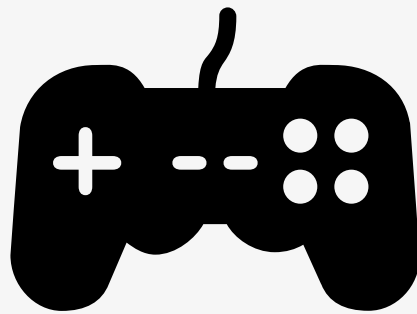


CUSTOMIZED CONTROLLER

MIRROR WIZARD



PREPARED BY :

TAN SHI JIE

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ABOUT



PROJECT PROPOSAL

This proposal will cover a detailed brief of the game controller concept and idea as well as the process and planning behind the final design and rationale of the design. In addition, it will cover the research on the game controller and how the game controller meets the needs of the users.

CHOSEN GAME



MIRROR WIZARD

"**Mirror Wizard**" is a desktop or mobile game where users have to avoid obstacles and teleport their way in the game to try to get the target, a blue ball, in each level.

The keys used in the game are **WASD** which controls the movement of the character. Secondly, the game uses the **space bar** button on the keyboard, the character would teleport to the other side.

This game uses strategic thinking to engage users to think of ways to reach the goal of each level, it also engages users by testing their reaction time, and whether players would be able to avoid enemies quickly.

CONCEPT



The concept of the game controller would revolve around the theme of **magic or fantasy**.

The game controller would be shaped like a wand or a lightstick which would allow users to use the controller to control the character around.

Users would be able to have a more **immersive experience** when using the controller as they would be able to relate to the theme more instead of just using a regular keyboard to play the game.



Source: <https://www.allkpop.com/upload/2022/04/content/100250/1649573433-lightsticks.png>

TARGET AUDIENCE

This game controller is mainly targeted at people who are interested to have a more immersive experience while playing "Mirror Wizard", which is available on CrazyGames, through the design of the game controller.

Although, the game controller would also be suited for those who are playing games that require only the space bar and WASD key.



GAMEPLAY



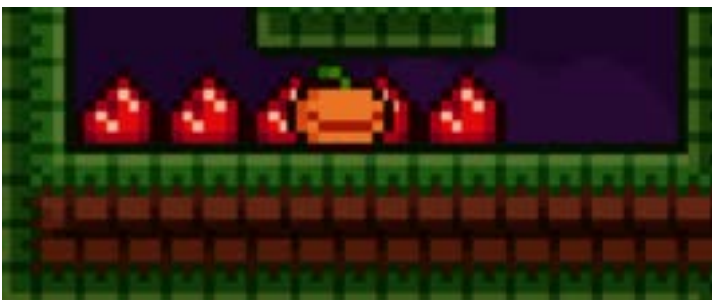
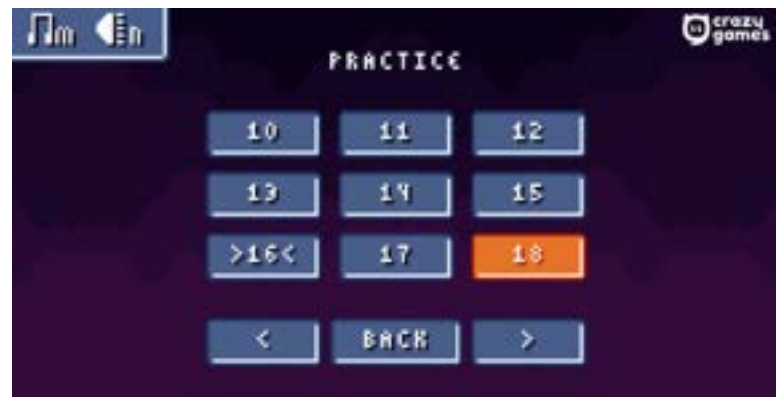
Start Menu:

Users can start their game and continue from their previous level.

They can also click the "Speedrun" button to practice and get a try of how to play the game before they play it actually.

Levels:

During the game, players would be able to go back to the previous level if they wish to replay a particular level.



Enemies / Obstacles:

During the game, players would have to avoid touching the "Fire" or the moving enemy. If players touch them, they would be killed and the level is restarted.

GAMEPLAY



Blue Ball:

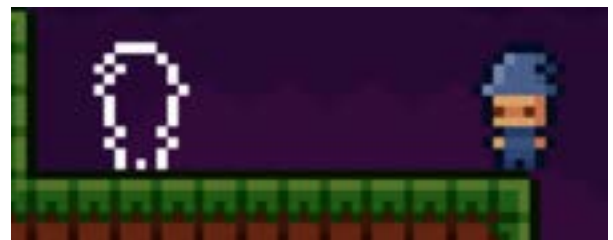
At each level, there is a blue ball that players have to collect in order to move on to the next level.

Teleporting:

To teleport the player, players would need to press the space bar key.

If there is a red outline of the character, it would mean that the character is unable to teleport.

If there is a white outline, players would be able to teleport to the white outline.



MAKEY MAKEY

Makey Makey allows users to design their own controllers with everyday conductive materials like playdough or graphite pencils.

The size of the Makey Makey board is around **9.5 cm x 4.8cm x 0.5cm**. It is portable and easy to use. Users would only need to connect a USB cable to the board to be able to start using it.

It is extremely useful for beginners as it does not require coding and does not require any software to be installed on your computer.



Source: https://cdn.shopify.com/s/files/1/0162/8612/products/Makey_Carlos_1024x1024_crop_center.png?v=1660326124

MATERIALS

Makey Makey works by connecting a conductive material to the crocodile clip which connects to the Makey Makey board, making a close circuit. This would in turn send a keyboard message to the computer, turning that conductive object into a keyboard key.

Conductive materials are materials that allow electricity to flow through them. Some examples would include metals (Aluminium, Steel, etc.), water, graphite, people, and fruits.

Non-conductive materials, which are also known as **insulators**, include plastic, paper, cardboard, and fabric.



TRENDS

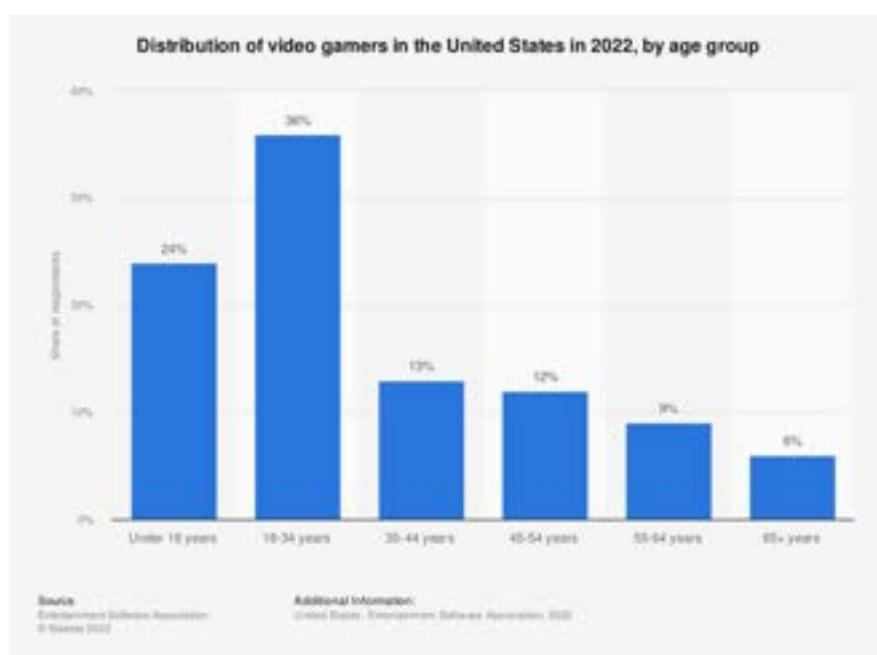


There are approximately **3.09 billion** active video game players in the world currently, this has increased from about 2.96 billion gamers in 2021. About 36% of video game players are between the age of 18 and 34.

According to statistics, players in Singapore spent a total of about **USD327 million** on games in 2019, making it a key player in the Southeast Asia games market. About **23%** of games played in Singapore are played on mobile phones to occupy the time.

There are approximately **48 million players** who have used a controller in a game on Steam, with about 10 percent of daily game sessions being played with a controller. These game controllers are frequently used to play fighting and sports games.

This shows that gaming controllers are quite popular among gamers and that gamers are willing to spend money that would help them in their games.



GAME CONTROLLERS

There are a variety of game controllers available in the market. Each with its own **unique features, shape, and designs**. A popular gaming controller that many gamers would have owned would be the **Xbox gaming controller**. The price of a gaming controller could range between SGD \$40 to more than SGD \$60, it could cost significantly more depending on the specification of the gaming controller.

Some popular games that could be used with a gaming controller would be Minecraft, Fortnite, and Mario Kart Wii.

A popular gaming controller that is still popular among people would be the Nintendo Switch which was released in 2017. It was one of the fastest-selling consoles and has sold **84.59 million units** after just 49 on the market. The main reason for its popularity would be it's portability and ability to change it's form.



GOOD CONTROLLERS

So, what makes a great game controller? Firstly, A game controller should feel **comfortable** to use. Being able to cater to your target audience would make them feel included and allow them to have a good experience playing the game.

It is also important to note whether the controllers are **wired or wireless**. Would a wireless controller be better suited for your game compared to a wired controller? There are both advantages and disadvantages of wireless and wired controllers. For example, users would not have to charge their wired controllers and they can be connected directly to the console. However, this would **restrict the movement** of users and there is a limit to the space that players can move around which could be a pain point for some. On the other hand, wireless controllers are convenient to use and much lighter. But users would need to charge them when it runs out of battery and charging might take around **2 to 3 hours**.

The **design** of the controller also matters as different players would have different preferences. Some might find a particular comfortable to use, however, some might find it to be uncomfortable and causes them to feel annoyed.




GAME EXPERIENCE

The **user's gameplay experience** is important as it determines whether your product would be successful or not. Having a bad gameplay experience would mean that the user would share their bad experience with their friends or family, discouraging them from buying the game. It might impact your reputation and sales, making it a failed product.

There are a number of **creative game controllers** which integrates the theme of the game into the game controller. For example, one place that uses these creative game controllers would be arcades. Arcades have a variety of games that are most suited for people aged 13 and above. Some common game controllers that you would see in an arcade would be the steering wheel game controller for a car racing game. It acts as though you are the driver in the game.



PERSONA



NAME
Lin Qianhui

AGE
18



STATUS
Single

PROFESSION
Student

RESIDENCE
Singapore, Singapore


CHARACTER TYPE
Shy, Humorous, Friendly

CHANNELS



BIO

Qianhui is a student who is currently studying in Ngee Ann Polytechnic, pursuing a diploma in Data Science. She enjoys spending time with her friends and family.



"Someone once said that choosing to be happy would be good for our health."

GOALS

Get into her dream University

To work as an ecommerce executive

Getting a good GPA

MOTIVATIONS

Family

Friends

PERSONALITY TRAITS

Empathetic	Creative
<div><div></div></div> 100%	<div><div></div></div> 100%
Introvert	Extrovert
<div><div></div></div> 70%	<div><div></div></div> 30%
Analytical	Humorous
<div><div></div></div> 70%	<div><div></div></div> 30%

FRUSTRATIONS

Not enough time.

Worried about GPA

Everything being too expensive

Made with

EMPATHY MAP

Says

I like games that are fun and chill

Everything is expensive

I like games that require some thinking

Thinks

There are quite a number of people using game controllers to play their game

Different people would have different opinions on game controllers

Does

Plays the Nintendo switch with her sister

Plays games during her free time

Feels

Different people would have different opinions on game controllers

I feel that there should be more games to play with game controllers

Pain

It is quite expensive to buy

Not enough variety of games to play with game controllers

Gain

I enjoy playing games with my family and friends



USER JOURNEY



Lin Qianhui, 18, Student

Scenario:

Qianhui is looking around to buy a simple game controller to play "Mirror Wizard" on CrazyGames.

Awareness

Looking through the store

Social Media

Online Website

Thoughts

Is it light-weight?

Is it easy to use?

Is the design aesthetically pleasing?

Compare

Looking through the different game controllers available

Looking at reviews online

Hears other people's opinion on it

Onboarding

Buys the game controller

Uses it to play the game

Advocacy

recommend to others

Shares about it on social media



There are a variety of game controllers, which should I buy?



This seems unique.



This controller looks easy to use and seems to have good reviews from many.



Very good design and easy to use. The design is nice!



I should share this with my friends.

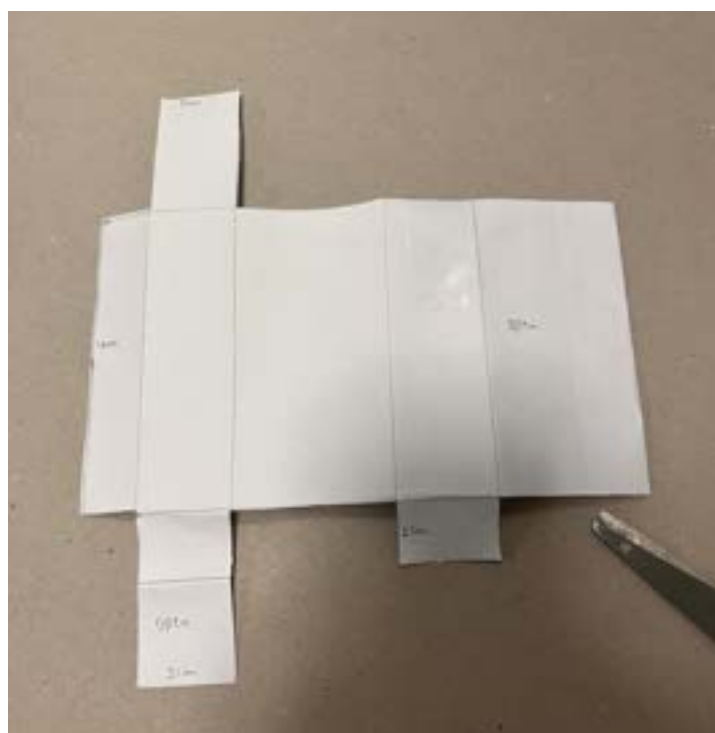
DESIGN RATIONALE

[GENERAL]

One of the reasons for choosing this **game** was because this game seemed different in terms of its concept and gameplay. It was interesting to play and requires some form of thinking to reach the goal of each level. Each level becomes a little harder than the previous. The game also fully uses the WASD and space bar keys which Makey Makey supports without having to re-map the keys. Therefore, it makes it more convenient to use as users can simply plug the USB and crocodile clips into their respective places and it would be functional.

For the **game controller design**, I wanted it to relate to the theme of magic since the game relates to a wizard. I chose the color **purple, black, gold, and blue** for the controllers. These colors give users a magical vibe and would provide users with a more immersive experience while playing the game. Some of the colors used were also seen in the game.

The **design** of the controller was inspired by the Wii game controller and light sticks often seen in the merchandise of K-pop groups. I wanted to create a wand to fit the concept of magic. Therefore, I was inspired by the cuboid design of the Wii game controller, and using that, I did some **paper prototyping** to find out if the size is suitable for users to use and hold. In addition, the keys used are easy to navigate and convenient to reach in one hand.



DESIGN RATIONALE

[PRODUCT]

01 CONTROL KEYS

Users can click on the different buttons on the game controller to control the **movement** of the character in the game. Users can easily reach the button. The buttons are also differentiated so that players will have an easier time without getting confused.



03 CONNECTING

Connect the crocodile clips from the Makey Makey board to the buttons at the back to make the controller **functional** to play the game.

The design of the controller hides the wire from the users so that they would feel it is much more neat.

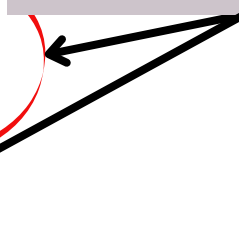


02 VELCRO

Users can use the Velcro tape to close and open the back of the product much more easily.

It also allows most of the wires to be **unseen** by users, they would be able to hold the controller more **comfortably**.

Users can easily open and close the back of the controller whenever they want.



PRODUCT DETAILS



HEIGHT

19.5cm

WIDTH

7.4cm

DEPTH

3.3cm

Using the Makey Makey, players can connect the crocodile clips at the back of the wand which will hide the top part of the clips to make it **less messy** and more pleasant for users to see.



The game controller can be stored inside the magic book, users will be able to store it away conveniently, protecting the game controller from any damage. The size of the magic book is **around 17cm x 24cm x 4.9cm**. In addition, players can also hide the Makey Makey board inside the magic book.

The game controller comes with a **magic book** that allows users to store the game controller and 3 **instruction cards**, allowing users to understand how to connect the Makey Makey board to the controller and what the different control means.

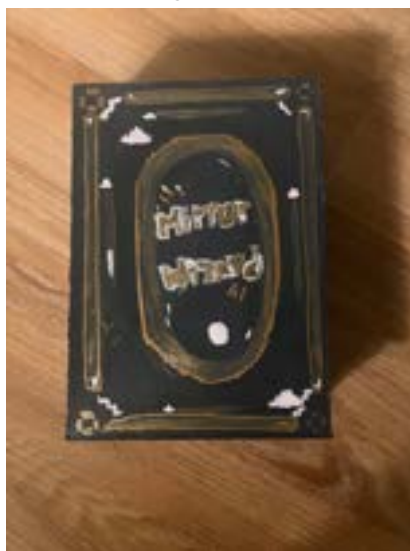
SCREENSHOTS

Magic book:

Side + Front



Front



Inside (Storing of game controller)



Materials Used:

- Paper
- Cardboard
- Styrofoam board
- Glue

Function:

- Store the game controller
- Store the instruction cards
- Hide the Makey Makey Board

SCREENSHOTS

Game Controller:

Front



Back



Side + Back



Inside



Materials Used:

- Cardboard
- Paint
- Velcro
- Glue
- Charms

Function:

- Allow users to play the game on the controller.
- Connect the crocodile clips to the buttons from the Makey Makey board.
- Hides the top of crocodile clip from being seen by users

SCREENSHOTS

Instruction Cards:



Back



Front

Materials Used:

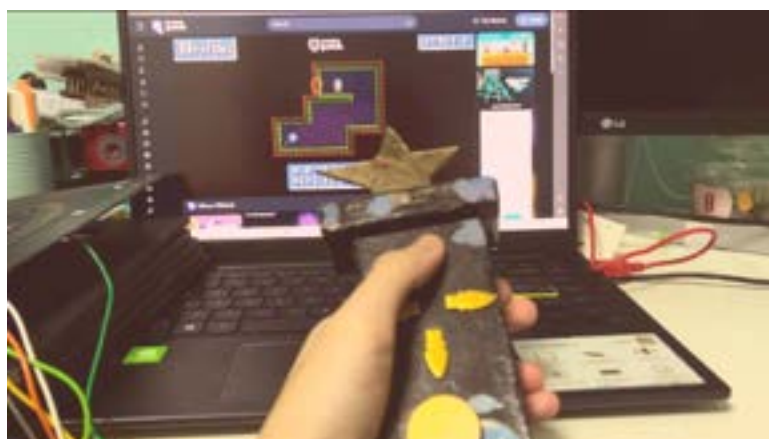
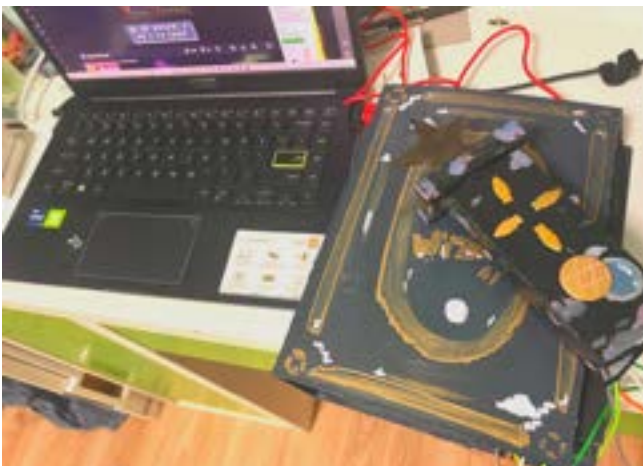
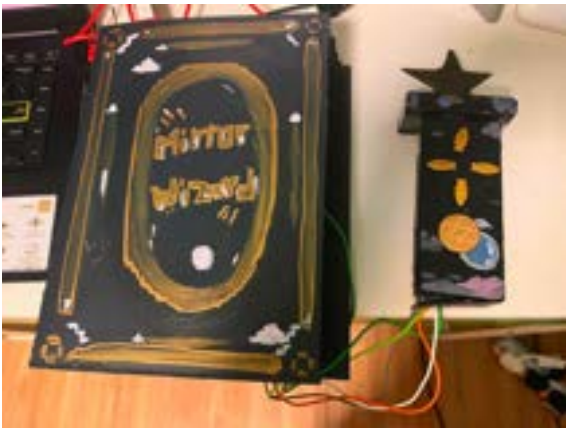
- Paper
- Glue
- Pen and Highlighters

Function:

- Allow users to understand where to connect the crocodile clips to the controller
- Illustrates the controls of the game controller

SCREENSHOTS

Storing the Makey Makey inside the Magic book:

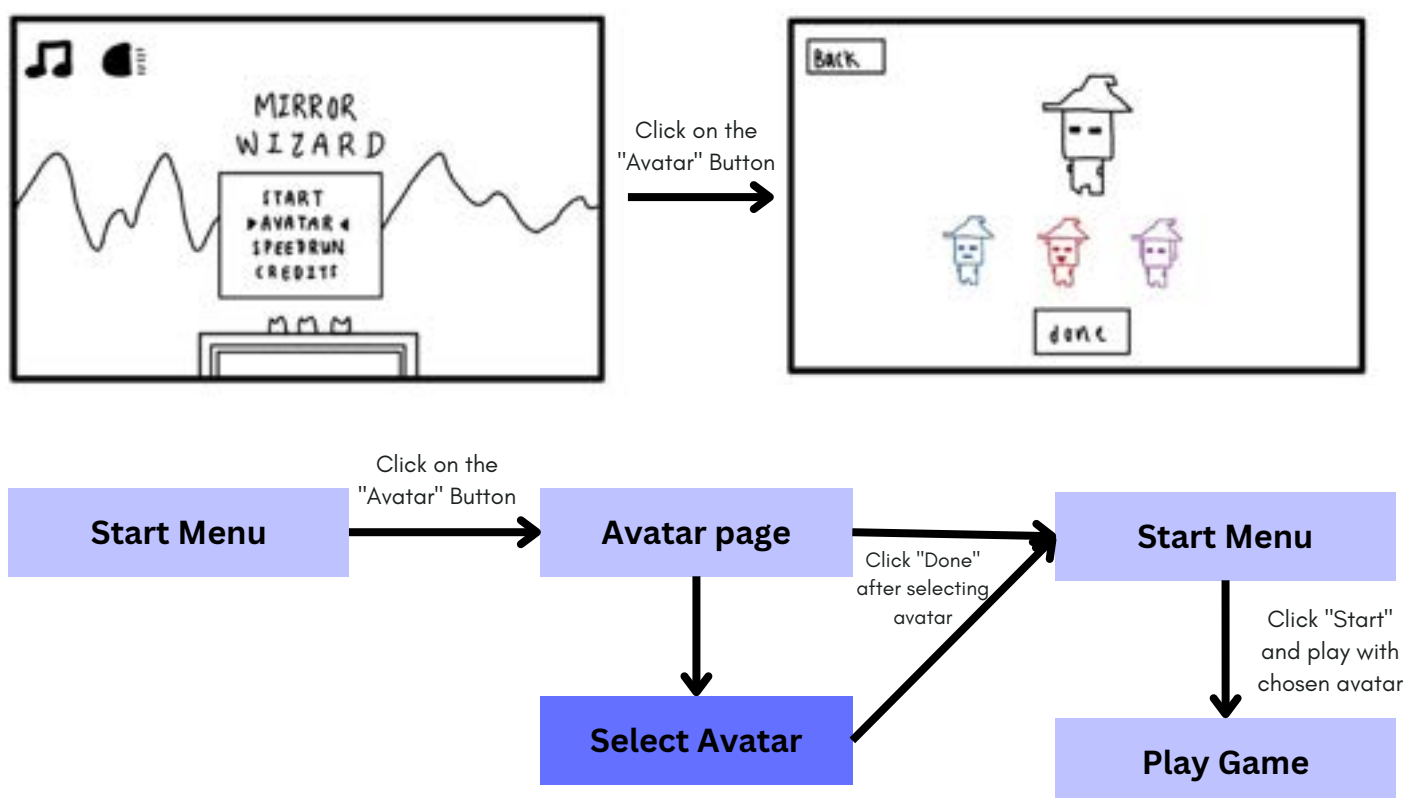


IMPROVEMENTS

01 Avatars

In my opinion, what could be improved about the game would be having more characters to choose from as the player's **avatar** in the game. There is only one avatar in the game, making the game experience a little boring as they would not be able to choose the character they would be playing, making it less interactive and immersive for the users.

01.1 Supporting Visuals

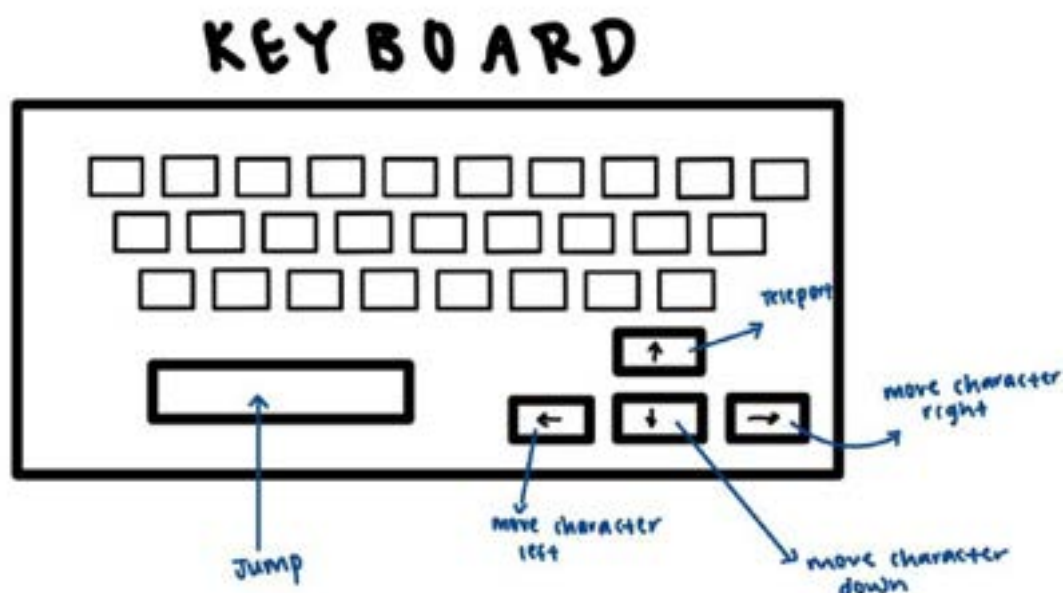


IMPROVEMENTS

02 Control Key Mapping

Secondly, the **control key** for the game might be confusing for some as it is commonly known that the action for clicking the space bar would be to let the character jump. However, in this game, the space bar key is used to teleport the reader while the "Up" arrow is used to jump. To make it less confusing for users, perhaps the "Up" arrow could be for the teleport while the space bar is used for jumping.

02.1 Supporting Visuals

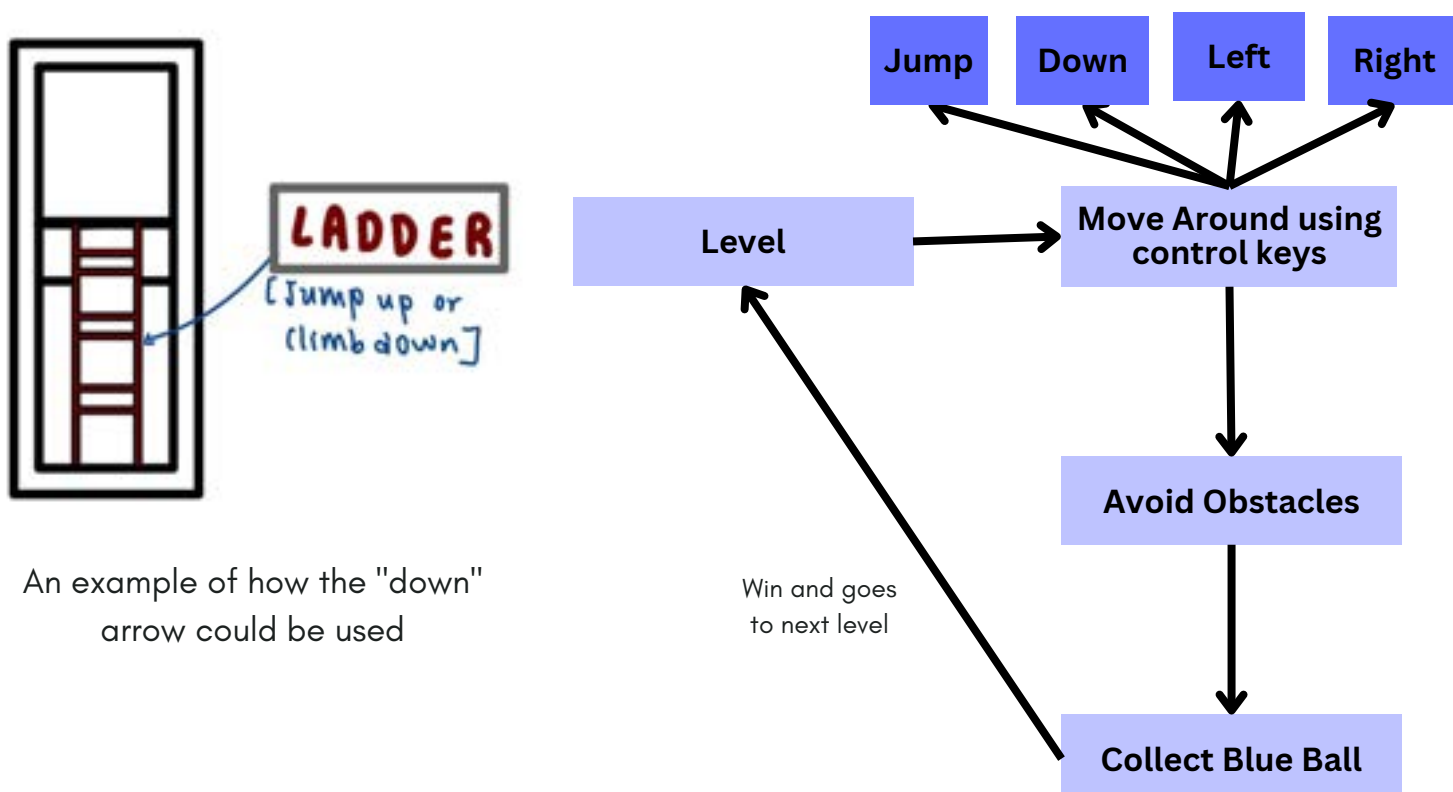


IMPROVEMENTS

03 "Down" Arrow

Lastly, the game could use more of the "Down" arrow to **utilize the movement keys fully**. The level design of the game could ensure that the players would be able to use the "Down" arrow as there is not much of it used in the game. It would give users more freedom to move around in the level.

03.1 Supporting Visuals



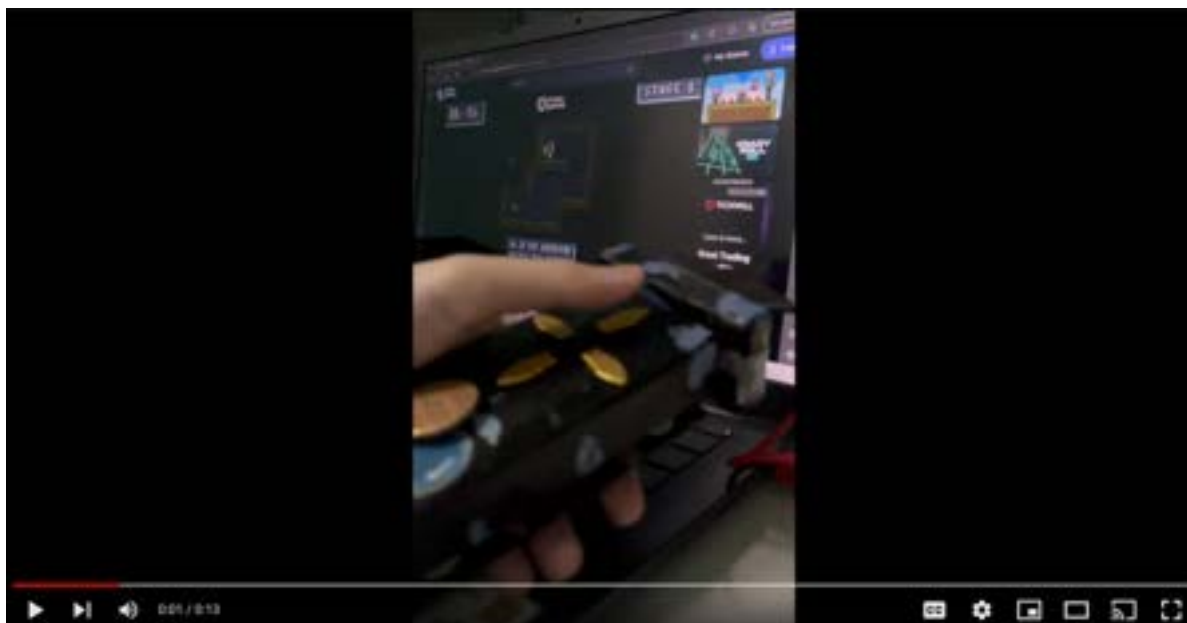
GAME



Click / Copy the link to play the game:

<https://www.crazygames.com/game/mirror-wizard>

VIDEO



Click / Copy the link to view the video:

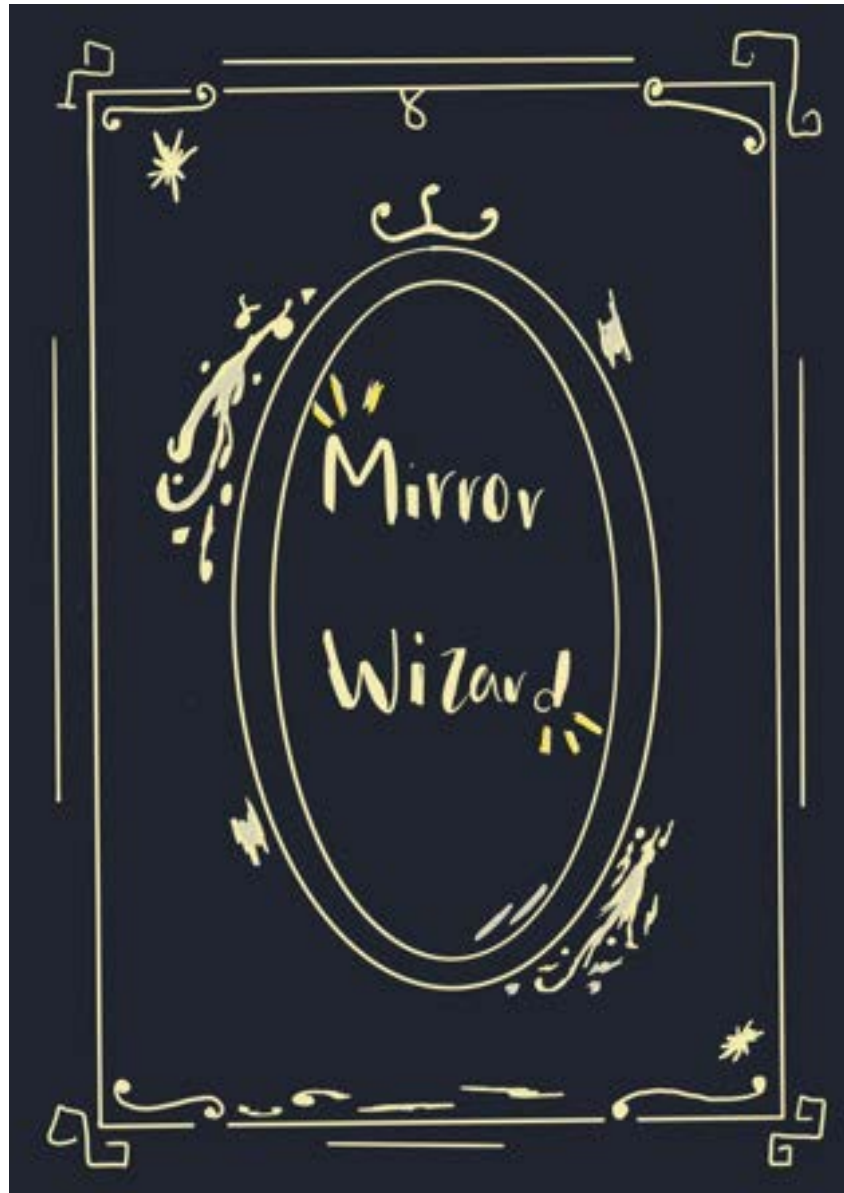
iVid2:

https://ivid2.np.edu.sg/media/EXD_Assg2_TanShiJie/1_x7x2mi7l

Youtube:

<https://youtu.be/8oCofWoLGbE>

SKETCHES



PLANNING

Task to complete :

□ prototype

- instruction manual
- 10s video clip
- photos (3+)

□ proposal

- screenshots
- URL of game
- supporting visuals

to show how it improves user experience



Contents

- introduction
 - About
 - chosen game
 - concep-

- Design
 - rationale
 - supporting visuals
 - screenshot

- Research

- Links

- user testing
 - person
 - user journey

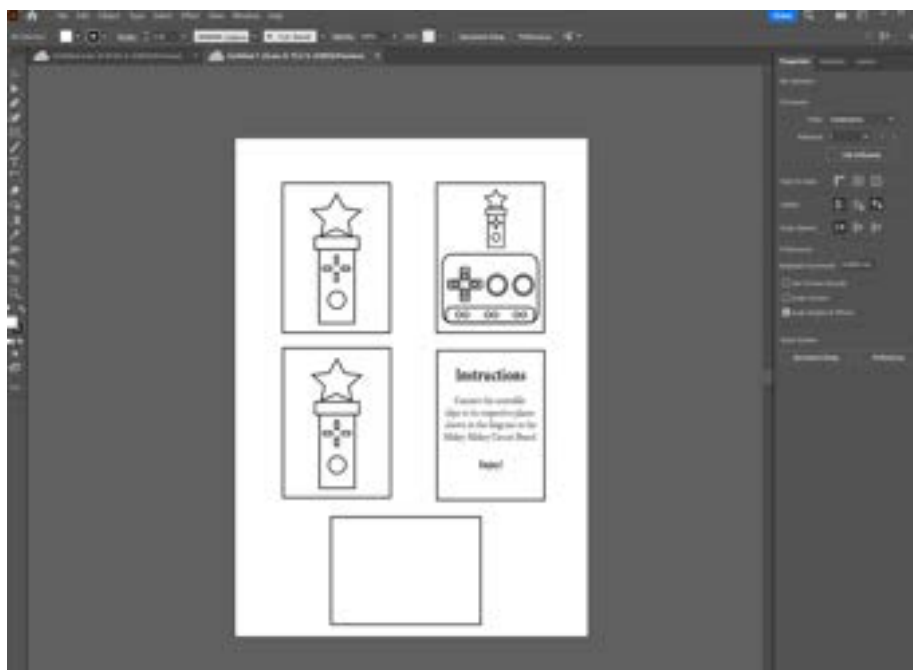

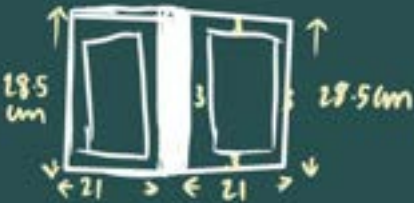

- video
- URL

- Annex
 - references

PLANNING

materials :

- styrofoam (30cm x 22.5cm)
(black)
- cardboard [big]
[66cm x 79cm]



REFERENCES

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TECHNOLOGIES USED

- **Canva**

--> Proposal and Elements (images and graphics)

- **Procreate**

--> Sketches and drawings of visuals

- **Visme**

--> User Persona

- **Google**

--> Research and Printable images

- **Adobe Illustrator**

--> Designing of Instructions

- **Makey Makey**

--> Connecting to game controller

ACKNOWLEDGEMENT

I would like to take this opportunity to thank my lecturer, family, and my friends for the guidance, feedback provided, and support throughout the assignment. This project allowed me to source resources and materials, use my creativity, and enhance my skill in planning and prototyping.

THANK YOU!