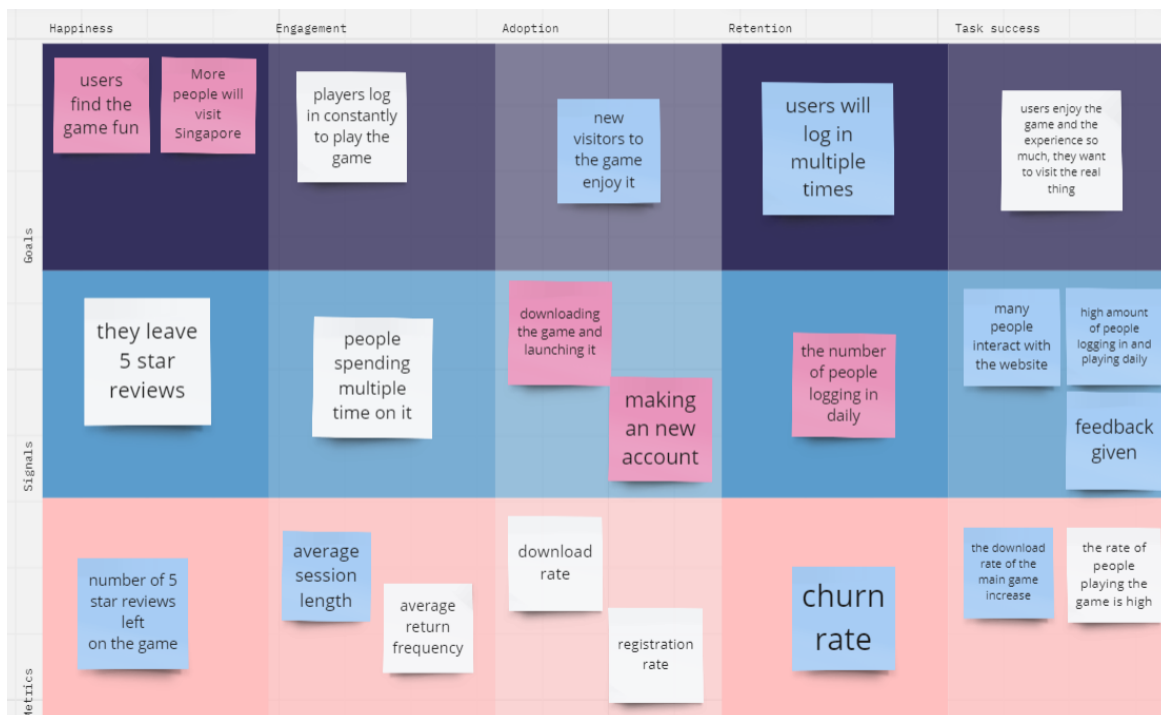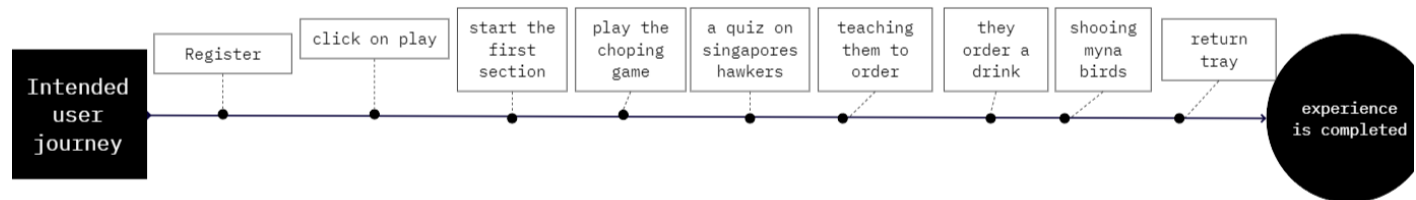
HEART DIAGRAM

	Happiness	Engagement	Adoption	Retention	Task success
Goals	users find the game fun / More people will visit Singapore	players log in constantly to play the game	new visitors to the game enjoy it	users will log in multiple times	users enjoy the game and the experience so much, they want to visit the real thing
Signals	they leave 5 star reviews	people spending multiple time on it	downloading the game and launching it / making an new account	the number of people logging in daily	many people interact with the website / high amount of people logging in and playing daily / feedback given
Metrics	number of 5 star reviews left on the game	average session length / average return frequency	download rate / registration rate	churn rate	the download rate of the main game increase / the rate of people playing the game is high

INITIAL INTENDED USER JOURNEY

This is the user journey we planned before starting to make the project

The initial script of the plot of the experience can be seen here:

https://docs.google.com/document/d/1CVewv3n3T76-2a2XH3zvYpLykHkQ8cM4SsuD4k4BPIk/edit?usp=sharing

SUPPORTING RESEARCH

Good User Experience (UX)

Based on extensive research, we discovered that creating immersive user experiences in virtual reality involves several key UX design considerations:

1. **Multimodal Inputs**: Traditional UX is often built for inputs that come from a mouse or touch. However, in VR, inputs come from various sources, such as head gestures, arm or finger gesture controls, or speech commands. Hence, this fundamental difference in user interaction necessitates that UX designers adapt their designs to accommodate these varied forms of input. In Hawker Experience, our game aims to utilize and involve specific interactions such as using hand gestures to pick up tissue packets or to order food from hawkers to replicate the experience of being in a real hawker center.

2. **Ergonomics**: In VR, users interact with the environment using their body movements, unlike traditional UX where interactions are often limited to a cursor. It's important to design these interactions to prevent user fatigue or discomfort. This involves strategically placing buttons and interactive elements within the user's comfortable range of vision and motion.

3. **Avoiding Sudden Elements**: To prevent user discomfort or confusion, sudden changes in the VR environment, such as abrupt transitions from dark to light scenes or the appearance of fast-moving objects, should be avoided. Elements should be introduced

in a gradual, controlled manner. Hence, in The Hawker Experience we used the same lighting for all the different environments to prevent any sudden light changes that might cause users to feel uncomfortable.

4. **Avoiding Simulator Sickness**: VR introduces a new way of interacting which can lead to mismatches between physical and visual motion cues, potentially causing nausea or disorientation. To avoid motion sickness that could occur, we implemented several methods after experimenting with different ways of interacting and moving within the environment such as using teleportation to move and interacting with user interfaces using the ray interaction to minimize movement which might cause motion sickness.

5. **Spatial Interaction Design**: An important aspect of UX in VR is spatial interaction design, which is about replicating real-world experiences to create immersive experiences while also considering where deviations from reality might enhance the experience. For our designed game, we used a myriad of models to create a setting that looks like that of a hawker center as well as food models that resembled their real-life counterparts that are being offered in local hawker centers.

DESIGN RATIONALE

1. The location of the Hawker center

Hawker centers in Singapore encapsulate the vibrant essence of the nation's cultural and social net. The array of dishes offered such as Chinese, Malay and Indian food. It reflects on the multicultural society Singapore fosters. This unique communal dining experience embodies Singapore's ethos of inclusivity, celebrating unity through the universal language of food. Hawker centers stand as cherished cultural landmarks, preserving traditions while embracing modernity, continually evolving yet eternally rooted in the heart of Singaporean identity.

Newton Circle Food Centre, chosen as the setting for this immersive VR experience, stands as an iconic culinary destination in Singapore, beckoning both locals and intrigued foreigners. Immortalized in the film "Crazy Rich Asians,"

This image is from the scene where its shown that the characters are eating hawker food at newton circle

This created a wave of videos about tourists, going to Newton Food Centre because of this movie

Here are some example of videos of tourists eating at newton circle because of Crazy Rich Asians

www.youtube.com › watch
Singapore Street Food Tour - CRAZY RICH ASIANS Style!
Crazy Rich Asians Food Tour in Singapore! Visit **Newton** Circus Food Centre and try delicious Singaporean food as seen in the movie Crazy Rich ...
YouTube · CupofTJ · 3 Mar 2019

10 key moments in this video

www.youtube.com › watch
Crazy Rich Asians Hawker Food GUIDE | Singapore - YouTube
... **crazy** cold beer ;-) https://www.instagram.com/chesterbeer77/ - **Newton** Food Centre (or **Newton** Circus is what I understand the locals call it) ...
YouTube · Angela Carson · 10 Apr 2019

10 key moments in this video

www.youtube.com › watch
What to eat at Newton Food Centre - YouTube
... **crazy rich asians** at **Newton** Food Centre! Read More: https://www.misstamchiak.com/**newton**-f... Follow us on FACEBOOK,...
YouTube · Miss Tam Chiak · 16 Aug 2019

5 key moments in this video

People are still going there and making videos mentioning Crazy Rich Asians in the titles meaning its still some what relevant

21 HEVR

Here are some examples of people posting videos on it just a couple months ago

Newton Food Centre | Crazy Rich Asians Film Location | Singapore | Food Stall Guide | Walkthrough
702 views • 8 months ago
John Paul See
singapore #singaporelife #singaporefood #visitsingapore Newton Food Centre Crazy Rich Asians Film Location Food is featured ...
4K

Newton Food Centre where they shoot the Crazy Rich Asian movie #travel #singapore
177 views • 8 months ago
itsKAREN po
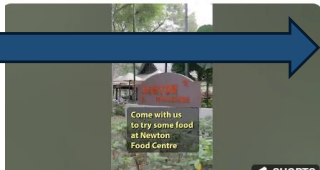
Join us as we show you how to eat Like a Crazy Rich Asian at Newton Food Centre! #OurHawkerCentres
939 views • 9 months ago
Ministry of Sustainability and the Environment

Secondly, its vibrant atmosphere and diverse array of delectable dishes have piqued global interest. Foreign visitors, drawn by the movie's portrayal and Singapore's rich food culture, will find themselves immersed in a sensory adventure. From sizzling satay skewers to fragrant chili crab, this hawker center tantalizes taste buds with an authentic taste of Singaporean gastronomy. The allure of Newton Circle transcends its cinematic fame, offering a genuine slice of local life and an unmissable stop on any tourist's culinary journey through Singapore.

Third, when doing research on a hawker center we could pick, Newton Centre came up constantly throughout lists on recommending what hawker centers you should visit in Singapore

For example here are the first three articles that come up when searching hawker centers to visit
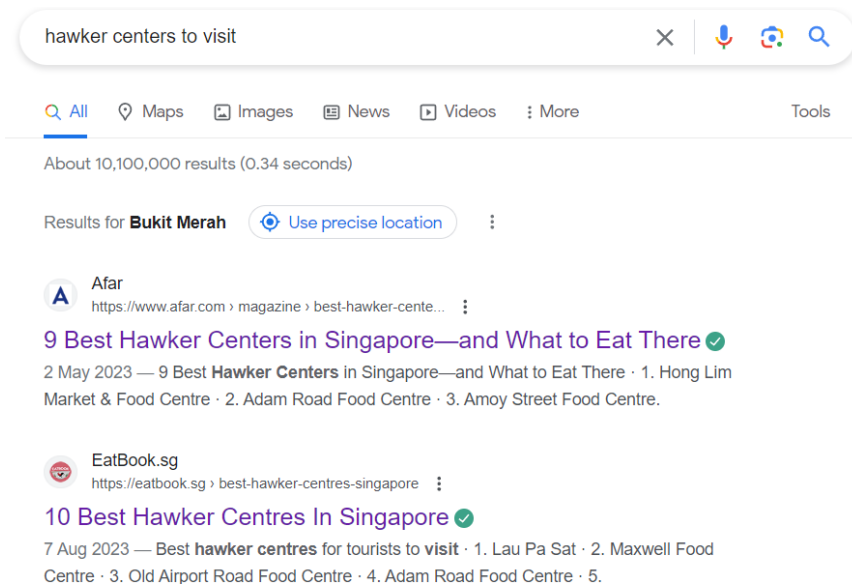
They would all mention Newton Centre (and also mention the fact that it was featured in Crazy Rich Asians

6. Newton Food Centre

A short drive (or walk) from Orchard Road, this bustling hawker center will look familiar thanks to its cameo in *Crazy Rich Asians*. (Credit to the scriptwriters who didn't embellish the experience.) Here, the seafood stalls are plentiful (and most are excellent) and there's a dizzying array of food to try, from *laksa* (spicy coconut noodle soup) to satay (spiced skewers served with a peanut sauce), ice *kachang* (shaved ice), and fresh-off-the-griddle oyster omelette. Top it all off with a glass of cold sugarcane juice.

(Fang, 2023)

9. Newton Food Centre

Newton Food Centre ranks among the top hawker centres that are frequented by tourists, and it's easy to see why. The fact that it was featured in *Crazy Rich Asians* has surely bolstered its name, but the acclaimed stalls here are what truly draw eaters. A few stalls, including **Heng Carrot Cake** and **Alliance Seafood**, received the Michelin Bib Gourmand award. Plenty others, such as **Soon Wah Fishball Kway Teow Mee**, seem to have perpetually long queues. A safe option for your tourist friend.

(EatBook, 2023)

Here is an outside image of newton circle

Here is the 360 picture we used of the outside of newton circle

2. The use of controllers

We originally wanted to use purely hand controllers to make it more authentic however we decided to use controllers instead. The controllers are more accurate on working than hands and if players who are not familiar with VR try to use their hands, and the action they performed is not working since hands are not very accurate in controls, they may think it's a problem with the game rather than its just the hands not being accurate.

Secondly, the controller is also easier to understand the controls rather than using your hands to control, as you need to remember certain motions your hand has to do to pick certain things.
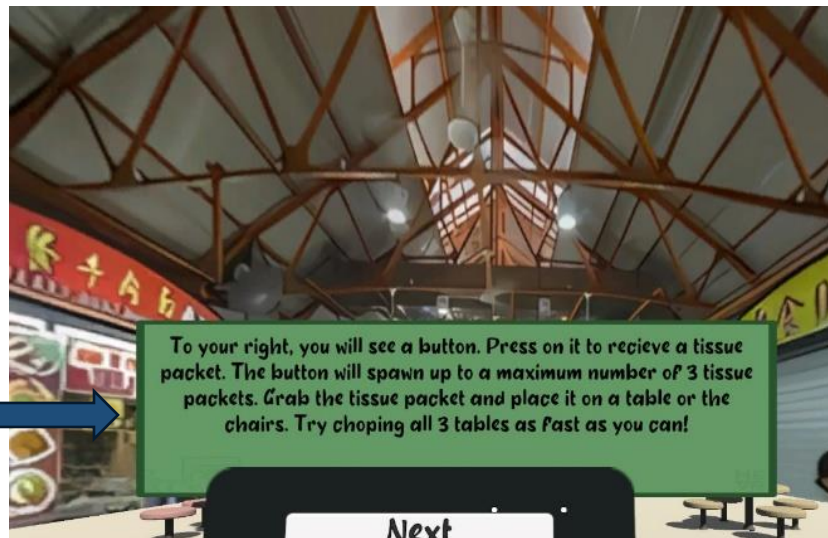
3. Prompt UI

There are multiple moments where UI is used to help prompt the user on what to do just in case their confused, forgot the instructions given before, or if they feel lost, as not many users have
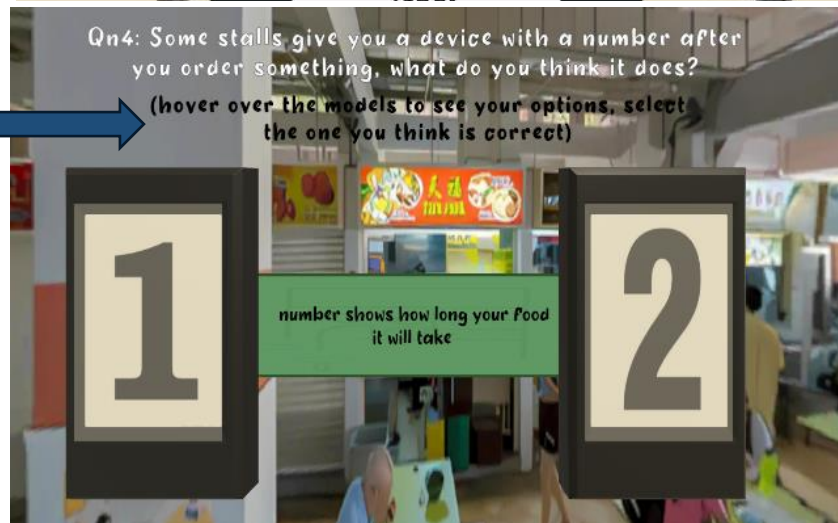
played games and or used VR before, and some tend to forget instructions easily, thus this helps them understand better what their supposed to do through out the game

This UI continues to stay up so the player can walk back and check on the instructions again

To your right, you will see a button. Press on it to recieve a tissue packet. The button will spawn up to a maximum number of 3 tissue packets. Grab the tissue packet and place it on a table or the chairs. Try choping all 3 tables as fast as you can!

Next

This one tells the user what to do to see the options and how to select the correct one

Qn4: Some stalls give you a device with a number after you order something, what do you think it does?

(hover over the models to see your options, select the one you think is correct)

number shows how long your food it will take

1   2

This one tells the user where to drag the tray towards and the translucent square makes it more obvious to know where to drag to

4. UI panels design

The panels used for the UI are hand drawn by Grace Foo. We went through planning on what main color we should pick for the main color for the panels.
Colors we tested in the prototype and considered are:

Red

This is because red associated with food and "research shows that red is eye-catching and triggers appetite" (Minso, 2023), and since red tends to be associated with Singapore since Singapore's flag is half red

However we decided not to pick it since we felt it did not fully fit the background

This is the red color palette swap
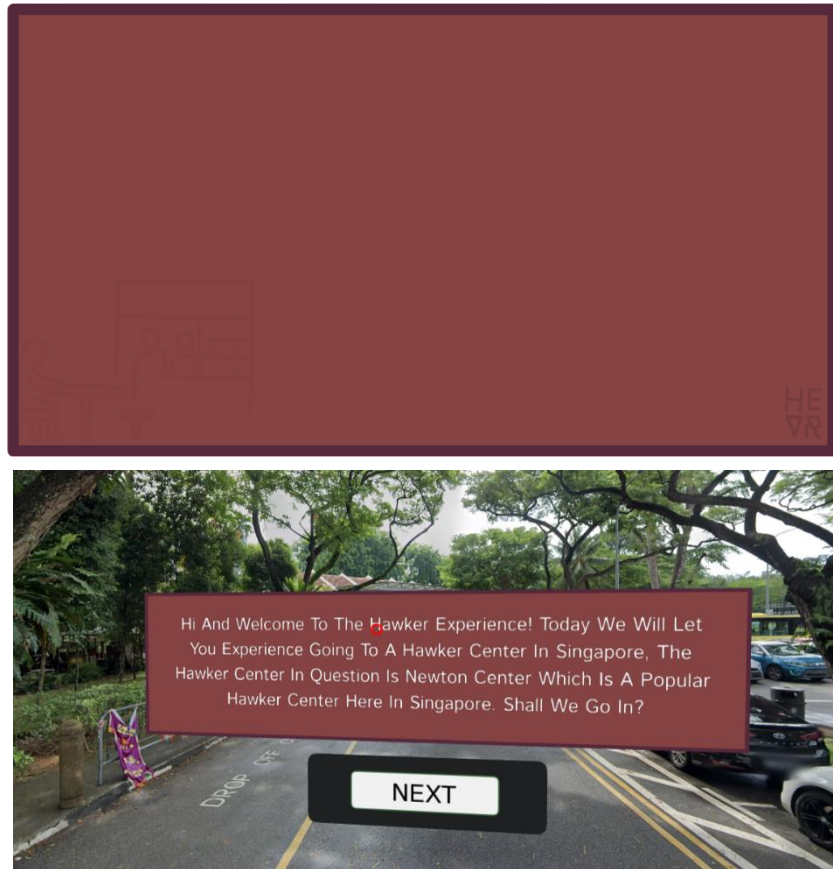
Yellow

The color yellow is commonly also commonly used "in relation to the fast food industry (Minso, 2023) and also yellow "evoke optimism and general good feelings" (Minso, 2023)

However yellow was a bit hard to read, too bright despite toning down the colors, did not fit or mix well with the background

This is the yellow color palette swap

The yellow looks to hash against the greenery behind
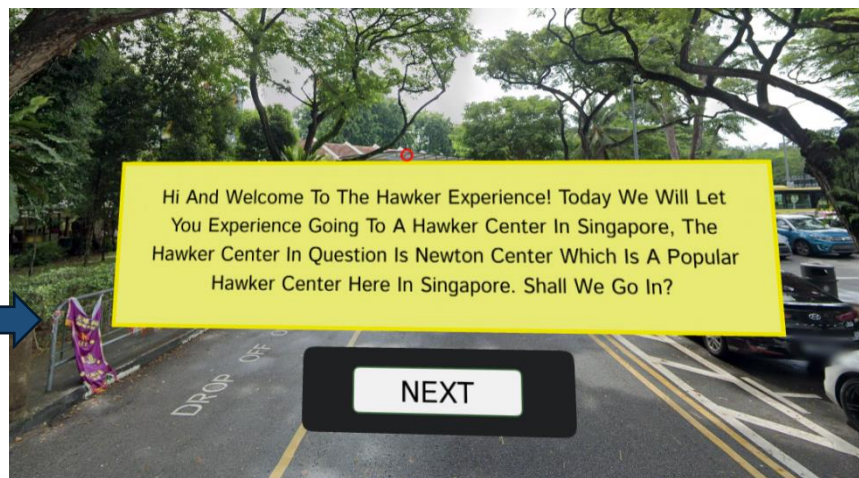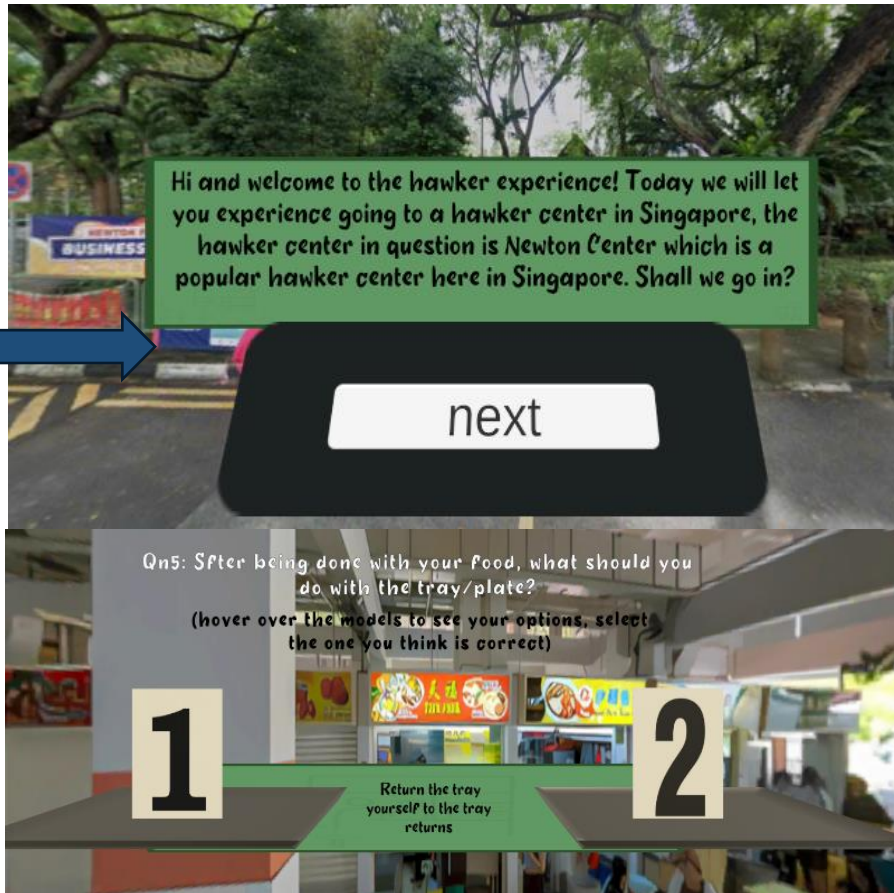
The final color we picked was green

Green

The color green is usually associated green, Singapore is known as a tropical country, and green evokes a feeling of being " environmentally-conscious" (Magalhães, n.d.), since most nature is green. Additionally Singapore is known to be clean as well, and the color associated with being clean is green, since green he color green is frequently used to convey a sense of cleanliness and environmental friendliness. Other associations with the color green are, freshness, relaxing and refreshing.

We decided to pick green in the end since we felt it fit not only the background, but it also matches with the greenery shown outside of newton circle hawker center, and also give the impression or reflecting that Singapore is a tropical island, which is clean, refreshing and relaxing to visit. Additionally green also reflects freshness, which can reflect how most hawker food is fresh or freshly made in front of you

This is the green color swap (images taken from the unity project)

It fits the greenery of newton hawker centre better and the hawker inside as well

Hi and welcome to the hawker experience! Today we will let you experience going to a hawker center in Singapore, the hawker center in question is Newton Center which is a popular hawker center here in Singapore. Shall we go in?

next

Qn5: After being done with your food, what should you do with the tray/plate?

(hover over the models to see your options, select the one you think is correct)

1   2

Return the tray yourself to the tray returns

To take a better look at the drawn UI used and extra versions: https://drive.google.com/drive/folders/1K7epjS_X6oE2RddL-PgAuCNoPUbndCzT?usp=sharing

The final designs consists of the green color palette mentioned earlier, a little hawker drawing to bring it all together and our logo in the corner, it isn't that obvious in the final version so it does not make text harder to read

You can see people at the hawker here

You can see the logo here

Additionally, we also decided to test this to see whether it is inclusive of those who are color blind.

The most common color blindness is "Deuteranomaly is the most common type of red-green color vision deficiency" (National Eye Institute, n.d.), which my stake holder also has.

We tested it out with color blind filters which can be seen down below
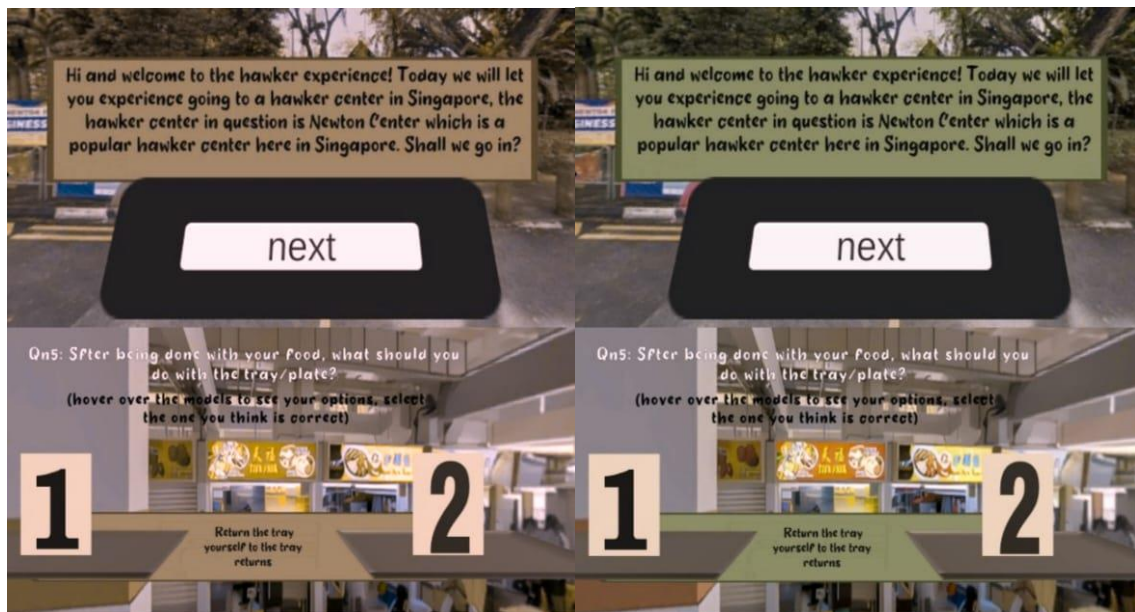
I even went to ask my stakeholder on his opinion and whether he could read it with his color blindness and he responded that he could still see and read things clearly
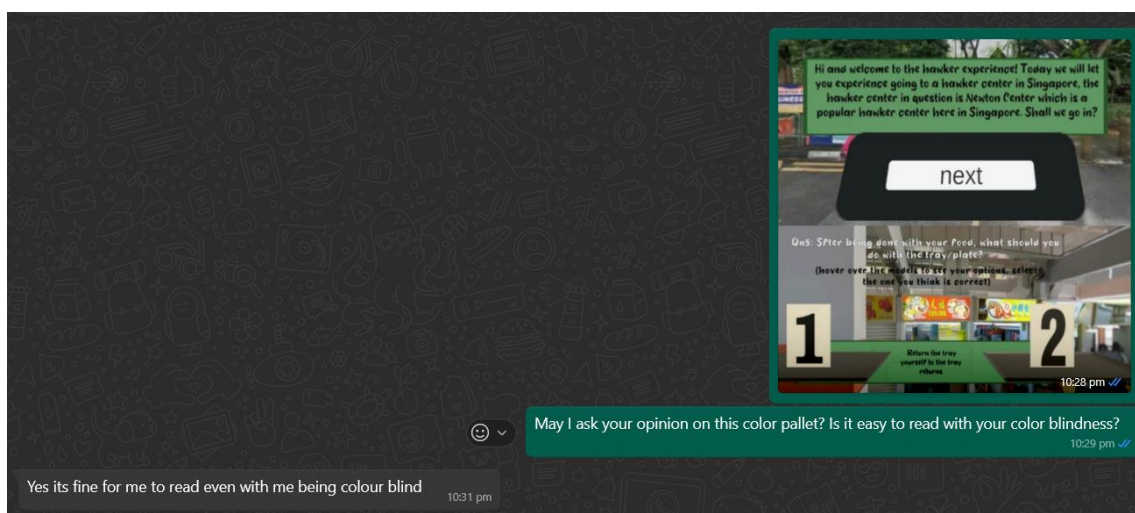
MAIN INTERACTIONS

Chope game

The chope game starts when you press the button, you have (insert amount of seconds), to get a table. This is to teach players how to reserve a table, which will especially be important when they visit Singapore and its very crowded. Additionally when they visit Singapore, they will understand that the tissues they see on the table, means that they are already reserved.

This is the table, they have to find and place the tissue on the table in time

Once finding a table the score will be sent to the database, to show the players previous high score and so that their score is on the leaderboard. This can motivate players to replay the game and maybe get the idea of coming to Singapore more welcomed to them
Tray return

Quiz trivia

The quiz trivia, is to teach trivia to the players to learn facts about hawker centers, that can help them when they do visit Singapore. For example, teaching them that cash is king here in hawker centre, telling them how to take away their food, what the sauces and utensils are in front of the hawker stall, what buzzers are, whether to return your trays, and to learn about what cai fan is, which is important to the next bit.

Players will need to hover to see the options, the models are visualized to make the quiz seem less dull and more on theme
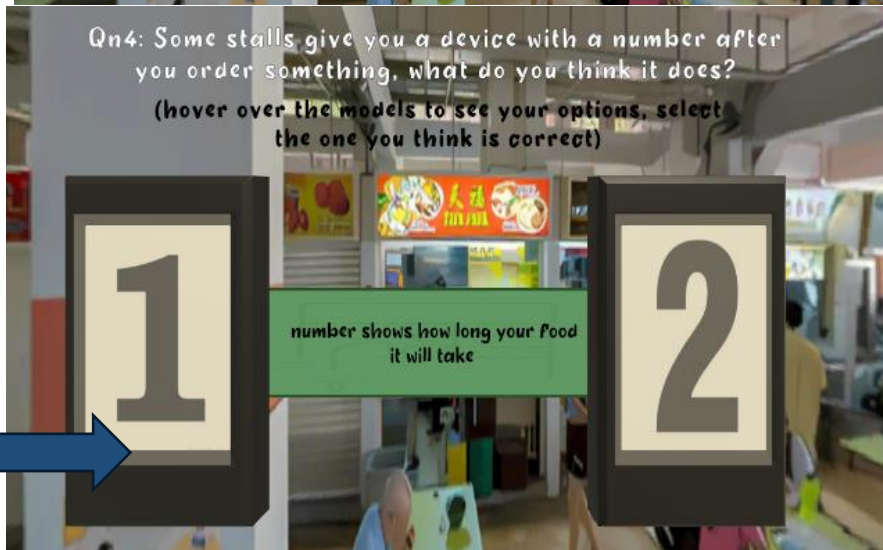
This question is about the payment methods, thus representing the options are credit card and cash

Qn1: What is the traditional method of payment at most Singapore hawker centers?
(hover over the models to see your options, select the one you think is correct)

The options show when you hover over them

Qn1: What is the traditional method of payment at most Singapore hawker centers?
(hover over the models to see your options, select the one you think is correct)

credit card

This question is about the buzzer

Qn4: Some stalls give you a device with a number after you order something, what do you think it does?
(hover over the models to see your options, select the one you think is correct)

number shows how long your food it will take

1   2

Ordering section

Here is when players learn how to order cai fan, they can pick one each category of what they want on their rice. This is to teach players how to order something in Singapore especially a common dish such as cai fan.

They will pick one item, from each category going downwards
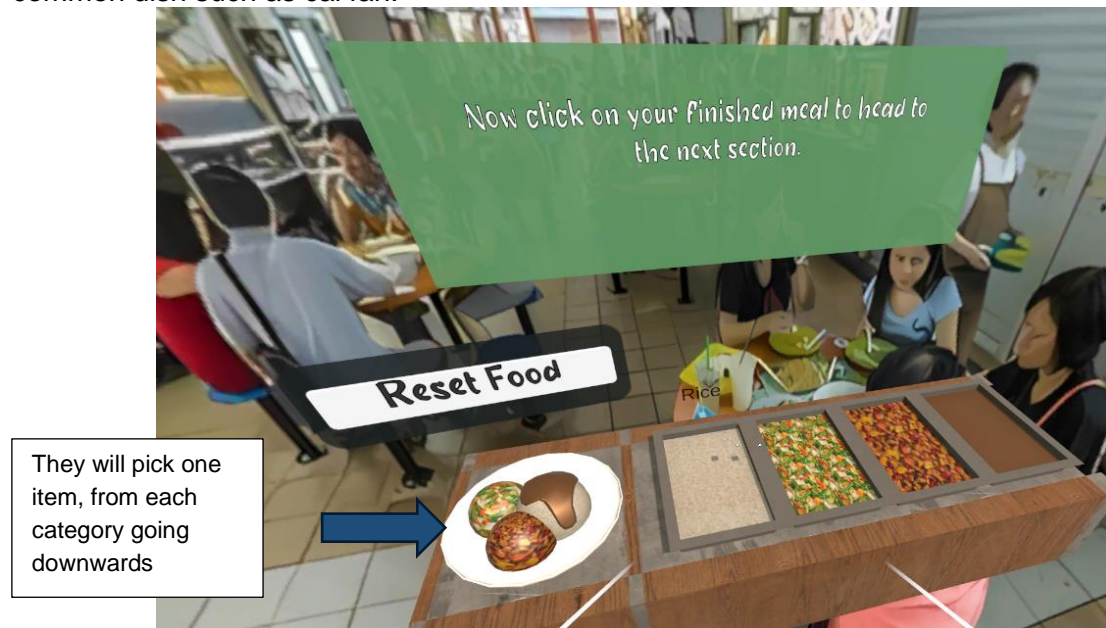
Buying drinks

Buying drinks in Singapore can tend to be hard since we have a "lingo" for it, thus it should be a priority to teach them the needed words or slang to order the drinks and to test them if they understand. All they need to do is type in the correct words and it will continue to the next section

This is where you are typing what drink you want to order
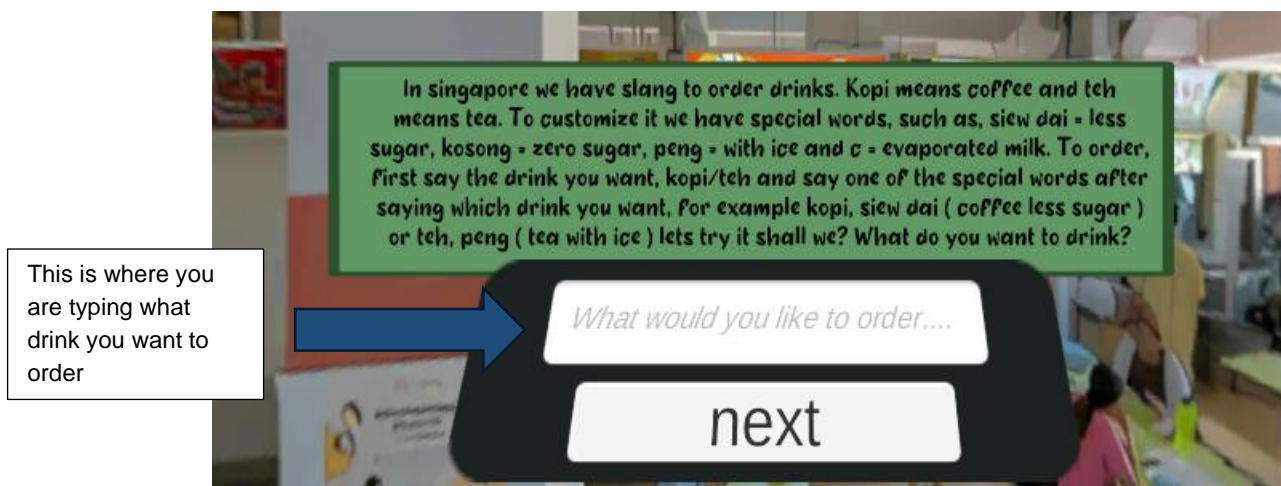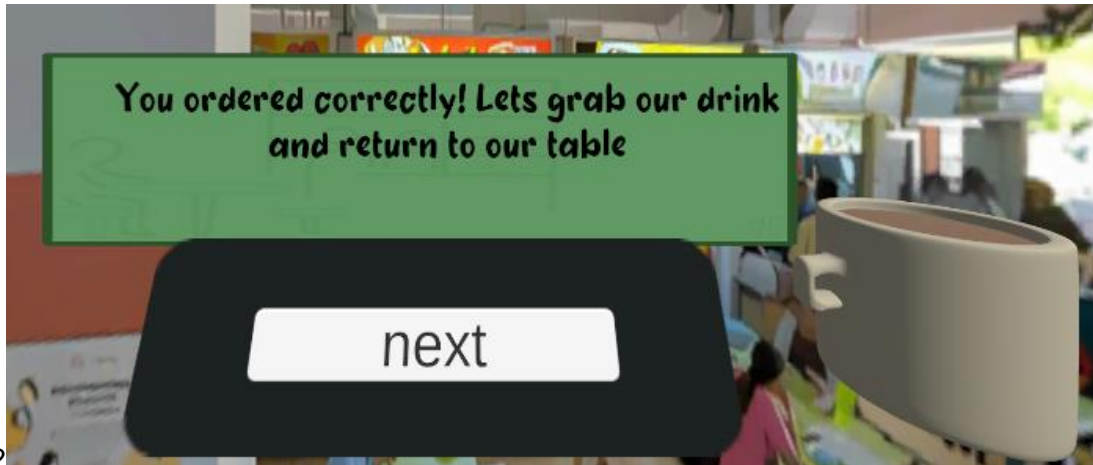
Myna catch

Myna bird is a popular bird in Singapore especially seen in at hawker centres. This is not only to teach players on one of our wild life that they may see when they visit here, but also to also be aware that birds may pry on their food while they are gone, so they need to be on alert.
Myna catch is where you have to grab (shoo the birds away). Each myna you grab gets you points and these points are sent to the database, to show the players previous high score and so that their score is on the leaderboard. This can motivate players to replay the game and maybe get the idea of coming to Singapore more welcomed to them
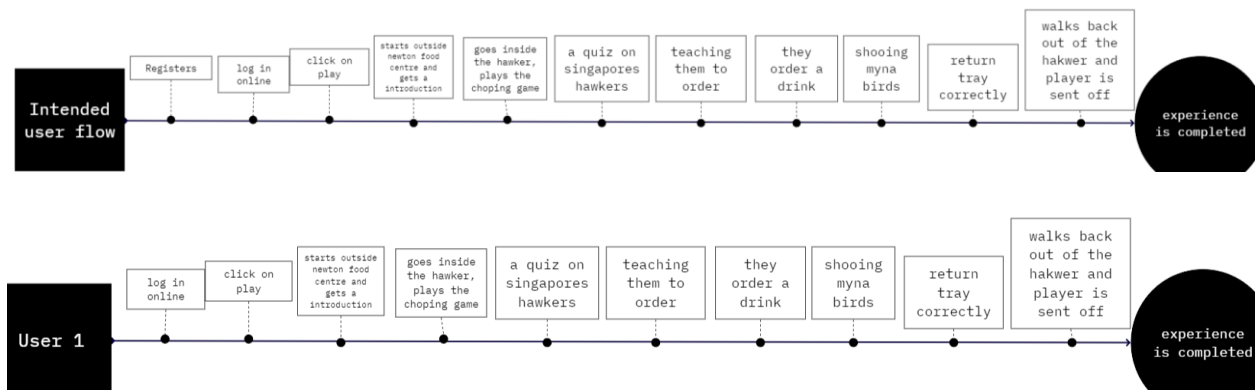

Tray return

Tray return is just to teach players on how to return their trays in the right category, so when they visit Singapore they do not make a wrong mistake. If they accidently return it to the halal side, they will be prompted that it is the wrong area to return it to.
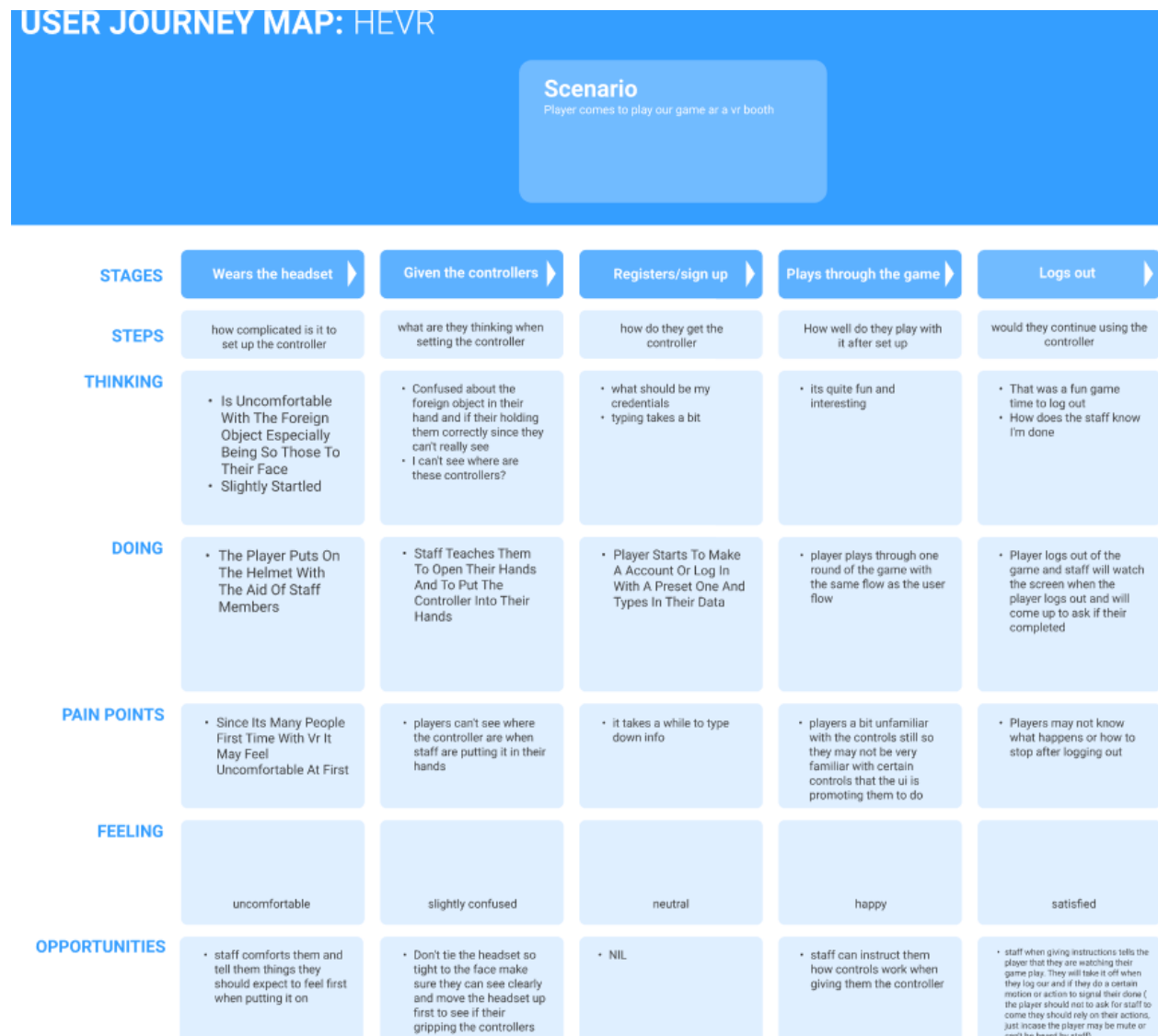
grab the tray and
drag it towards here

USER FLOW AFTER COMPLETING THE PROTOTYPE

Intended user flow

Registers → log in online → click on play → starts outside newton food centre and gets a introduction → goes inside the hamker, plays the choping game → a quiz on singapores hawkers → teaching them to order → they order a drink → shooing myna birds → return tray correctly → walks back out of the hakwer and player is sent off → experience is completed

User 1

log in online → click on play → starts outside newton food centre and gets a introduction → goes inside the hawker, plays the choping game → a quiz on singapores hawkers → teaching them to order → they order a drink → shooing myna birds → return tray correctly → walks back out of the hakwer and player is sent off → experience is completed

USER JOURNEY

USER JOURNEY MAP: HEVR

Scenario
Player comes to play our game ar a vr booth

STAGES	Wears the headset	Given the controllers	Registers/sign up	Plays through the game	Logs out
STEPS	how complicated is it to set up the controller	what are they thinking when setting the controller	how do they get the controller	How well do they play with it after set up	would they continue using the controller
THINKING	• Is Uncomfortable With The Foreign Object Especially Being So Those To Their Face • Slightly Startled	• Confused about the foreign object in their hand and if their holding them correctly since they can't really see • I can't see where are these controllers?	• what should be my credentials • typing takes a bit	• its quite fun and interesting	• That was a fun game time to log out • How does the staff know I'm done
DOING	• The Player Puts On The Helmet With The Aid Of Staff Members	• Staff Teaches Them To Open Their Hands And To Put The Controller Into Their Hands	• Player Starts To Make A Account Or Log In With A Preset One And Types In Their Data	• player plays through one round of the game with the same flow as the user flow	• Player logs out of the game and staff will watch the screen when the player logs out and will come up to ask if their completed
PAIN POINTS	• Since Its Many People First Time With Vr It May Feel Uncomfortable At First	• players can't see where the controller are when staff are putting it in their hands	• it takes a while to type down info	• players a bit unfamiliar with the controls still so they may not be very familiar with certain controls that the ui is promoting them to do	• Players may not know what happens or how to stop after logging out
FEELING	uncomfortable	slightly confused	neutral	happy	satisfied
OPPORTUNITIES	• staff comforts them and tell them things they should expect to feel first when putting it on	• Don't tie the headset so tight to the face make sure they can see clearly and move the headset up first to see if their gripping the controllers	• NIL	• staff can instruct them how controls work when giving them the controller	• staff when giving instructions tells the player that they are watching their game play. They will take it off when they log our and if they do a certain motion or action to signal their done (the player should not to ask for staff to come they should rely on their actions, just incase the player may be mute or can't be heard by staff)

FINAL PROTOTYPE LINKS:

VR prototype link: https://app.draftxr.com/vr/J7eEH2
Figma link: https://www.figma.com/file/pYdkb7IhgsLW3VXYpC3oXl/Example-VR-template-for-DraftXR-plugin-(Community)-(Copy)?type=design&node-id=0%3A1&mode=design&t=DYWZXs6WcvzxmJSD-1
Prototype demo video:
https://drive.google.com/file/d/15djux26XbLm1ZLYaQmLtWm7PEwyNz21F/view?usp=sharing

VR BOOTH SECTION

To help promote our VR experience, we plan to have a VR booth to be shown at a exhibition.

Firstly when boothing, a common goal is to get leads, which can be helpful in the success of our project in the long run. At a exhibition, booths will attract a lot of attention from visitors and an article states that "Companies report a 33% (!) increase in generated leads from live events when using a VR Experience at the Brand's booth." (Persolja, 2019), with those statistics it means that by having a VR booth it could help us get more leads which as stated earlier can be helpful for our Projects success down the road in the future.

Secondly, by having the booth, our product, hawker culture, and Singapore will be in the spotlight, where many people at the exhibition wants to try anything VR related since its new and interesting, and thus many people will crowd around to try it, and thus learn more about our game and Singapore.

Research into VR booths

Good requirements to have at a VR booth

Getting the right equipment

It is important to get the right equipment for this booth, to strike a balance between being cost effective and technological quality.

For the VR headset we are using the oculus quest 2 which is not the latest oculus but is slightly more affordable than the newer oculus's. (the quest 2 is about $300, but the quest 3 the latest model recently released is $4

99)

In current day the quest 2 is still great, as looking at this review on it saying "The Quest 2 is still definitely worth it in 2023. Although occasionally a bit buggy, it offers both an unrivaled experience as a standalone headset, and as a wireless VR headset for your PC". (Admin, 2023)

To cast what is shown on the VR headset to a TV, the TV needs to have google chrome cast built in. The suggested model of TV is the VIZIO.
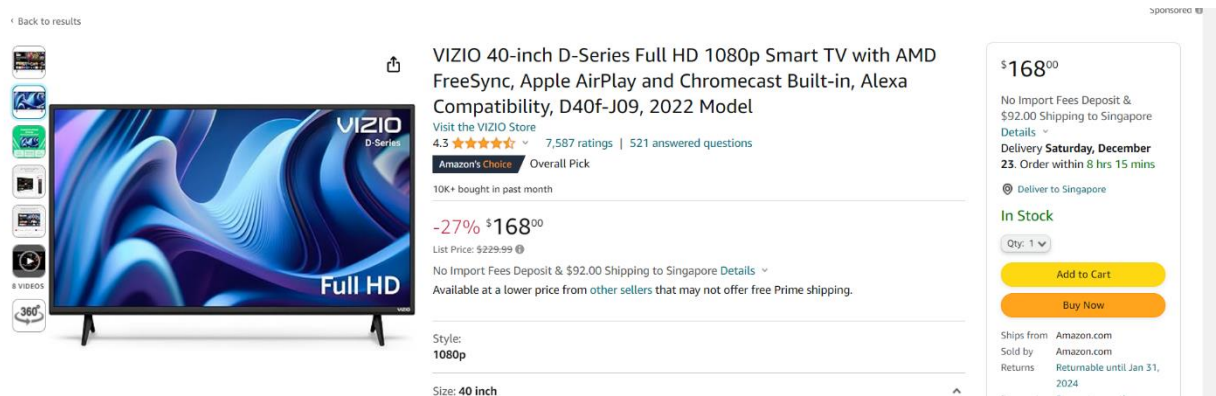
The listing can be seen here: https://www.amazon.com/VIZIO-Chromecast-Mirroring-Streaming-Channels/dp/B092Q1TRJC/ref=sr_1_2?crid=2PYRE2TD67HSU&keywords=tv%2Bwith%2Bgoogle%2Bchromecast%2B40%2Binch&qid=1702527263&sprefix=tv%2Bwith%2Bgoogle%2Bchromecast%2B40%2Binc%2Caps%2C445&sr=8-2&th=1

VIZIO is a brand known for selling budget yet high quality Television screens. In this website I found they stated that "Ultimately, the Vizio V-Series offers the best picture, along with some high-quality extras at an extremely affordable price" (Lord, 2023). The reason for picking this model is because it is 40 inchs big, for a affordable price, so we can save on budget while having a larger screen to grab attention better and to make it easier for people to see the screen from afar.

Software Requirements

A virtual reality headset is currently not required for the game as it is a demo, however, if the game was released to the public, users who have virtual reality headsets using their laptops or computers to run the game, are suggested to have a system with the following requirements:

Processor: At least Intel i5-4590 / AMD Ryzen 5 1500X or better

GPU: NVIDIA GeForce GTX 1070 or AMD 500 Series and higher

Memory: 8GB

Note: We designed the Hawker Experience using Meta Quest 2 and hence, the recommended system requirements are based on the Oculus Quest 2 headset.

Themed/unique booths related to the VR experience

Resident Evil Village VR at Tokyo Game Show 2022

The game was released on 22 February 2023, but during the game show which was in 2022, they were showing a game demo where participants can try out the demo. People were not allowed to capture any picture or footage of the gameplay or even the hardware used for the demo

The main booth looked like this

<u>**Advantages**</u>

- Before playing they give out instruction on what the controls are and what to do during certain events of the game, which is quite helpful for those unfamiliar with the controls of a VR device

- The booth is well themed, where the main background shows multiple main locations in game
- Has a large build board on the top to attract attention to the booth
- Has multiple booths thus being able to let more players play at a time

<u>Disadvantages</u>

- There is a yellow ring to indicate where the player will stand and play however it is a concern since they may accidently step outside of the ring by mistake, since they cannot see it and may hit into something.
- The controller seems to be wired, thus this may be another concern where the player may somehow trip over or by accident

Sports Vr booth

This booth is showing off a game for a baseball VR game

Advantages

- The theming of the booth is very consistent and eye catching, the floor reflects the look of a baseball fields grass, and the background shows a baseball field

There is a decently sized TV behind to show the gameplay for other attendees to take a look at to see what the gameplay is like and is to also attract attention from further away to see the gameplay from a further distance, making the attendee curious and walking towards the booth

Disadvantages

- There is no ring or barrier or proper dedicated space for the player to have, thus they may accidently hit something or someone
- The controller is a wired controller, thus the player may trip over the wire by mistake

Initial sketch

I wanted the booth to fit the theme of a hawker and to look similar to one, since some foreigners are unfamiliar with hawker centers, they will be curious on what all the decoration is about and approach the booth.

I also wanted many areas and signs to explain to those walking past what our is about so that they are not so confused, especially when they go into the game

The plan is to also have two televisions to make it easier for more people to watch the game play

Lastly I wanted a barred area for the player to stay within so that they wont hit anyone or wont trip or go out of the space intended for them

Design Rationale

Theming

For the theming, we decided to decorate the booth to fit our theme of a hawker center. For the background, we decided for it to be a hawker store, especially a cai fan store, since in the game you order from cai fan, and the position of where the player stands makes it also look like the player is maybe queuing for the food as well.

The floor also looks like the floor tiles seen at most hawker centers
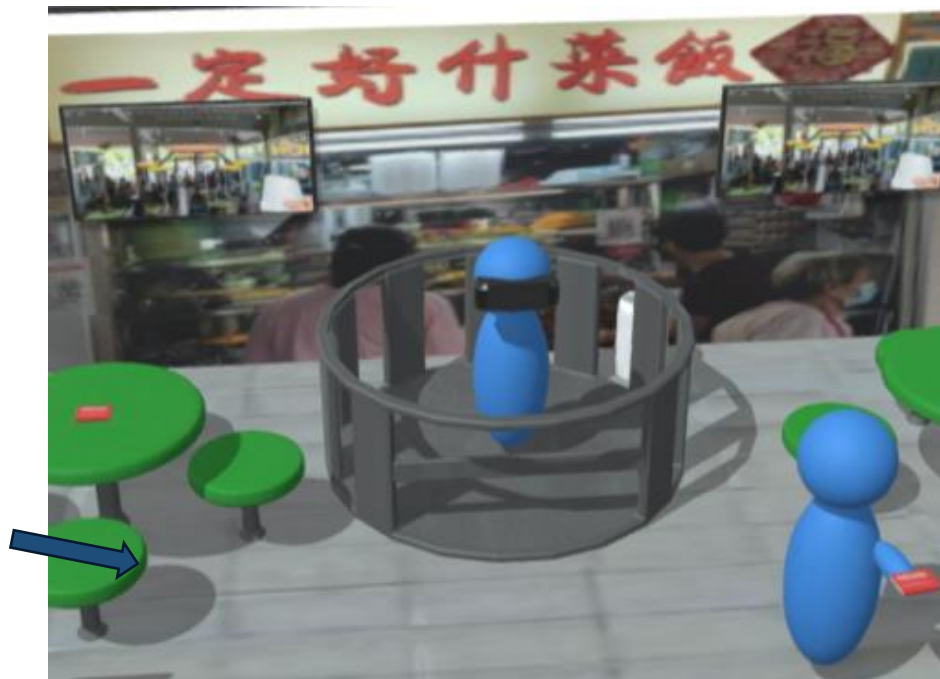
Secondly to fit the theme, there will be tables and chairs similar to the ones you find at an hawker center with a tissue paper on it to reference to the chope minigame in the hawker, and also for the attendees to maybe take a seat to watch the gameplay happening.

We could buy a table set from this seller on carousell for example
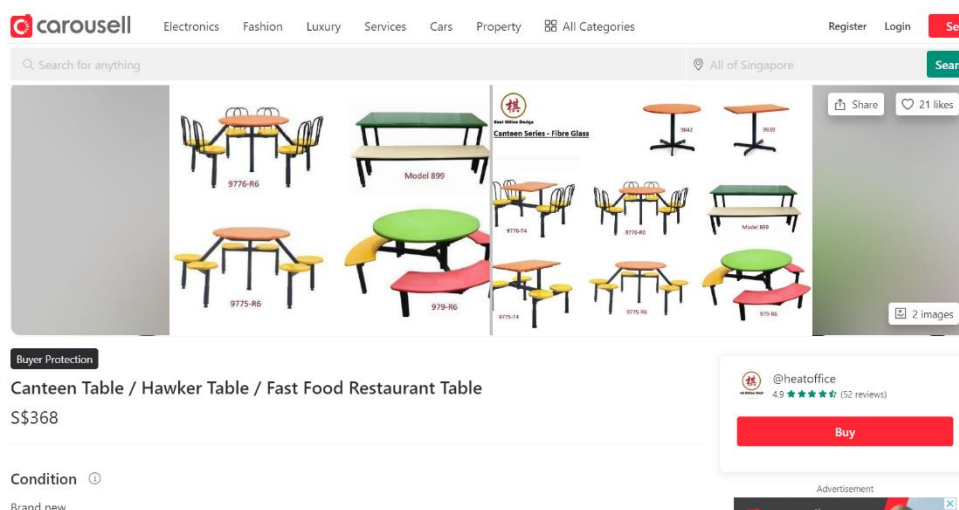
https://www.carousell.sg/p/canteen-table-hawker-table-fast-food-restaurant-table-1126604012/?t-id=783hQXBOjN_1702626430492&t-referrer_browse_type=search_results&t-referrer_context=global_slp&t-referrer_request_id=wd_BVpi5XkPI2urc&t-referrer_search_query=hawker%20table&t-referrer_source=search_landing&t-tap_index=6

When opening this booth in a foreign country other than in Singapore, since many of them have never seen a hawker center before, when they see our booth, they will approach the booth interested and confused in what this foreign looking booth is and what they are showing off

Secondly, with more creative-looking booths, it tends to attract more attention in general thus attracting more attention to our booth and game more attention which could lead to more leads and contact for future successes.

Lighting

Dedicated lighting is needed to brighten up the booth so it is easier for everyone to see everything in the booth, such as the backgrounds, seats, signs etc. Additionally, a dedicated light is also to continue bringing in the attention since "Our natural attraction to light (Use Light to attract attention, n.d.)For this booth we decided to use LED lighting, since their durable, it has long life, energy efficient and is good for the environment

Signs and words on our booth explaining our project

Once attendees walk up to our booth and are wondering what's going on with the booth, they can take a look at the signs or the back board on the left on right to learn about our game, Singapore and what hawker culture is, so that the workload on staff maning the booth will be less, for people to be less confused before playing the game, and for people to learn more about Singapore in general.
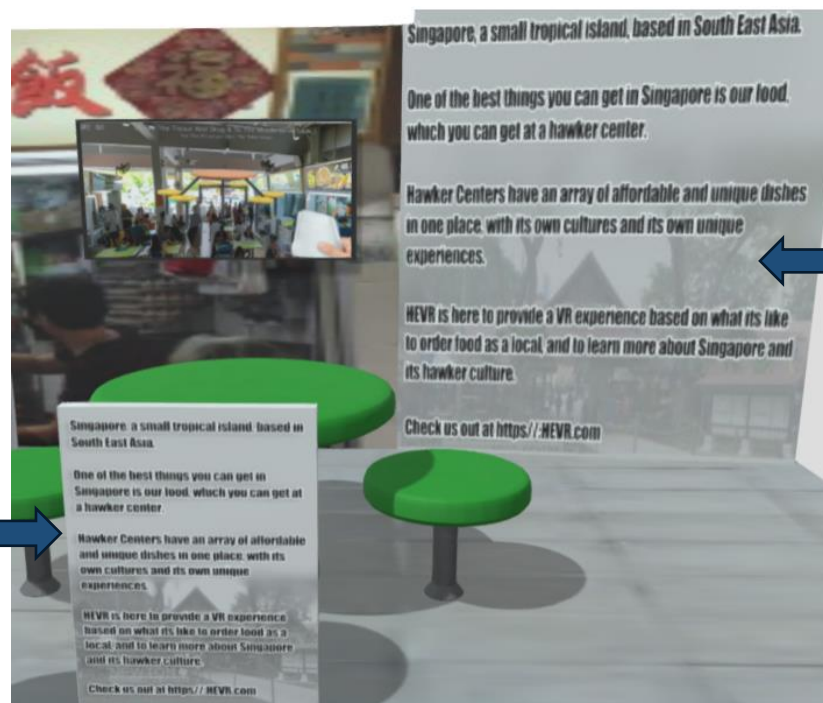
There would be around 2 signs, this is to spread out the attendees taking a look at the booth so it would not cause crowd issues, and also for more people to be able to read what our game, Singapore and hawker culture is like

Close up on a single sign

There is two of them here
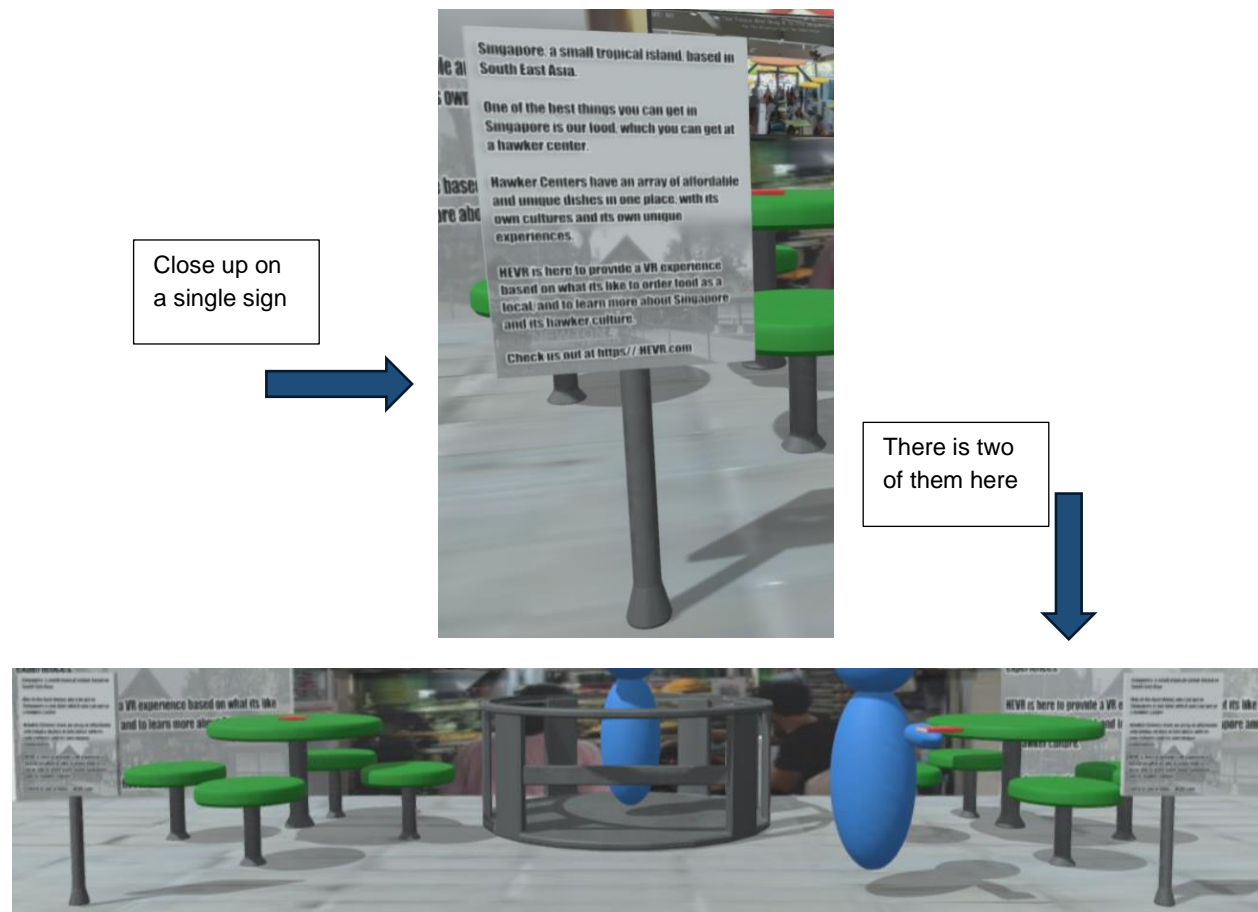
For the big boards on the sides, they are placed there so its easier to read, especially from far since the text is bigger. Additionally it will be very helpful to read when the booth gets crowded, and people are blocking the signs, so for those who want to see whats the booth is about, they can simply read the sides of the booth

Here is the over view:

This is the big board up close:

Singapore, a small tropical island, based in South East Asia.

One of the best things you can get in Singapore is our food, which you can get at a hawker center.

Hawker Centers have an array of affordable and unique dishes in one place, with its own cultures and its own unique experiences.

HEVR is here to provide a VR experience based on what its like to order food as a local, and to learn more about Singapore and its hawker culture.

Check us out at https//:HEVR.com

The posters were designed by Grace Foo.

This is the Sign version:

The background is newton food centre, the hawker centre we chose

Singapore, a small tropical island, based in South East Asia.

One of the best things you can get in Singapore is our food, which you can get at a hawker center.

Hawker Centers have an array of affordable and unique dishes in one place, with its own cultures and its own unique experiences.

HEVR is here to provide a VR experience based on what its like to order food as a local, and to learn more about Singapore and its hawker culture.

Check us out at https//:HEVR.com

This is the Big board version:

Singapore, a small tropical island, based in South East Asia.

One of the best things you can get in Singapore is our food, which you can get at a hawker center.

Hawker Centers have an array of affordable and unique dishes in one place, with its own cultures and its own unique experiences.

HEVR is here to provide a VR experience based on what its like to order food as a local, and to learn more about Singapore and its hawker culture.

Check us out at https//:HEVR.com

Branding

For branding purposes, we will give out some custom-made tissue paper packets with our games name on it, and our contact information and where they can get the game, to spread our name and game out there, and also when the attendee uses the tissue they will see that information and may take action. This tissue idea is also to reference the chope game in the main game.

For example the branded tissue will be placed on the hawker table to represent "chope"
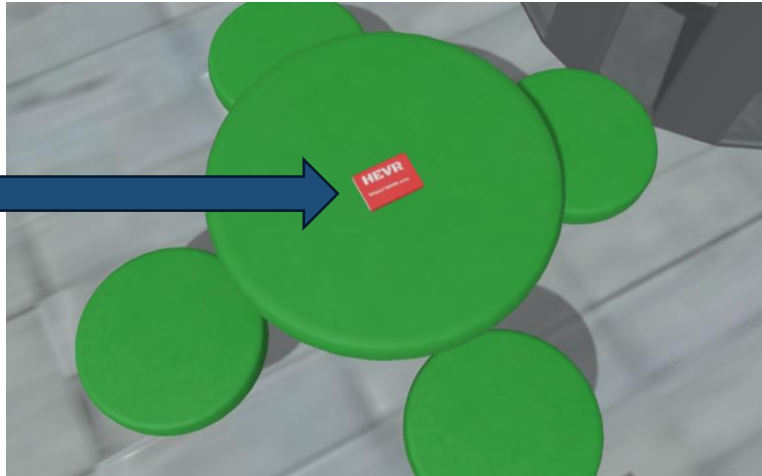
Here is staff giving out some of the tissues as well
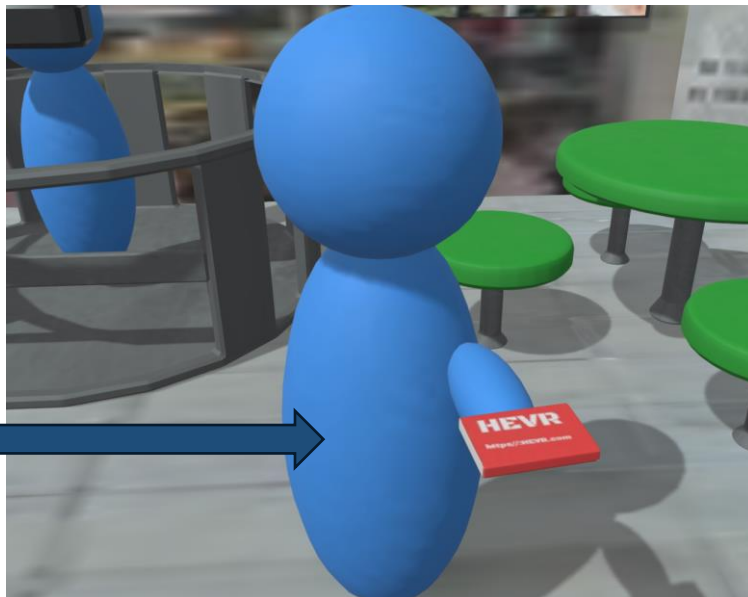
Additionally before players play the game we will give them instructional pamphlet, on how to control the game and any context needed on them. We will also include our contact information and where they can get the game so when they bring home the pamphlet they can take a look at that information

Two TV around

To make it easier for everyone to see whats going on and what the gameplay is, especially when crowded, we decided to have two 40 inch televisions, the brand and model type is chosen is under the "getting the right equipment" section. The larger televisions also make it easier to see the gameplay from a far or when crowded, so it can attract peoples attention from further away.

Secondly with having two screens, it will also help with crowd control and the spread of where people are standing

This is the game play →

Playing area

The playing area will have a gate around the player just incase so that they may not accidently walk or trip out of that area or hit anyone or any staff
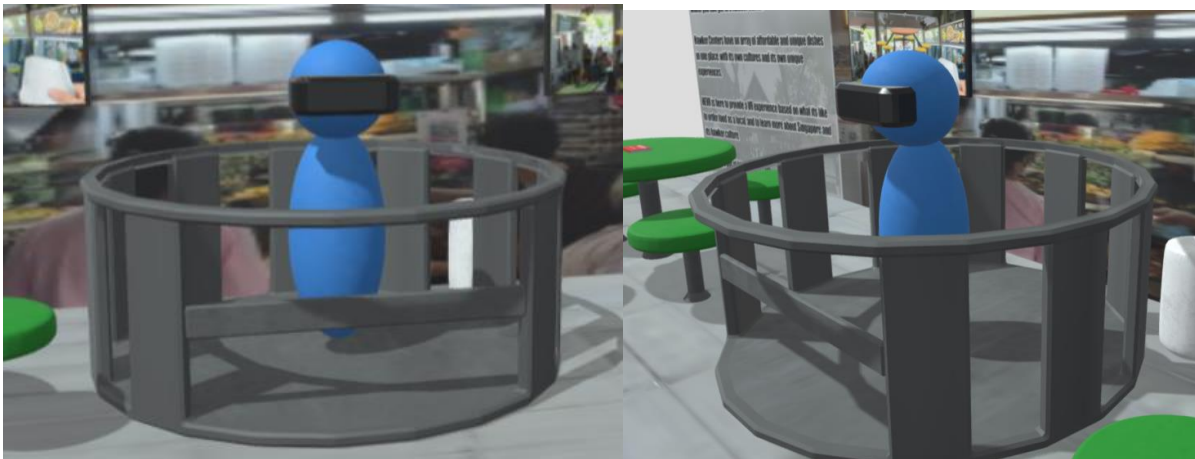
Smell

At the booth, there would be a diffuser where it would dispense the smell of food to increase the immersive experience. A study done in 2022, testing how smell could affect the sense of presence within a vr game states that, "users' sense of presence is enhanced when simulated smells are introduced into a VR environment." (Odour enhances the sense of presence in a virtual reality environment, 2022), therefore, with the smell, it could help the user feel more immersed in game.

This idea was inspired by my persona's suggestion in his needs.

There has been attempts in the technological advancements with VR and smell, where people are aiming to bring smell to VR, for example OVR Technology has made a wearable product where they wear a device to help smell with the VR headset,

however they are not publicly available so lets look at an alternative idea

The smell will be spread using a diffuser, we propose using a Muji Aroma Diffuser. It is recommended for areas like living rooms, which means the smell will only be strong around our booth area and not other parts of the exhibit, thus not disturbing other participants at the exhibition, can last about 3 hours, only needs 2 drops of essential oils and it is at the weight of 0.22kg.

Roll over image to zoom in

Muji Aroma Diffuser, white
Visit the Muji Store
4.6 ★★★★½ ∨   233 ratings

-19% S$72⁴²
List Price: S$89.00 ⓘ

Prime Savings Prime members Get S$12 Off with UnionPay Terms ∨

🔒	🗐	🚚
Secure transaction	Returns Policy	Amazon Delivered

Get S$5 Off with Mastercard W/WE Cards. Enter code MCAMZ5 at ... 1 applicable promotion ∨

Brand	Muji
Colour	White
Special features	Timer Setting
Power source	Corded Electric
Capacity	30 Milliliters
Model name	Muji
Product dimensions	31L x 31W x 55H millimetres

∨ See more

https://www.amazon.sg/dp/B00BQZ3BSG/ref=emc_b_5_i

For the essential oil, we could use this ramen noodle soup oil. Despite it not being a part of Singapore's hawker cuisine, the smells from the oil are similar those you would smell at the hawker center, for example the description says you can smell the garlic, basil and cumin, things you would usually smell at a hawker center.
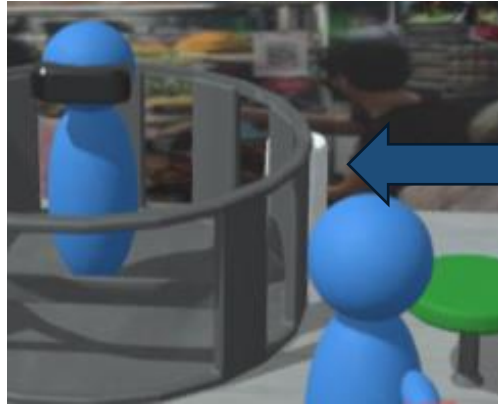
The diffuser is placed here behind the player

In the booth it will be placed around near the player. This is done so that it is not so visible to attendees so it doesn't make them question that much on why is there a diffuser since its out of place.
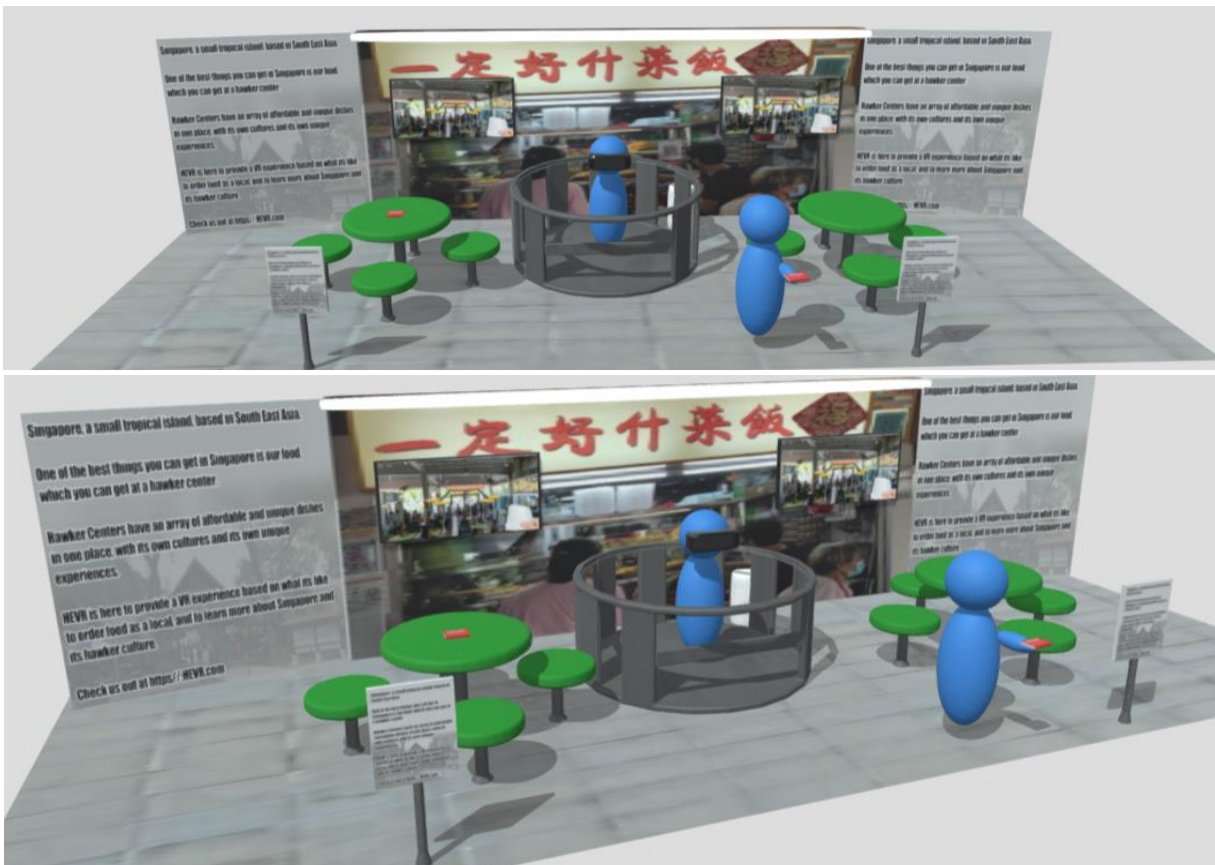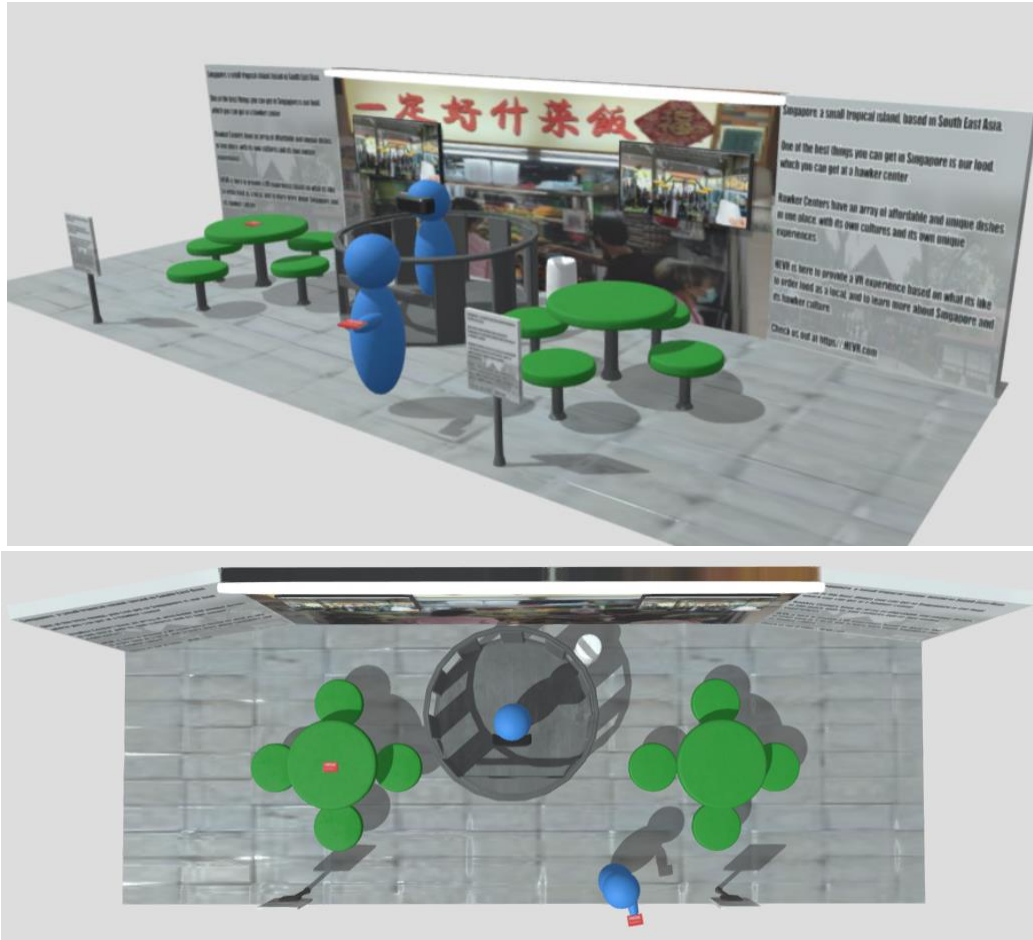
It is not so visible

The diffuser is not placed there so that it can spread the smell better, since diffusion is simply saturated molecules of the scent spreading from a saturated area to a non saturated area, thus, the position of the diffusor to spread the smell of the scent does not really matter.

Final Product

The final model can see been in Sketch Fab
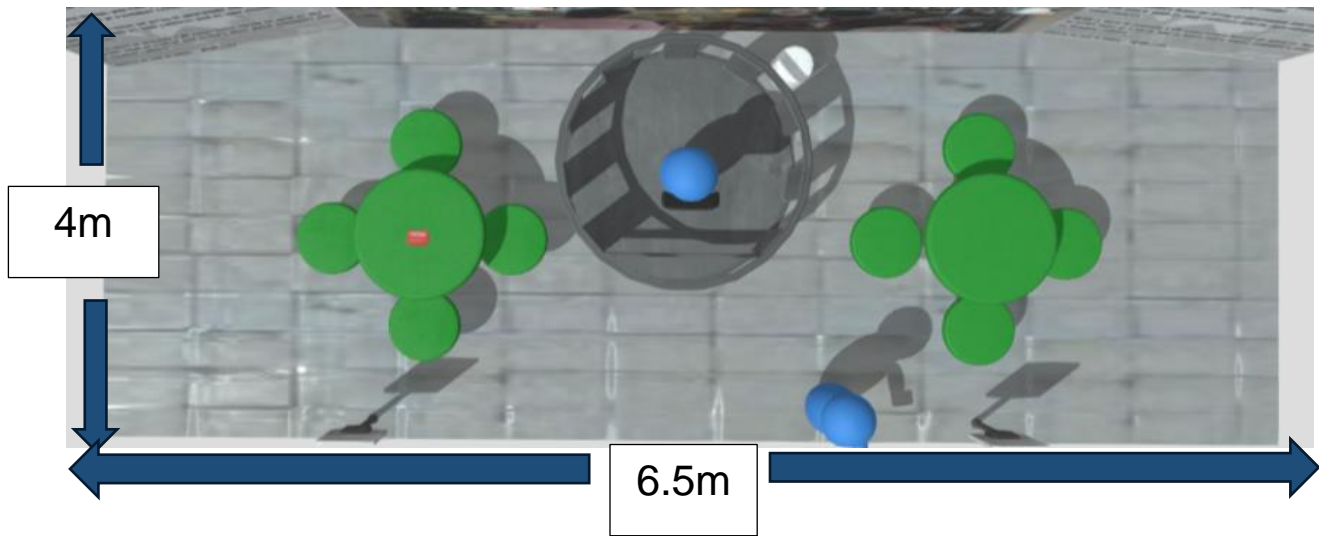
https://skfb.ly/oPrFG

Texture assets borrowed:

https://substance3d.adobe.com/community-assets/assets/e0a4e3b1ac29fad3967a80e9a0c30cd144b4b2b7

Measurements

For the main background, it would be about, 2.3 meters tall, since this booth may be brought out to foreign countries, there may be some people who are quite tall, thus the background should look taller than most humans, so that the booth looks big for everyone, and be about 4 meters wide.
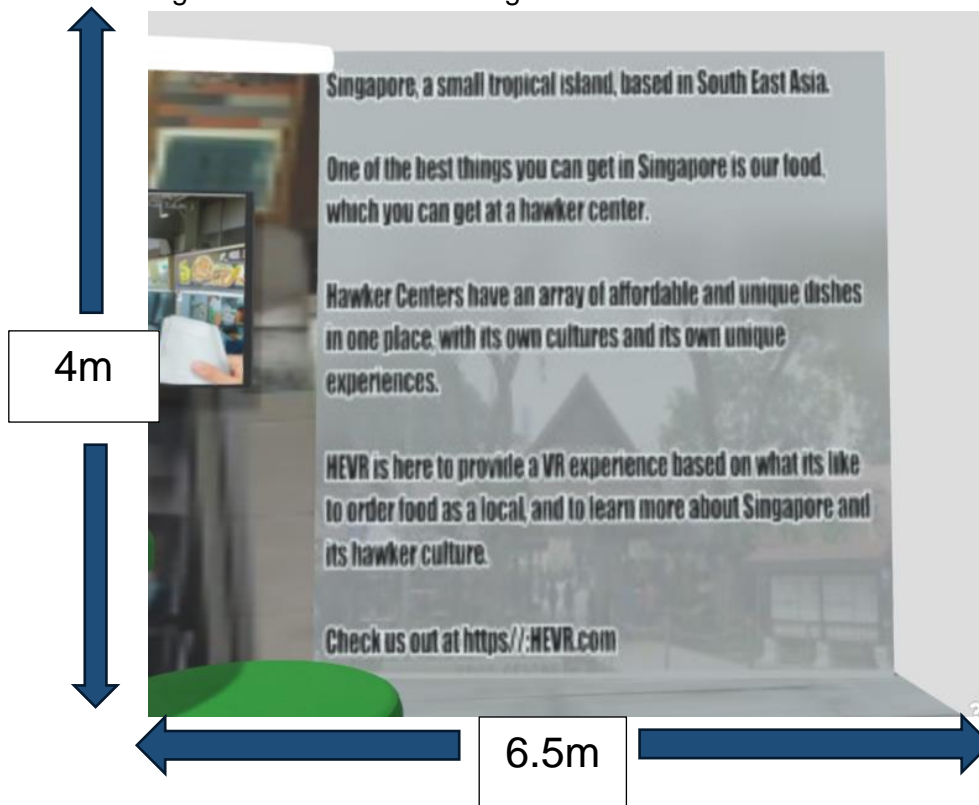
2.3m

4.5m
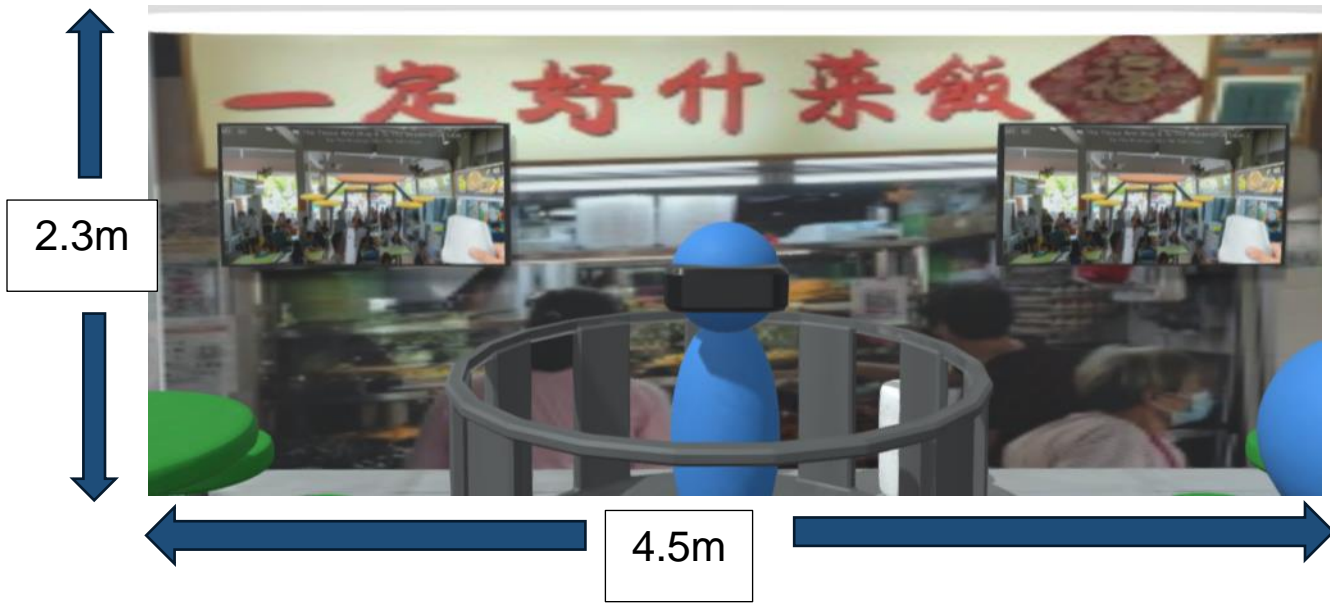
The floor should be about, 6.5 meters to 4 meters

4m

6.5m

The big boards on the left and right would be 2.3m tall and 2 meters wide

4m

6.5m

Singapore, a small tropical island, based in South East Asia.

One of the best things you can get in Singapore is our food, which you can get at a hawker center.

Hawker Centers have an array of affordable and unique dishes in one place, with its own cultures and its own unique experiences.

HEVR is here to provide a VR experience based on what its like to order food as a local, and to learn more about Singapore and its hawker culture.

Check us out at https//:HEVR.com

The signs should be about 150cm, since the average height of a human is about 165cm, the height should be decreased to reach the about where an average persons eye level should be at, so that many people can easily see the signs.

The sign itself should be a3 sized
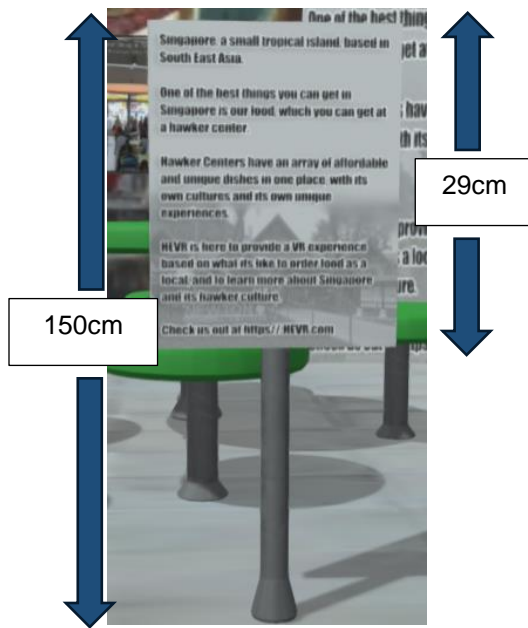
The area where the player plays at, the diameter should be 1.5m, and the round bar should be about 115cm tall
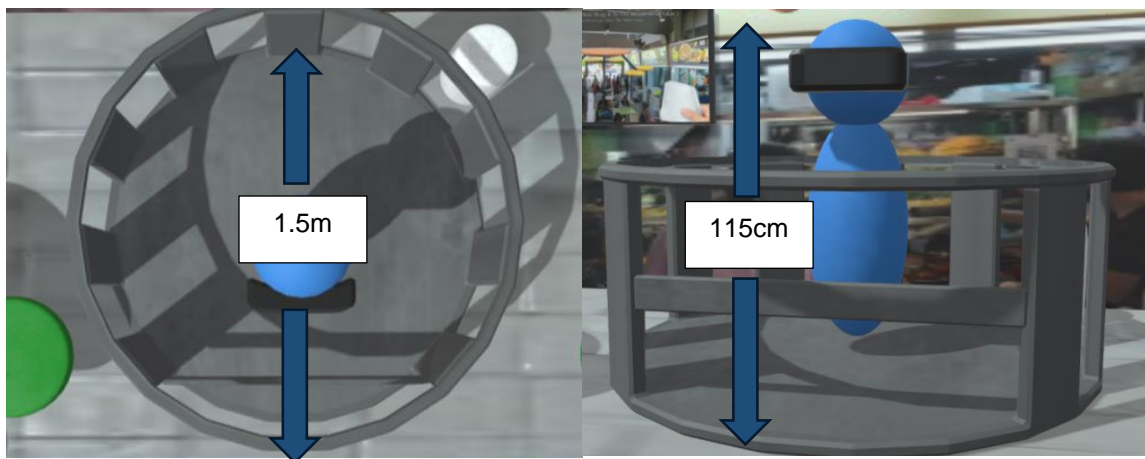
The TV is a 40 inch TV (**95cm x 55cm x 10cm)**

REFERENCES

Admin. (2023, November 9). *Is Quest 2 worth it in 2023?* Retrieved from vintageisthenewold: https://www.vintageisthenewold.com/game-pedia/is-quest-2-worth-it-in-2023#:~:text=Verdict.,VR%20headset%20for%20your%20PC.

Brook, K. (2020, April 6). *VZFit Explorer Review – Cycle the World in Virtual Reality*. Retrieved from VRFitnessinsider: https://www.vrfitnessinsider.com/review/vzfit-explorer-review-cycle-the-world-in-virtual-reality/

EatBook. (2023, August 7). *10 Best Singapore Hawker Centres Worth Taking Your Tourist Friend To*. Retrieved from EatBook: https://eatbook.sg/best-hawker-centres-singapore/

Fang, C. (2023, May 02). *9 Best Hawker Centers in Singapore—and What to Eat There*. Retrieved from AFAR: https://www.afar.com/magazine/best-hawker-centers-in-singapore-and-what-to-eat-there

Have a glimpse of VR at the Tokyo Game Show! (2022, September 22). Retrieved from skarredghost: https://skarredghost.com/2022/09/17/tokyo-game-show-vr/

Hume, M. (2021, April 22). *VR exercise app 'VZfit' overwhelms the senses in all the wrong ways*. Retrieved from Washington: https://www.washingtonpost.com/video-games/reviews/vz-fit-review/

Lord, S. (2023, December 10). *Best Budget TV for 2023: Cheap TVs From Vizio, TCL, Hisense and More*. Retrieved from Cnet: https://www.cnet.com/tech/home-entertainment/best-budget-tv/

Magalhães, M. (n.d.). *Psychology of Colour: Food & Drink*. Retrieved from FORTY8CREATES: https://forty8creates.com/colour-psychology-of-food-drink/#:~:text=Green%20is%20the%20main%20colour,its%20meaning%20is%20immediately%20recognised.

Marverik VR. (2018, April 27). *5 Creative Uses of Virtual Reality (VR) Booths*. Retrieved from Medium: https://medium.com/@david_14006/5-creative-uses-of-virtual-reality-vr-booths-d144078ba90

Michelin Guide. (2023, June 15). *The MICHELIN Guide Singapore 2023 Bib Gourmand Selection*. Retrieved from Guide michelin: https://guide.michelin.com/sg/en/article/michelin-guide-ceremony/singapore-bib-gourmand-2023

Minso, A. (2023, December 13). *Food and Color: What Does It All Mean?* Retrieved from tracegrains: https://tracegains.com/blog/food-and-color-what-does-it-all-mean/#:~:text=So%2C%20aside%20from%20expected%20taste,in%20natural%20foods%20like%20berries

National Eye Institute. (n.d.). *Types of Color Vision Deficiency*. Retrieved from National Eye Institude: https://www.nei.nih.gov/learn-about-eye-health/eye-conditions-and-diseases/color-blindness/types-color-vision-deficiency#:~:text=The%20most%20common%20type%20of,of%20green%20look%20more%20red.

Odour enhances the sense of presence in a virtual reality environment. (2022, March 30). Retrieved from PMC: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8967033/

Persolja, A. (2019, Jan 10). *5 Advantages Of Using A VR Experience At Your Trade Show Booth*. Retrieved from arvrjourney: https://arvrjourney.com/5-advantages-of-using-a-vr-experience-at-your-trade-show-booth-125ba7255e43

Ramotion. (2023, August 22). *VR in UX Design: Basic Guidelines for a Better Experience*. Retrieved from Ramotion: https://www.ramotion.com/blog/vr-in-ux-design/#section-ux-design-principles-and-vr

Regan, D. (2018, June 28). *How to Have a Successful Virtual Reality (VR) Booth at Your Next Corporate Event*. Retrieved from linkedIn: https://www.linkedin.com/pulse/how-have-successful-virtual-reality-vr-booth-your-next-devin-regan/

Scent Is Now Digital. (n.d.). Retrieved from ovrtechnology: https://ovrtechnology.com/

Singapore Tourism Board. (n.d.). *About STB overview*. Retrieved from stb: https://www.stb.gov.sg/content/stb/en/about-stb/overview.html

Use Light to attract attention. (n.d.). Retrieved from Starlight Exhibitions: https://www.starlightexhibitions.co.uk/blog/use-light-to-attract-visitor-attention/

Why Virtual Reality Booths Create Great Marketing and Content Material. (2019, July 15). Retrieved from Maverik VR: https://www.maverickvr.com/post/why-virtual-reality-booths-creates-great-marketing-and-content-material

Why Virtual Reality Booths Create Great Marketing and Content Material. (2021, july 15). Retrieved from MaverikVR: https://www.maverickvr.com/post/why-virtual-reality-booths-creates-great-marketing-and-content-material

Vertigo Games. (n.d.). *National Geographic Explore VR on oculus quest 2*. Meta.

https://www.meta.com/experiences/2046607608728563/

Blain, A. (2022, November 13). *National Geographic Explore VR Review*. World Of Geek Stuff. https://www.worldofgeekstuff.com/national-geographic-explore-vr-review/

Vinney, C. (2023, June 21). *UX for VR: Creating immersive user experiences*. UX Design Institute. https://www.uxdesigninstitute.com/blog/ux-for-vr/

Kobylarz, D. (n.d.). *UX design in virtual reality*. A small image with black text that reads "dk". https://www.danieldoes.design/ux-design-in-virtual-reality

Hawker Culture in Singapore. National Heritage Board. (2021, August 5). https://www.nhb.gov.sg/what-we-do/our-work/sector-development/unesco/hawker-culture-in-singapore

Azfar, R. (n.d.). *Don't miss Tomorrow's Marketing Industry News*. Marketing Dive. https://www.marketingdive.com/ex/mobilemarketer/cms/news/research/23960.html

Ahn, S. J., Nowak, K. L., & Bailenson, J. N. (2021). (rep.). *Unintended consequences of spatial presence on learning in virtual reality*. Retrieved December 22, 2023, from

https://www.sciencedirect.com/science/article/abs/pii/S0360 (Why Virtual Reality Booths Create Great Marketing and Content Material, 2021)131522001038.