

Portfolio

Shiting Li (shli2804)

1. Introduction

The main reason for pedestrians crossing the road illegally is that pedestrians feel that waiting time exceeds their threshold, and the long waiting time far exceeds the psychological capacity of pedestrians.

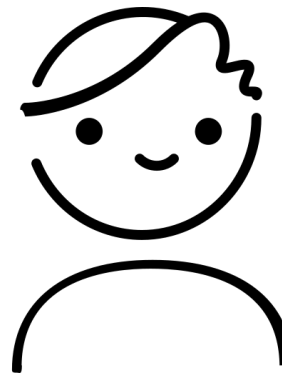
In order to solve this problem and encourage pedestrians to wait for the red light, initially, we proposed three concepts to improve the pedestrian experience in the waiting area. After continuous exploration and testing, we summarized and designed the "Press to boom!" game. Attracting the attention of pedestrians and reducing the likelihood that they will cross the road illegally.

Our target market is the pedestrians crossing the road at night time. This is an interactive game installed in the waiting area. When a pedestrian waits for a traffic light, the pedestrian could press the button on the ground. By pressing the button it will pump up the balloon on the screen, the image on the ground will change. This game could save time and reduces the chance of pedestrians jaywalking.



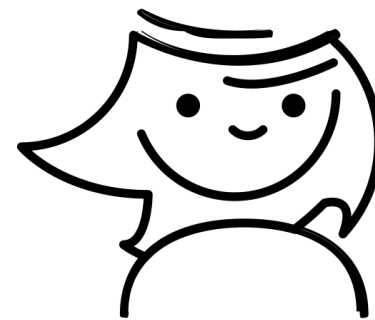


2. Team Structure



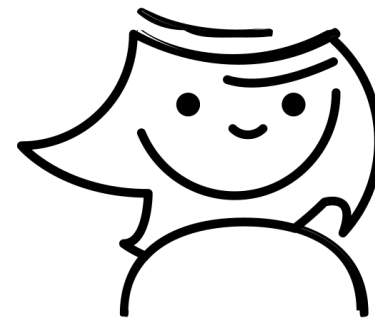
BAI

Designer and programmer, focuses on creativity; the possibilities, alternatives, and new ideas.



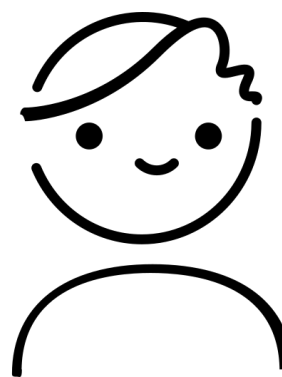
CINDY

Designer and programmer, focuses on creativity; the possibilities, alternatives, and new ideas



SHIRLEY

Ideation and programmer, focuses on creativity; the possibilities, alternatives, and new ideas.



YAN

Leader and programmer, manage the think process.

Throughout the semester, our team completed most of the work together and conducted multiple meetings. I personally took charge of the production of illustrator, writing report content, and organise, landscaping the visual report.

In the final assessment, our team completed the writing of the code and the layout of the exhibition scene together. I was mainly responsible for shooting and editing our final promotional video, and worked with the team members to create the two prototypes.

During this semester, our team mainly followed the tasks set by the timeline and group chart, we completed it on time. In many meetings, our team members made comments and revisions to each other, which better improved our assessment.

2. Team Structure

	Week 8	Week9	Week 10	Week 11	Week 12	Week13
	Make plan	Make animation	Buy equipments and write assignment3	Equipment arrived, write code and assignment3	Test the finial product and write the assignment3	Finish the final product and assignment3
 BAI	group meeting, learning code	Making an animation of the Mt. Fuji section	refine equipments what we need to buy and compare the price online, write assignment3	write code and assignment3	group meeting, test the finial group together and write the assignment3	Finish the final product and assignment3
 CINDY	group meeting, learning code	Making an animation of the starry sky	Buy equipments and write assignment3	write code and assignment3	group meeting, test the finial group together and write the assignment3	Finish the final product and assignment3
 SHIRLEY	group meeting, learning code	Making an animation of the ocean	research how to use these equipments and write assignment3	write code and assignment3	group meeting, test the finial group together and write the assignment3	Finish the final product and assignment3
 YAN	group meeting, learning code	Summarize all the animations, then modify and edit the final animation	learn how to connect the projector with sensor and write assignment3	write code and assignment3	group meeting, test the finial group together and write the assignment3	Finish the final product and assignment3

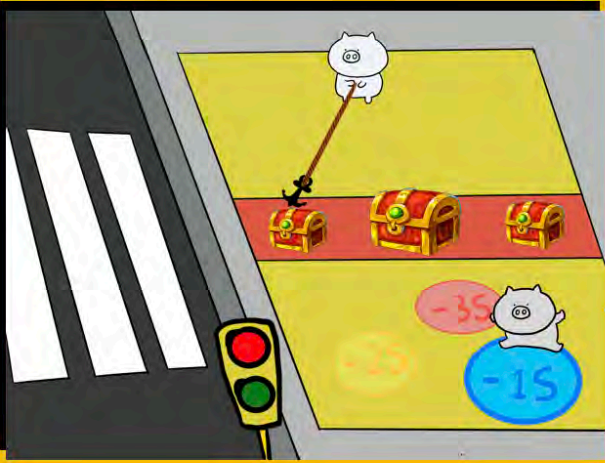
3. Contributions

In Assessment 1
Our team came up with multiple concepts together

I am responsible

- Explained our third concept in depth
- Made low fidelity prototype
- Visual report finishing and typesetting
- Market analyse
- Described our hardware, software requirements

Jump for the less red-light time - Shirley



How would it work?
When people wait for the red light, in the waiting area on the side of the zebra crossing, there will be a treasure hunt match game projected on the ground. This is a two-player game. When people stand in the left and right areas, the game will start automatically.

There are two playing areas in the waiting area. Under the projector's projection, User A in the left area can see the circle "-1s", "-2s", "-3s" that reduces the red-light time. User A jumps twice in the circle with both feet that can dig out the time-reducing items. After the item is dug, the item will move to the common area in the middle.

User B in the right area can adjust the direction of the rope's launch with the angle of the feet. Jump twice to launch the rope and collect the treasure in the middle area to reduce the red-light time.

3

Concept


Jump for the less red-light time - Shirley

How would it solve the problem?
Through the interaction between the two people, this game can bring people closer together, what's more, it could attract the attention of pedestrians and reduce the chance of jaywalking, then reduce the anxiety of pedestrians when waiting for the red light.

How does it compare to other solutions already on the market?
Compared with other games, this concept has stronger user experience and is a two-player game that adds and interacts. The combination of light and shadow effects allows pedestrians to forget the anxiety of waiting for the red light.

Weaknesses

- This game is only suitable for two people, the actual intersection, pedestrians will generally more than two.
- It is also a problem that many feet are stepping on the screen at the same time. The product is not suitable for a crowded waiting area.
- In the game, reducing the red light time is not easy to achieve in reality.



Concept

3

Market Analysis - Shirley

WOW! NINJA in SHIBUYA

At the end of 2018, Japan created a daily animated ninja show on the Shibuya MODI building's outdoor screen. The short film will be played when the red light is on. The content of the film is the image of a traditional Japanese ninja. In the video designed for the night, the red light is vividly integrated into the film, attracting many visitors waiting for the traffic lights to stop and watch. The short film promoted the DOCOMO tourism information portal very well, and also promoted the history, culture and sightseeing atmosphere of Japan, which triggered the curiosity of visitors and reduced people's anxiety while waiting for the red light.

But in terms of interaction, they have shortcomings, this product does not have actual interaction with pedestrians.



Photo Credit: docomoOfficial

Hardware & Software Requirements

Blooming flower projection (Ziqi Bai)
Software:
The design will run on Windows and projector
We will need Adobe Suite, atom and Processing as software
The programming language we will use P5JS, C++
Hardware:
In this design, we used the motion sensor, projection and Bluetooth. The motion sensor is used to track the user's movements, then the data is transmitted via Bluetooth, and the motherboard is connected to Bluetooth and a computer. The projection will put the design to the ground

Virtual scatter petal game using holographic projector and leap motion(Cindy)
Software:
The design will run on Windows and leap motion
We will need Adobe Suite
The programming language we will use C++
Hardware:
In this design, we used leap motion, holographic projection, Bluetooth and mainboard. We use the leap motion to identify the user's gestures and the data is transmitted using Bluetooth. The motherboard is connected to Bluetooth. The holographic projection will project something of the design

Title: Jump for the less red-light time(Shirley)
Software:
The design will run on Windows and projector
We will need Adobe Suite
The programming language we will use Java
Hardware:
In this design, we used the motion sensor, projection and Bluetooth. The motion sensor is used to track the user's movements, then the data is transmitted via Bluetooth, and the motherboard is connected to Bluetooth and a computer. The projection will put the design to the ground

3. Contributions

In Assessment 2


I am responsible

- Visual report finishing and typesetting
- Photo record
- Complete 6 interviews
- Made affinity diagrams
- Approach
- Research method
- Test1 introduction, finding, chosen concept, improvement
- Helped team members complete assessment

APPROACH

The data collected and the rationale for collecting it

In this assessment, we collected **qualitative data** through the research method of the **interview** and **focus group**. Qualitative data is defined as approximate and characterised data. Qualitative data can be observed and recorded. This data type is essentially non-numeric. Such data is collected through observations, one-on-one interviews, focus group surveys, and similar methods (Surendran, 2019). Qualitative data is important for determining the specific frequency of a trait or feature. Qualitative data is related to people's feelings. It helps researchers identify and deal with problems efficiently (Surendran, 2019).




Analysis

The affinity diagramming is a **simple and cost-effective** system approach for processing **interview data** and **focus group data**. It allows data analysis and comprehensive. Multiple people can merge notes by **writing all notes on a note and organising them together**. The behaviour of organisation and labelling has led to useful discussions. Notes can be moved and organised into groups and subgroups of different levels("Which is Better for Analysis, Spreadsheets or Affinity Diagrams? Part 2 | Infragistics Blog", 2019).

TEST 1


Introduction

For our first round of testing, we are using both **interview** and **questionary** to filter and improve our concepts. We've made a **low-fidelity prototype** for our three concepts, and have **twelve participants** to test our concepts.



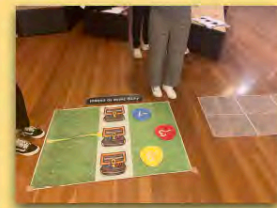
Concept 1: Blooming flower projection

This is a little blooming flower game, the flower will bloom when motion sensor detects that the pedestrian has a foot lift.



Concept 2: Virtual scatter petal game


A interactive game using holographic projector and leap motion allow user to scatter petal without touching the screen.




Concept 3: Jump for the less red-light time

A interactive game requires two user work together to reduce red-light time to encourage them wait for traffic light.

RESEARCH METHODS



Interview is **the most common research method for designers**, it can be **use in various stage of design process**. Interview is most effective tool to help designer gain better insight into actual **user experiences** and **needs of existing experiences**. In this case, interview is very helpful to help us to have better understanding of What do people need in the waiting area?(Tomitsch et al., n.d.).



Focus groups are the most useful tool for **gaining data or feedback on design concepts and prototypes**. Because the focus groups could include large numbers of people, they can be a **quick and easy way for us to gain data**. Focus groups typically use an **open and conversational structure** that allows designers to delve into the subject area also it allows participants to freely explore interesting tangent lines(Tomitsch et al., n.d.).

TEST 1 FINDING

In this test, we selected **12 testers**, and we **interviewed and surveyed** them. Based on the results of interviews and questionnaires, we produced **affinity diagrams** on three concepts, and we came to the following conclusions:

Concept 1

Advantages:

- This concept is **easy to understand** and **easy to use**.
- This concept is creative and looks **great and interesting**
- This concept is **very attractive**
- This concept makes people feel **very curious**.
- This concept allows people to **make more friends**.
- This concept has **strong interactivity**

Disadvantages:

- The projected pattern is **not very good**.
- Lack of change
- People **don't know where to stand** to change the picture.
- It **don't have the connection** to the red-light.

Concept 2

Advantages:

- 3D model is very **technical**
- Design is very **conspicuous** and **very interactive**

Disadvantages:

- Need to **support more people**
- The concept seems to be **costly**
- Need **more introduction** on how to use it
- Lack of **change**

Concept 3

Advantages:

- Cartoon image is **very cute**.
- It is a **very interesting** game
- **Increase communication** between people

Disadvantages:

- Need **at least two people**
- It is **difficult to use**
- **Unfriendly** for the elderly and disabled
- It is **unrealistic to change** the time of traffic lights.
- Jumping on the road is **not safe**

TEST 1 CHOSEN CONCEPT

At the same time, we figured out the response based on **the results of the questionnaire** about test 1, we found that concept 3 got **the lowest score**.

Based on the **affinity diagramming**, we decided to exclude concept 3. There are **three reasons** for this:


- Concept 3 got the **lowest score**, proving that every tester has **a lot of opinions** on concept 3.
- In concept 3, we found that there is a problem that **cannot be solved**. We **cannot guarantee that pedestrians at night** are always more than people in the waiting area of traffic light.
- We can't create another security problem by solving a security problem. The use of concept 3 is **not safe** for pedestrians.

TEST 1 IMPROVEMENT

Development concept one

According to the content of the interview, we found that many interviewees felt that the image we projected was **too rough and could not be used** to show the leaves and flowers. The projected pattern does not give people a **good visual effect**.

So we improved the pattern, we **added branches to the new pattern**, and the leaves and flowers grow randomly on the branches when the foot moves. We make the leaves and flowers **more beautiful**, which can give users a **better experience**.




TEST 1 IMPROVEMENT

Development concept two

Based on our first test interview results, participants have suggested three weakness for our second concept "virtual scatter petal game".

The first one is we found that many user think the game don't have clear instruction. Many user don't know how to play the game and even didn't notice this is a game through its aesthetic.




Welcome to play virtual scatter petal game

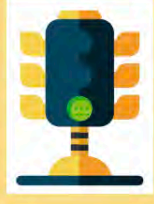
Start the game by doing some hand gesture

By doing scatter petals hand gesture to scatter petals from the screen

The second is we found that user are curious and except an ending after they scatter all petals, so we've add an ending to improve user experience.



The third one is user reflect on they don't know when will light turn green, they may miss out the time to cross the road. To solve this problem, we've add a small green-light in the screen connect with traffic to remind user.

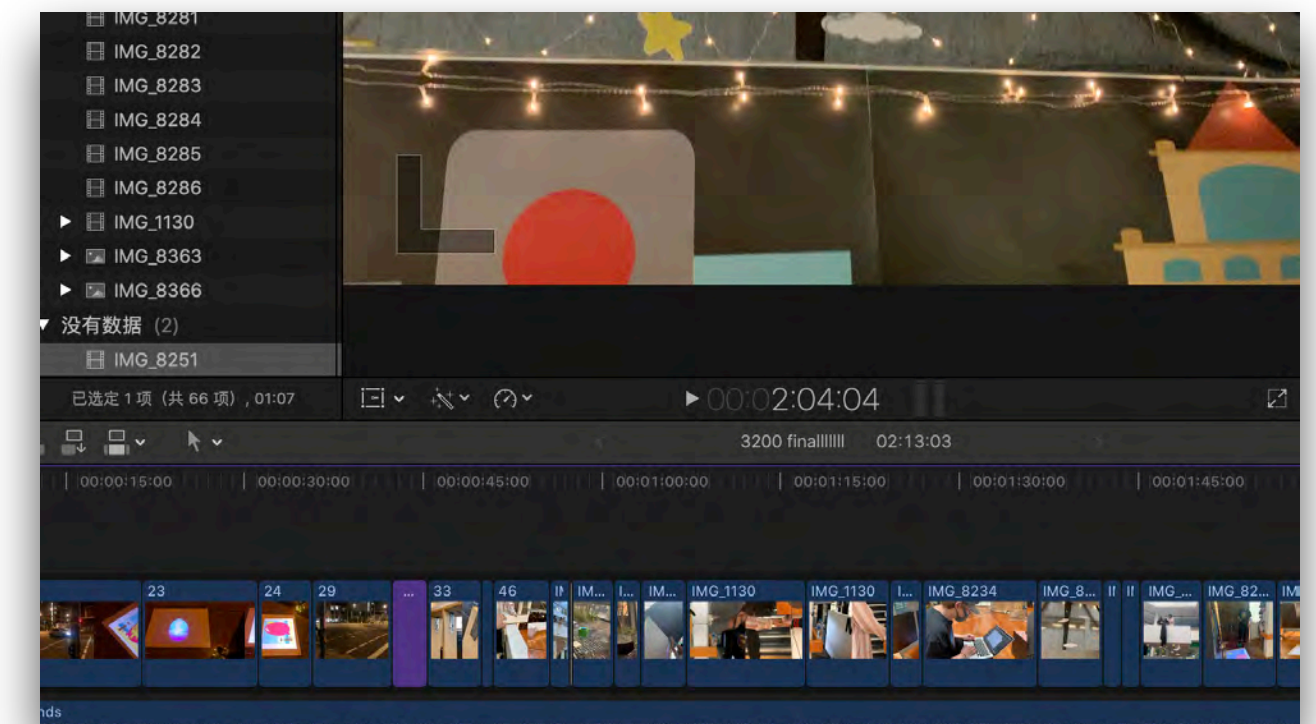
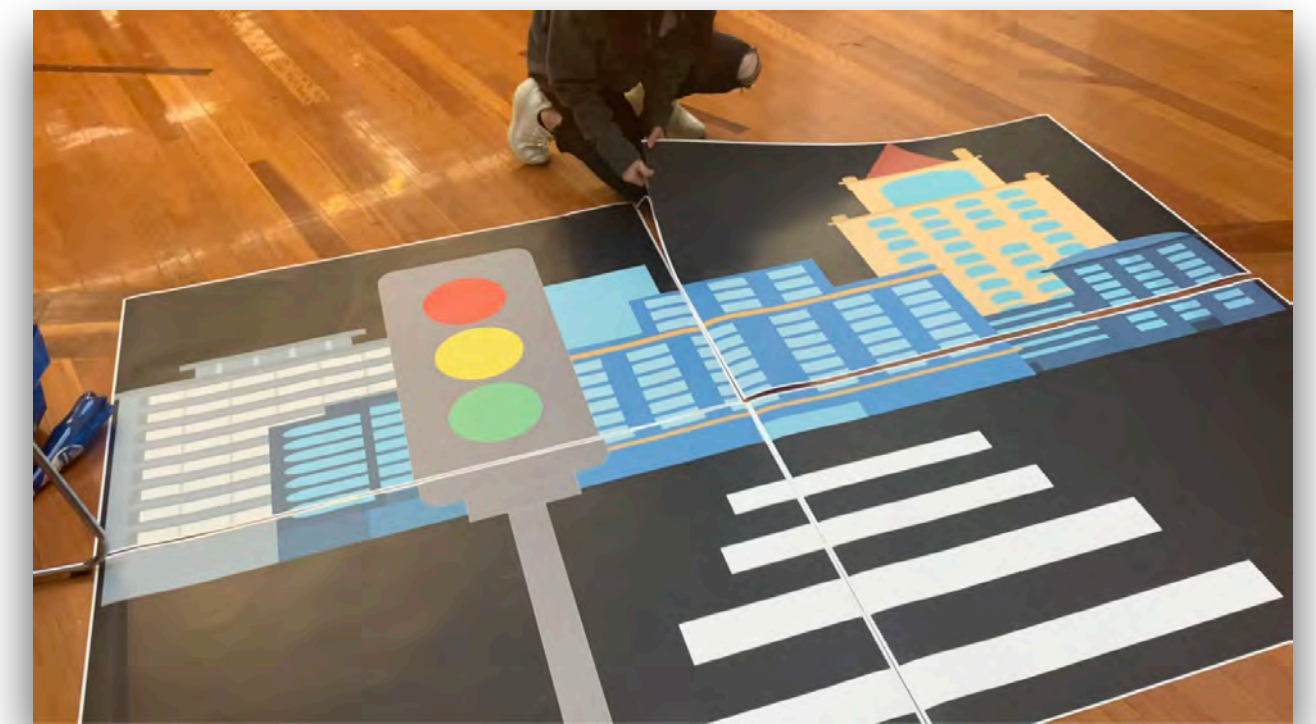
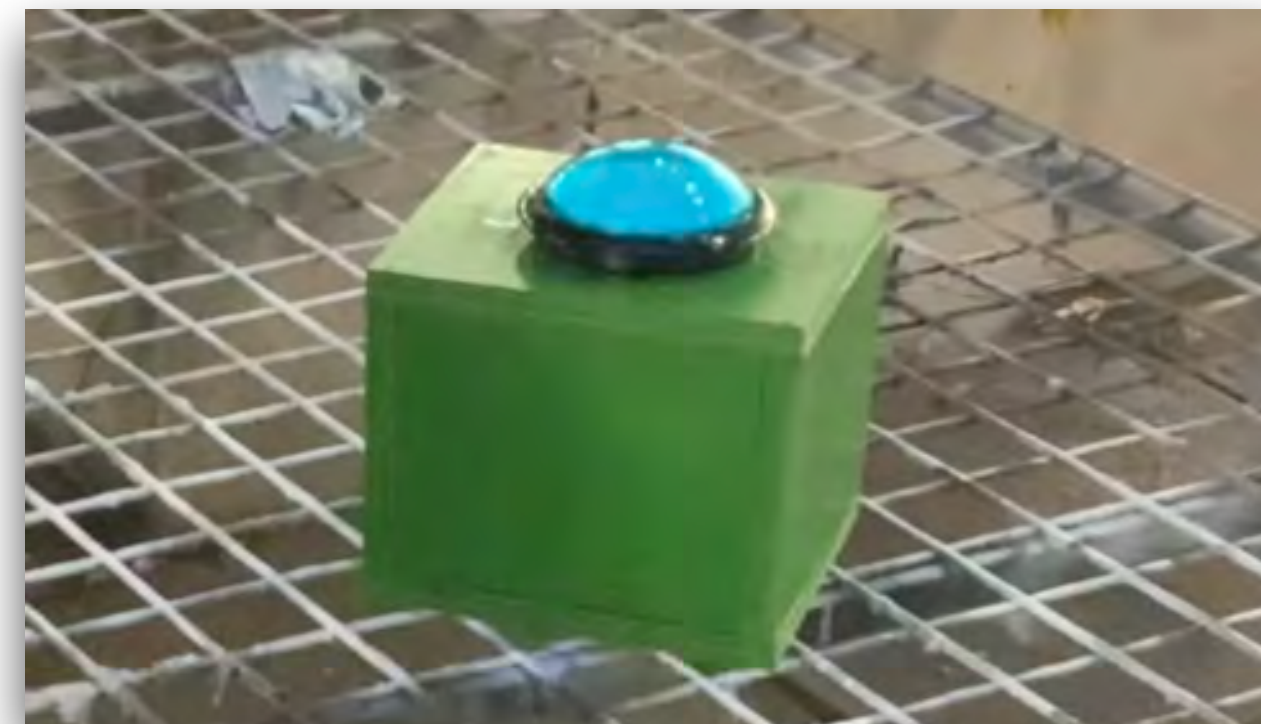


3. Contributions

In Assessment 3

I am responsible

- Purchased hardware
- Completed code
- Arranged exhibition scenes
- Made high fidelity prototype
- Connected equipment and debugging



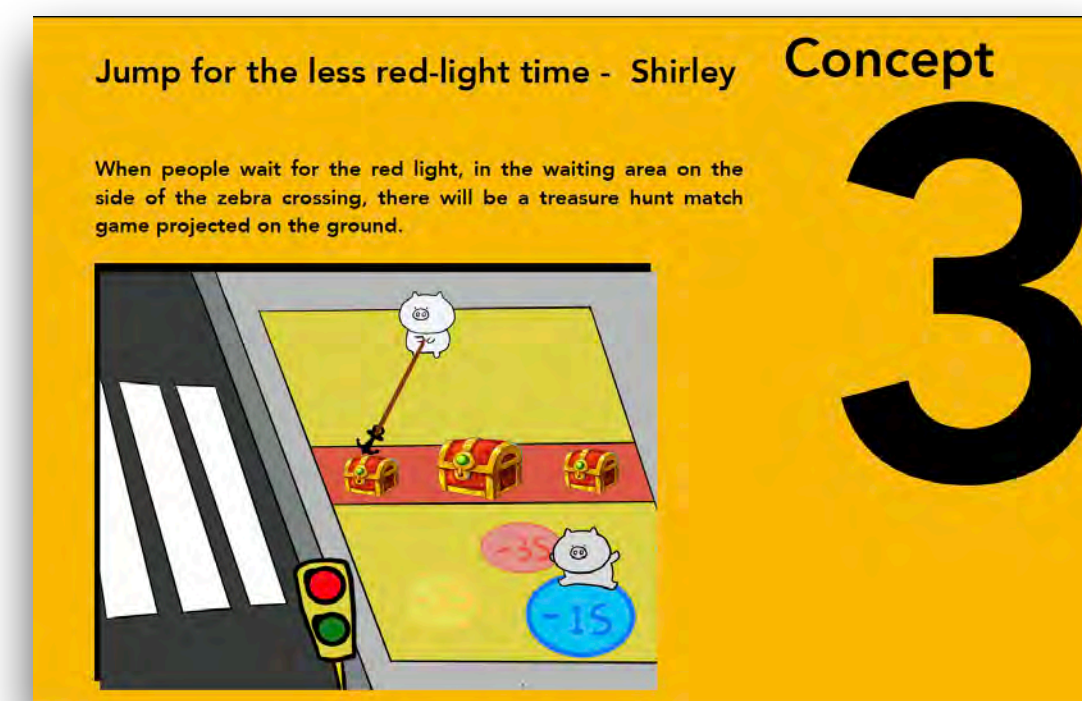
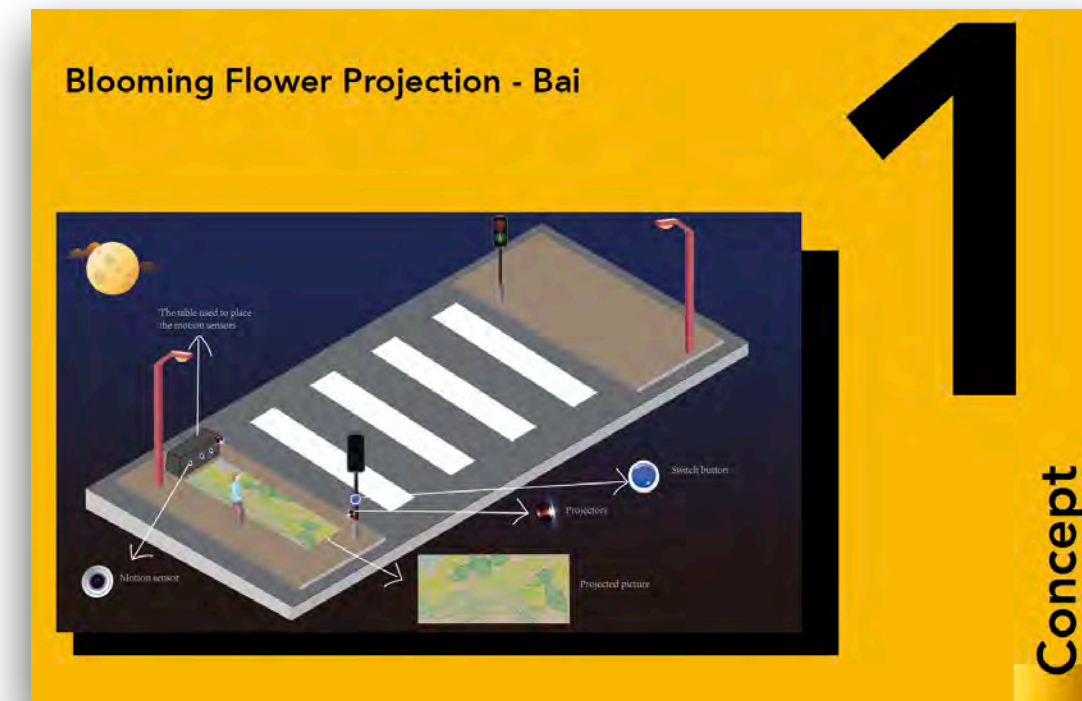
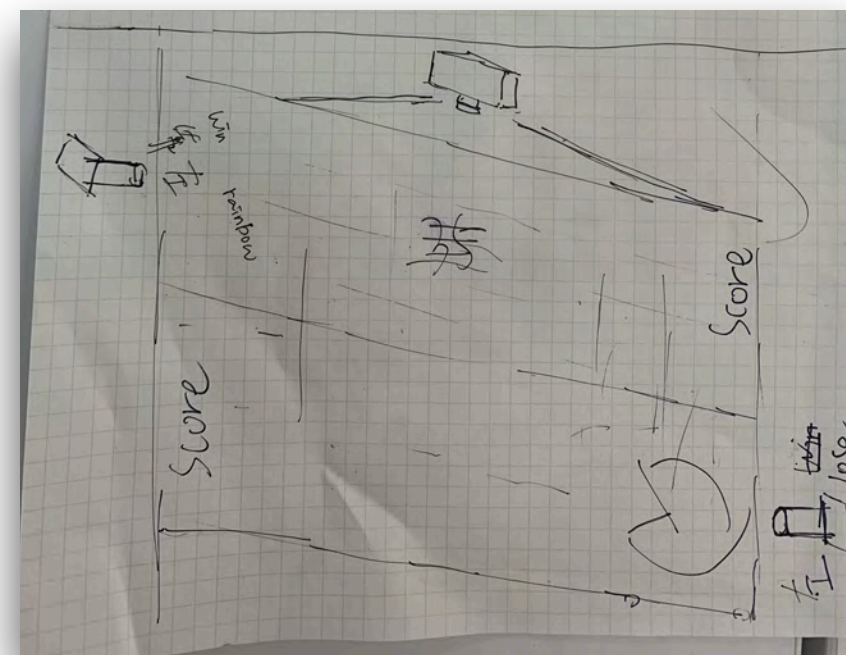
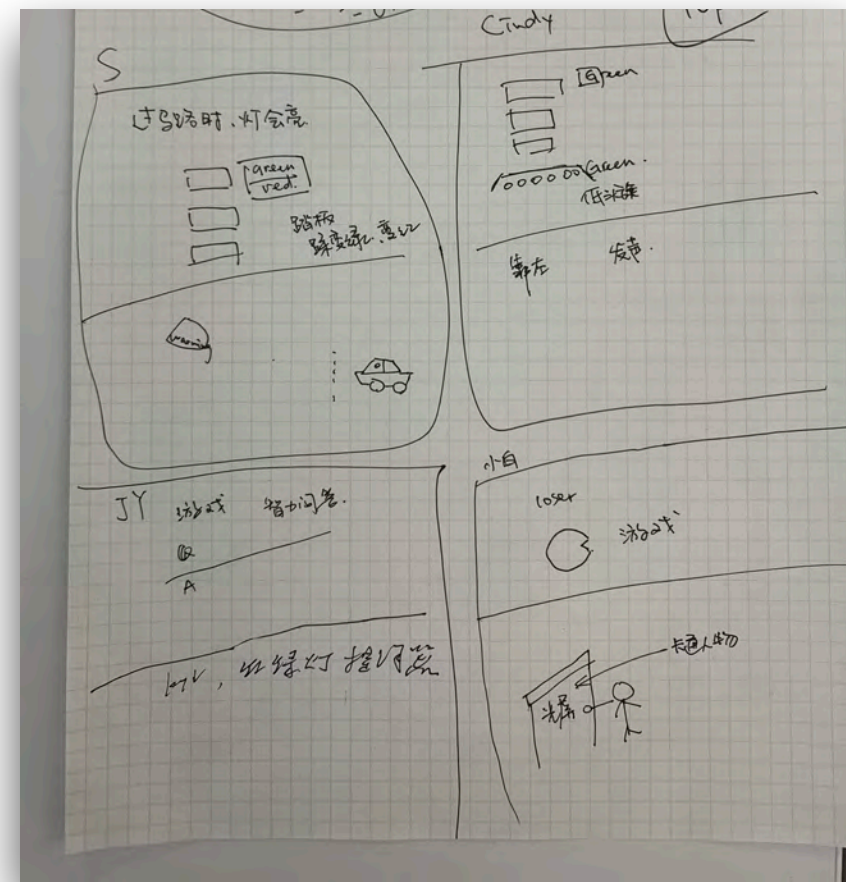


4. Challenges

When we made the final high fidelity prototype, the first prototype we made was not safe enough. The projector we borrowed from the school could not be safely installed on the board.

So we borrowed another projector from our friend.

This projector is more lightweight and compact, suitable for installation.



4. Challenges

In the beginning, the concepts proposed by our team members were a little got off the topic.

At the meeting with David, we asked questions about it.

After discussing with the team members, we reset the concepts.



4. Challenges

At the first presentation, we didn't have enough time to prepare.

So at the last time, we plan to have only one person preparing for the presentation.

5. Final Reflection

During this semester, our team has made lots of meetings. Our team worked closely together and everybody was willing to help each other.

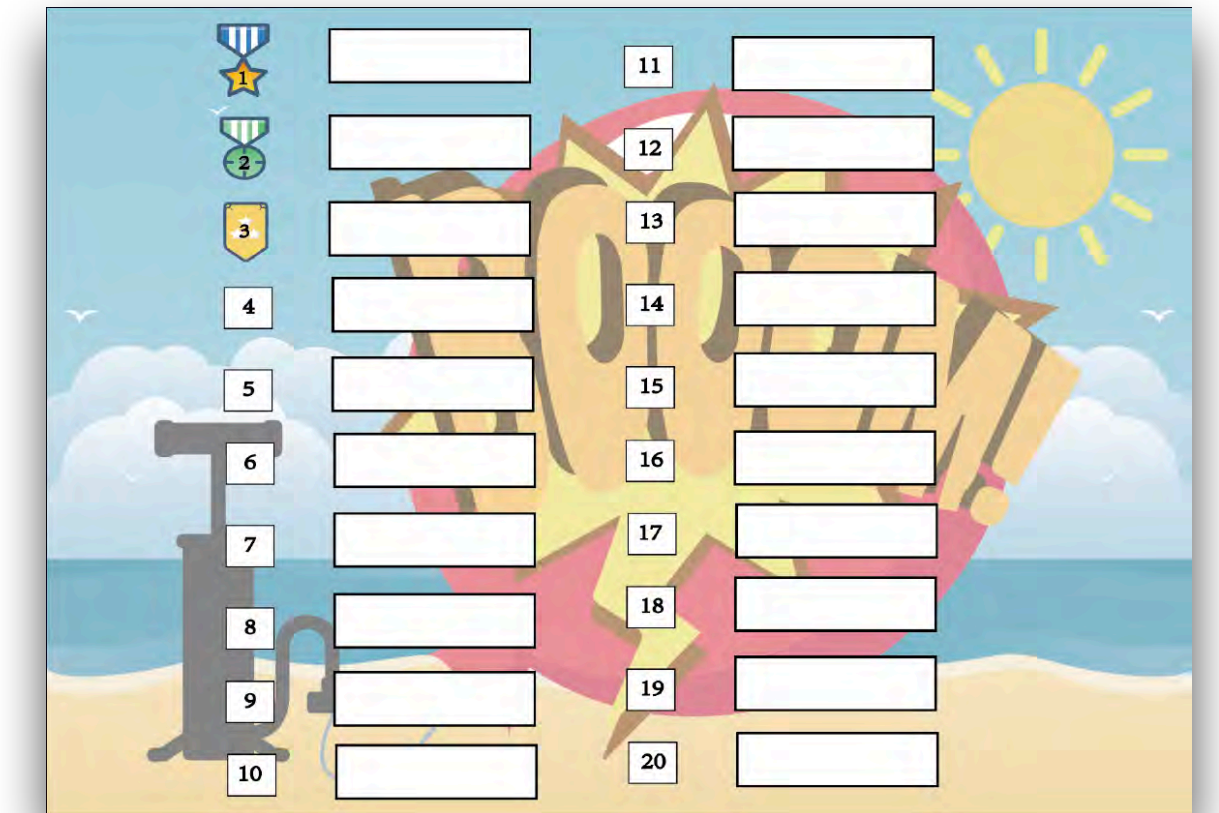
I also completed the content that I was responsible on time and urged members to complete the progress on time.

In this group collaboration, the main artistic design was completed by me. After visiting the works of other groups and the suggestions made by David I feel that I still need to improve the layout skill and other issues.

In the early days of our group programming, I didn't touch open processing and javascript for a while, which caused waste a lot of time to improve the programming.

Due to time constraints, we were unable to complete the perfect design. In future work, we will continue to add more features then improve the aesthetics of the game to make pedestrians feel more engaging and interactive.

- We will add a ranking system that will motivate users to win the game. The names of the top 20 users who blasted the balloon in the shortest time will be displayed on our ranking system.
- Also, we plan to connect our games to traffic lights.
 - Before the traffic lights turn green, there will be a 10-second countdown to inform the user when the green light is on.
 - When the indicator turns green, the projector will turn off.
 - When the traffic lights turn red, the game will start automatically.



Thank

You