

Assessment 2 Design Report

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Steam	B
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PROBLEM STATEMENT

The main reason for pedestrians to illegally cross the road is pedestrians feels waiting times beyond their threshold, long waiting time which far exceeds the psychologically affordable time of pedestrians. In order to solve this problem and encourage pedestrians to wait for red-light, we've come up with three concepts to improve pedestrians' experience at waiting area. For the purpose of develop a most effective solution, we are using different research and synthesis methods to test and iterate three distinct concept and narrow down to a final solution.

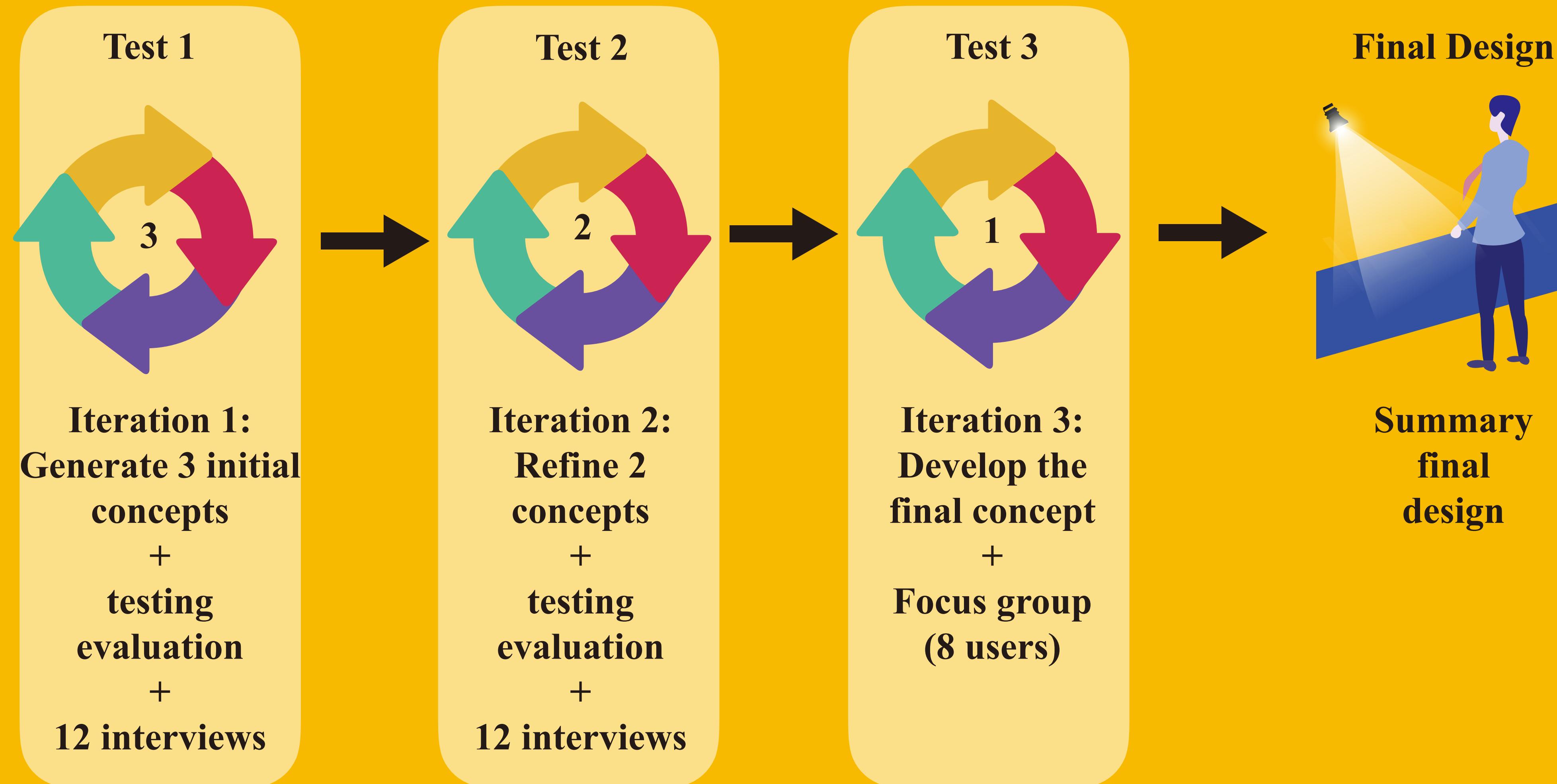
Target market:
Pedestrians crossing
road at night time

Research methods
Interviews
Focus group

Analyse methods
Affinity diagram

APPROACH

Description of iteration



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).

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

Introduction

For our first round of testing, we are using both **interview and questionnaire** 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.

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**.

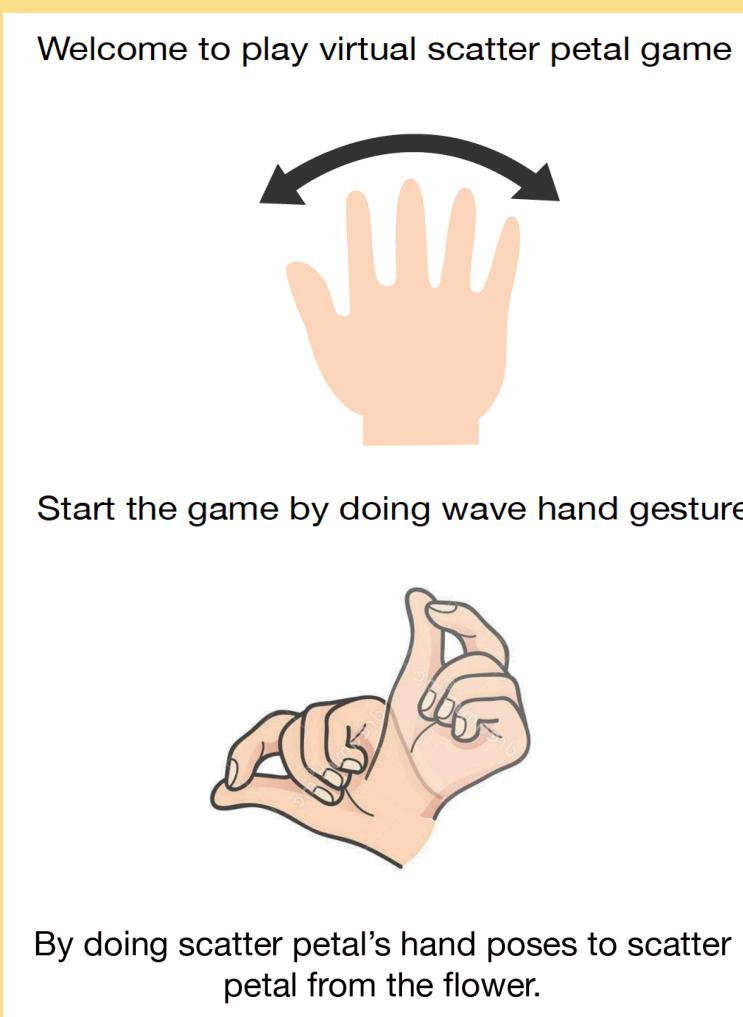


TEST 1 IMPROVEMENT

Development concept two

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

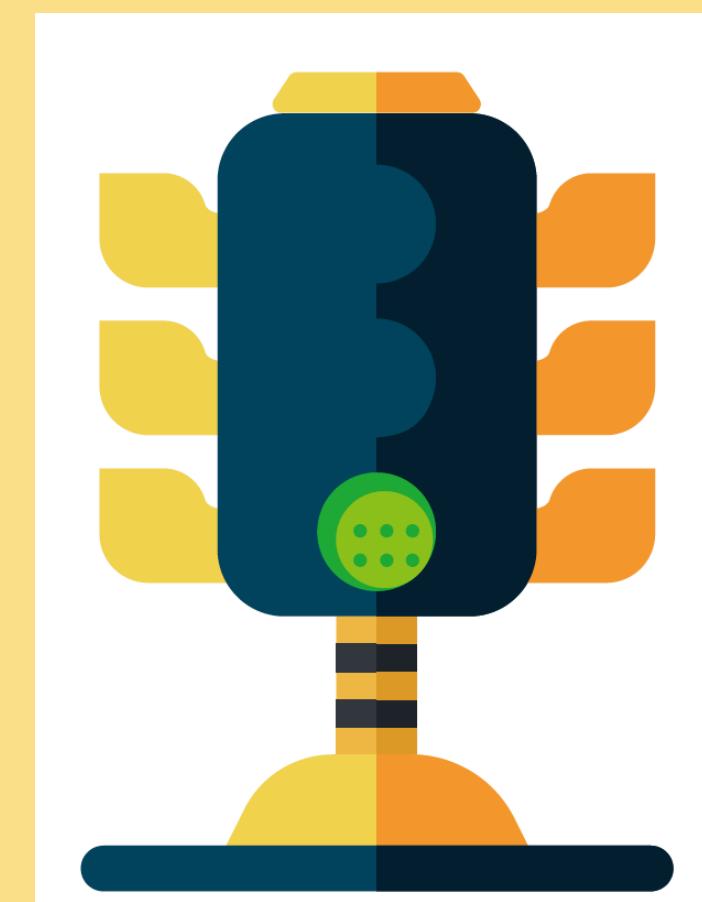
The first one is we found that many user think the game don't have clear instruction. Many user don't know how to play the game and even didn't notice this is a game through its aesthetic.



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.



TEST 2 —

Introduction

For our second round of testing, we are using both **interview** and **questionary** to filter our 2 concepts that we've improved in test 1. We've made our second prototype for these two concepts and have **twelve participants** to test our concepts.



TEST 2 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 two concepts, and we came to the following conclusions:

Concept 1.1

Advantages:

- This concept is **easy to understand** and **easy to use**.
- This concept is **creative** and **looks great**
- This concept is **very attractive**

Disadvantages:

- Too simple to make it **lack interactivity**
- **Lack of change**
- **Unable to determine** when the **green light** is on
- More **safe** to use
- Need to support **more** people

Concept 2.1

Advantages:

- 3D model is very **technical**
- The visual effect is very **good**
- The second concept is **more interactive**
- This concept is very **attractive**
- It's incredible when it's in reality.

Disadvantages:

- It is **easily damaged** on the roadside
- The device is too **big**
- Should **not be able to use it with friends**
- **Lack of change**
- It **can prompt people** that the green time is coming
- **Not easy to use**
- The device is very **expensive**

TEST 2 CHOSEN CONCEPT

At the same time, we figured out the response based on the results of the questionnaire about test 2, we found that **concept 2.1** got the **lowest score**.

Based on the affinity diagrams, **we decided to exclude concept 2.1**. There are **four reasons** for this:

- Concept 2.1 got the **lowest score** in the design matrix, proving that every tester has a lot of opinions on concept 2.1
- In concept 2.1, we found that there is **three problem that cannot be solved**. At the same time, this device can **only be used by one person**.
- 3D projection devices are **expensive**, which adds cost, and it is unreasonable to place this device in most waiting areas.
- Because of the **personal level limitations** of our team, we can't design a perfect 3D impact.

TEST 2 IMPROVEMENT

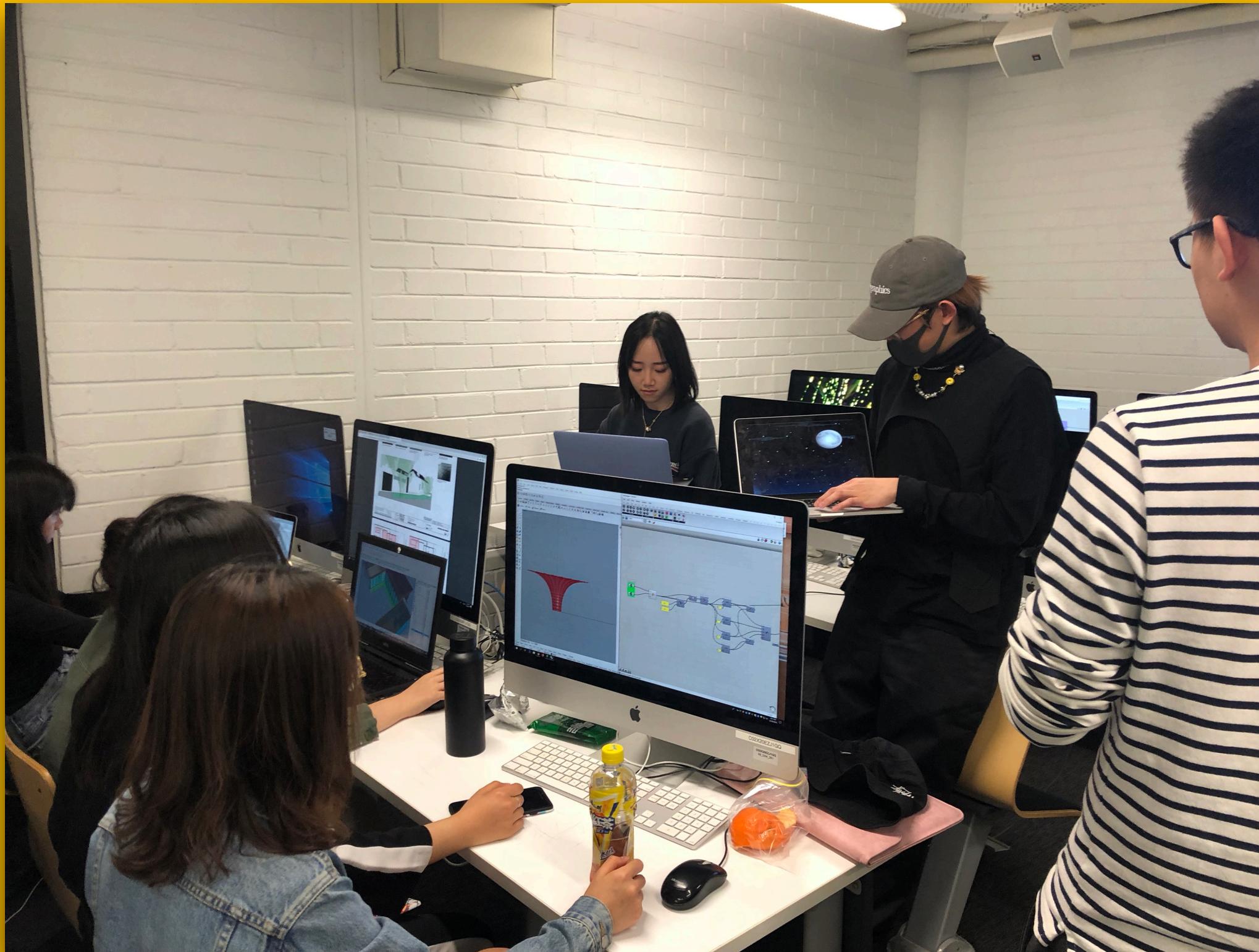


According to the content of the second interview, we found that the interviewee felt that the content we projected was **too simple, the background did not change much, and the long-term use would make the user lose the freshness.** So we have modified the content of the projection again. We **added two backgrounds**, day and night, with the background of the Mt. Fuji and the night sky. The projector will **randomly project different patterns during use**. This can give users a **better visual impact**, increase the user's freshness, and bring a better interactive experience to the user.

TEST 3

Introduction

After previous two rounds of testing, we are chosen **first concept as our final concept**. For our third round of testing, we are using **focus group** to gathering feedbacks from **8 users** and continues improve our concept.



TEST 3 FINDING

In this test, we used analyse method-**focus group**. We selected **8 testers** to make a group, and we interviewed them. Based on the results of focus group, we produced **affinity diagrams** on last one concepts, and we came to the following conclusions:

Concept 1.2

Advantages:

- This concept is very **interesting**.
- The process of growing leaves and flowers is **so novel**
- Make the waiting area is very **conspicuous and beautiful**
- The background is very **beautiful**
- **Reduce boredom**

Concept 1.2

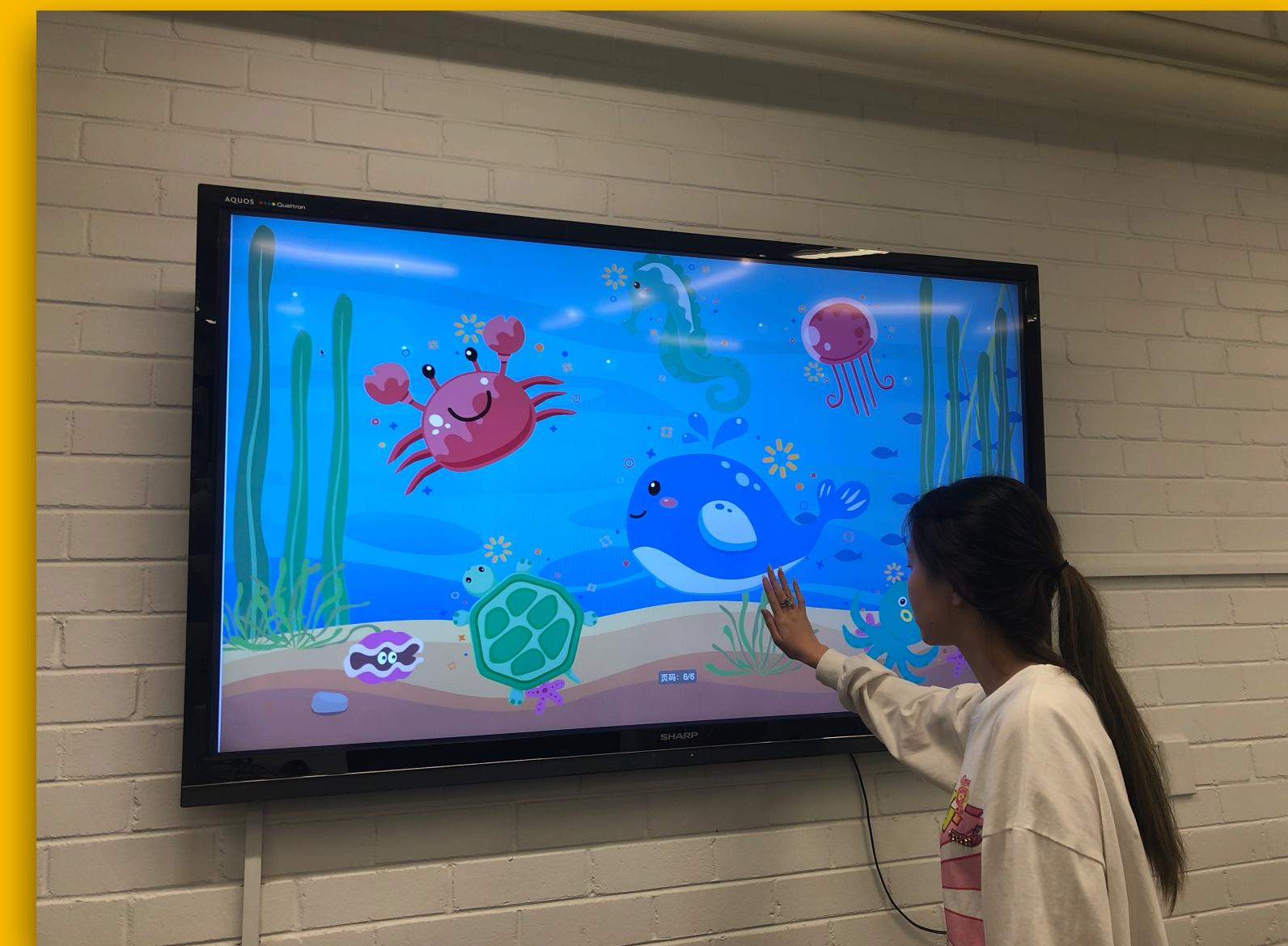
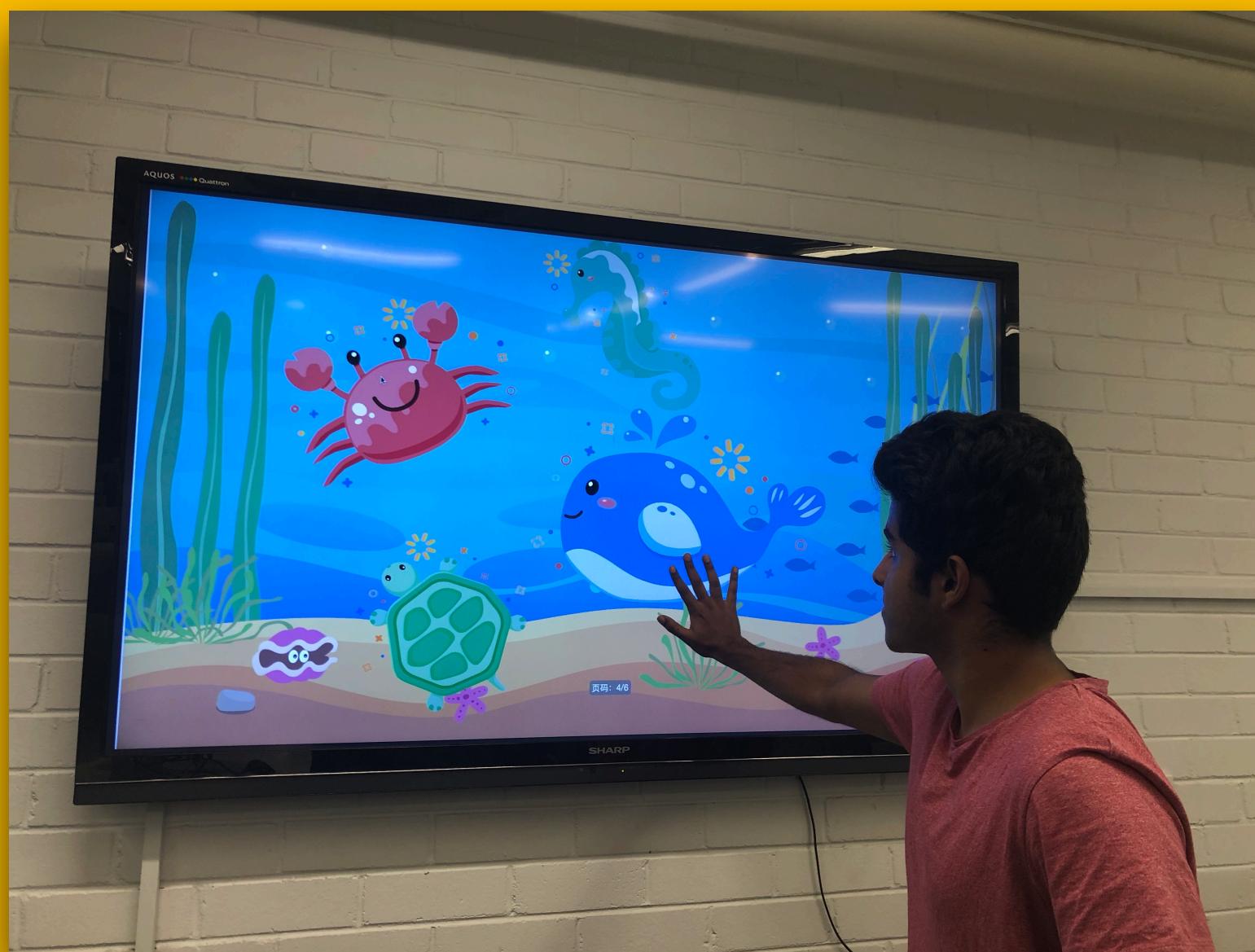
Disadvantages:

- Need more **topics**.
- Play more, will still feel **bored**.
- Have **more themes** showing randomly

After **three rounds** of testing, we will analyze the collected data to obtain effective user needs and market demand. Finally, we will maintain the original advantages, and then improve the proposed deficiencies, complete the final design - concept 1.3.

TASK 3 IMPROVEMENT

According to the content of the **focus group**, we found most of the participants felt that the theme we projected was **too single**, only have big trees, **no other topics**. In this case, the user's **interest** in the product will be **reduced** after **repeated use** by the user, and the **freshness** of the product is **reduced**. So we have **added the theme of the ocean**, When the user enters the projection area, **different marine life patterns** will appear as the user moves. This change **enriches our theme**, allowing the experiencer to **experience** different theme games and bring a **better interactive experience** to the user.



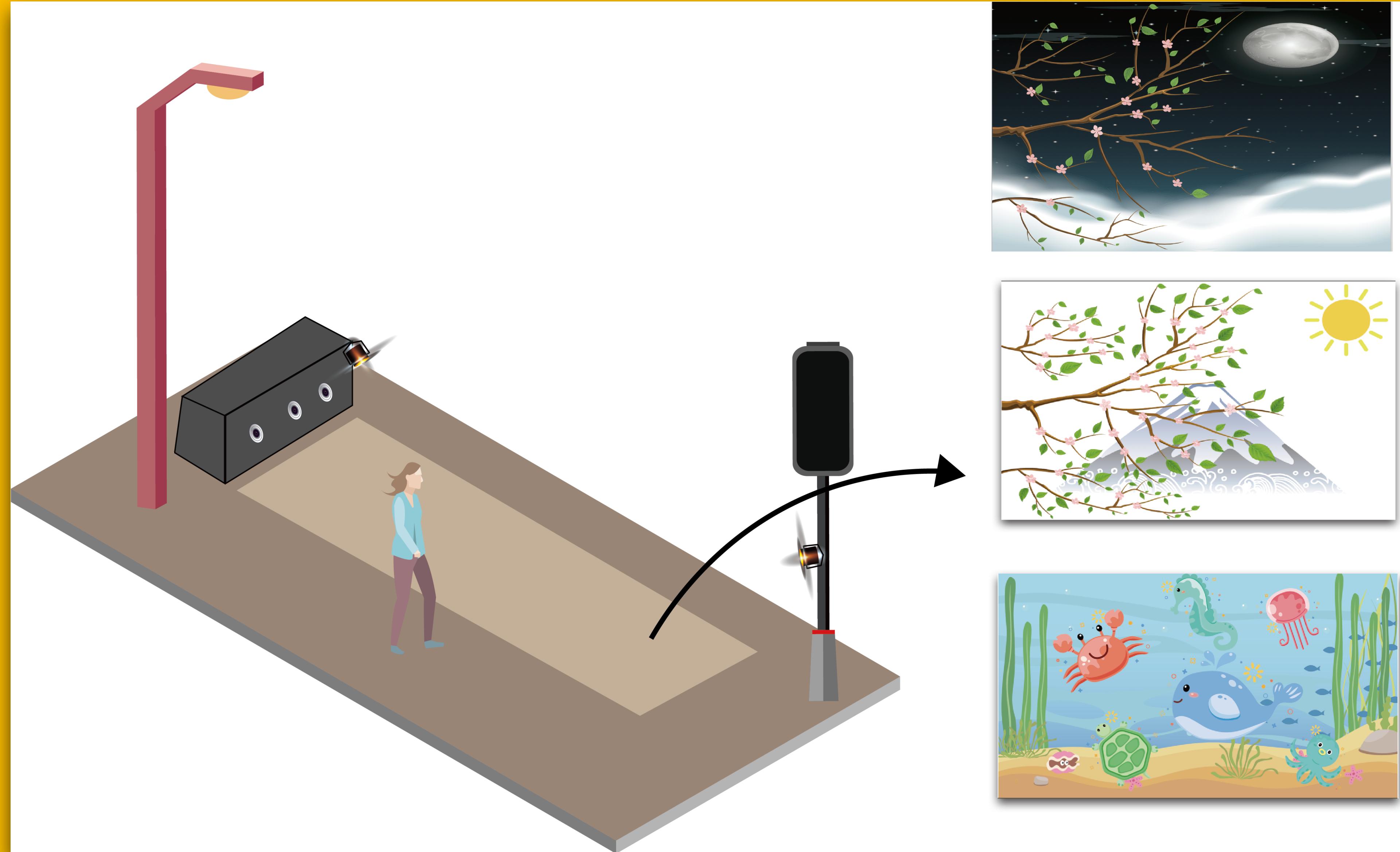
FINAL DESIGN

Introduction

Based on previous three rounds of testing, we've **improved and develop** our final concept. Based on user's feedback we've **add one more theme** to the design to make the game **more interesting**.



FINAL DESIGN VISION



FINAL SUMMARY



In this assessment we uses many research and analysis methods to filter and improve our concepts. Based on user feedbacks we keep improve our design concept to make our design more attractive thus encourage pedestrians to wait for traffic light. We did three round of tests and four prototypes to finalise our design concept, the next step we going to do is start building high-fidelity prototype.

TIMELINE

	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

APPENDIX

Surendran, A. (2019). *Qualitative Data- Definition, Types, Analysis and Examples*. [online] QuestionPro. Available at: <https://www.questionpro.com/blog/qualitative-data/> [Accessed 22 Sep. 2019].

Tomitsch, M., Wrigley, C., Borthwick, M., Ahmadpour, N., Frawley, J., & Kocaballi, A. et al. *Design. Think. Make. Break. Repeat..*

Which is Better for Analysis, Spreadsheets or Affinity Diagrams? Part 2 | Infragistics Blog. (2019). Retrieved 18 September 2019, from <https://www.infragistics.com/community/blogs/b/ux/posts/which-is-better-for-analysis-spreadsheets-or-affinity-diagrams-part-2>

Interview for first test

Interview 1

Claudia

postgraduate student of digital media and communication

Our products are designed for pedestrians who cross the road alone at night. our products will be placed in the waiting area to reduce the boring feeling of pedestrians waiting for the red light at night and increase their experience in the waiting area, which can guide pedestrians to wait for the red light at night to ensure their safety. To improve the pedestrian experience of the city.

The first concept is that we put a projector, when a pedestrian uses this facility, first, the pedestrian needs to press that button, the projection screen will appear, and the red light will start to light up. When the pedestrian has the action of lifting the foot forward, the projection picture will change, the flowers will bloom on the green leaves, and the final picture will become a flowery picture. Finally, when the green light is on, the flowers will all disappear, and the projection will close.

second concept is using both Leap motion and holographic projectors together to create an interactive scatter petal game, allows pedestrians to pick petals with their hands and fingers as input, similar to a mouse, but requires no hand contact or touching.

Concept three 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.

1. Which concept do you like the most?

I like the first concept most. This looks simple. its easily understandable when I wait for the traffic lights.

Because I am always in a daze when I wait for the traffic lights.

The second concept seems to be costly.

The third concept looks more complicated. I don't think I can understand the rules of this game while i waiting for the red light. I don't know if this screen can be used on rainy days, and I don't really like the feeling of being invested in the projection.

2. Which of these three concepts do you think is the most interactive?

I like the second one

The interaction between the hand and the petals looks more novel

3. If you see those, will you stop and have fun?

If it is second concept, I will stop and play for a while.

There is only one pattern of the first concept. If the pattern is more beautiful, I will choose to stay for a while.

The second one looks more interesting. I will choose to play more.

4. Do you think that it will reduce the time you look at your mobile phone if you have these facilities in the waiting area? Will it increase your sense of security?

Yes, I will play those stuff rather than stupidly waiting for the light.

5. Will it reduce your chances of jaywalking?

It depends , some people have to cross

I don't usually cross the road. For me, having these facilities will make me less boring when I wait for the red light. If it is particularly fun, I will choose to wait a little longer.

6. After I explained these concepts, which one do you think is the easiest to get started?

I think it is the first one.

This looks simpler, I just step on it, then it will have interactions, I don't need to do anything more.

The second concept, the first time I saw it, I might be nervous because it looks more advanced, I am afraid I don't know how to use it, maybe I will break it. it will be disgraces.

When I touch the first time I use it, I will learn from others. I will first look at how others use it.

For example, I have never used apple pay before, so I am not willing to try if no one show me how to use it.

7. What improvements do you hope we can make?

In the third, I hope the rules simpler.
For me, I don't want to play that much, it's not attractive, because it's a bit difficult.

Interview 2

Jack

Undergraduate student of design computing

1. Which concept do you like the most?

I like the second one the most.
it Looks Highly stylish

2. Which of these three concepts do you think is the most interactive?

Interaction is very good, I like it very much.
Can pick leaves, very interactive

3. If you see those, will you stop and have fun?

Yes, I think I can always play because I think the interaction between this hand and the leaves is very novel.
I can always play before the light turn green.

4. Do you think that it will reduce the time you look at your mobile phone if you have these facilities in the waiting area? Will it increase your sense of security?

It will reduce my time using my mobile phone
I might be curious about this because it looks interesting, very novel, and very interactive.

5. Will it reduce your chances of jaywalking at night?

At night, if there is no car. I don't want to waste time waiting.

After I explained these concepts, which one do you think is the easiest to get started?

The first one is pretty, it looks very interesting, but it is less interactive for me.
The second one I think is very understandable

The third concept, if no one explain to me how to use it, It's hard for me to understand the rules of this game.

And this is a game with two people.

Jumping twice can turn into a treasure chest. If someone else looks at it, "jumping" makes me feel very embarrassed.

And there are also some people who are inconvenient to jump, for example the old.

6. What improvements do you hope we can make?

Can kill the time waiting for the traffic lights, overall, that's good

You can add something that reminds you of the traffic lights, for example, the timer

Interview 3

Rex

Undergraduate student of political economic and social science.

1. Which concept do you like the most?

I think I like the first one.

The second picking petals doesn't have much appeal to me.

I guess I don't want to play after playing twice.

The third is a bit more interesting than the previous one.

But I think it's not realistic to reduce the seconds in traffic lights.

2. Which of these three concepts do you think is the most interactive?

The effect of stepping on the screen is quite interesting.

But I want to know when the traffic lights turning green.

Standing above I will wonder what is the end, maybe will miss the green light.

3. If you see those, will you stop and have fun?

Yes, this will make me more willing to wait for the traffic light

Do you think that it will reduce the time you look at your mobile phone if you have these facilities in the waiting area? Will it increase your sense of security?

Yes, my attention is all focused on it.

4. Will it reduce your chances of jaywalking?

I will choose to wait here.

I will wonder what the end of this petal will be.

For those concepts, If it's the same image, I think won't be attracted to it for the second time.

I hope to have more different patterns.

5. After I explained these concepts, which one do you think is the easiest to get started?

The first concept looks very simple

But I like a little more hints like the weather, countdown of the traffic light or something.

I hope all the flowers will appear before the light turn green.

The second one let me feeling a little exploration. maybe I want more hints, the functional visibility, let me know how to use it.

The third one is not difficult

But the game played by two people, If there is only one person, there is no way to play this game.

6. What improvements do you hope we can make?

The first one, I think you can also do the game of stepping on the balloon. Just after the balloon is bursting, we can cross the road.

the second, I hope there are more prompts, this game can only be played by one person, this is a problem. I like to have more feedback, such as more patterns, after picking up the petals.

The third one, The game can add some obstacles and increase the difficulty.

Jump twice to change to other ways.

I am more looking forward to a person's game. Because others are not necessarily willing to play together.

Overall, adding the countdown for the traffic lights.

When I start those games, the countdown of the traffic light will autonomously start, instead of pressing the traditional button.

Test1:

Concepts1:

Interview iris:

1.Do you think that concept1 can help you to wait for the time, why?

Yes, because the time to wait for the red light is very boring, this game will make me calm down. Sometimes, it is too boring to wait the red light so some people violation of traffic rules. The duration of this game is the same as the duration of the red light, so it will help me to wait for the time and also help me to obey the rule of transport.

2. Where do you think concept1 is the most attractive point for you?

When I put my feet up, it will grow leaves and flowers. I feel very interesting and can attract my attention.

3. Which part of concept1 do you think you don't like?

The projected pattern I feel a bit rough and not beautiful enough, the leaves and flowers are a bit awkward and not beautiful enough to attract my attention.

Concept2:

4. Do you think that concept2 can help you to wait for the time, why?

I think 3D technology makes the picture clear and beautiful. This game is easy to operate, and 3D technology makes the petals of flowers more realistic.

5. Where do you think concept2 is the most attractive point for you?

I think this device is clear and beautiful. 3D technology is more attractive to me than ordinary projection, I will fully invest in the game when I wait for the red light.

6. Which part of concept2 do you think you don't like?

I think that at night, the traffic situation is complicated and the line of sight is not clear. If I go to play this thing, the car may hit me and cause a traffic accident.

Concept3:

7. Do you think that concept3 can help you to wait for the time, why?

I don't think this will help me pass the time too much, because it looks complicated and it's not easy to figure out. It took me a lot of time to know how to play, so I won't finish it when I wait for the red light.

8. Where do you think concept3 is the most attractive point for you?

Because it is more complicated and difficult to understand, he does not attract me.

9. Which part of concept3 do you think you don't like?

The picture projected on the ground is large and complex, requiring two pedestrians to participate. If I am traveling alone, I have no way to participate in this game.

Concept1:

Interview mengbing:

1. Do you think that concept1 can help you to wait for the time, why?

I have never seen such a thing like that, I am full of curiosity about this design, if the device is placed in the waiting area I will definitely stop to play.

2. Where do you think concept1 is the most attractive point for you?

This design is very novel, I have never seen such a thing like this, it is very interactive, it will make people feel curious.

3. Which part of concept1 do you think you don't like?

The game is a bit boring, the change is not a lot, it will be boring to play more. The projected pattern is not very good. I didn't think it was leaves and flowers.

Concept2:

4. Do you think that concept2 can help you to wait for the time, why?

I won't go play, unless I am going to play alone, if I have more people, I don't want to wait for other people.

5. Where do you think concept2 is the most attractive point for you?

The first time I saw this kind of thing, I felt fresh and felt that this thing was very novel and brought me a sense of freshness.

6. Which part of concept2 do you think you don't like?

I feel that this kind of thing is not very involved, it is difficult to attract my attention. I will try it at most, and I won't play it later.

Concept3:

7. Do you think that concept3 can help you to wait for the time, why?

I don't think so. Waiting for the red light is too short. This game will waste a lot of time to match another person.

8. Where do you think concept3 is the most attractive point for you?

I think this game is more suitable for couples or friends to play together, can increase the relationship between couples or friends.

9. Which part of concept3 do you think you don't like?

I won't find a stranger playing games on the street, which makes me feel awkward. Even if I find someone playing the game, it will take me a long time to let two people understand the problem at the same time. The time for the red light has passed.

Cocept1:

Interview1 allen:

1.Do you think that concept1 can help you to wait for the time, why?

I will stop to play this thing. This thing makes me feel very curious. I will definitely stand up and try. I would have liked to try something new. This new product can prevent me from red light.

2. Where do you think concept1 is the most attractive point for you?

If there are a lot of people standing up to play together, I might make friends with other people, because this game has strong interactivity and can bring happiness to many people at the same time.

3. Which part of concept1 do you think you don't like?

I think every change is the same. They all grow leaves and flowers. If you play more, you may not feel fresh, and the pattern is not very attractive to me. If flowers and leaves can look better, it may looks more attractive.

Concept2:

4. Do you think that concept2 can help you to wait for the time, why?

I think this design can help me to wait for the waiting time. This design is very conspicuous. I can see the existence of this projector from a long distance. I would like to go and try it.

5. Where do you think concept2 is the most attractive point for you?

The most attractive thing about this design is that it gives me a good sense of interaction. I can remove the petals without any equipment, which makes me feel amazing.

6. Which part of concept2 do you think you don't like?

I think this device is too big and may take up a lot of space. If the number of people waiting in line is too much, it makes me feel very crowded, and this game can only let one person play. If many people are playing, I will not line up to play this.

Concept3:

7. Do you think that concept3 can help you to wait for the time, why?

This design can increase my fun when I wait for the red light, because this game looks very interesting, just like a gold miner.

8. Where do you think concept3 is the most attractive point for you?

The form of this game is more attractive to me, I can interact with the two to complete the game, and this cartoon image is very cute.

9. Which part of concept3 do you think you don't like?

I think it would be awkward for two people who don't know to play this game, and this game is a bit complicated to operate. It is difficult to play this game in a short time. Maybe I haven't figured out how to play this game the traffic light will turn green.

Interview:

One

C: Do you think that concept 1 can help you to wait for the time, why?

S: Yes, I think this concept grab my attention, it can help me to wait for the time. I think it is interesting, the pattern changes after I lift my foot up.

C: What part of concept 1 do you think is the most attractive for you?

S: I think the most interesting part in this design is the pattern changes every time after I lift my foot up. It makes me want to see what comes next.

C: Which part of concept 1 do you think you don't like?

S: I think the weakness of this design will be it don't have the connection to the red-light. If I play the game I may miss out the green-light. Also I think the pattern is not really pretty, I think needs to be more pretty in order to grab my attention.

C: Do you think that concept 2 can help you to wait for the time, why?

S: Yes, I like this virtual scatter petal game, I think this concept looks very high technology makes me want to try it. The concept is this design is very eye catching I definitely will want to have a try, I would spend time to play this game while waiting for the traffic light, it will reduce my bored feeling.

C: Where do you think concept 2 is the most attractive point for you?

S: I think the most attractive point in this design is it's concept, the holographic projector and leap motion is very attractive for me as personally I am a technology lover. This design very attract me to play it. And scatter petal without actually touching the screen I think is very fun.

C: Which part of concept 2 do you think you don't like?

S: Well, I am actually afraid I will broke the machine as I think it looks very expensive. Also similar to the first concept, I think this concept can be improve by adding more themes, not only scatter petal will makes the design more interesting.

C: Do you think that concept 3 can help you to wait for the time, why?

S: Maybe, if I crossing street with my friend. As I am not a very open person, I don't really like to play game with stranger. If I am crossing street by myself, I probably will not playing this game.

C: Where do you think concept 3 is the most attractive point for you?

S: I think this concept is a consummate game, and the concept of playing the game to reduce red-light time is very attractive.

C: Which part of concept 3 do you think you don't like?

S: I think the weakness of this concept is it requires two player, if at night there only me waiting for the traffic light, the game is not suitable for me. Also it makes me feel awkward if I want to play the game but the other pedestrian doesn't want to play the game.

C: Out of three concepts, which concept do you think is most effectiveness?

S: I think the concept one is most effectiveness.

C: Out of three concepts, which concept do you think is most efficiency?

S: I think both concept one and two very efficiency.

C: Out of three concepts, which concept do you think is most safe to use?

S: I think concept one is more safe to use.

C: Out of three concepts, which concept do you think having good utility?

S: I think concept one has good utility, as it can be play by myself and I don't have to worry I will broke it.

C: Out of three concepts, which concept do you think is most easy to learn?

S: I think concept one is most easy to learn.

C: Out of three concepts, which concept do you think is most easy to remember how to use?

S: I think concept on is easy to remember how to use, I can easily figure out how to use it without any notice.

Two

C: Do you think that concept 1 can help you to wait for the time, why?

P: Yes, I like this concept. I think it is very fun. Also it allow multiple user to play it at same time, I would love to spend time play it with my friends.

C: What part of concept 1 do you think is the most attractive for you?

P: I think the best part of this concept is we can interact with the design, instead of just projector showing the patterns or video.

C: Which part of concept 1 do you think you don't like?

P: I think the concept itself is very good, but the content of it needs to be improve. Well, I feel it doesn't really make sense that flower blooms in leaves without branches.

C: Do you think that concept 2 can help you to wait for the time, why?

P: Yes, I like this concept, I have never seen this concept before, so I think this concept is very eye catching.

C: Where do you think concept 2 is the most attractive point for you?

P: I think the concept itself is very attractive for me, I have never seen holographic projector in the street and I never used leap motion before.

C: Which part of concept 2 do you think you don't like?

P: Well, the concept with high technology is very attractive for me, but at same time I am also confuse how to use it. I think the concept can be improve by adding instruction of how to playing this game. Otherwise, I might be afraid to playing the game as I don't know how to play it.

C: Do you think that concept 3 can help you to wait for the time, why?

P: Not really, I don't like to play game with people I don't know. It makes me feel embarrassing to playing game will strangers.

C: Where do you think concept 3 is the most attractive point for you?

P: I think the most attractive point will be playing the game able to reduce the red-light time. But, I think this is the only part that attractive me.

C: Which part of concept 3 do you think you don't like?

P: I don't like the game requires two players, I mean if one player also can play the game it will be better. Also if I am going to play this game I will need to jump in the road, it makes me feel shame as I am not very open person.

C: Out of three concepts, which concept do you think is most effectiveness?

P: I think the concept two is most effectiveness.

C: Out of three concepts, which concept do you think is most efficiency?

P: I think concept one very efficiency.

C: Out of three concepts, which concept do you think is most safe to use?

P: I think concept one is safe to use.

C: Out of three concepts, which concept do you think having good utility?

P: I think concept one has good utility.

C: Out of three concepts, which concept do you think is most easy to learn?

P: I think concept one is easy to learn.

C: Out of three concepts, which concept do you think is most easy to remember how to use?

P: I think concept one is easy to remember how to use.

Three

C: Do you think that concept 1 can help you to wait for the time, why?

A: Yeah, I probably will spend time to play this game when waiting for traffic light. As I feel bored when waiting for traffic light and I don't like play phone while waiting it makes me feel unsafe.

C: What part of concept 1 do you think is the most attractive for you?

A: The most attractive part is that multiple pedestrians can playing the game at same time, which allows me to make more friends.

C: Which part of concept 1 do you think you don't like?

A: I think this design can be improve by polish the pattern to make the aesthetic of the design more beautiful. Although I think the design is very good already.

C: Do you think that concept 2 can help you to wait for the time, why?

A: Yes, I think this game is very interesting, I would love to play this game while I waiting for the traffic light.

C: Where do you think concept 2 is the most attractive point for you?

A: I think the most attractive part will be the concept looks very pretty and it is a new idea, I have never see it before, which makes me want to play it.

C: Which part of concept 2 do you think you don't like?

A: I think the concept needs to add a clear instruction of how to playing the game, without an instruction I can't even recognise this is a game, as the aesthetics of this design more like an showcase I probably will just walk pass it. Also also one pedestrian able to play it each time, if there are many people at waiting area, I might not have a chance to play it.

C: Do you think that concept 3 can help you to wait for the time, why?

A: Yes, I really like this game, as I think this game not only can reduce red-light time also I might able to make new friends through playing the game. I think is interesting to playing game with strangers.

C: Where do you think concept 3 is the most attractive point for you?

A: I think this concept has many attractive point for me, the game not only can reduce the red-light time, but also involves collaboration between two players which reduce the indifference between two strangers.

C: Which part of concept 3 do you think you don't like?

A: I think the limitation of this concept is only two pedestrian can play the game at same time, what if there only has one pedestrian or more than two pedestrians at waiting areas? The pedestrian been left out will feel isolated, which creates very bad user experience.

C: Out of three concepts, which concept do you think is most effectiveness?

A: I think the concept three is most effectiveness.

C: Out of three concepts, which concept do you think is most efficiency?

A: I think concept three very efficiency.

C: Out of three concepts, which concept do you think is most safe to use?

A: I think concept one and three is safe to use.

C: Out of three concepts, which concept do you think having good utility?

A: I think concept one has good utility.

C: Out of three concepts, which concept do you think is most easy to learn?

A: I think concept one is easy to learn.

C: Out of three concepts, which concept do you think is most easy to remember how to use?

A: I think concept one and three are easy to remember how to use.

Test 1

Interview 1-Vann

Concept 1

Do you think concept 1 helps you to wait for traffic lights at night? why?

Yes, if I see such a device at night, I will definitely try to use it. And I would find it interesting to see flowers and leaves in the waiting area at night. This is very attractive to me.

So, what is your dissatisfaction with concept 1? Like usability and visual effects.

First of all, concept 1 is very simple to use and very safe. This is very friendly to us. However, I don't think concept 1 can bring lasting fun because the design is too rough. I hope that you can make a more beautiful picture.

Concept 2

Do you like concept 2? why?

I like concept 2. Since concept 2 shows a 3D model, I think every 3D model is very cool. At the same time, you can also manipulate the changes of the 3D model through gestures, which is like a game.

Do you think that every aspect of concept 2 meets your requirements? Do you have any suggestions?

Although concept 2 is very interesting, I think it is still not perfect. First of all, is it only this kind of change or can I only control this 3D model? If it only shows a 3D model, it will become boring after many uses. Then if I use it with my friends, how do we control it? I think you can add some changes, or you can add some sounds.

Concept 3

What do you think about concept 3?

For concept 3, it is a very interesting game, similar to a gold miner. If I wait for a traffic light with my friend, I would be happy to try it.

Do you like concept 3? why?

I think concept 3 is a fun little game, but it has a lot of problems. First of all, if I wait for the traffic lights alone, then I should not be able to use this device. Even if there are other people, sometimes I don't want to play with strangers. Then, I think that moving around in the waiting area is not very safe, and it is easy to get in the way of others.

Interview 2-York

Concept 1

Do you think concept 1 helps you to wait for traffic lights at night? why?

Yes, when I use concept 1, I can see the changes in the picture. If at night, this can catch my attention. At the same time, this device is very good, I should try it when I wait for the traffic light.

Do you think that concept 1 needs to be improved?

I think there are some areas that need improvement. I think the picture you designed is very rough, these flowers and leaves look ugly, I hope you can make a more beautiful picture.

Concept 2

Do you like concept 2? why?

Yes, concept 2 makes me feel that things in 3D movies are in reality. This is a very novel feeling. If I see this device, I will definitely try it. Among these three concepts, I like this concept most because I like 3D movies very much. The 3D model that can be controlled by me is very interesting.

Can you give concept 2 some advice?

I think concept 2 can change this 3D model, you can make a 3D model of a character, like Transformers or Superman. They have their own voices and actions, people can control them, I think this is more attractive.

Concept 3

What do you think about concept 3?

As a game, concept 3 is very interesting. But playing this game while waiting for the traffic lights, I think there are many restrictions.

Why do you think there are many restrictions?

First of all, this game requires at least two people, but when I wait for the traffic lights at night, I am usually a person, I feel a little embarrassed to play games with strangers. Then we control the time of the traffic lights through the game, which I think will affect the driving of the vehicle. Every time the vehicle passes through the intersection, the time is different, which may cause traffic jams.

Interview 3-Eric

Concept 1

Do you like concept 1? why?

Yes, I admit that it was very interesting when I first used it. At the same time, it can also attract my attention. I should be able to use it to send me the boring time when I wait for the traffic lights.

Can you give concept 1 some advice?

But I only find it very attractive when I use it a few times ago. I am easily bored with these pictures. I hope that you will make a more attractive picture. And I don't know where to stand to change the picture.

Concept 2

Do you think concept 2 helps you to wait for traffic lights at night? why?

Of course, I think concept 2 is more interesting than concept 1. Concept 1 shows only the changes in the planar image, while concept 2 shows the changes in the 3D model. Concept 2 is more attractive. I want to try concept 2.

Do you think that concept 2 needs to be improved?

Like concept 1, I think concept 2 also needs more changes. You can create more 3D models and change them regularly so that people stay fresh. You can also add sounds to make the 3D model look more realistic.

Concept 3

Do you like concept 3? why?

Yes, concept 3 is the only game of your three programs. I think playing games is a way to attract attention, so I really like concept 3. And the design of concept 3 has a lot of cartoon elements, I like it very much.

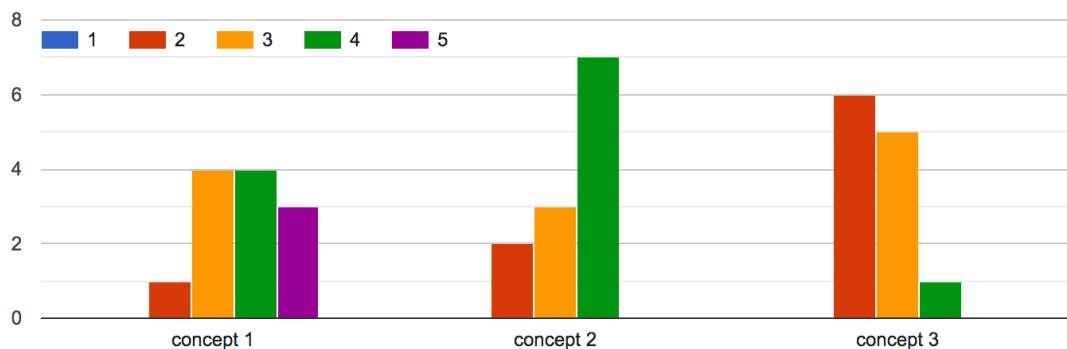
So you will use concept 3?

No, I think concept 3 has a big problem. At least two people need to use concept 3, but most of the time I am waiting for the traffic lights alone. It's hard for me to find another person to use concept 3, so I would like to try concept 1 and concept 2.

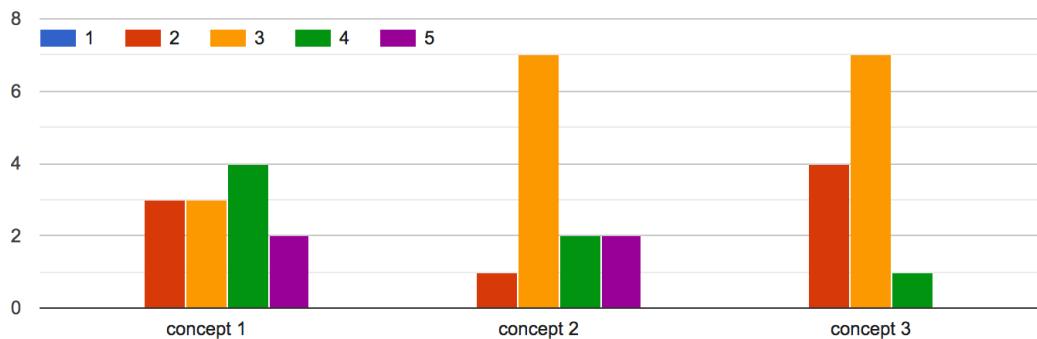
Questionary

Timestamp	Effective to use (effectiveness) [concept 1]	Effective to use (effectiveness) [concept 2]	Effective to use (effectiveness) [concept 3]	Efficient to use (efficiency) [concept 1]	Efficient to use (efficiency) [concept 2]	Efficient to use (efficiency) [concept 3]	Safe to use (safety) [concept 1]	Safe to use (safety) [concept 2]	Safe to use (safety) [concept 3]	Having good utility (utility) [concept 1]	Having good utility (utility) [concept 2]	Having good utility (utility) [concept 3]	Easy to learn (learnability) [concept 1]	Easy to learn (learnability) [concept 2]	Easy to learn (learnability) [concept 3]	Easy to remember how to use (memorability) [concept 1]	Easy to remember how to use (memorability) [concept 2]	Easy to remember how to use (memorability) [concept 3]
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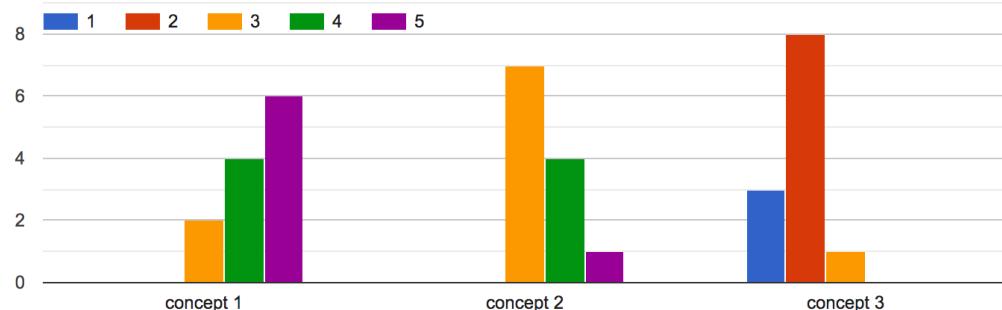
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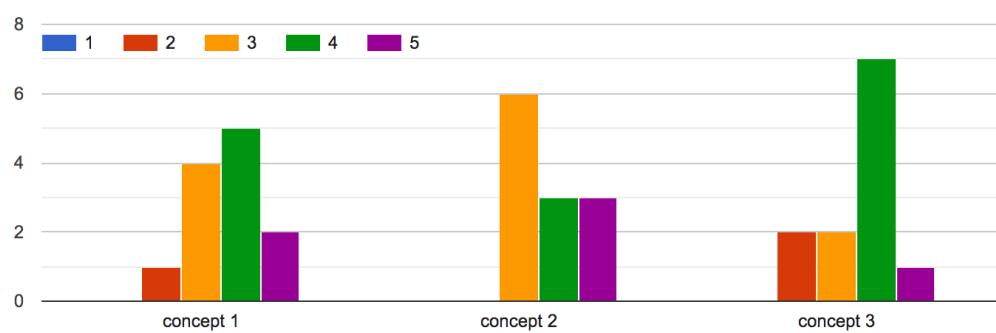
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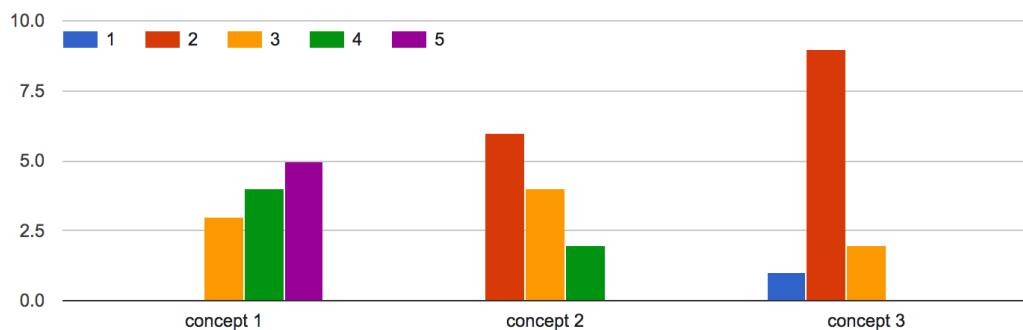
Safe to use (safety)



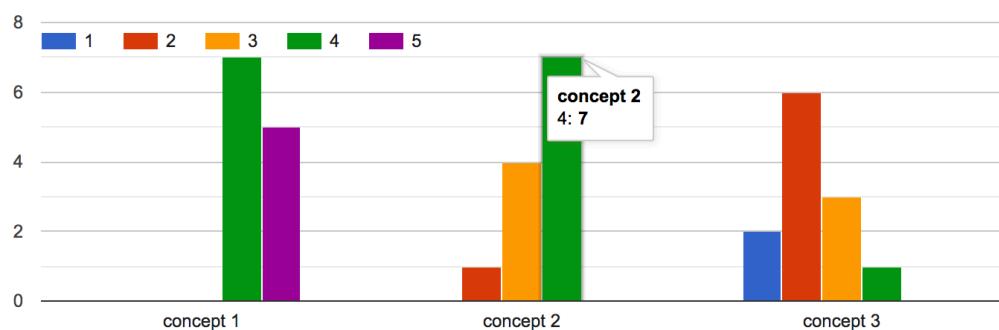
Having good utility (utility)



Easy to learn (learnability)

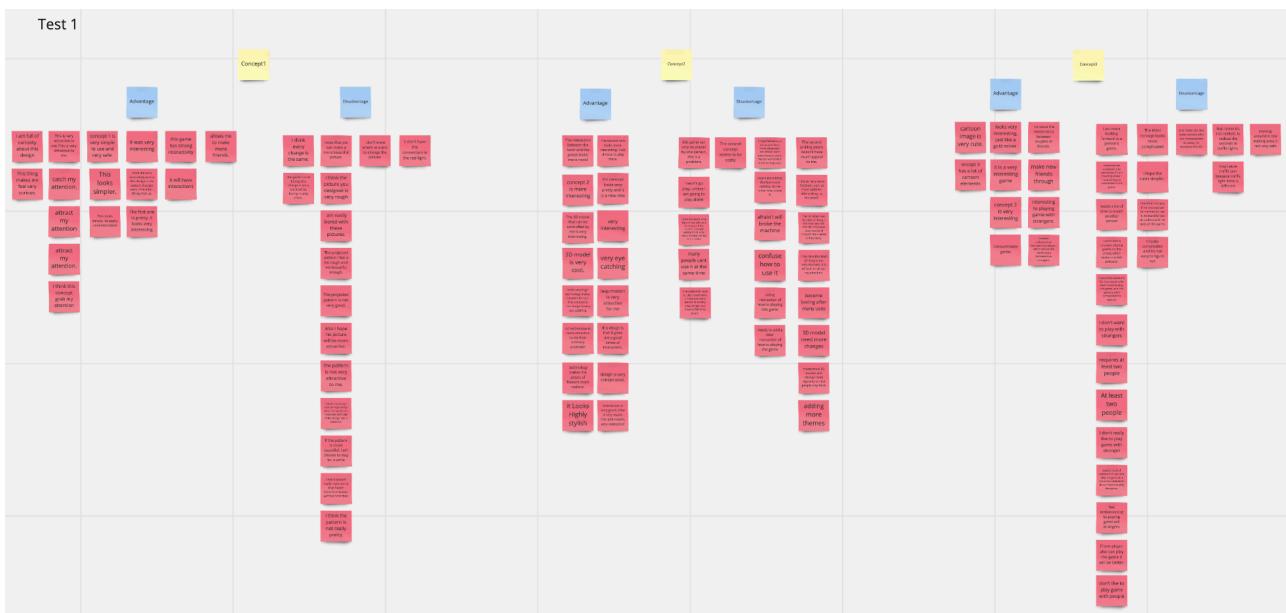


Easy to remember how to use (memorability)



Criteria	Concept 1 Ziqi BAI	Concept 2 Cindy	Concept 3 Shirley
Effective to use (effectiveness)	45	41	31
Efficient to use (efficiency)	41	41	33
Safe to use (safety)	52	42	22
Having good utility (utility)	44	45	49
Easy to learn (learnability)	50	32	23
Easy to remember how to use (memorability)	53	42	27
Number of pluses	285	243	185
Number of minuses	0	0	0
Overall total	285	243	185

Affinity diagramming



Product photo

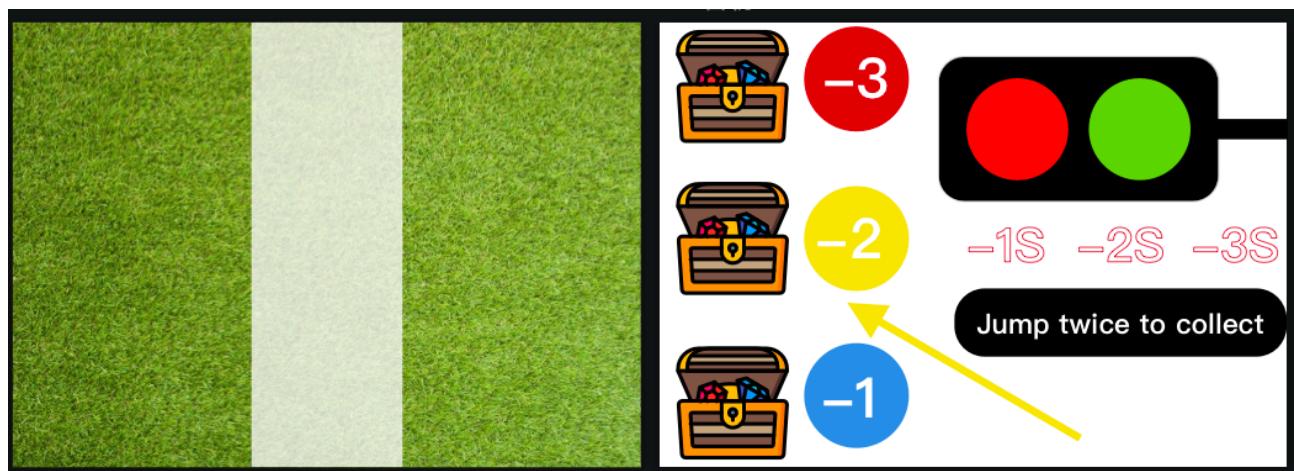
Concept 1



Concept 2



Concept 3



Interview photo







Interview for second test

Interview 1

Anna

bachelor of visual art

1. Which concept do you like the most?

I like both of them, but comparing those concepts, I prefer the screen projected on the ground.

Also I hope the picture will be more attractive.

The design of this vine looks so relaxing, making my mood has become better.

2. Which of these 2 concepts do you think is the most interactive?

Comparing the two, I prefer the first one.

When crossing the road, I may be holding something on my hand, it is not very convenient to use the second concept.

Also the second one allow only let one player

3. If you see those, will you stop and have fun?

I will stop and play for a while, when I waiting for the traffic lights, I have no other things to do.

4. Do you think that it will reduce the time you look at your mobile phone if you have these facilities in the waiting area? Will it increase your sense of security?

Yes, it will reduce the time I look at the phone

And if I am alone at night, I will feel safer when I cross the road.

5. Will it reduce your chances of jaywalking?

I generally don't jaywalking, but I think for others, it will attract the attention of others and reduce the chance of jaywalking.

6. After I explained these concepts, which one do you think is the easiest to get started?

The first one looks simpler to get started,
The second, then I would not necessarily play it, but it did not have a lot of
prompt, I do not know how to operate

Interview 2

Sean

bachelor of economic

1. Which concept do you like the most?

The first one looks more interesting
The branches and small fish are very cute and look very vivid.

2. Which of these 2 concepts do you think is the most interactive?

Both are quite interactive,
The first one, I only need to use the foot to step on the screen, there will be a
change in the picture, which is very interesting.
The second petal swing is very vivid
But I am not very interested in picking petals.

3. If you see those, will you stop and have fun?

I think I will stop and play for the first two times. Later I should not be very
interested.

4. Do you think that it will reduce the time you look at your mobile phone if you have these facilities in the waiting area? Will it increase your sense of security?

I usually pay attention to safety when I cross the road, but I often listen to
songs, although I will lower the sound.

There are these novel facilities there, I think it will reduce the probability of
listening to my songs.

I will focus on the game.

5. Will it reduce your chances of jaywalking at night?

it Will reduce my chances of crossing the road. I am not very busy at night. I can stop and play for a while.

6.After I explained these concepts, which one do you think is the easiest to get started?

First, I don't need a lot of tips to know how to do this.

The second one I still need to take the time to understand, I am too lazy to understand

Interview 3

Tony

Bachelor of psychology

1. Which concept do you like the most?

I like both of them, I feel relaxed.
a little hard to choose

2. Which of these 2 concepts do you think is the most interactive?

The second one is more interactive, but this looks very expensive, I think it is easy to break.

3. If you see those, will you stop and have fun?

Maybe, if I am not in a hurry, I am happy to stop and play for a while.

4. Do you think that it will reduce the time you look at your mobile phone if you have these facilities in the waiting area? Will it increase your sense of security?

I don't usually look at my phone when I cross the road.

Nowadays, everyone's can leave mobile phones. With those concepts, I think that in the waiting areas it will reduce the time for many people to watch mobile phones and improve citizen safety.

5. Will it reduce your chances of jaywalking?

With these devices, I think it will distract people's attention on mobile phones. For me, seeing these nature's elements will make me feel relaxed, relieve stress, and reduce my chances of jaywalking.

6. After I explained these concepts, which one do you think is the easiest to get started?

Both looks are not difficult

In contrast, the first with some straightforward

7. What improvements do you hope we can make?

More patterns, I look forward to seeing different scenery when I cross the road next time.

Test2:

Interview sherry:

Concept1:

1. Do you think that concept1 can help you to wait for the time, why?

I think this game is easy to operate. When I wait for the red light to press the button, the screen projected on the ground will appear, which will attract my attention. After many attempts, I will know how to play it, so it will kill my time

2. Where do you think concept1 is the most attractive point for you?

The picture projected on the ground is clear and beautiful. Beautiful flowers will attract my attention and the operation is simple and easy to understand. And the place of the projection is next to the button, it will be quickly found and it is very convenient to play it.

3. Which part of concept1 do you think you don't like?

I think that at night, there are dangers of being followed and hurt by bad people at the intersections where pedestrians are less. When people play games, they will focus on it, so they will not pay attention to the surrounding environment, especially for women.

Concept2:

1. Do you think that concept2 can help you to wait for the time, why?

I think the second one can't bring me a lot of fun. I think the second design is very boring. I won't take those petals off.

2. Where do you think concept2 is the most attractive point for you?

I think this flower is pretty good, and finally there is a fish jumping out of the water.

3. Which part of concept2 do you think you don't like?

I think this thing seems to be very difficult to operate, and it is not practical to touch the flowers to make me feel uncomfortable.

Interview lily:

Concept1:

1. Do you think that concept1 can help you to wait for the time, why?

I think it will be more attractive to women and childlike. This thing is easy to get started, it won't be complicated, and the operation is relatively simple.

2. Where do you think concept1 is the most attractive point for you?

I think this thing is very good, it can attract me, including the girls and friends around me, I think this thing is very cute, and this game is easy to understand how to play.

3. Which part of concept1 do you think you don't like?

If a lot of people can't participate in the game, I may have been playing this game and missed the green light.

Concept2:

1. Do you think that concept2 can help you to wait for the time, why?

I think the 3D effect flower looks great, it looks like the real one, so I have the urge to pick up the petals, which is particularly conspicuous at night.

2. Where do you think concept2 is the most attractive point for you?

The 3d flower is really real, and finally there is an animation of the fish jumping out of the water. I feel very cute, the visual effect is very good, it can attract me.

3. Which part of concept2 do you think you don't like?

I think this device is very expensive. I think it is easily damaged on the roadside, it may be stolen.

Interview3 james:

Concepts1:

1. Do you think that concept1 can help you to wait for the time, why?

I think this design can very well eliminate the boring feeling when I wait for the red light. This design is very creative. I have not seen it in other places, so I will stop and try to play this game.

2. Where do you think concept1 is the most attractive point for you?

I think the most attractive thing about this design is that the pattern is very beautiful, and the game is very interactive and very simple. I can easily understand how to play it.

3. Which part of concept1 do you think you don't like?

If there are many people standing on top of it at the same time, there may not be a good projection effect, and the change of the petals may not be seen.

Concept2:

1. Do you think that concept2 can help you to wait for the time, why?

I think this thing will attract my attention at first time, because I have never seen such a thing like that, but I will not play it once I play it. There are not many changes, and it can't bring a lot of freshness to me.

2. Where do you think concept2 is the most attractive point for you?

I think this design is very interactive, and I was the first time to see this technology, it feels very magical, 3d graphics are also very good.

3. Which part of concept2 do you think you don't like?

This design is too singular, there are not many changes, and you won't play any more when you play more. And only one person can use it at a time. If there are too many people, it will cause congestion.

Interview:

One

C: Do you think that concept 1 can help you to wait for the time, why?

L: Yes, I think this blooming flower projection is very interesting. I would like to spend time to playing it, when waiting for the traffic light. Personally, I don't really like to spend time waiting for traffic light as especially waiting for traffic light at night where there are no cars driving through I think waiting for traffic light makes me feels bored and waste of time. Having a little game while waiting makes me feel less bored.

C: What part of concept 1 do you think is the most attractive for you?

L: Well I think the projection picture change is very interesting, as I can play it by myself and the flower pattern is very pretty. Each flower pattern are differently which makes me want to see which flower will come up next.

C: Which part of concept 1 do you think you don't like?

L: I think this concept can be improve by changing the pattern of the projector, as if the pattern stays same all the time pedestrians will loose interest and the concept will be less attractive. Instead of projected flowers bloom on the green leaves, I think it can be improve by adding more themes such as star theme and marine theme. Showing random themes will makes the design more attractive.

C: Do you think that concept 2 can help you to wait for the time, why?

L: Yes, I like this virtual scatter petal game, I think this is very interesting concept I have not played this game before. If I see this game in waiting area I would like to spend time to play it.

C: Where do you think concept 2 is the most attractive point for you?

L: I like the idea of the concept, especially when all petals falls down there are fishes jump out from water is very cute. When the light turn to green it has a little green traffic light showing up which reminds me that I can safely cross over the road.

C: Which part of concept 2 do you think you don't like?

L: I think the weakness part of this concept will be only one pedestrian can play this game each time, other pedestrians only can watch this pedestrian play the time. It makes me feel isolated.

Two

C: Do you think that concept 1 can help you to wait for the time, why?

K: Yes, I think this concept is quite interesting. I would like to spend time playing it, as I feels bored when waiting for traffic light.

C: What part of concept 1 do you think is the most attractive for you?

K: I think it very interesting that each time when I lifting the foot forward the pattern of the projector will be change, I think it is very interesting.

C: Which part of concept 1 do you think you don't like?

K: I think this design can be improve by connect the projector to the traffic light, allow protection time be synchronised with traffic light time. As add this function, pedestrian can easily notice that green-light is on they are safe to cross street. Otherwise, pedestrians may miss the green-light time.

C: Do you think that concept 2 can help you to wait for the time, why?

K: Yes I think this concept can help me to wait for the time, as I think it is a novel game my curiosity will drives me to play it.

C: Where do you think concept 2 is the most attractive point for you?

K: I think the most attractive point for will be the concepts uses leap motion, I only see it online but I haven't try it before. So I would love to play it.

C: Which part of concept 2 do you think you don't like?

K: I don't like the part where only one person can play the game, if there are many people in the waiting area I may not have a chance to play the game, I properly will feel disappoint. If I am the lucky one who play this game, I will feel pressure that others are watching me to play the game. If I didn't play it right way I will feel embarrassed.

Three

C: Do you think that concept 1 can help you to wait for the time, why?

J: I think concept 1 can help me to reduce anxiety when I wait for red-light. I think is good to play games while waiting for the traffic light.

C: What part of concept 1 do you think is the most attractive for you?

J: The most attractive part is that multiple pedestrians can playing the game at same time, which allows me to make more friends.

C: Which part of concept 1 do you think you don't like?

J: I think it can be improve by have more patterns on the projector, I think it makes me feel bored if there only has one type of the pattern. I will play out when I first see it, but for three or four times I will feel bored and ignored it.

C: Do you think that concept 2 can help you to wait for the time, why?

J: Not really, I think the aesthetic of this design just looks like a showcase. If I don't see it closely, I may just walk pass it.

C: Where do you think concept 2 is the most attractive point for you?

J: I think it is a very interesting design, after I played it. The part I like most is I don't have to touch the screen to scatter petals which increase using experience, makes it very realistic.

C: Which part of concept 2 do you think you don't like?

J: I think the bad part of this concept is this is a very interesting concept, so every pedestrian at waiting area would like to have a try. This may result road congestion, many pedestrians gather together to see it and other pedestrians may unable to get cross the road.

Test 2

Interview 1-Arron

Concept 1

Do you think concept 1 helps you to wait for traffic lights at night? why?

Of course, I really like the idea of concept 1. I like green scenes like leaves and grass, which gives me a feeling of being in nature. At the same time, I also like the flowers that bloom, which looks very pleasing. I think this facility can solve the boring time when I wait for the traffic lights.

So, what is your dissatisfaction with concept 1? Like usability and visual effects.

For usability, I think concept 1 is simple to use, you just need to lift your legs and look at the changes in the image. But I think concept 1 is too simple to make it lack interactivity. And if the image is only in full bloom, I may get bored after using it a few times. If I use it for the first time, I think it is still very attractive.

Concept 2

Do you think concept 2 helps you to wait for traffic lights at night? why?

Yes, I think using concept 2 is a very technical experience. Its 3D model is very attractive to me, so I can forget the boring waiting for the traffic lights.

Do you think that concept 2 needs to be improved?

Although concept 2 looks cool, I prefer concept 1. Because concept 2 doesn't seem to be easy to use, and I'm worried that it will destroy this device. I think every device that can display 3D is expensive.

Interview 2-Felicia

Concept 1

Do you think concept 1 helps you to wait for traffic lights at night? why?

I think concept 1 is good. If I wait for the traffic lights at night, I should try to use concept 1. After all, concept 1 is simple to use, and I can see some nice pictures at night. This really can solve my boring time.

Do you think that concept 1 needs to be improved?

I think there are many parts of concept 1 that need improvement. First of all, for the operation of the device, concept 1 is very simple to use, but you only need to lift your legs to complete the operation is too boring. Then I think you can add sound, only the image is a bit tedious, I want to see more changes.

Concept 2

Do you like concept 2? why?

Yes, concept 2 looks very technical and I am easily attracted to it. And it's very interactive, it can change as my gestures change. This is very cool. I really want to try it.

Can you give concept 2 some advice?

I really want to try it, but this device will not be too big here, and I think that only the changes in the leaves are boring. At the same time, I should not be able to use it with my friends.

Interview 3-Aaron

Concept 1

Do you like concept 1? why?

Yes. First of all, concept 1 is very simple to use, just press the button and lift the leg. Then it shows a visual change that can catch my attention. For a person waiting for a traffic light, it is very attractive.

Can you give concept 1 some advice?

I think the most important part of concept 1 is the more visual changes. You are only showing images of flowers blooming on the leaves. I will be bored if I have seen them several times. So, I think you should add more images so that you can always be attractive.

Concept 2

Do you like concept 2? why?

Yes, I have only seen the idea of this device on the Internet. If you make a successful production, I am willing to use it. This is a novel experience for me. I am pretty sure it will attract my attention.

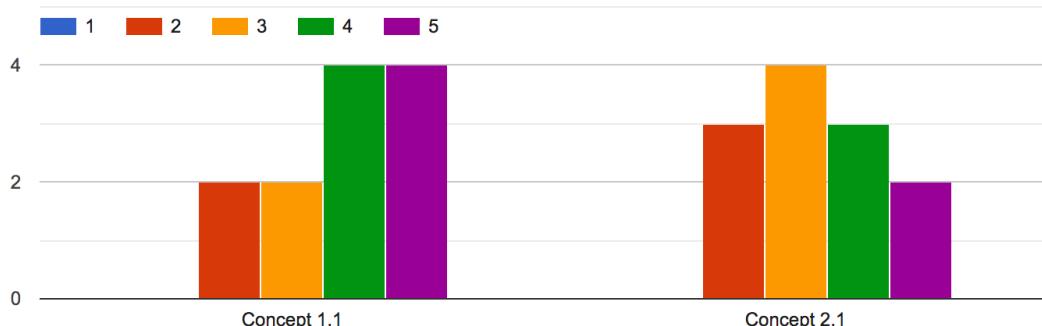
Do you think that every aspect of concept 2 meets your requirements? Do you have any suggestions?

I think you can create more 3D models, like some of my favorite cartoon characters - Goku in Dragon Ball. I might like it more. On the other hand, I hope it will prompt me that the green time is coming, otherwise I might focus on it.

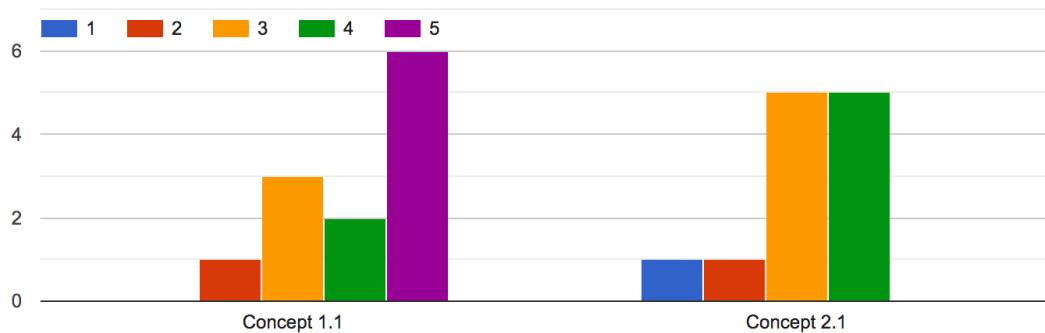
Questionary

Criteria	Concept 1.1 Ziqi BAI	Concept 2.1 Cindy
Effective to use (effectiveness)	50	32
Efficient to use (efficiency)	43	38
Safe to use (safety)	52	40
Having good utility (utility)	46	41
Easy to learn (learnability)	52	33
Easy to remember how to use (memorability)	54	35
Number of pluses	297	219
Number of minuses	0	0
Overall total	297	219

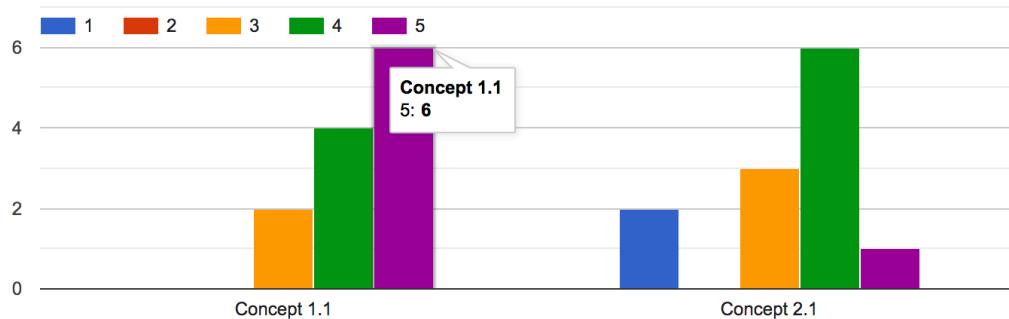
Having good utility (utility)



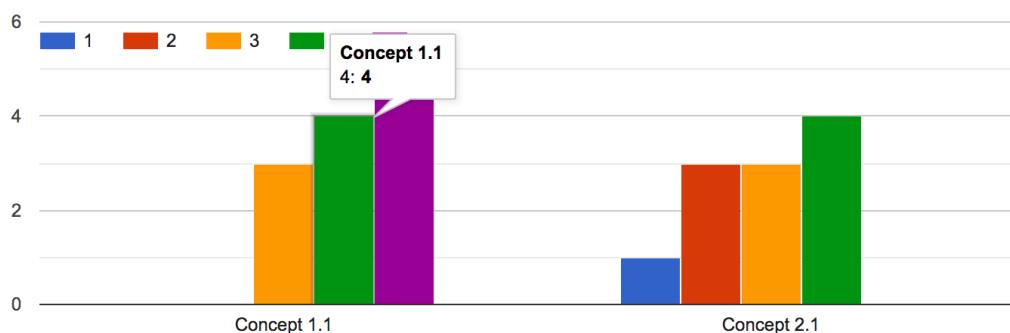
Efficient to use (efficiency)



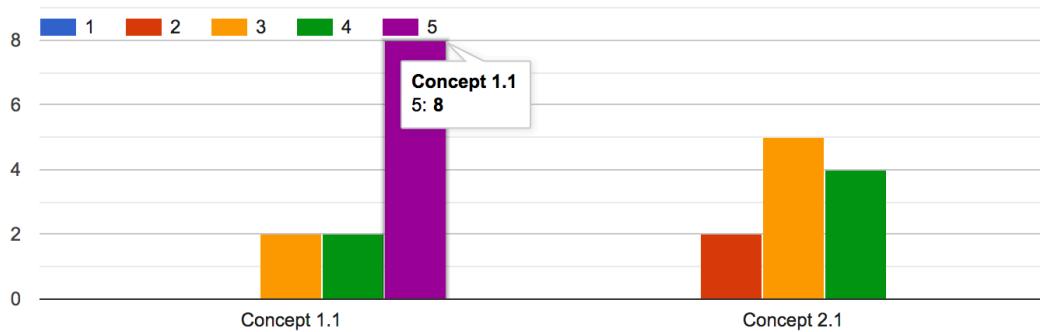
Safe to use (safety)



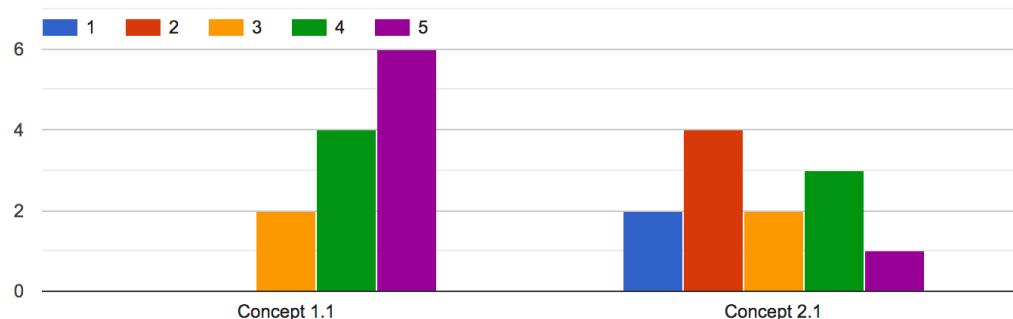
Effective to use (effectiveness)



Easy to remember how to use (memorability)

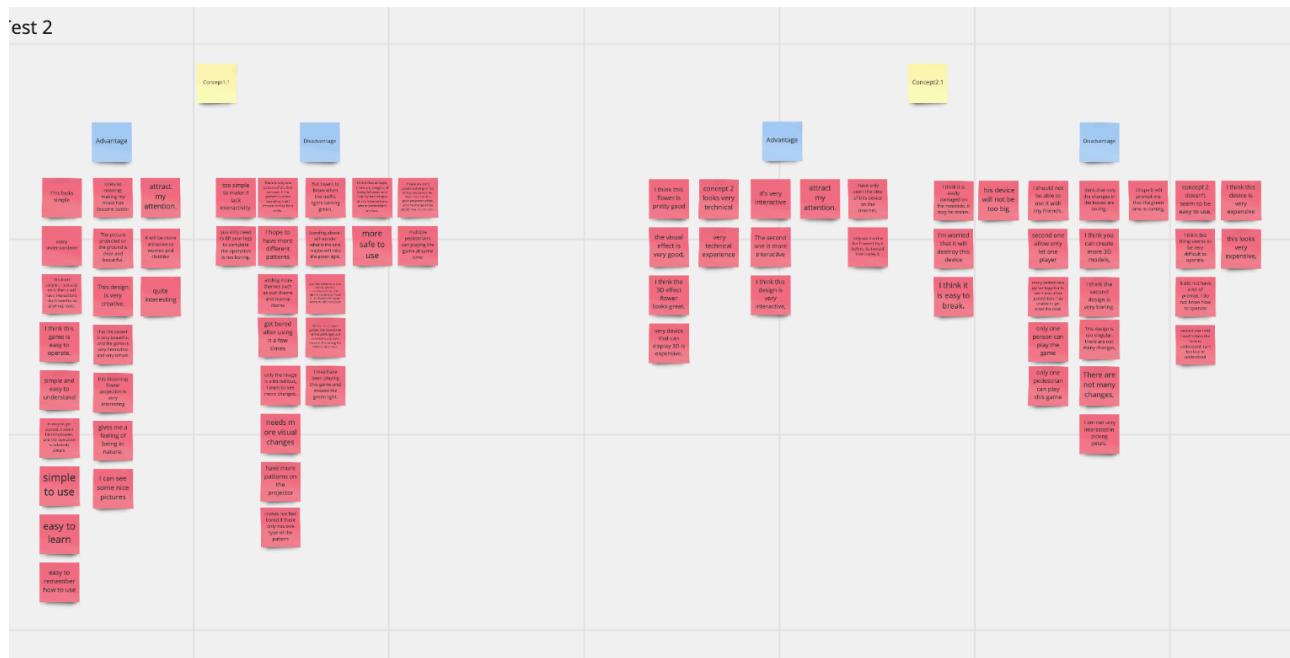


Easy to learn (learnability)



Timestamp	Effective to use (effectiveness) [Concept 1.1]	Effective to use (effectiveness) [Concept 2.1]	Efficient to use (efficiency) [Concept 1.1]	Efficient to use (efficiency) [Concept 2.1]	Safe to use (safety) [Concept 1.1]	Safe to use (safety) [Concept 2.1]	Having good utility (utility) [Concept 1.1]	Having good utility (utility) [Concept 2.1]	Easy to learn (learnability) [Concept 1.1]	Easy to learn (learnability) [Concept 2.1]	Easy to remember how to use (memorability) [Concept 1.1]	Easy to remember how to use (memorability) [Concept 2.1]
2019/9/17 18:37	5	4	5	4	5	4	4	3	5	3	5	
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	5	4	4	3	5	4	4	3	5	3	5	4
	4	4	3	4	4	4	4	5	5	4	4	4

Affinity diagramming



Product photo
Concept 1



Concept 2

Welcome to play virtual scatter petal game



Start the game by doing wave hand gesture.



By doing scatter petal's hand poses to scatter petal from the flower.



Interview photo



Test 3

Project name: Blooming flower projection test 3

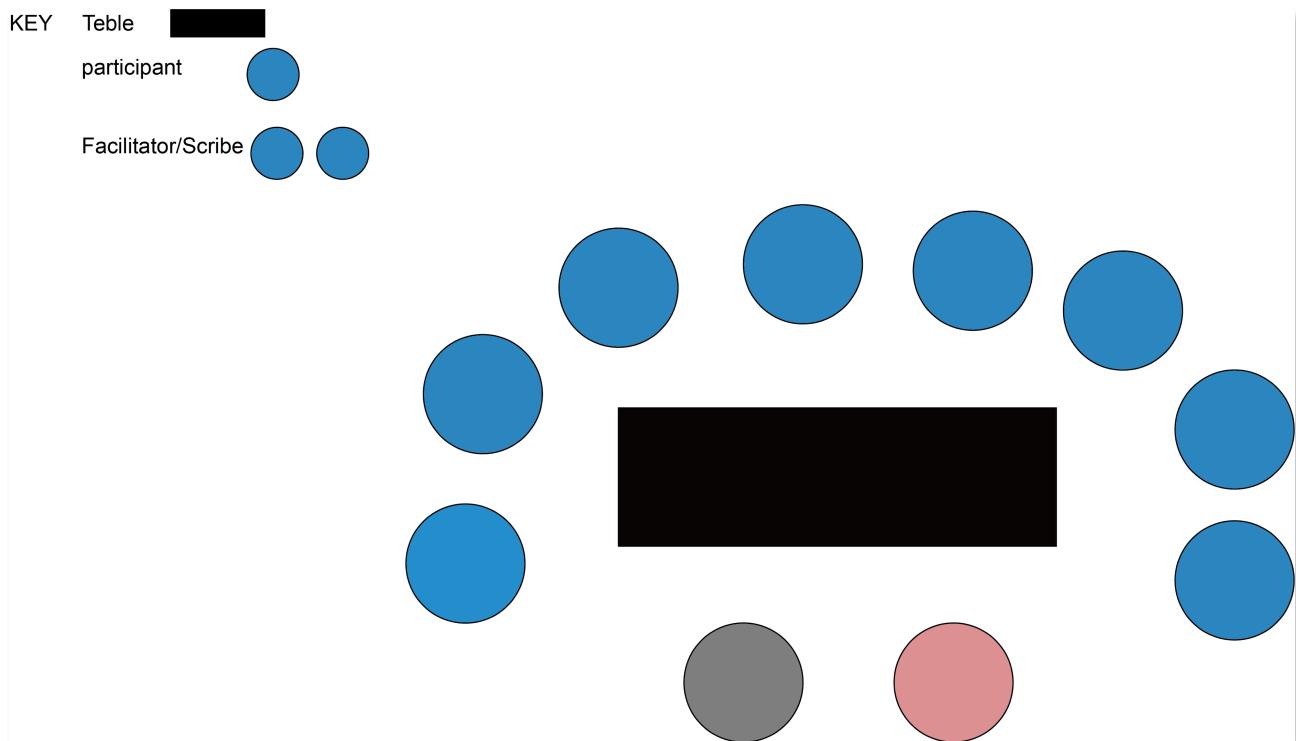
Facilitator: Yan Jiang

Scriber: Yi Ye Cindy He

Date: 20/09/2019

Time: 2:00pm

Draw your focus group here:



Moderator question or topic	Participant responses
<p>Introduction and warm up</p> <p>YAN: Hello everyone, I am a university student and I am studying design computing at the University of Sydney now. Today we want to show you a device that helps people reduce boredom when waiting for the red light at night. Thereby reducing the chance of pedestrians smashing red lights at night. Our product is a projection game. When the red light is on, the projector will project the branching pattern. When you step into the pattern area and move your foot, The branches will grow with the corresponding flowers and leaves as the number of steps moves. Next, please introduce your name, career and whether you will wait for the red light at night.</p>	<p>Steven: Hi, everyone. My name is Steven Lin, I am a third year university student study at University of Sydney. I sometimes feel bored when waiting traffic light at night where there are no cars coming through.</p> <p>Yumi: Hello, my name is Yumi Chen, I am a interior designer my work is quite busy I am often work overtime until 8-9pm. I will always wait for the traffic light at night even there is no car coming through.</p> <p>Judy: Hey, everyone. My name is Judy Qin, I am an University tutor and a master student study at Macquarie University. It makes me feel anxious when waiting for traffic light at night.</p> <p>Mark: Hi, everybody. My name is Mark Zhu. I am a cashier working at Starbucks. I normally finished my work around 10 pm. I personally don't like waiting for the traffic light I think it is waste of time. Sometimes in the late night there are no car coming though I will cross the road.</p> <p>Nick: Hello everyone, my name is Nick and I am a University student. I think it is too boring to wait for the red light at night, so I often cross the road.</p> <p>Tom: Hello everyone, my name is tom. I am a waiter in a Chinese restaurant. Because our restaurant was closed very late, I felt very tired after work, so I sometimes cross the road so that I could go home early to rest.</p> <p>Sherry: Hello everyone, my name is sherry. I am a high school student. I never run a red light. I think run a red light is too dangerous. It is safer to wait for the red light.</p> <p>NaNa: Hello everyone, my name is NaNa, I am a teacher. I won't run a red light, I need to give the students a role model.</p>

Focus1

Yan: Do you think this game will reduce you irritability feeling when waiting for traffic light? Please explain your answer.

Steven: Yes I feel having this game at waiting area will reduce my irritability feeling, as I don't have to just stand there and waiting for the light turns green.

Mark: I also think having this game, I may waiting for the traffic light. The reason that I don't like wait for traffic light is I can do nothing when wait for traffic light.

Yumi: I think it definitely will. I love this game, I think is a very interesting game and looks pretty at night.

Judy: It will makes me feel less anxious when I waiting for traffic light, playing the game makes me feel less bored.

Nick: I think this product is very interesting, I will be very curious about how to did it, I will also play with it. I think this game can reduce my boredom very well.

Tom: The pattern projected by the projector is very beautiful and looks like the real One. The process of growing leaves and flowers is so novel that it will keep me fromBeing bored when I wait for the red light

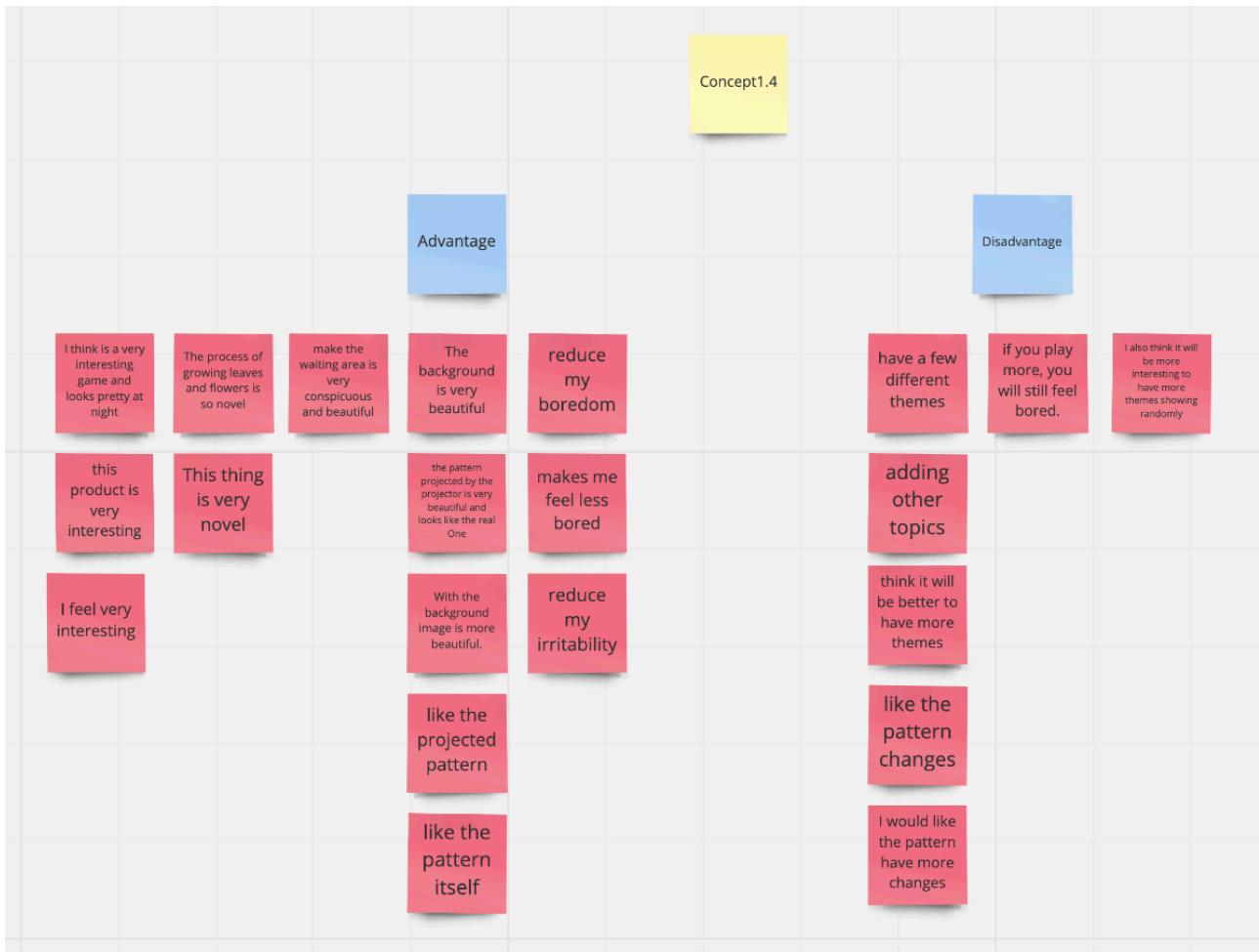
Sherry: I really like Mount Fuji and the starry sky at night, and at night it will makeThe waiting area is very conspicuous and beautiful. I will go to play this game instead ofRun a red light

NaNa: This thing is very novel, I have never seen such a things like that. I will stop toPlay this game. But if you play more, you will still feel bored.

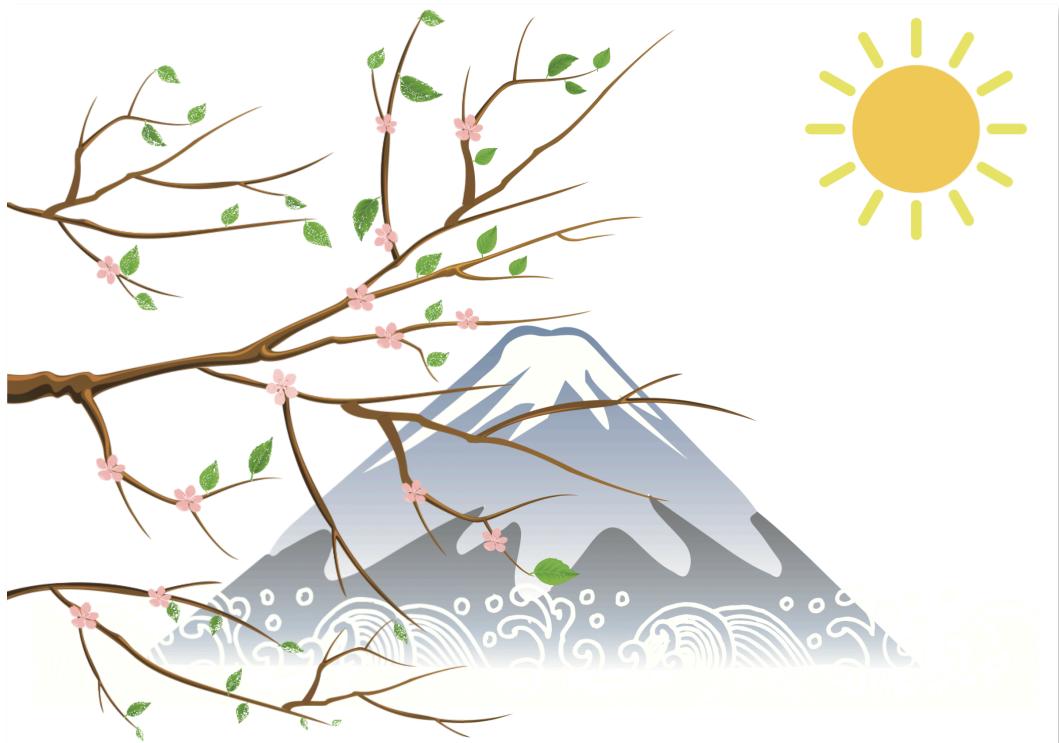
<p>Focus 2:</p> <p>Yan: After you played this game, what were the best parts of the experience?</p>	<p>Judy: I think the best part of this design is the pattern will changes every time after I lift my foot up. I think it is very fun.</p> <p>Steven: Yes, I like that as well. I feel it very interesting.</p> <p>Yumi: I also like the pattern changes, especially it has both day and night version.</p> <p>Mark: Similar to what Judy said, I also like the pattern itself. It is very pretty and vivid.</p> <p>Nick: I really like the projected pattern, the leaves and flowers are very beautiful</p> <p>Tom: I feel very interactive, I have never seen such a things like that, I am very Curious</p> <p>Sherry: The background is very beautiful, Mount Fuji and sakura are very suitableAnd the night sky is also beautiful</p> <p>NaNa: This game is very interesting, and the tree that grow leaves and flowers are Very beautiful. With the background image is more beautiful.</p>
<p>Focus 3</p> <p>Yan: What would you like to change about the experience?</p>	<p>Mark: I would like the pattern have more changes, as if I see this for several times I would still feel boring.</p> <p>Steven: Yes, I agree with Mark. I think it will be better to have more themes, instead of just growing leaves and flower blooming.</p> <p>Judy: I also think it will be more interesting to have more themes showing randomly. This will make pedestrians curious what theme will showing next time and wanna to wait for traffic light.</p> <p>Yumi: For me the answer will be the same.</p> <p>Nick: I think is a bit sample with leaves and flowers, and it would be more interesting If you could have a few different themes</p> <p>Tom: I agree with Nick, it is too simple for leaves and flowers. You Can add other Content</p> <p>Sherry: you don't need to change anything, the design is now very good</p> <p>NaNa: I think adding other topics will make the game more rich and the effect will be More perfect</p>

Thanks and conclusions	Steven: Thank you, it is a very good design.
Yan: Thank you for your time, your feedbacks are very helpful for our design improvement.	Yumi: Thank you.
	Judy: Thank you, I would like to have a try with your final design.
	N: Thank you.
	Niki: thank you everyone
	Tom: Thank you
	Sherry: It is a very good design
	NaNa: thank you everyone

Affinity diagramming



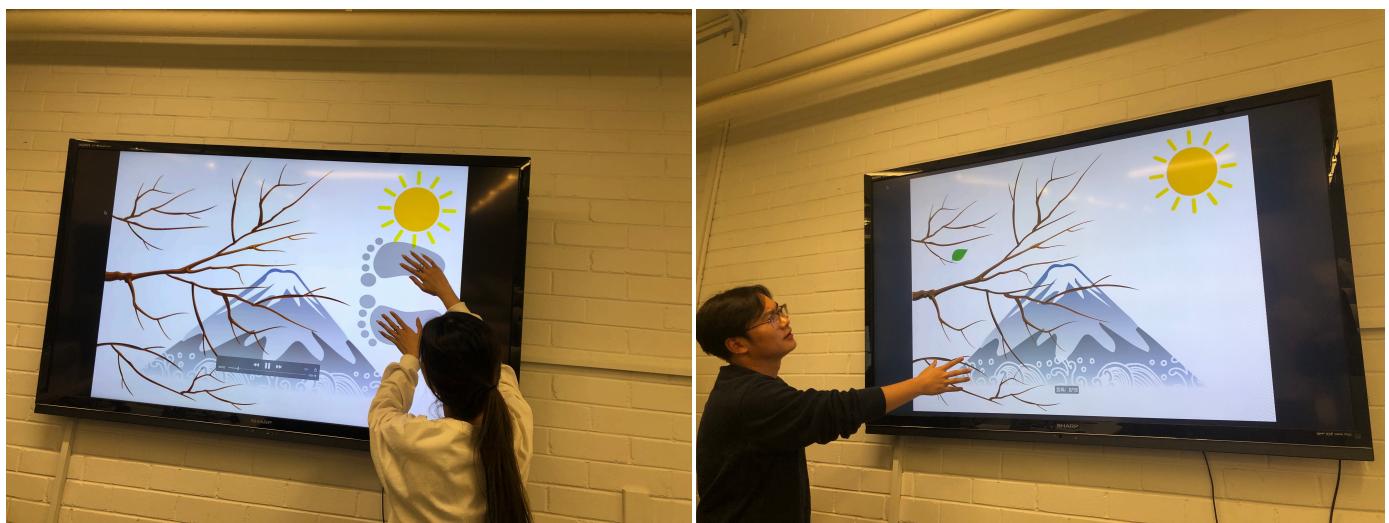
Product photo
Concept 1
Topic 1



Topic 2



Focus group photo



Final product

Topic 1



Topic 2



Topic 3



Video Link

<https://youtu.be/eXMsQoSI-s8>

<https://youtu.be/d8yLM4MtwlU>