

DECO 3200

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CZHA0511

NEO KINESIS





INTRODUCTION

In nowadays **270,000** pedestrians are killed on roads every year, representing approximately **22%** of all traffic deaths globally (WHO, 2013). In Australia particularly, pedestrian incidents have seen an increase from 41 deaths in 2014, to 74 in 2016, making up **19%** of all fatalities that year (Transport for NSW, 2017). Moreover, most crashes occur between **6pm - 9pm** on weekdays, and **12am to 3am** on weekends (Australian Government, 2015). To combat this issue, we defined the target problem as:

"How might we ensure pedestrian safety when crossing at night by attracting their attention and making their pedestrian experience more enjoyable."

Neo Kinesis is a creative product of interactive instalments that aims to **breathe new life into the movement of pedestrians crossing by encouraging them to disengage with their phones during pedestrian activities.** As the name states, with neo meaning new and kinesis meaning movement.

Neo Kinesis is the perfect way to overcome one of the core reasons for distracting walking: **boredom.** Neo Kinesis has a simply accessible and interesting way to entertain pedestrians, avoiding traffic accidents caused by watching phones.

With Neo Kinesis, everyone can possibly interact with the most convenient tool - **hands!** Visually represent the movements of their hands, that encourages pedestrians to draw their interesting design on a large LCD screen with simple movements. Since it can support up to six users, it encourages pedestrians to collaborate interaction with friends and with strangers. Inspired by the social media era, "like" culture is integrated into an interaction of **"clap to like".** Numbers of likes would be increasing while users are clapping, while a heart shape would appear on the screen. In addition, it also provides replayability, allowing users to collaborate with others for a higher level of enjoyment during the next interaction.

TEAM STRUCTURE

Jackman



Artisan, in charge of the physical parts of the prototype including the frame, the supporting structure and materials, coordinating user testing.



Mandy



Researcher, main conductor of rounds of user testing, assisting the artisan for building the physical parts of the prototype.

Jiyoung



Team Leader, monitoring team performance, in charge of documentation and aesthetics, main presenter during demonstration.

Evelyn



Developer, building the digital prototype, in charge of both the software and hardware.

Annie



Visual Director, in charge of overall aesthetics throughout the entire project, create design mock-ups and video production, coordinating user research.

BACKGROUND RESEARCH AND INITIAL CONCEPTS

In the background research phase, my main role is to search for basic information and organize them easier to analyze. I edited the interview and survey questions while I contributed 4 interview responses, 20 survey responses, and 1 initial concept. After the data collection, I helped with building the affinity map. During the idea conceptualisation stage, I deeply searched all hardware and materials that we could use to build those four concepts in the final stage.

CONCEPT EVALUATION AND USER TESTING

During the process of concept evaluation, our products experienced four iterations, from superlow-fidelity prototypes to low-fidelity prototypes to mid-fidelity prototype and finally end up with a high-fidelity prototype. During all the user testing, I was playing a talkative and socializing (life of The party) role. Inviting participants and introducing our concepts is my responsibility. While I assisted my team with building affinity diagrams, swot analysis, decision matrix, persona-based walkthrough, and the report slides. I was passionate about every group meeting, so I could make an active atmosphere in group meetings, but I would not miss any details.

HIGH FIDELITY PROTOTYPE

This is the stage where I play my main role as an artisan. First I consulted with Evelyn about all the hardware that would use in the final product and drew the external structural design drawings according to the requirements. The appropriate material was found based on the measured data of the drawing. After purchasing all the required materials, I spent a week making the frame in Dmaf. After the production was completed, according to David's suggestion and group discussion, I used laser cutting to obtain the text of title and instruction. Finally, glue, Hook and Loop Strip Tape, and blue tack were used to assemble them into a detachable frame. Mandy assisted me with the entire external structure.

FINAL PRODUCT AND DOCUMENTATION

I participated in the shooting of the video and borrowed pedestrian lights to increase the video reality. After the demo version of the video was completed, I asked suggestions from a professional photographer. Based on her opinions, I critically pointed out that the music and text background does not match our product positioning. Then assist Annie to modify and perfect the final video

PERSONAL ROLE

CONTRIBUTIONS/1

- **SECONDARY RESEARCH**

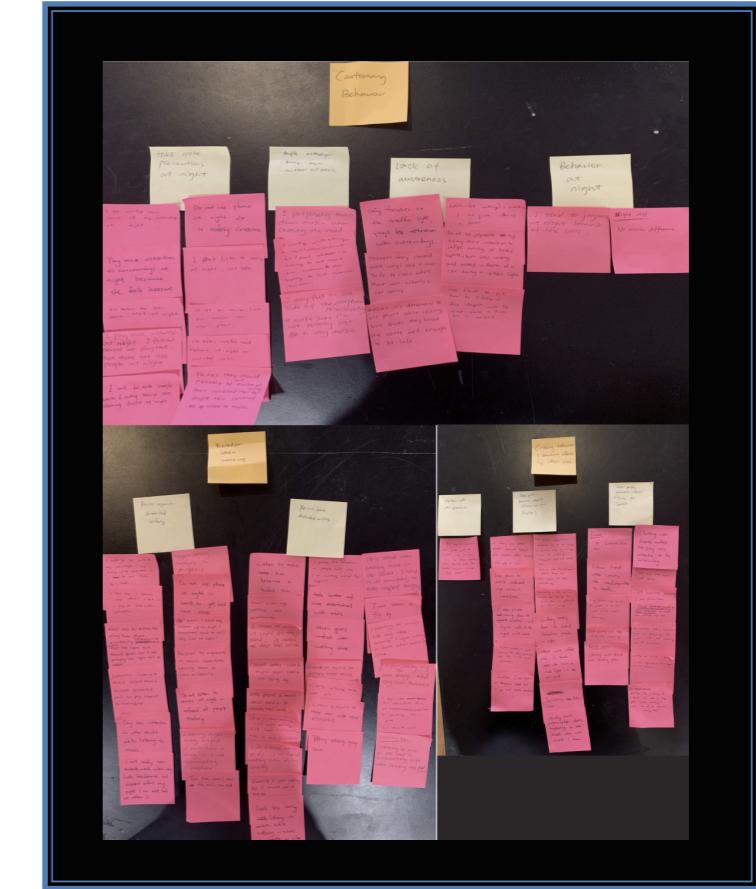
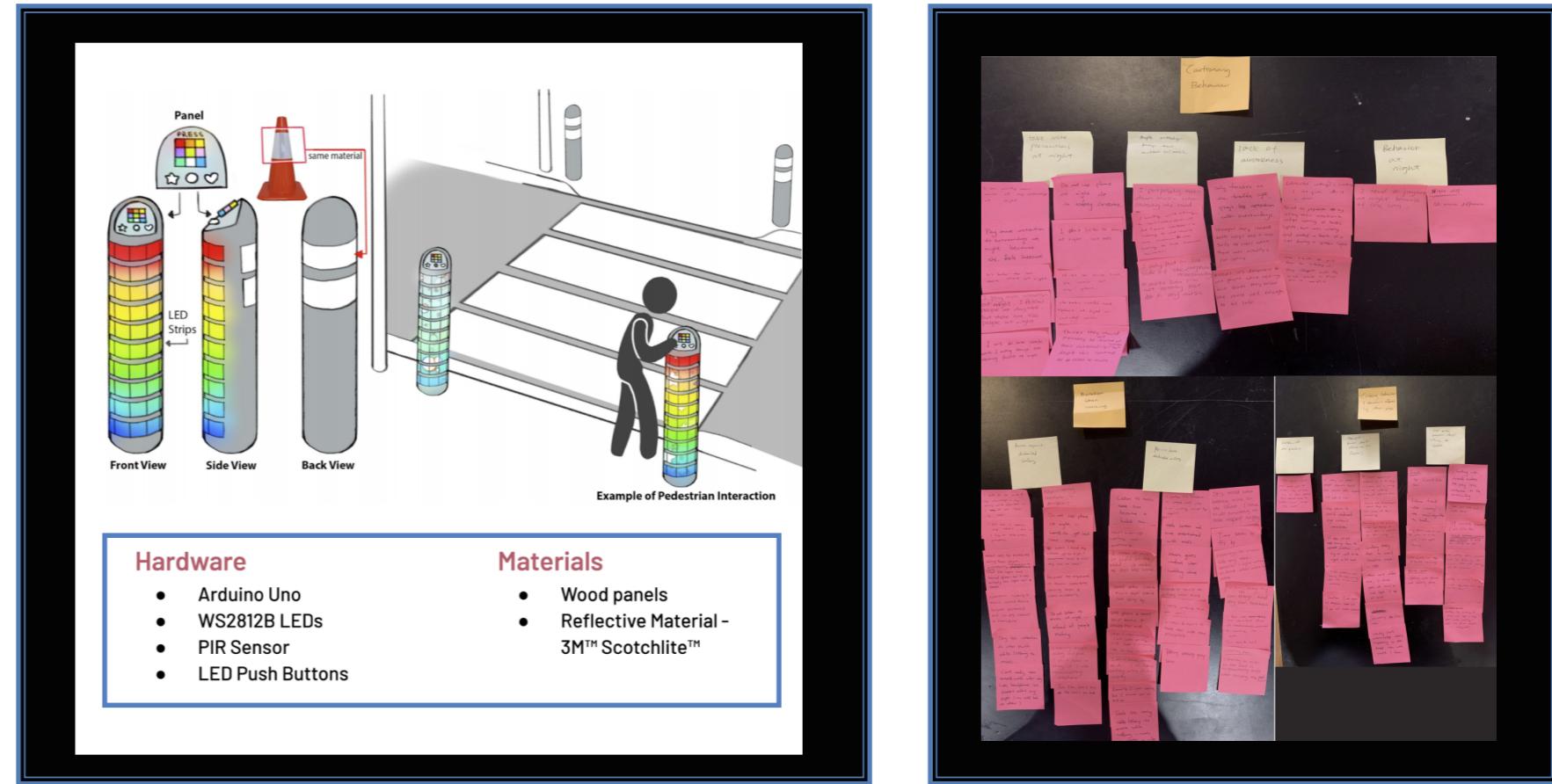
[<https://docs.google.com/document/d/1PunnRGnKlnH1oohgH4khR4KKPcSuzxGR0U1O_praPfY/edit?usp=sharing>](https://docs.google.com/document/d/1PunnRGnKlnH1oohgH4khR4KKPcSuzxGR0U1O_praPfY/edit?usp=sharing)

- **INTERVIEW AND SURVEY QUESTIONS**

[<https://docs.google.com/document/d/1H2sXQVb8gOIRDzR9zJA_XoI9mlPiecsAQLma7D88gOo/edit?usp=sharing>](https://docs.google.com/document/d/1H2sXQVb8gOIRDzR9zJA_XoI9mlPiecsAQLma7D88gOo/edit?usp=sharing)

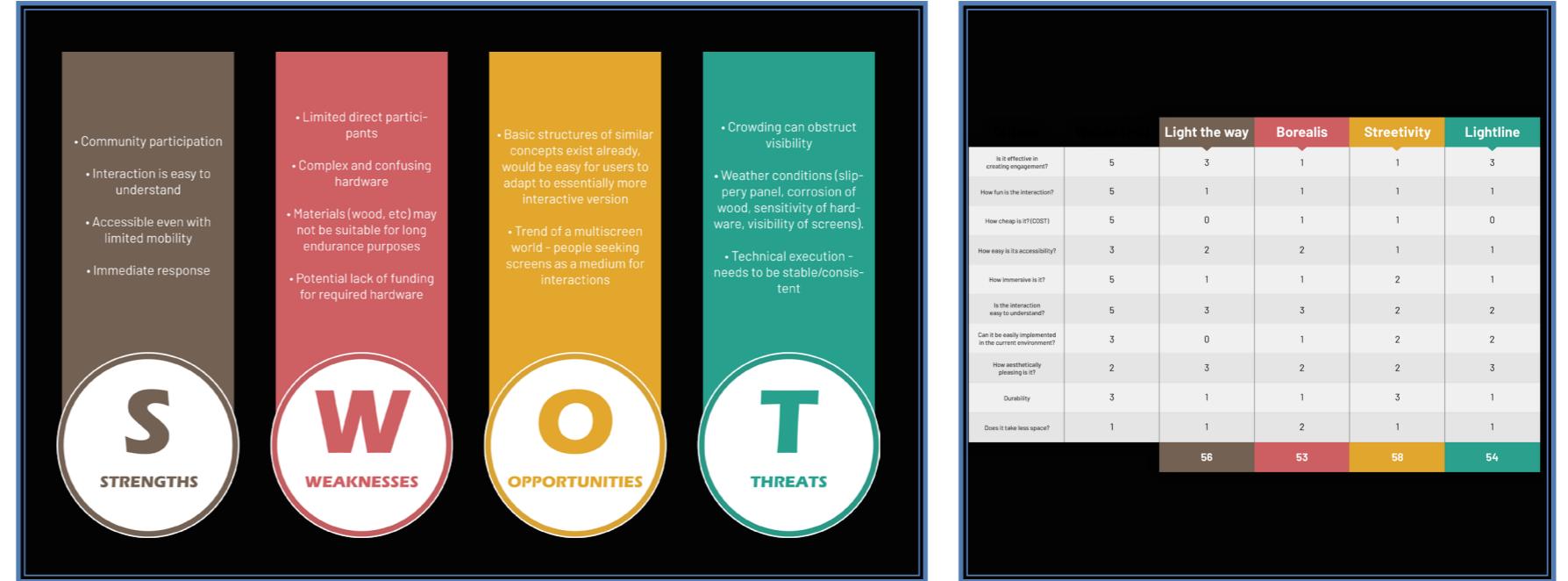
- **4 INTERVIEW RESPONSES & 20 SURVEY RESPONSES**

- **ASSIST BUILDING AFFINITY DIAGRAM**
- **SEARCH AND CONFIRM THE HARDWARE AND MATERIALS**



CONTRIBUTIONS/2

- SWOT ANALYSIS
- DECISION MATRIX
- INVITE PARTICIPANTS AND INTRODUCE CONCEPTS IN USER TESTING LOW-FIDELITY & MID-FIDELITY
- AFFINITY DIAGRAM LOW-FIDELITY & MID-FIDELITY (ASSISTOR)
- PERSONA BASED WALKTHROUGH (ACTING)



CONTRIBUTIONS/3

- **A/B/C TESTING**
- **HEURISTIC EVALUATION**
- **ROUND 2 HEURISTIC EVALUATION**
- **MAIN DESIGNER OF PRODUCT'S EXTERIOR**
 - Design and measurement
 - Material selection
 - Making
 - Laser cutting
 - Painting
 - A2 Sign Stand Holder
- **ASSISTING VIDEO PRODUCTION (ACTING & MODIFICATION)**

<<https://www.youtube.com/watch?v=cmpTciNWsEQ&t=1s>>





CHALLENGES/1

From my role

As the main designer of the product's exterior,

I encountered many problems in designing structures, selecting materials, and making. In the initial period, we did not intend to make a physical framework, and this decision led to a serious shortage of production time. At the same time, we do not have a well-crafted physical framework, material selection, and fixing will take such a large amount of time. It was because of this situation that the lack of time made me have to apply for a team member to help me with the physical framework.

Because the biggest wood board we found on the market is 2440x1220, I redesigned the frame as dividing it into three pieces, two for the ground support and the other for the TV frame.

Material selection is the third problem we need to overcome. MDF board is a good time-saving option for background painting, which has a white and smooth surface. We did not see the banned material description until we carried the boards to school. Fortunately, Chris used a large sheet metal cutter to cut the shape into the shape we wanted.

CHALLENGES/2



From my role

Transporting this MDF 2440 x 1220 x 3mm white melamine board was also a big problem. Because there were trucks and funding restrictions, we could only carry it by manpower, and I was the only boy in the group. Finally, Mandy and Mandy went through hard work and took it to school.

During the production of the physical framework, I found that the area cut in the middle of the frame was too large due to errors caused by improper measurement. But I came up with an alternative method - sticking the two remaining sheets to the missing sides, which just formed a space that could be added to Kinect.

How to make the frame easy to install and store was the problem we faced next, because the entire frame needs at least two square meters to store, I changed the design structure of it into assemblies, which was inspired by the "hook and loop tape" in my room. I also used them to connect the support and frame makes it easier to install and remove.

CHALLENGES/3

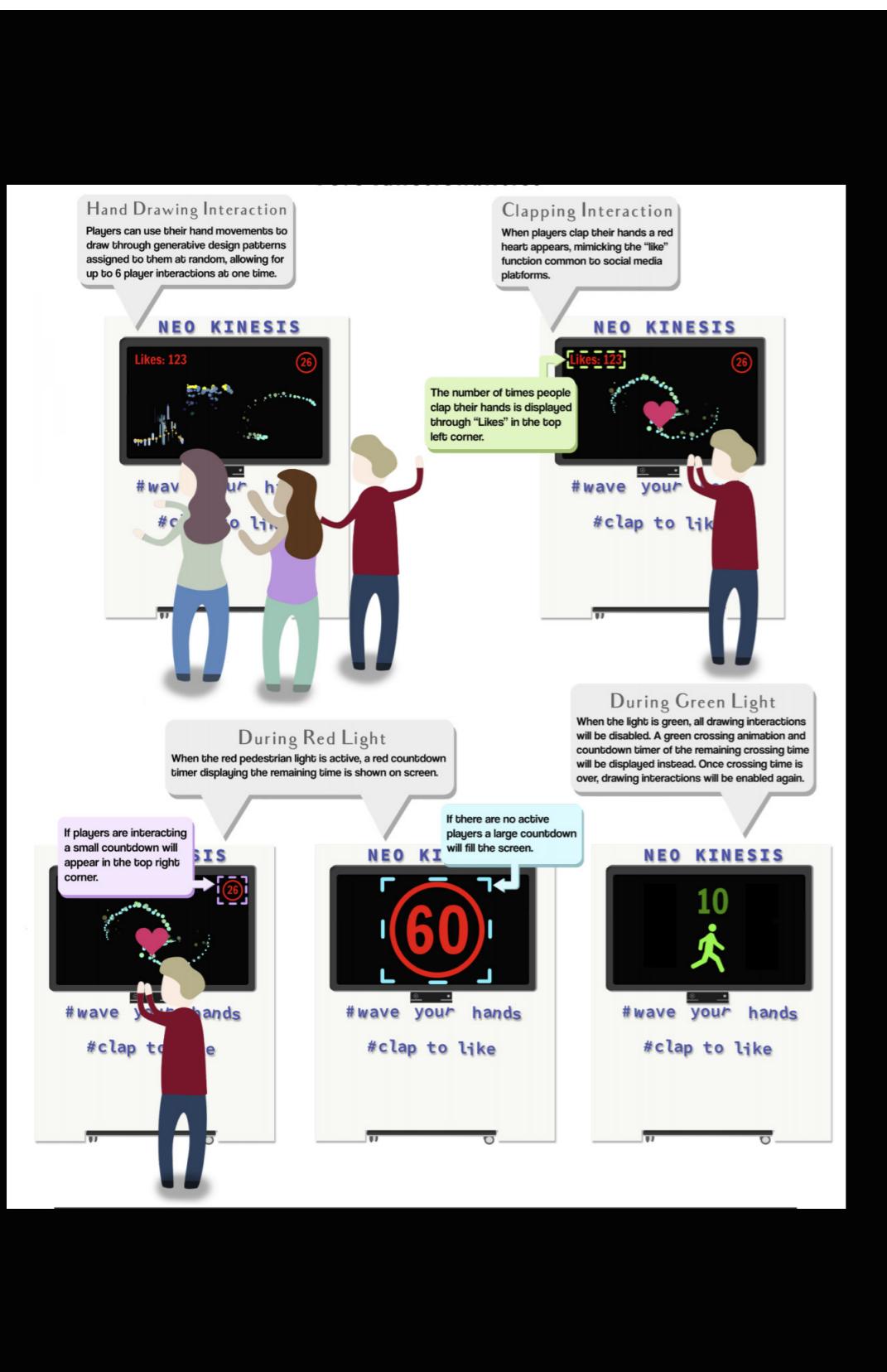
Capital restrictions and equipment restrictions

Because all team members are students with insufficient funds, we need to use cheap materials and existing equipment as much as possible. All hardware parts are owned by a team member or can be rented by the university.

When we first created a high-fidelity prototype, most of the participants proposed that system lag problems severely affected their experience. This was judged as the time consuming at which the software Node.js was loaded on the HTML. The turnaround came from a magical solution to the lagging problem when testing Neo Kinesis with a desktop. Through this test, we found that the main issue - the computer running Node.js needs a powerful graphics card. In order to facilitate carrying and transferring, we hope that my XPS 15 with GTX 1050 can operate Neo Kinesis, but after testing Kinect is not compatible with it. Finally, we decided to use a desktop with the Nvidia GeForce GTX 1660 Ti.

Communication and meeting

In general, most of the conferences were efficient and useful. All of the Jiyoung's absence for personal reasons caused the next meeting to explain the results of the meeting to her. Furthermore, She often made different opinions at this time. This seriously affected the efficiency of the meeting. However, she is still very good at the task she is responsible for, but she has not fulfilled the responsibility of the team leader.



FINAL REFLECTION

How well did you work in your team?

I think that successful teamwork is no matter how many differences and how many challenges are encountered, everyone still finished their part perfectly - just like our team. Every time we started working, organizing the team members to make a plan was the first step, and each team member completed the tasks according to it. I usually gave the assumed time based on the difficulty of the task, also attended all meetings to report on my progress and to check the progress of other team members while I actively supported when they encounter tough problems. As a team, we discussed the next step together, and everyone came up with their own ideas and opinions. During user testings, I often play an active social role and invite pedestrians to participate that is just right for my talkative character. As the main designer of the product's exterior, I was mainly responsible for the appearance of the product and the materials used to ensure their suitability, practicality, and economy.

What could you have done differently?

User testing

In order to make participants more willing to cooperate, we could have some shakes/coffee for participants who are invited to our user testing. Adding a short break between each testing might avoid the fatigue of the participants and help us get more accurate results.

Funding limitations and equipment restrictions

No professional programmers caused Kinect for 3D motion capture, otherwise, Neo Kinesis can use only one camera to complete the motion capture. For the same reason, Neo Kinesis could be designed to capture the details of the hand and create personalized animations

for different pedestrians. In the idea of "clap to like", the original design was when a pedestrian clapped a heartbeat animation would come up and then spread into several small hearts. In addition, since the school does not provide large vertical LCD screens and our funding limitations, we have changed the original vertical screen design concept of Neo Kinesis.

Will your team continue to work on the prototype further?

Even Neo Kinesis's personalization currently is not obvious, in my opinion, it is still a creative and meaningful design. Because it has room for improvement, I decided to continue to improve it further.

Features that can be added or modified include:

Adding heartbeat and diffusion-disappearing animations (spread into many small hearts) - providing more feedback and interaction when pedestrian clap.

Support for the capture of hand details - It can be designed with further interactive content, such as different hand movements that trigger different animations, enhancing Neo Kinesis's attraction to pedestrians.

Use a camera instead of Kinect - enhances realism, making Neo Kinesis no longer just a prototype but a marketable product.

BIBLIOGRAPHY

Transport for NSW (2017). Pedestrian trauma trends. [pdf] NSW Government. Retrieved from: <<https://roadsafety.transport.nsw.gov.au/downloads/trauma-trends-pedestrians.pdf>>

WHO (2013). More than 270 000 pedestrians killed on roads each year. [online] Retrieved from: <https://www.who.int/mediacentre/news/notes/2013/make_walking_safe_20130502/en/>

Images

https://www.freepik.com/free-photo/men-shaking-hands_1372807.htm#page=1&query=researcher&position=37

https://awazo.com/article/pedestrians_crossing_street.html

APPENDIX

Included all appendix from previous works.

Appendix A: Secondary Research

Statistics

- In 2011, 49 pedestrian fatalities recorded in NSW, which is 13% of the road toll.
- In 2012, 55 killed, in 2013, 42.
- 17-29 year olds make up 22% of pedestrian fatalities, but only 18% of NSW population.
- 70+ year olds make up 30% of fatalities, but only 10% of NSW population.
- Males make up 73% of fatalities 2007-2011.
- Unregulated midblock crossings make up the majority of fatalities and almost 40% of injuries.
- Most casualties occur on local roads within metropolitan areas.

<https://roadsafety.transport.nsw.gov.au/downloads/ped-safety-plan.pdf>

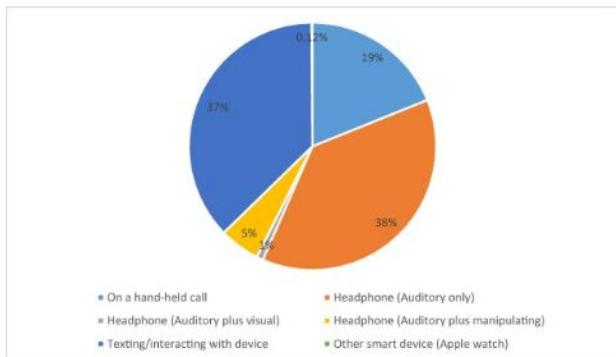
- 75+ year olds make up most fatalities and injuries.
- Male pedestrians more than twice as likely to be fatally injured than females.
- Major cities have highest number of fatal pedestrian crashes.
- Over 60% of pedestrian crashes are at 50 or 60km/h speed zones.
- Most crashes occur between 6pm – 9pm weekdays, and 12am-3am weekends.
- Pedestrian fatalities have decreased by 42.7% since 1995.

https://www.bitre.gov.au/publications/2015/files/is_070.pdf

- In the past three years though some 10,000 pedestrians have been fined for crossing roads in New South Wales alone.
- Of the 169 pedestrian deaths in the year to July, most are the result of drink driving and drivers on their phones—rather than bad judgement on behalf of the pedestrian.

https://www.vice.com/en_au/article/zmmzmw/jaywalking-is-australias-most-ridiculous-money-grabbing-crime

- 273,000 pedestrians worldwide are killed on roads each year; this represents approximately 22 per cent of all **road traffic** deaths globally (**WHO, 2013**).
- pedestrians accounted for approximately 14% of road fatalities in the ten-year period from 2003 to 2012 inclusive (**Williamson & Lennon, 2015**)
- recent Australian data reporting 174 pedestrian fatalities in 2016 and 160 in 2017 (**BITRE, 2017**)
- 30% of 18–30 year-olds indicated they engaged in texting or accessed the internet on their smartphones at least once a week whilst crossing the road (**Williamson & Lennon, 2015**).
- 60% of pedestrians reported walking whilst texting, emailing, talking on the phone or listening to music (**Liberty Mutual Insurance, 2013**)
- 14% of American adults admitting to physically bumping into an object or person while walking because they were distracted talking or texting on their phone (**Madden & Rainie, 2010**)

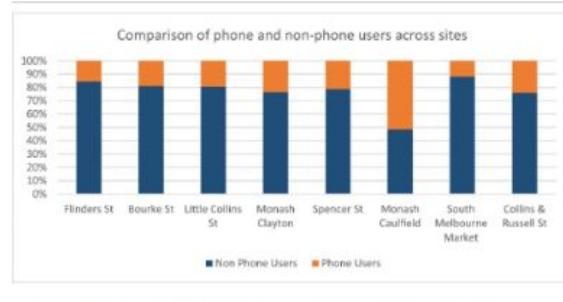


[Download high-res image \(172KB\)](#)

[Download full-size image](#)

Fig. 3. Mobile smartphone/device functionality in use.

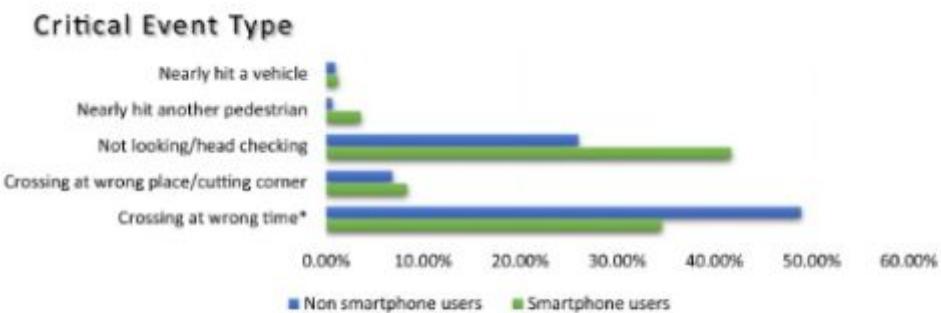
Across the eight sites, a total of 815 (20%) of pedestrians were observed to be using a portable device whilst walking (Fig. 2).



[Download high-res image \(206KB\)](#)

[Download full-size image](#)

<https://doi.org/10.1016/j.trf.2018.11.011>



[Download high-res image \(172KB\)](#)

[Download full-size image](#)

Fig. 5. Critical events for smartphone and non-smartphone users.

- Of the critical events observed, “crossing at the wrong time” was one of the highest incident events observed for both smartphone users (34%) and non-smartphone users (49%).
 - For smartphone/device users specifically, “Not looking/head checking” before stepping out onto a crossing (either signalised or non-signalised) was the largest observed critical event with 42% of pedestrians observed displaying this tendency. In contrast, the figure was 26% for non-smartphone users. (<https://doi.org/10.1016/j.trf.2018.11.011>)
- Of all the reports, 74% stated that the pedestrian was wearing headphones at the time of the crash and 29% mentioned that a warning was sounded before the crash. The majority of victims were male (68%) and under the age of 30 years (67%). The majority of vehicles involved in the crashes were trains (55%), and 89% of cases occurred in urban counties. (<https://www.sciencedirect.com/science/article/pii/S2095756415000689?via%3Dihub>)

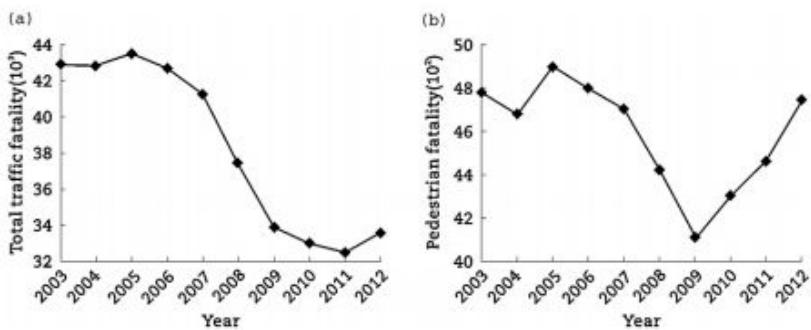


Fig. 1 – Total traffic fatalities and pedestrian fatalities in traffic crashes from 2003 to 2012. (a) Total traffic fatality. (b) Pedestrian fatality.

Lives lost by road user type

		2017	2018	Change	% Change	5 year avg
	Cyclist	8	4	-4	-50%	6
	Driver	80	57	-23	-29%	78
	Motorcyclist*	22	21	-1	-5%	23
	Passenger	26	20	-6	-23%	28
	Pedestrian	18	22	4	22%	25

Data is from calendar year to late August

Source: TAC

- Internationally, Australia is the sixth-most-dangerous country in the OECD for pedestrians.

<https://www.theage.com.au/national/victoria/the-problem-of-pedestrian-deaths-on-our-roads-20180816-p4zxy9.html>

Crossing Behaviour and Decision Making

- Unfamiliarity with environments can affect pedestrian decisions and experience, possibly putting people at risk.

<https://link.springer.com/article/10.1186/2197-1714-1-11>

- Though most people know to look both ways before crossing, many are distracted and do not.
- Main reason for distraction are mobile devices and talking to others.

https://www.atrf.info/papers/2017/files/ATRF2017_047.pdf

- Decision to cross is influenced by:
 - Start point of the crossing, destination of the crossing, complexity of the route, length of route, age, gender, overall safety awareness.
- Crossing behaviour is often subjective and random, and easily influenced by the urban environment.

- Waiting time and crossing distance are the main factors determining an unsafe crossing.
- If a crossing facility is available it can change a person's crossing decision and behaviour. (i.e., they may be more likely to choose to cross safely if there's a crossing, rather than jaywalking or walking a longer distance until the next crossing).
- Proper design of facilities can encourage not violating traffic laws.
- Ultimately pedestrian crossing behaviour reflects their satisfactory needs that benefits them.

<https://www.hindawi.com/journals/ddns/2014/949475/>

- Environmental conditions and elements affect individuals' choice on where to cross.
- If in a hurry, directness of a route becomes more important.

<https://www.sciencedirect.com.ezproxy1.library.usyd.edu.au/science/article/pii/096669239600038#aep-keywords-id5>

- When a sign ("Enjoy the view. Please use crossover.") was placed at the entrance, usage of the crossway increased from 18% to 28%.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1308291/pdf/jaba00041-0147.pdf>

- Human crossing behaviour and jaywalking is dependent on waiting time (the longer they wait, the more likely they are to jaywalk).
- Human factors and the subjectiveness of human behaviour affects their crossing behaviour.
- Introduction of external factors (e.g. traffic and road facilities like pedestrian islands, countdown signals) can help positively affect human crossing behaviour.

https://www.researchgate.net/profile/Xiaobao_Yang/publication/49778305_Modeling_Pedestrian_Violation_Behavior_at_Signalized_Crosswalks_in_China_A_Hazards-Based_Duration_Approach/links/542991f60cf27e39fa8e62c2.pdf

- most common pedestrian crossing risk behavior is crossing the street without precautions(67%)
- 50% of those surveyed stated that they do not use pedestrian crossings regularly
- 64.4% of eyewitnesses to a road accident reported that the pedestrian was the main party responsible.

<https://www.tandfonline.com/doi/full/10.1080/15389588.2019.1573318>

- Talking or texting on a smartphone may not be significantly associated with walking speed per se, but **pedestrians who were texting were more likely to commit crosswalk violations (Russo, James, Aguilar, & Smaglik, 2018)**.
- Pedestrians using a mobile phone are also more likely to weave, change direction suddenly, stop, be involved in a near collision and are less likely to acknowledge other people than non-distracted walkers (**Chen and Pai, 2018, Hyman et al., 2010**).

Jaywalking

- Reasons for jaywalking: issues with lack of speed limit signage, faded crosswalks, traffic lights, walk sign synchronisation, limited formal pedestrian crossings.
- Studies found many to be seen crossing while wearing headphones or using phones, while vehicles travel at high speeds.
- Individuals are aware of the risks of jaywalking.

- Uneven and/or lack of sidewalks could potentially increase incentive to jaywalk.

<https://link.springer.com/article/10.1186/2197-1714-1-11>

- Three jaywalker types:
 - Early walkers: people who cross before the traffic light turns green but finishes before it turns red. Some can predict the timing of traffic lights but is a risky move.
 - Late Walkers: those who cross while light is flashing red.
 - Risk walkers: those who cross when the light is red.
- Contributing factors to jaywalking were classified into the following types:
 - Social interaction
 - Using mobile device
 - Speaking on mobile phone
 - Using headphone
- Main reasons for jaywalking
 - missing or poorly located crosswalks
 - Pedestrians will naturally look for the most direct route between the origin and destination.
 - if they are missing from legs of an intersection, or are not located frequently enough along a street, pedestrians will not use them and will instead cross wherever they see fit.
 - signal timing that is inconvenient and unfair to pedestrians.
 - Most intersections require pedestrians to press a button, wait up to a full signal cycle (which could be up to 2 or 3 minutes in some cases), and then once all traffic has been given a red light, given about 15 seconds to cross the street. (more skewed towards accommodating cars)
- Pedestrian-friendly streets and neighbourhood originally created post automobile age have been transformed to more car-oriented. (change of pedestrian environment overtime)
- Possible Solutions to reduce jaywalking:
 - Make the pedestrian phases automatic, with no pushbuttons
 - Use concurrent instead of exclusive timing, with leading pedestrian intervals
 - Add countdown timers to pedestrian signals
 - Set the maximum signal cycle length to no more than 90 seconds

<https://patch.com/massachusetts/somerville/bp--why-we-jaywalk-and-what-we-can-do-about-it>

Road Safety

- Methods to reduce speed and traffic help pedestrians feel safer.

<https://www-sciencedirect-com.ezproxy1.library.usyd.edu.au/science/article/pii/0966692396000038#aep-keywords-id5>

- The three factors of road traffic – human-vehicle-infrastructure – must mutually complete each other in order to achieve the best result in the field of road safety.

<https://www.sciencedirect.com/science/article/pii/S2352146516302307>

- Refrain from multitasking when using the roads

- Explore jaywalking reason for specific area or neighbourhood.
- Consider the road situation(distance) and the facilities around the area.

Safety at Night

- When pedestrians walk at night, they are at an increased risk of involvement in an accident with a motor vehicle.
- Human and Environmental factors causing accidents
 - Low Visibility – Visibility is low and drivers must rely on headlights to see the road.
 - Impairment – there tend to be more drivers on the road at night who operate their vehicles while under the influence of alcohol
 - Pedestrian clothing – pedestrians wearing dark clothing may not be as easily visible during the night
 - Perception-Reaction time – because of lack of ambient light, humans suffer from a decrease in ability to perceive the objects around them and react accordingly.

<https://newportricheyinjury.wordpress.com/2016/12/28/pedestrian-accidents-at-night-who-is-responsible/>

- Pedestrian visibility dims at night
 - People fail to slow sufficiently at night because they are unaware how poor their vision has become.
 - lower visibility due to reduced ambient illumination.
 - People have contrast sensitivity in dim light.
 - Moreover, the eye exhibits “night myopia” focusing too near and causing distant objects to blur.

<https://www.visualexpert.com/Resources/pedestrian.html>

Pedestrian Experience and Satisfaction

- the width of a road, traffic speed, and the length of the signal light are the typical factors that affect the safety of walking
- Pedestrian facilities, air quality, temperature, and proximity between attractive places affect the comfort of walking
- A pedestrian-friendly environment can reduce vehicle use and encourage walking
- Improvement needed for “Walkability” - The extent to which an environment is actually walking-friendly

<https://www.sciencedirect.com/science/article/pii/S2214140518300434>

- Roadway and intersection plans should safely, comfortably and conveniently accommodate pedestrians.
- The complexity of many signalized intersection configurations makes pedestrians perceive them as unsafe because they must to pay attention to traffic, signal indications and roadway conditions simultaneously.
- Safety issues at signalized intersections are critical to pedestrian safety.
- A pedestrian mall also expands the dimensions of the footpath, which makes the place look less active
- Sydney CBD for instance should have more pedestrian-only places, which indicates the level to which density and diversity is a factor in pedestrian only spaces.

<https://www.urbacity.com.au/articles/what-is-the-effect-of-traffic-on-the-pedestrian-experience-in-centres>

- pedestrian involvement rates are significantly higher at locations within 150 feet of an intersection stop line
- villages, downtown fringe, and low-density residential areas tend to experience higher pedestrian injury severity than downtown, compact residential, and medium- and low-density commercial areas
- elderly pedestrians, drunk pedestrians, and pedestrians walking in darkness constitute 80% of fatal pedestrian crashes in Denmark.
- injury rate was 2.5 times higher on one-way streets than on two-way street

<https://www.tandfonline.com/doi/full/10.1080/19439962.2013.877549>

- Unsignalised crossings are not suitable where traffic volumes or speeds are high.
- Pedestrians will only use crossings located at, or very near, to where they want to cross. Pedestrian fencing can be used to encourage use of pedestrian crossings.
- Consider incorporating a pedestrian refuge island where possible.
- Through traffic must be able to see pedestrian crossing points in time to stop for them. Advance warning signs should be used if visibility is poor.
- Other high visibility devices (such as flashing lights) may also be used.
- Parking should be removed from near pedestrian crossings to provide adequate sight distance.
- The crossing will only be effective if other road users give way to pedestrians.
- Education and enforcement may be necessary to ensure pedestrians have priority.
- Consideration should be given to improving accessibility for the mobility impaired. This may include design features such as paved footpaths with sufficient width to accommodate wheelchairs, dropped kerbs at pedestrian crossing points and tactile paving.

<http://toolkit.irap.org/default.asp?page=treatment&id=19>

Jaywalking Safety Solutions(Implemented):

- Automatic roadblock(China)
- Waterspray(China)
- Online platform to publicize the offenders(China)
- A floor stop sign for pedestrians (New York)



- Public awareness campaigns
(<https://www.sciencedirect.com/science/article/pii/S2095756415000689?via%3Dihub>)
 - In April 2012, the Philadelphia Mayor's Office played a practical fool's day joke to raise awareness on distracted walking. The officials marked the "E-Lane" (Electronic Device Lane), a designated sidewalk space for use by distracted pedestrians on the 1400 block of JFK Boulevard as shown in fig 2.



Fig. 2 – The “E-Lane” in Philadelphia (NBC10 Philadelphia, 2012).

- In December 2010, the Pedestrian Council of Australia (PCA) launched the “Lambs to the slaughter-wait for the green” pedestrian safety awareness campaign. The concept was developed around the behavior of many pedestrians who often act like sheep when crossing the road, particularly at traffic lights. Many are either listening to iPods & MP3 players, texting or using mobile phones. The campaign thought to highlight the dangers of distracted walking (Fig. 6).



Fig. 6 – “Lambs to the slaughter – wait for the green” ad in Australia (PCA, 2012).

Crossing Facilities

- If a crossing facility is available it can change a person's crossing decision and behaviour. (i.e., they may be more likely to choose to cross safely if there's a crossing, rather than jaywalking or walking a longer distance until the next crossing).
- Proper design of facilities can encourage not violating traffic laws.

<https://www.hindawi.com/journals/ddns/2014/949475/>

- Introduction of external factors (e.g. traffic and road facilities like pedestrian islands, countdown signals) can help positively affect human crossing behaviour.

https://www.researchgate.net/profile/Xiaobao_Yang/publication/49778305_Modeling_Pedestrian_Violation_Behavior_at_Signalized_Crosswalks_in_China_A_Hazards-Based_Duration_Approach/links/542991f60cf27e39fa8e62c2.pdf

- <https://journals-sagepub-com.ezproxy1.library.usyd.edu.au/doi/pdf/10.3141/2073-10>

“Specifically, installation of a sign encouraging pedestrians to make eye contact with drivers when crossing should be considered. The supplemental inclusion of this sign would serve to maintain the pedestrian's right-of-way but help pedestrians to internalize the risk associated with crossing a roadway more accurately.”

- “Finally, opportunities to educate nondriver pedestrians should be explored. A statewide pedestrian safety campaign is recommended to emphasize safe crossing practices (with a message similar to the classic advice “Stop, Look Left, Look Right”) regardless of crosswalk markings or treatments.”

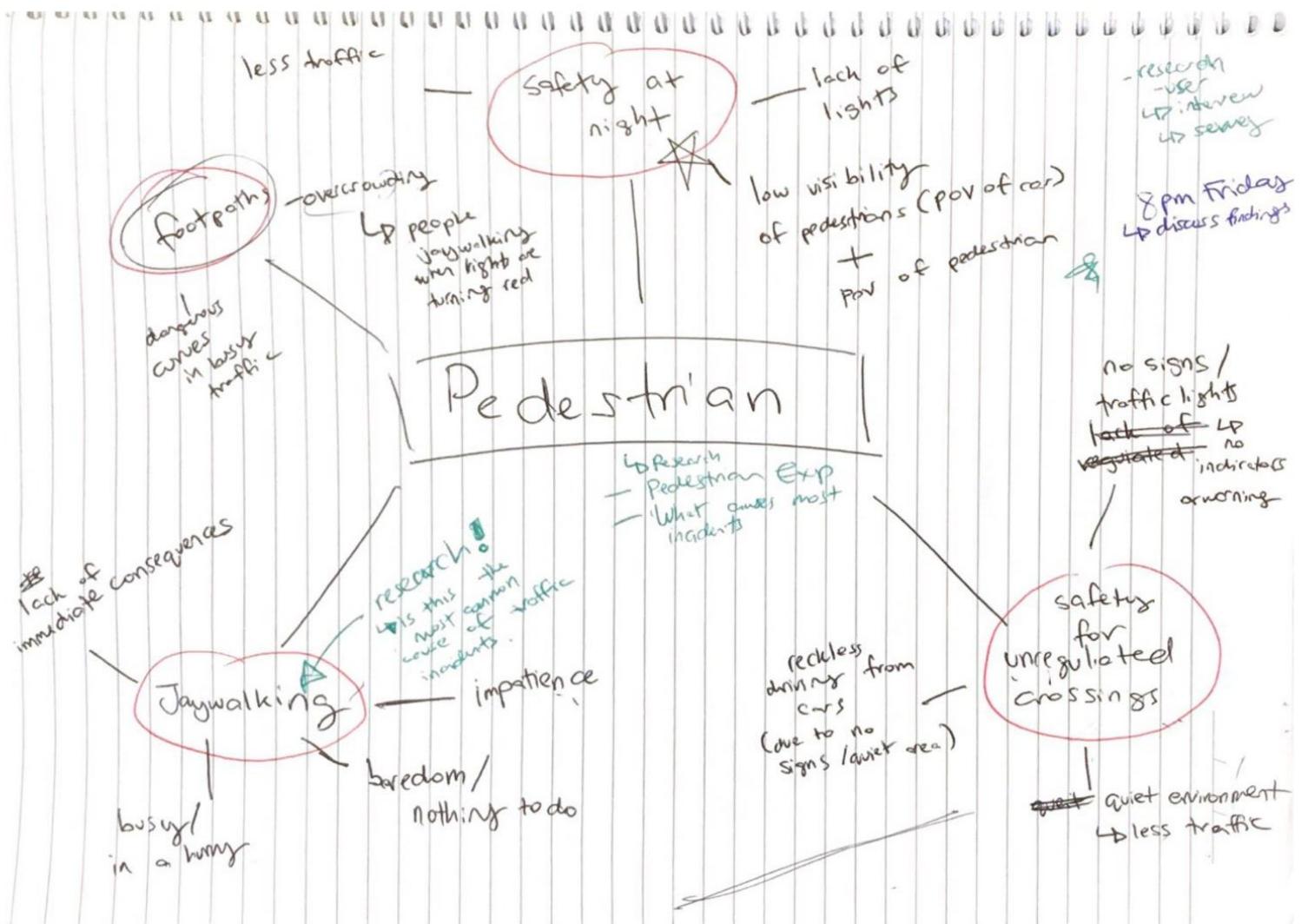
Problem with Pedestrian Crossing Buttons

<https://www.bbc.com/news/magazine-23869955>

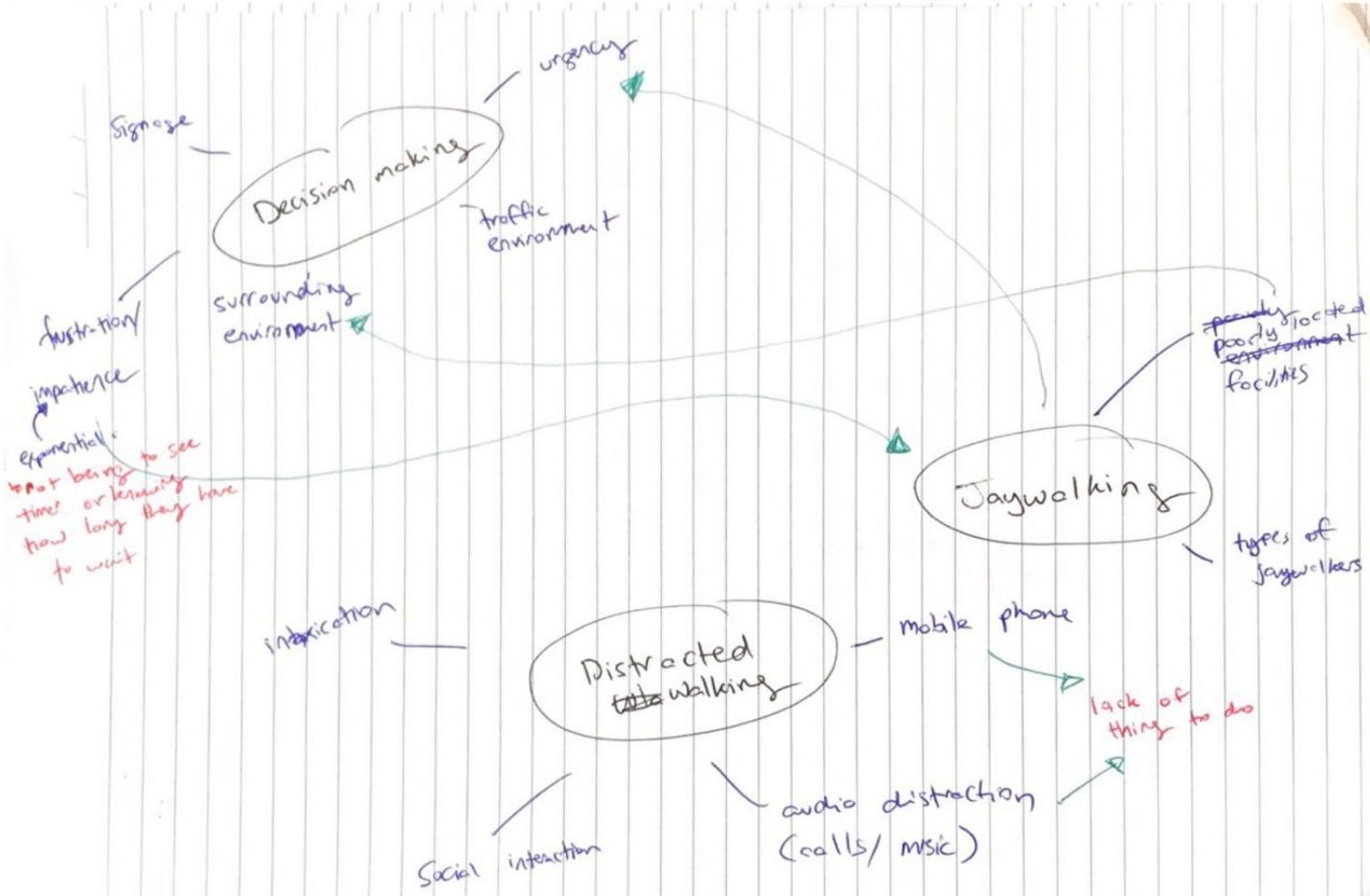
- At a junction it is more complicated. Doubt the button's efficacy.
- Sometimes people press it, sometimes they don't. In both cases there is a 105-second interval between the red man coming on and the green man appearing.
- UK differs from some other countries. The British pedestrian looks to cross whatever the lights, merely checking whether any traffic is approaching. (The law is on the pedestrian's side, except on motorways, certain other roads, and, although not usually enforced, in Northern Ireland.)
- About safety not just convenience
 - - the button which has not been pressed but there are 10 or more people waiting
 - - Some junctions are on a cycle, yes, but most junctions won't stop traffic to let pedestrians cross if it hasn't been informed there are pedestrians waiting.
 - - the button has a more or less immediate effect
 - - audible warning
 - - motion detectors/radar

Appendix B: Brainstorming

Brainstorming B.1:



Brainstorming B.2:



Appendix C: Interviews

Interview C.1: Katharine

1. Can you briefly introduce yourself?

I'm 20 years old, third year university student.

2. Can you describe the process of how you get to university?

I walk to the bus stop, take the bus to the station, take the train to Redfern, then walk to campus.

3. On average, how long would you say you walk to and from university each day?

Usually about 15mins.

4. During your walk, how many crossing facilities would you say you encounter and use? So these are zebra crossings, traffic lights, etc.

Probably...about 5?

5. What type are they? Traffic lights? Zebra crossings?

Um, traffic lights, island crossings and zebra crossings.

6. What do you think is the difference between using a zebra crossing and traffic lights? Do you find that your behaviour differs for both?

For zebra crossings and island crossings I'll look both ways and then cross. If it's in my suburb area most of the time I just do a quick glance since it's usually empty anyways. For traffic lights, I either wait for the light to turn green or I jaywalk if I'm sure it's safe to cross.

7. What would be considered safe to cross when the lights are still red?

Well you know if you check both ways and see there's no cars coming, or if there's a car coming and but it's a distance away and you're sure you can make it to the other side on time before they get here. Or a lot of the times I'm familiar with the timing of the traffic light so I'll gauge and see if that side has turned green, then that means this side won't turn green for another minute or so, you get me?

8. Okay then has there ever been times where your intuition was wrong?

Uh yes actually. One time I thought even though the light was still red, I thought that the cars going in the, uh, perpendicular direction wouldn't turn green yet, but I misjudged it, and started to walk right as soon as the light turned green for the cars. Then the car started to drive but I was there so they had to abruptly stop and honk at me. I think during that time I was just in a rush, and also I was listening to my music so I misjudged the timing.

9. Usually when during the day do you use these facilities?

Every day is different, but pretty much throughout the whole day. So I'll use them in the mornings when going to university, and use them both in the afternoon and at night when coming back.

10. Would you consider these crossing facilities as busy or crowded with people?

The ones in my suburban area that I cross to catch the bus, no it's not busy. There's one that I cross in the town area to get to the station which always has a significant amount of people crossing so that one yes. Also on the way from Redfern to campus there's always a lot of students walking, so inevitably there's always other people crossing

alongside me, for both island crossings and traffic lights so yes those are busy. So the majority of them are busy I think.

11. Can you describe what you do while walking?

Um, it depends on my mood. Without fail I'll always be listening to music because I absolutely have to listen to music. But these days I also tend to browse my phone or watch videos while walking. I know it's dangerous but I think that because I've walked the same route for years now, I can kinda judge when I can just simply walk and use my phone, and when I need to stop.

12. So do you tend to stop looking at your phone when crossing?

Most times I'll briefly look up to look both ways before crossing, but then once it's clear and I'm absolutely certain I'll continue to look at my phone.

13. What exactly are you doing on your phone?

Most of the time it's just browsing social media, and scrolling through my feed. Like I said, sometimes watching videos like dramas or just youtube.

14. What do you use to listen to music?

Normal wired earphones.

15. How loud do you listen to your music?

Not too loud, depending on the environment somewhere between 1-3 button presses.

16. Why do you choose to listen to music while walking?

I just like having something to listen to. I enjoy listening to music and I'd honestly rather listen to that than cars going by. It makes my walk enjoyable before I have to go and torture myself at uni.

17. Would you say that listening to music affects your walking experience in any way?

Umm, not really? Sometimes I like to walk to the beat of my music, if that counts? Oh and sometimes I like listening to music and daydream of random things depending on the song, or sometimes the song will trigger random thoughts which can kinda put my feet into autopilot mode, if that makes sense? So I'll be walking but my mind is somewhere else. But since I've walked the same route so many times it's fine honestly.

18. What about using your phone to browse social media and watch videos? Does that affect your walking at all?

I guess so yea. A lot of the time I'll have my head down watching my phone, that there may be times where I've walked into people. But most of the time it's fine, because I'm looking down, I can also see in my peripheral vision the feet of people in front of me or any obstacles in the way, so I know to move out of the way even if I'm looking at my phone.

19. Has using your phone or listening to music ever put you in danger when crossing?

Uhh, I'd say not really because while I do use my phone a lot while walking, I'll usually stop before I need to cross. I don't think I'm that reckless so most of the times I know to look both ways and stop using my phone. I think it's more so when I look both ways but somehow didn't see a car coming, and only realise when they're coming closer, so I have to start running. It might've been because when I look up to check for cars, I move my head too fast and don't do a good enough check haha.

20. Do you still listen to music and use your phone even when walking at night?

Even though I probably shouldn't, yea I do.

21. Why do you think you shouldn't?

Well because it's night, so it's dark, and I should probably pay attention to my surroundings more. Sometimes I'll lower my music because I think if I can't see that well, I should at least make sure I can hear my surroundings, but other times I don't want to because I'm too engrossed in my music. Also if I'm also too engrossed into whatever I'm watching on my phone, I also don't really stop using it.

22. Okay then, do you often walk or commute with other people?

No.

23. Then when walking with strangers, do you ever find that their behaviour also affects your walking behaviour and decisions to cross?

I guess so. If I see someone else or a bunch of other people cross than I'll follow them and cross as well. But other times if I'm really confident and think it's safe to cross than I'll make my own decision.

Interview C.2: Jake

1. Introduce yourself.

My name is Jake, I'm 24, and currently working

2. How do you get to work/university?

I get to work through a combination of walking and public transport

3. How many minutes on average per day do you spend walking?

20 - 30 minutes

4. How many crossing facilities do you use per day on average?

2 - 3 crossing facilities

5. At what time of day do you use these crossing facilities?

Morning, early afternoon

6. Do you ever use these at night?

Sometimes

7. Of those crossings, how many would you consider busy?

One

8. Describe your experience walking while you're alone.

I usually walk listening to music/videos/podcasts on my phone, but I pause whatever I'm listening and remove one of my earphones to when crossing to have maximum awareness of the roads around me.

9. Describe your experience walking while you're with your friends?

We're talking while walking most of the time, but temporarily stop the conversation when crossing to focus on situational awareness.

10. What do you find yourself when doing most when walking?

Listening to music, constantly checking my surroundings.

11. How do other people's behaviour affects your behaviour as a pedestrian?

Not much, I behave exactly the same.

12. How do you listen to your music (headphones, noise cancelling)?

Standard earphones.

13. Why do you choose to listen to music/use your phone/etc while walking?

Because I like to have something interesting to listen to during walks.

14. How does music affect your walking experience?

Makes it more entertaining

15. How does music your affect your attention when walking?

I feel like it does reduce my attention a bit, so I try to take extra precautions in being more aware.

16. Has it ever affected your safety?

No, I try to reduce risk as best as possible,

17. Does your behaviour as a pedestrian change at night?

Not really, I behave about the same

18. Do you still find yourself listening to music/using your phone/etc at night?

Yes.

19. Why?

Entertainment, and it's a habit nowadays.

20. If you're walking with friends, is their behaviour and cross decisions affected?

No, we focus on trying to be safe pedestrians first.

Interview C.3: Eugene

1. Can you briefly introduce yourself?

I'm 48 years old, working as an IT consultant.

2. Can you describe the process of how you get to work?

I check the timetable for when the bus arrives, I walk to the bus stop, catch the bus to the train station, catch the train to the city, walk to the office.

3. On average, how much walking do you do in a day?

If I check the bus timetable and I have to wait more than 15 minutes, then I'll walk to the station, which is about 15 minutes. And then from Wynyard station to the office is another 10 mins. So to and from is about 50 minutes.

4. During your walk, how many crossing facilities would you say you encounter and use?

So these are zebra crossings, traffic lights, etc.

From here to the station there's one traffic light and two zebra crossings. And none from the station to my office.

5. What do you think is the difference between using a zebra crossing and traffic lights?

Do you find that your behaviour differs for both?

For traffic lights I have to wait, zebra crossings I have to look and walk.

6. Okay then has there ever been times where danger?

One time when crossing, when I wasn't using the lights I checked both ways and it was clear. Then a car made an illegal right turn, which could've hit me.

7. Would you consider these crossing facilities as busy or crowded with people?

No not really.

8. Can you describe what you do while walking?

I listen to music, observe traffic and make sure I don't get run over. Sometimes I'll respond to text messages. There have been times where I've taken phone calls but I'll try to avoid doing so while walking.

9. So do you tend to looking at your phone?

I've sometimes watched videos like Netflix on the walk back from the bus stop to my house, though not often. Not ideal but happened. Sometimes I look at messages while walking.

10. Do you look at them while crossing the road?

I try not to.

11. What do you use to listen to music?

Spotify, with noise cancelling headphones. And I'll use the noise cancelling function when walking.

12. Why do you choose to listen to music while walking?

To make the walk more enjoyable.

13. Would you say that listening to music affects your walking experience in any way?

It makes my walk more positive.

14. Has using your phone or listening to music ever put you in danger?

For music, no. For watching videos, I might bump into people but I wouldn't consider myself put in danger since I won't use it on the road.

15. Do you still listen to music and use your phone even when walking at night?

Yes.

16. Then when walking with strangers, do you ever find that their behaviour also affects your walking behaviour and decisions to cross?

Sometimes. If I'm waiting to cross and the crossing hasn't turned green yet and there's no cars and people start to cross and I see that it's okay, then I'll also cross as well.

Interview C.4: Fiona

1. Introduce yourself.

Hey, my name is Fiona. I'm currently a freelance artist and tutor.

2. How do you get to work/university?

Normally I can do my work at home but if there are meetings or if I have to go to my tutoring job, it usually takes me about an hour to get to the city. I ride a bus for 20mins and then the train for about another 40mins.

3. How many minutes on average per day do you spend walking?

Normally about 25minutes, I try to force myself to walk more since a lot of my job involves sitting. If I go to work I tend to walk for about 40 minutes.

4. How many crossing facilities do you use per day on average?

Uh, I think usually 3?

5. At what time of day do you use these crossing facilities?

Mostly in the day and afternoon around 11am, or from 2pm to 4pm.

6. Do you ever use these at night?

Yes, although not as frequently.

7. Of those crossings, how many would you consider busy?

Probably 2, my neighbourhood has quite a lot of traffic activity so it's usually constantly busy.

8. Describe your experience walking while you're alone.

Nothing too special, if it's a short distance I will just walk quickly to my destination. If it's a longer distance, I occasionally listen to music or a podcast.

9. Describe your experience walking while you're with your friends?

Usually we just chat, I guess I use my phone less around them?

10. What do you find yourself doing most when walking?

Definitely listening to music or occasionally twitter.

11. How do other people's behaviour affects your behaviour as a pedestrian?

I find myself annoyed when people around me press the button like 10 times due to their impatience. That doesn't make the traffic colour change any faster!

12. How do you listen to your music (headphones, noise cancelling)?

Usually headphones with noise cancelling if I'm going out. If it's quick walk I just use normal earphones.

13. Why do you choose to listen to music/use your phone/etc while walking?

It gives me something to do if I'm bored when walking

14. How does music affect your walking experience?

I don't think it really affects my experience.

15. How does music affect your attention when walking?

If it's music, I am not really affected but if it's something like a podcast or audiobook I guess I pay less attention?

16. Has it ever affected your safety?

No, I'm pretty cautious when I need to cross the road.

17. Does your behaviour as a pedestrian change at night?

Yes, I tend to look around more when crossing and if it's too dark I use the torch on my phone.

18. Do you still find yourself listening to music/using your phone/etc at night?

No

19. Why?

It's better to be more alert at night.

20. If you're walking with friends, is their behaviour and crossing decisions affected?

No, I don't think so. I guess we do walk slower as a group since we're chatting?

Interview C.5: Ethan

1. Can you briefly introduce yourself?

I'm a fourth year honours student, 21 years old, currently studying at the University of New South Wales.

2. Can you describe the process of how you get to university?

First I'll check the timetable to see if I should walk to the station or take the bus. Then I'll take the train to Central, and when I get to Central I take the bus again to campus.

3. On average, how much walking do you do in a day?

It's about a 10-12 minute walk to the station, then a 5-7 min walk from the station to the bus stop, then another 10mins walk to whenever I need to get to, then repeat when I need to get home. So about an hour altogether.

4. During your walk, how many crossing facilities would you say you encounter and use?

So these are zebra crossings, traffic lights, etc.

About 4 on the way to the station, and 1 to get to the bus stop. Both traffic lights and zebra crossings.

5. Would you consider these crossing facilities as busy or crowded with people?

Some, more than others.

6. Can you describe what you do while walking?

I listen to music, watch my step, and I check both sides when crossing. Sometimes I'll also use my phone to check my messages.

- 7. Do you look at your phone while crossing the road?**
No.
- 8. What do you use to listen to music?**
Regular noise cancelling headphones.
- 9. Why do you choose to listen to music while walking?**
Because I like to have some background music, take my mind off things but also keep it busy.
- 10. Would you say that listening to music affects your walking experience in any way?**
I guess it can cause you to not pay attention to your surroundings.
- 11. Has using your phone or listening to music ever put you in danger?**
Maybe once or twice. There were times where I was too engrossed in my music, which made me distracted and not pay attention when walking.
- 12. Do you still listen to music and use your phone even when walking at night?**
Yes.
- 13. Then when walking with strangers, do you ever find that their behaviour also affects your walking behaviour and decisions to cross?**
Sometimes if I see people jaywalk, I'll check both sides to see if it's safe and I'll also jaywalk.

Interview C.6: Andre

- 1. Introduce yourself.**
Hi I'm André and I'm a freelance costume designer and performer who runs my own company on social media.
- 2. How do you get to work/university?**
Majority of my work is overseas so by plane. However when I was studying, I would catch 3 buses and the occasional train to/from university.
- 3. How many minutes on average per day do you spend walking?**
I walk a lot so I would say around 3-4+ hours. Maybe more.
- 4. How many crossing facilities do you use per day on average?**
Approximately 8?
- 5. At what time of day do you use these crossing facilities?**
Usually the middle of the day when I am in the city.
- 6. Do you ever use these at night?**
Not as much during the day but yes I use them occasionally.
- 7. Of those crossings, how many would you consider busy?**
City is usually very busy regardless of time of day so I would say the majority of them are quite busy.
- 8. Describe your experience walking while you're alone.**
I usually have my headphones in playing music while I am walking around by myself.
- 9. Describe your experience walking while you're with your friends?**
We exchange the occasional eye contact whilst walking but when we are at pedestrian crossings we usually have our eyes up ahead.
- 10. What do you find yourself when doing most when walking?**
Listening to music or occasionally looking at my phone on social media or answering texts/emails.

11. How do other people's behaviour affects your behaviour as a pedestrian?

If other pedestrians aren't obeying the rules, pushing others around etc. it can get quite dangerous and cause accidents which can sometimes make me do things I shouldn't such as running across the walkway, walking on the pedestrian crossing when the green light hasn't yet signalled for pedestrians to go, etc.)

12. How do you listen to your music (headphones, noise cancelling)?

I use my noise cancelling headphones.

13. Why do you choose to listen to music/use your phone/etc while walking?

I find myself bored and I feel like it's the safest form of entertainment compared to something like a game or a video.

14. How does music affect your walking experience?

I enjoy walking more with music.

15. How does music your affect your attention when walking?

I try to look around more before crossing as my headphones block out the noise of traffic.

16. Has it ever affected your safety?

Yes, but it was in a more quiet area with a car that sped around a corner.

17. Does your behaviour as a pedestrian change at night?

Yes, in darker environments I'm much more careful.

18. Do you still find yourself listening to music/using your phone/etc at night?

Yes

19. Why?

I enjoy listening to music and because I walk for such long distances I would be too bored if I just walked.

20. If you're walking with friends, is their behaviour and cross decisions affected?

Yes, if a friend were to run to make it to the lights I find myself following them so I'm not left behind. Interview

Interview C.7: Charlotte

1. Introduce yourself.

I'm a student at UNSW, im now 23.

2. How do you get to work/university?

I always use the uber or sometimes I just walk to Uni. It takes 20 min to walk from my house to uni. If I take a uber, it's just a couple of minutes to be school.

3. How many minutes on average per day do you spend walking?

I spent about 40 minute to walk everyday.

4. How many crossing facilities do you use per day on average?

Probably 7-8 traffic lights, the road are full of students mostly.

5. At what time of day do you use these crossing facilities?

During the rushing hours mostly, so there are many people and cars. from 9-10am, and after 5pm.

6. Do you ever use these at night?

Yeah, at night the road is not busy and crowded, and I feel like it's silent.

7. Of those crossings, how many would you consider busy?

Maybe half of them, I reckon 3 crossings that near the uni, students rush to the school.

8. Describe your experience walking while you're alone.

I enjoy listening to music on the road to kill my time, because I have nothing to think.

9. Describe your experience walking while you're with your friends?

Just chat along the way. Or we'll listen to music together and sing together on the road.

10. What do you find yourself when doing most when walking?

Listen to my music and refreshing instagram all the time.

11. How do other people's behaviour affects your behaviour as a pedestrian?

If the cyclists ring the bell, I might not hear it when I put my music on. And I sometimes follow people if they jaywalk. Yeah and I will jaywalk in the junctions when the road is less busy because I hate to go a long way to find the crossings.

12. How do you listen to your music (headphones, noise cancelling)?

Airpod.

13. Why do you choose to listen to music/use your phone/etc while walking?

I'm bored and I got nothing to do on the way.

14. How does music affect your walking experience?

Not exactly. It brings happiness to walking, I like to sing along and might dance with it. Yeah on the street, it's crazy but it affects my emotion.

15. How does music your affect your attention when walking? Has it ever affected your safety?

Not at all, my music isn't loud, and I purposely turn down the music when crossing the road.

16. Does your behaviour as a pedestrian change at night?

Yes, all the time. I'm less cautious at night.

17. Do you still find yourself listening to music/using your phone/etc at night?

Yep. I need music when it's at night. I'm more likely to jaywalk at night because of less cars.

18. If you're walking with friends, is their behaviour and cross decisions affected?

Yes, we do things together and his decision definitely affects mine.

Interview C.8: Jill

1. Introduce yourself.

I currently study Master of Management CEMS at Usyd. I am 20 years old.

2. How do you get to work/university?

Usually by train. Then I walk for a while.

3. How many minutes on average per day do you spend walking?

Around 30 – 40 minutes.

4. How many crossing facilities do you use per day on average?

5-6.

5. At what time of day do you use these crossing facilities?

Usually in the morning when I go to uni; during lunch break on the way to the food court, and on my way home.

6. Do you ever use these at night?

Yes, when I go out at night.

7. Of those crossings, how many would you consider busy?

2-3, cuz they locate near uni or in cbd.

- 8. Describe your experience walking while you're alone.**
I feel insecure if it's at night; I need to pay more attention to the surroundings.
- 9. Describe your experience walking while you're with your friends?**
We usually avoid talking when we cross the street.
- 10. What do you find yourself when doing most when walking?**
Searching for pretty girls.
- 11. How do other people's behaviour affect your behaviour as a pedestrian?**
I don't really care about other people when I walk unless they are pretty. If they are friends I will probably talk to them.
- 12. How do you listen to your music (headphones, noise cancelling)?**
Headphones. I don't want to be hit by a car.
- 13. Why do you choose to listen to music while walking?**
I want to create a vibe for myself.
- 14. How does music affect your walking experience?**
I feel less boring.
- 15. How does music affect your attention when walking?**
I usually don't pay attention to other stuffs if I am listening to music.
- 16. Has it ever affected your safety?**
Not really.
- 17. Does your behaviour as a pedestrian change at night?**
Yes, I don't listen to music when I walk at night, and I pay more attention to the surroundings.
Do you still find yourself listening to music at night? Why?
Nope, cuz I am afraid someone will stalk me and I cannot find out.
- 18. If you're walking with friends, is their behaviour and cross decisions affected?**
Yes when we are talking about things I am interested in I would pay less attention to my surroundings.

Interview C.9: Eric

- 1. Introduce yourself.**
Eric Doh 21, design student
- 2. How do you get to work/university?**
Combination of walking, bus and trains
- 3. How many minutes on average per day do you spend walking?**
40~1hour
- 4. How many crossing facilities do you use per day on average?**
Around 20
- 5. At what time of day do you use these crossing facilities?**
When I need to cross
- 6. Do you ever use these at night?**
Yes
- 7. Of those crossings, how many would you consider busy?**
1~2 around redfern
- 8. Describe your experience walking while you're alone.**
Not bad, it is good doing some physical activities

9. Describe your experience walking while you're with your friends?

Talk and walk, but sometimes it is hard to talk because some roads are too small to walk with friends

10. What do you find yourself when doing most when walking?

Listening to music

11. How do other people's behaviour affects your behaviour as a pedestrian?

Sometimes I am cautious of dangerous people but I am not usually concerned

12. How do you listen to your music (headphones, noise cancelling)?

Bluetooth earphone

13. Why do you choose to listen to music/use your phone/etc while walking?

I can actually enjoy music while walking.

14. How does music affect your walking experience?

Time seems to fly by.

15. How does music your affect your attention when walking?

Nothing.

Interview C.10: Jasmine

1. Introduce yourself.

I am currently a bachelor graduated students.

2. How do you get to work/university?

I usually take the trains. If I would be late for class, I choose Uber.

3. How many minutes on average per day do you spend walking?

Depending on weekdays or weekend. During school days, I just spend 0.5h-1h per day. But for weekend, If I hang out with friends for shopping or visit galleries, it might cost me 4h-5h or more.

4. How many crossing facilities do you use per day on average?

About 4-5

5. At what time of day do you use these crossing facilities?

Afternoon and evening.

6. Do you ever use these at night?

Yes.

7. Of those crossings, how many would you consider busy?

2

8. Describe your experience walking while you're alone.

Listening to music or taking a phone call with my friend.

9. Describe your experience walking while you're with your friends?

Talking about celebrity gossip stories.

10. What do you find yourself when doing most when walking?

Listening to music

11. How do other people's behaviour affects your behaviour as a pedestrian?

If they walk so fast, I will change my walking speed faster as well.

12. How do you listen to your music (headphones, noise cancelling)?

headphones

13. Why do you choose to listen to music/use your phone/etc while walking?

Relax and enjoy my own time

14. How does music affect your walking experience?

If I got out in the morning, I would listen to some light music. But if I walk during shopping, I prefer to choose some pop music.

15. How does music affect your attention when walking?

A few times, when I turn on the music too loud.

16. Does your behaviour as a pedestrian change at night?

I don't listen to music at night, because I think it isn't safe if someone follow me.

Interview C.11: Jerry

1. Introduce yourself.

I'm Jerry and currently studying civil engineering in UNSW.

2. How do you get to work/university?

By two different bus route.

3. How many minutes on average per day do you spend walking?

About 30 mins.

4. How many crossing facilities do you use per day on average?

2

5. At what time of day do you use these crossing facilities?

Afternoon, normally when I finished class and backing to home.

6. Do you ever use these at night?

Yes.

7. Of those crossings, how many would you consider busy?

None, they are just small intersections.

8. Describe your experience walking while you're alone.

Normally I just walking, but if someone call or text me.

9. Describe your experience walking while you're with your friends?

Chating.

10. What do you find yourself when doing most when walking?

Q7.

11. How do other people's behaviour affects your behaviour as a pedestrian?

If there is an accident happened or car horned, it will distract me.

12. If someone jaywalking, would u follow him?

No. I only jaywalk when I want to.

13. Does your behaviour as a pedestrian change at night?

No much difference.

14. If you're walking with friends, is their behaviour and cross decisions affected?

Yes, I would follow them.

Interview C.12: Michael

1. **Introduce yourself.**
I am a student at USYD and study civil engineering.
2. **How do you get to work/university?**
I usually take the train
3. **How many minutes on average per day do you spend walking?**
Maybe 20 minutes
4. **How many crossing facilities do you use per day on average?**
5 or 6
5. **At what time of day do you use these crossing facilities?**
Morning and night
6. **Do you ever use these at night?**
Yes
7. **What did u feel about use crossing facilities at night?**
I will be more careful while I walking through the crossing facility at night
8. **Of those crossings, how many would you consider busy?**
2
9. **Describe your experience walking while you're with your friends?**
We will chat and walk slowly
10. **What do you find yourself when doing most when walking?**
Chatting with friend and checking phone
11. **How do other people's behaviour affects your behaviour as a pedestrian?**
If somebody jaywalking, I will follow them.
12. **If you're walking with friends, is their behaviour and cross decisions affected?**
Yes, friend's behaviour would be more attractive to make me change my role.

Interview C.13: Alex

1. **Introduce yourself.**
I'm Alex, currently 27. I work temp jobs here and there.
2. **How do you get to work?**
I drive to work.
3. **How many minutes on average per day do you spend walking?**
Probably around 30 minutes.
4. **How many crossing facilities do you use per day on average?**
3?
5. **At what time of day do you use these crossing facilities?**
During 1pm to 2pm. Around lunch time.
6. **Do you ever use these at night?**
No.
7. **Of those crossings, how many would you consider busy?**
1.
8. **Describe your experience walking while you're alone.**

My experience walking alone is looking where I'm walking, being aware of my surroundings and on my mind I'm thinking about lunch.

9. Describe your experience walking while you're with your friends?

While walking with my friends I just have a chat with time while looking where I'm walking and my surroundings.

10. What do you find yourself when doing most when walking?

Walking to my destination. Thinking about the rest of the day.

11. How do other people's behaviour affects your behaviour as a pedestrian?

Depending on the person, I might be trying to avoid them or get out of their way.

12. How do you listen to your music (headphones, noise cancelling)?

I use open cup headphones.

13. Why do you choose to listen to music/use your phone/etc while walking?

I don't.

14. Why not?

I could be less aware of my surroundings as my hearing will be distracted so I do not listen to music, it's something I see quite often as a driver.

15. Does your behaviour as a pedestrian change at night?

Yes. I am usually more aware of my surroundings at night.

16. Do you listen to music/using your phone/etc at night?

No.

17. Why?

I prefer to focus on my surroundings to get to my destination safely.

18. If you're walking with friends, is their behaviour and cross decisions affected?

Yes, I have noticed they are less aware of their surroundings, and once I had to pull them to safety as they step onto the road while a tram was in motion and was about to hit them.

Interview C.14: Edwina

1. Introduce yourself.

Edwina, Stage 3 undergraduate student from University of Auckland.

2. How do you get to work/university?

On foot or by bus sometimes.

3. How many minutes on average per day do you spend walking?

Over 30 minutes.

4. How many crossing facilities do you use per day on average?

5~7.

5. At what time of day do you use these crossing facilities?

Usually 12:30 ~ 5:00 pm.

6. Do you ever use these at night?

Yes.

7. Of those crossings, how many would you consider busy?

Three.

8. Describe your experience walking while you're alone.

Walking real fast since there is many homeless people in CBD.

9. Describe your experience walking while you're with your friends?

Walking and chatting.

10. What do you find yourself when doing most when walking?

Listening to music.

11. How do other people's behaviour affects your behaviour as a pedestrian?

Not really.

12. How do you listen to your music (headphones, noise cancelling)/texting/use your phone?

Headphones.

13. Why do you choose to listen to music/use your phone/etc while walking?

Listen to music is a habit and use my phone to avoid awkward eye contact sometimes.

14. How does music/texting/use your phone affect your walking experience?

Less awkward maybe?

15. How does music/texting/use your phone your affect your attention when walking?

Still paying most attention on the traffic lights, passing vehicles.

16. Has it ever affected your safety?

No.

17. Does your behaviour as a pedestrian change at night?

Yes.

Do you still find yourself listening to music/using your phone/etc at night? Why?

I still listen to music cause it's my habit, but I don't use my phone that much while walking at night because that time all I really thinking is just getting home asap plus some safety concerns.

18. If you're walking with friends, is their behaviour and cross decisions affected?

Yes.

Interview C.15: Amy

1. Introduce yourself.

I'm Amy Chen and is currently studying conjoint degrees in UNSW.

2. How do you get to work/university?

By bus.

3. How many minutes on average per day do you spend walking?

Probably not more than one hour if I go home straight after class hahahaha.

4. How many crossing facilities do you use per day on average?

Maybe around 7.

5. At what time of day do you use these crossing facilities?

When I cross the road for bus stop or for lectures during the day.

6. Do you ever use these at night?

Yes.

7. Of those crossings, how many would you consider busy?

I thinks it's three where there's a lot of people crossing at the same time.

8. Describe your experience walking while you're alone.

I'm always aware of things and people near me.

9. Describe your experience walking while you're with your friends?

I become completely opposite since there are people I know around me so I usually don't acknowledge what's happening on the street.

10. What do you find yourself when doing most when walking?

I focus on the direction I'm walking to.

11. How do other people's behaviour effects your behaviour as a pedestrian?

If they are coming from the opposite direction I'll try to walk to the right a bit more.

12. How do you listen to your music (headphones, noise cancelling)/texting/use your phone?

I use earphones with my phone.

13. Why do you choose to listen to music/use your phone/etc while walking?

Because it hypes me up and I won't feel bored.

14. How does music/texting/use your phone affect your walking experience?

They make me feel better and more entertained.

15. How does music/texting/use your phone your affect your attention when walking?

It affect me in a negative way as it is hard for me to be aware of what's in front of me or near me.

16. Has it ever affected your safety?

Luckily it hasn't yet.

17. Does your behaviour as a pedestrian change at night?

Yes, I will try to be aware of my surroundings more than during the day.

18. Do you still find yourself listening to music/using your phone/etc at night? Why

I still listen to music and use my phone but I will look around to check who's near me.

19. If you're walking with friends, is their behaviour and cross decisions affected?

Yes because I usually follow my friends when we are crossing roads.

Interview C.16: Nancy

1. Introduce yourself.

My name is Nancy, I'm currently studying second year Bachelor of Visual arts at the University of Sydney.

2. How do you get to work/university?

Walking and busing, sometimes if I'm very late, I might just get an uber.

3. How many minutes on average per day do you spend walking?

Around 15 minutes.

4. How many crossing facilities do you use per day on average?

About 5-6.

5. At what time of day do you use these crossing facilities?

Usually in the morning and evening.

6. Do you ever use these at night?

Yes.

7. Of those crossings, how many would you consider busy?

Most of them. Because I live in the city and they are usually very busy.

8. Describe your experience walking while you're alone.

I pay more attention to the surrounding area, including other people and vehicles.

9. Describe your experience walking while you're with your friends?

I pay less attention of the surrounding area and only focusing on the traffic lights.

10. What do you find yourself when doing most when walking?

Listening to the music.

11. How do other people's behaviour affects your behaviour as a pedestrian?

They don't affect me, I may even think somebody who runs a red light is an idiot.

12. How do you listen to your music (headphones, noise cancelling)/texting/use your phone?

Like most teenagers, I use earphones.

13. Why do you choose to listen to music/use your phone/etc while walking?

Because I have nothing else to do, and it will be less boring.

14. How does music/texting/use your phone affect your walking experience?

I can't really hear the outside world when using both sides earphones.

15. How does music/texting/use your phone your affect your attention when walking?

My ears don't really affect my eyes, I can still look at other people.

16. Has it ever affected your safety?

No. I only use one side earphones when crossing.

17. Does your behaviour as a pedestrian change at night?

I pay more attention at night.

18. Do you still find yourself listening to music/using your phone/etc at night? Why

Yes. Because I'm still alone, and music can give me comfort.

19. If you're walking with friends, is their behaviour and cross decisions affected?

Yes.

Interview C.17: Lisa

1. Introduce yourself.

My name is Lisa, I'm currently a third year university student.

2. How do you get to work/university?

Walking and by train

3. How many minutes on average per day do you spend walking?

20 minutes

4. How many crossing facilities do you use per day on average?

2

5. At what time of day do you use these crossing facilities?

Morning and evening

6. Do you ever use these at night?

Yes

7. Of those crossings, how many would you consider busy?

1

8. Describe your experience walking while you're alone.

I listen to music with one earphone and sometimes talk on the phone or use my phone as a navigator. I'm extra careful and vigilant at night or in isolated areas.

9. Describe your experience walking while you're with your friends?

Usually I'm talking to friends and not on my phone while walking – unless one of us needs a navigator

10. What do you find yourself doing most when walking?

Listening to music and/or using a navigator on my phone

11. How do other people's behaviour affects your behaviour as a pedestrian?

I tend to follow the attitudes of the crowd.

12. How do you listen to your music (headphones, noise cancelling)?

With one earphone in and one out

13. Why do you choose to listen to music/use your phone/etc while walking?

Relaxes me

14. How does music affect your walking experience?

Makes it much more pleasant and less stressful

15. How does music affect your attention when walking?

With one earphone in and one out my attention is the same as usual.

16. Has it ever affected your safety?

No

17. Does your behaviour as a pedestrian change at night?

Yes. I'm more vigilant.

18. Do you still find yourself listening to music/using your phone/etc at night?

Yes but quieter

19. Why?

To make my walk less stressful

20. If you're walking with friends, is their behaviour and cross decisions affected?

We usually follow each other's lead by following the usual rules and looking out for each other.

Interview C.18: Ashley

1. Introduce yourself.

I'm a student at Sydney university, i'm 22.

2. How do you get to work/university?

I always take a train to central and then a bus. I spent around 20 minute on the train and 15 minute on the bus.

3. How many minutes on average per day do you spend walking?

About 40 minute to walk everyday. I walk to the bus stop and the train station.

4. How many crossing facilities do you use per day on average?

I can't recall the exact number, but actually a lot. Inside the uni, mostly zebra crossing, there are not many cars inside uni and the cars give away for pedestrians, it's actually safe. However, if it is on the street, there are many cars, I'll just have to press the button to cross.

5. At what time of day do you use these crossing facilities?

During the rushing hours mostly, it's always crowded.

6. Do you ever use these at night?

Sometimes, definitely less busy at night.

7. Of those crossings, how many would you consider busy?

I would say 2 crossings. Especially the one near central station. And the other one is the way close to my house, it's very busy all the time, many trucks.

8. Describe your experience walking while you're alone.

I usually put on my earphones which connects to my phone. I will focus when i'm at traffic lights, if it's green, I tried not to use my phone when passing.

9. Describe your experience walking while you're with your friends?

When I'm with friends, we just like talking without using phone, talk and walk, and we probably won't stop talking when it's at crosswalk, just going straight.

10. What do you find yourself when doing most when walking?

Using my phone and listen to music.

11. How do other people's behaviour affects your behaviour as a pedestrian?

Mostly I won't be affected, i'm in my world, I won't follow others behavior.

12. How do you listen to your music (headphones, noise cancelling)?

Airpod. I don't like noise cancelling, it's dangerous on the road.

13. Why do you choose to listen to music/use your phone/etc while walking?

Because I don't know what to do, I just try to entertain myself, otherwise I'm bored walking on the street alone doing nothing.

14. How does music affect your walking experience?

Sometimes. I might bump into someone, or bike which use the crossway, if so, I won't listen and be embarrassed.

15. Has it ever affected your safety?

Yes, but I don't care, because I never experienced a car accident. I think it's comparatively safe when I listen to music on the road, if i pay attention when crossing the road, it's safe.

16. Does your behaviour as a pedestrian change at night?

Not really

17. Do you still find yourself listening to music/using your phone/etc at night?

I just got less cautious, because of less cars, more music. I tend to jaywalk less cars.

18. If you're walking with friends, is their behaviour and cross decisions affected?

yes. listen to my friend.

Interview C.19: Zichen

1. Introduce yourself.

I'm currently a postgraduate. I'm 23 and I'm in business school.

2. How do you get to work/university?

Usually by train. It takes me 15 minutes.

3. How many minutes on average per day do you spend walking?

Half an hour.

4. How many crossing facilities do you use per day on average?

2-3

5. At what time of day do you use these crossing facilities?

In the late afternoon and at night.

6. Do you ever use these at night?

Yes, I use them at night.

7. Of those crossings, how many would you consider busy?

I think all of them are quite busy.

8. Describe your experience walking while you're alone.

I listen to music or sometimes radio to make me feel like I'm not alone.

9. Describe your experience walking while you're with your friends?

We just have chat about things when walking.

10. What do you find yourself when doing most when walking?

Listening to music and radio.

11. How do other people's behaviour affects your behaviour as a pedestrian?

I don't think other people's behavior will affect mine. I just do things my own and mind my own business on the street.

12. How do you listen to your music (headphones, noise cancelling)?

Yep, I got noise cancelling earphones, but I only put on one side when I am on the road.

13. Why do you choose to listen to music/use your phone/etc while walking?

Because I got no one to talk to, nothing to do, it's just boring. But I don't actually use phone when walking, it is too distracting.

14. How does music affect your walking experience?

Music will definitely affect my experience,

15. How does music your affect your attention when walking?

Music will definitely affect my attention especially when I have noise cancelling earphones, that's why I only put one side on to make sure I'm not completely lost in my own music.

16. Has it ever affected your safety?

I actually paid a lot of attention when I cross the road.

17. Does your behaviour as a pedestrian change at night?

Yep, I always pay more attention at night. In the morning, I follow people when they start crossing the road, but there are less people at night.

18. Do you still find yourself listening to music/using your phone/etc at night?

Yes, but I turn down music at night, it's less busy and less noisy. I guess it's safe when I only put on one earphone.

19. If you're walking with friends, is their behaviour and cross decisions affected?

Not exactly, we won't cross the road together.

Interview C.20: Sunny

1. Introduce yourself.

I'm a student at Sydney university, i'm 22.

2. How do you get to work/university?

I always take a train to central and then a bus. I spent around 20 minute on the train and 15 minute on the bus.

3. How many minutes on average per day do you spend walking?

About 40 minute to walk everyday. I walk to the bus stop and the train station.

4. How many crossing facilities do you use per day on average?

I can't recall the exact number, but actually a lot. Inside the uni, mostly zebra crossing, there are not many cars inside uni and the cars give away for pedestrians, it's actually safe. However, if it is on the street, there are many cars, I'll just have to press the button to cross.

5. At what time of day do you use these crossing facilities?

During the rushing hours mostly, it's always crowded.

6. Do you ever use these at night?

Sometimes, definitely less busy at night.

7. Of those crossings, how many would you consider busy?

I would say 2 crossings. Especially the one near central station. And the other one is the way close to my house, it's very busy all the time, many trucks.

8. Describe your experience walking while you're alone.

I usually put on my earphones which connects to my phone. I will focus when i'm at traffic lights, if it's green, I tried not to use my phone when passing.

9. Describe your experience walking while you're with your friends?

When I'm with friends, we just like talking without using phone, talk and walk, and we probably won't stop talking when it's at crosswalk, just going straight.

10. What do you find yourself when doing most when walking?

Using my phone and listen to music.

11. How do other people's behaviour affects your behaviour as a pedestrian?

Mostly I won't be affected, i'm in my world, I won't follow others behavior.

12. How do you listen to your music (headphones, noise cancelling)?

Airpod. I don't like noise cancelling, it's dangerous on the road.

13. Why do you choose to listen to music/use your phone/etc while walking?

Because I don't know what to do, I just try to entertain myself, otherwise I'm bored walking on the street alone doing nothing.

14. How does music affect your walking experience?

Sometimes. I might bump into someone, or bike which use the crossway, if so, I won't listen and be embarrassed.

15. Has it ever affected your safety?

Yes, but I don't care, because I never experienced a car accident. I think it's comparatively safe when I listen to music on the road, if I pay attention when crossing the road, it's safe.

16. Does your behaviour as a pedestrian change at night?

Not really

17. Do you still find yourself listening to music/using your phone/etc at night?

I just got less cautious, because of less cars, more music. I tend to jaywalk less cars.

18. If you're walking with friends, is their behaviour and cross decisions affected?

yes. listen to my friend.

Interview C.21: Annie C.

1. So can you briefly introduce yourself?

I'm a third-year student currently studying at the University of Sydney, and I'm 20 years old.

2. Can you describe the process of how you get to university?

Well, I guess from leaving my house, I either take the bus to the train station or drive to the train station depending on the day. Then I'll take the train, get off and walk to campus.

3. On average, how long would you say you walk to and from university each day?

Each day is different, but I'd say probably about 15-20 minutes.

4. During your walk, how many crossing facilities would you say you encounter and use? So these are zebra crossings, traffic lights, etc.

Um, probably just one or two?

5. What type are they? Traffic lights? Zebra crossings?

Both, traffic lights and zebra crossing.

- 6. What do you think is the difference between using a zebra crossing and traffic lights? Do you find that your behaviour differs for both?**
I guess if it's a zebra crossing then I'm usually more cautious, and I'll look both ways.
With traffic lights I just wait for my cue to cross and then go.
- 7. Usually when during the day do you use these facilities?**
Mostly during the afternoons, since I have classes later on in the day. Also when I'm coming back from work at night.
- 8. Okay then would you describe or consider these crossing facilities as busy or crowded with people?**
Not so much crowded, but there's definitely other people using it alongside me, so I'm usually not the only one crossing. So like, moderately busy I guess.
- 9. Can you describe what you do while walking?**
Hmmm, usually I'm just listening to music, and focusing on crossing the road, and then going on my phone.
- 10. So do you tend to stop looking at your phone when crossing?**
Yes if I have to cross then I'll stop using it.
- 11. What do you use to listen to music?**
Just regular apple earphones, the wired ones, with my volume about half up.
- 12. Why do you choose to listen to music while walking?**
Well simply because I enjoy listening while I walk. It's just something to occupy my mind on the way to school or work.
- 13. Would you say that listening to music affects your walking experience in any way?**
Yea it improves my walking because I walk on beat haha. It's simply background music to me so I wouldn't say it affects me too much, but when I have the volume up too high I sometimes tend to miss my cue to cross.
- 14. And has missing the cue to cross ever put you in danger?**
Hmm, close I'd say. Because there have been times where I've stepped out to cross but it wasn't actually my turn to cross. I thought the light had turned green but it was actually for the light next to me, going in the perpendicular direction.
- 15. So were you looking at your phone? How did you not realise that your light was still red?**
Yes during those times I was looking at my phone. So I'd be looking at my phone, take one step out, look up, and realise that my light was still red.
- 16. Do you listen to music even when walking back at night after work?**
Yea I do.
- 17. For the same reasons, to occupy your mind and simply because you want to listen to music?**
Yea pretty much. Though I feel like I probably shouldn't since I should be more aware of my surroundings, since it's more scary at night.
- 18. So you think that listening to music at night impairs your awareness even more?**
Yes, because I feel that I should focus more since it's night, cause there's less people around so it feels dangerous.
- 19. Okay so you feel that it's dangerous, but you still choose to continue listening to music at night when walking back?**
Yea pretty much haha.
- 20. Okay then, do you often walk or commute with other people?**
Do you mean friends or strangers? Because if friends, then no not really, just by myself.
- 21. Then when walking with strangers, do you ever find that their behaviour also affects your walking behaviour and decisions to cross?**

Hmm, it depends if I'm in a rush or not. If I'm in a rush and see a bunch of other people crossing, then I'll cross as well, when the light hasn't turned green yet. But if not then I'll mostly wait, even if I'm in a hurry.

22. Why is that?

Well mainly because I don't want to be the first one to do it, since it's usually like, if one person crosses then the rest follows. If one person thinks it's safe to cross when the light is red then I'll follow their suit and cross too. But if no one else is crossing then I assume that means it's not safe.

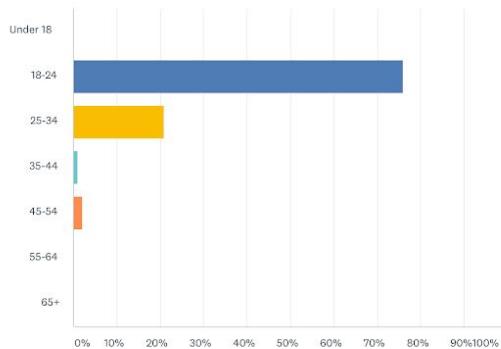
Appendix D: Survey Results

Page 1

Q1

How old are you?

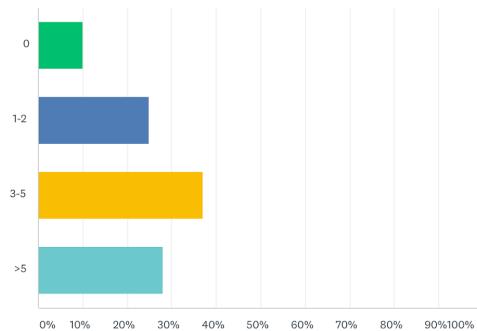
Answered: 100 Skipped: 0



Q3

How many crossing facilities do you use per day? (eg. traffic lights, zebra crossings, etc)

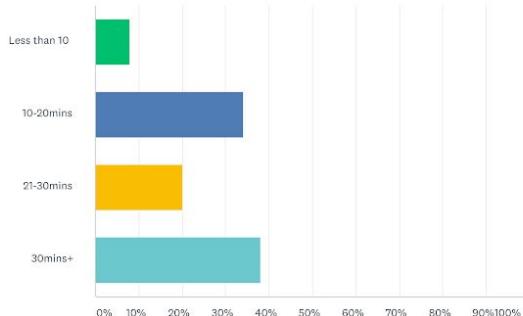
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Q2

On average how often do you walk per day?

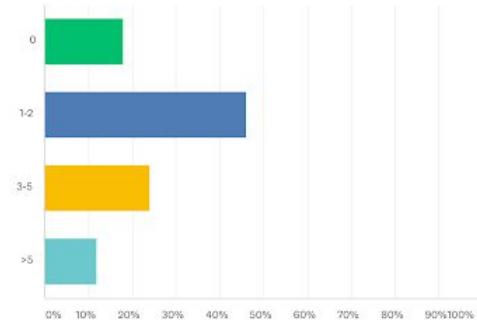
Answered: 100 Skipped: 0



Q4

How many of those crossing facilities would you consider busy?

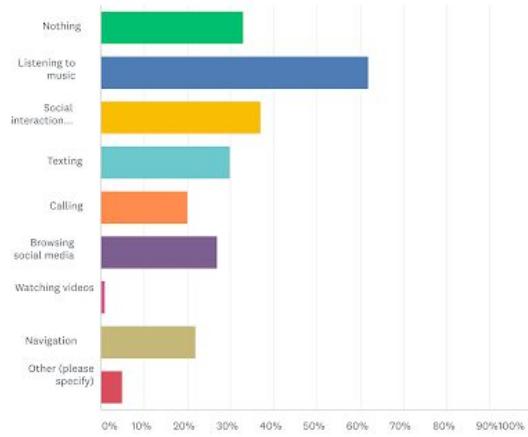
Answered: 100 Skipped: 0



Q5

Which of these do you regularly do while crossing the road?

Answered: 100 Skipped: 0



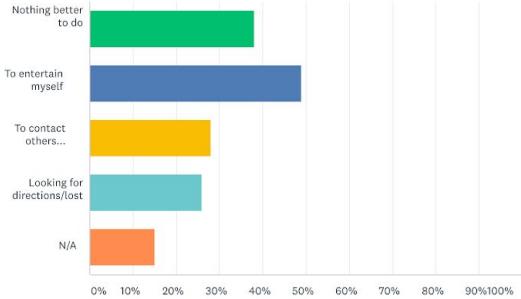
ANSWER CHOICES	RESPONSES
Nothing	33.00% 33
Listening to music	62.00% 62
Social interaction (talking to others face to face)	37.00% 37
Texting	30.00% 30
Calling	20.00% 20
Browsing social media	27.00% 27
Watching videos	1.00% 1
Navigation	22.00% 22
Other (please specify)	Responses 5.00% 5

RESPONSES (5)	WORD CLOUD	TAGS (0)	Sentiments: OFF
<input type="checkbox"/> Add tags <input type="checkbox"/> Filter by tag	<input type="text"/> Search responses <input type="button"/>		
<hr/>			
<input type="checkbox"/> checking bus/train schedules			View respondent's answers Add tags
8/15/2019 12:11 AM			
<input type="checkbox"/> Watch the road and cars.			View respondent's answers Add tags
8/14/2019 10:47 PM			
<input type="checkbox"/> Looking out for traffic and the lights.			View respondent's answers Add tags
8/14/2019 9:50 PM			
<input type="checkbox"/> If looking at phone and texting or selecting music I stop and look up specifically while crossing.			View respondent's answers Add tags
8/14/2019 5:56 AM			
<input type="checkbox"/> miss gf			
<hr/>			

Q6

Why do you do this while crossing the road?

Answered: 100 Skipped: 0



ANSWER CHOICES	RESPONSES
Nothing better to do	38.00% 38
To entertain myself	49.00% 49
To contact others (calling/texting)	28.00% 28
Looking for directions/lost	26.00% 26
N/A	15.00% 15

Total Respondents: 100

Comments (7)

RESPONSES (7) WORD CLOUD TAGS (0)

Sentiments: OFF

Add tags Filter by tag

Search responses

Showing 7 responses

Update people on my location and making myself look busy so people won't approach me.

8/15/2019 5:16 AM

[View respondent's answers](#) [Add tags](#)

It's too dangerous to cross when distracted

8/15/2019 4:02 AM

[View respondent's answers](#) [Add tags](#)

Keep my eye on the road. Dodgy drivers are everywhere. Have been almost run over multiple times due to careless drivers.

8/14/2019 10:47 PM

[View respondent's answers](#) [Add tags](#)

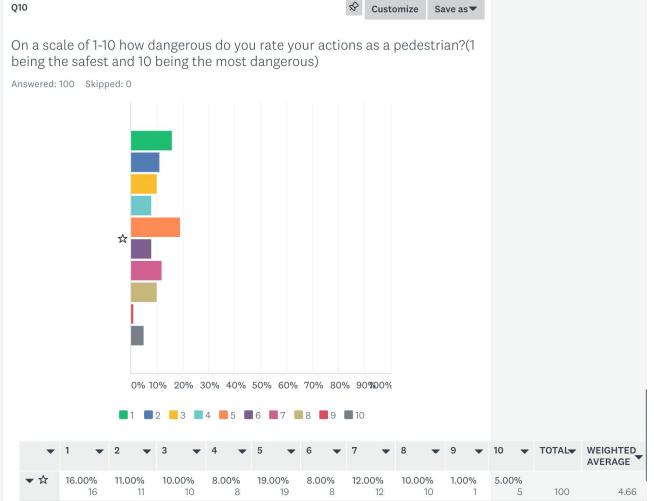
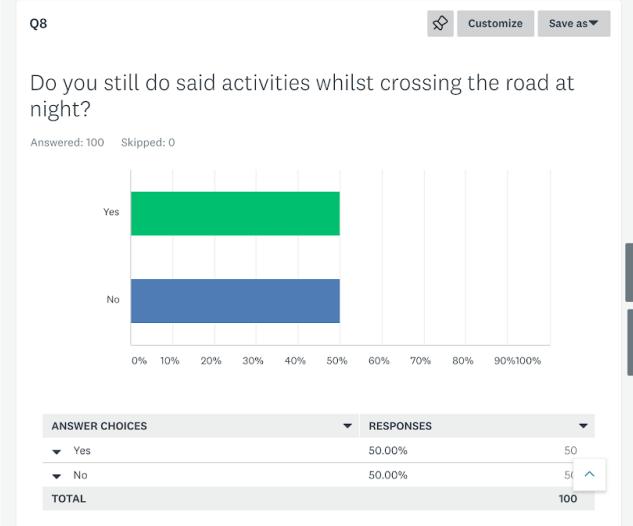
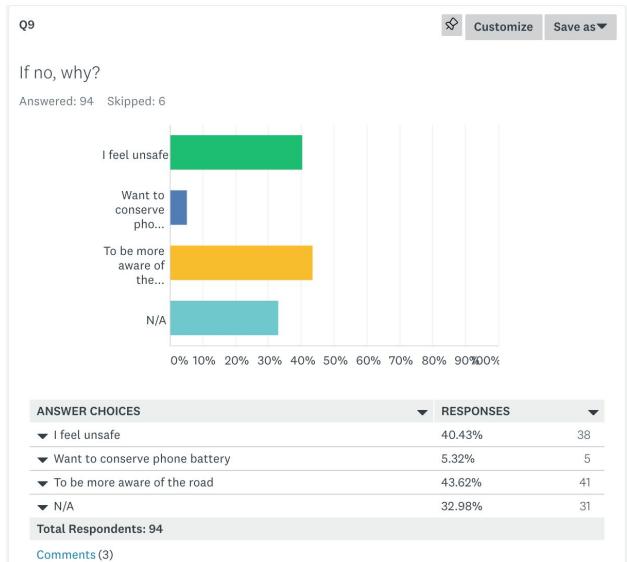
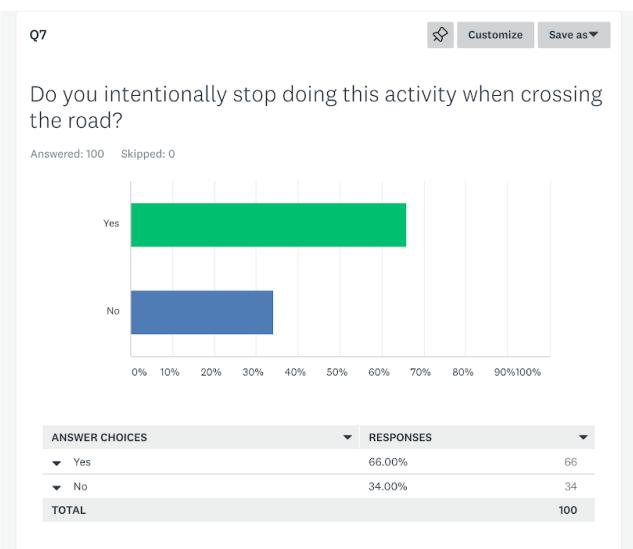
To be aware of my surroundings and personal safety

8/14/2019 9:50 PM

[View respondent's answers](#) [Add tags](#)

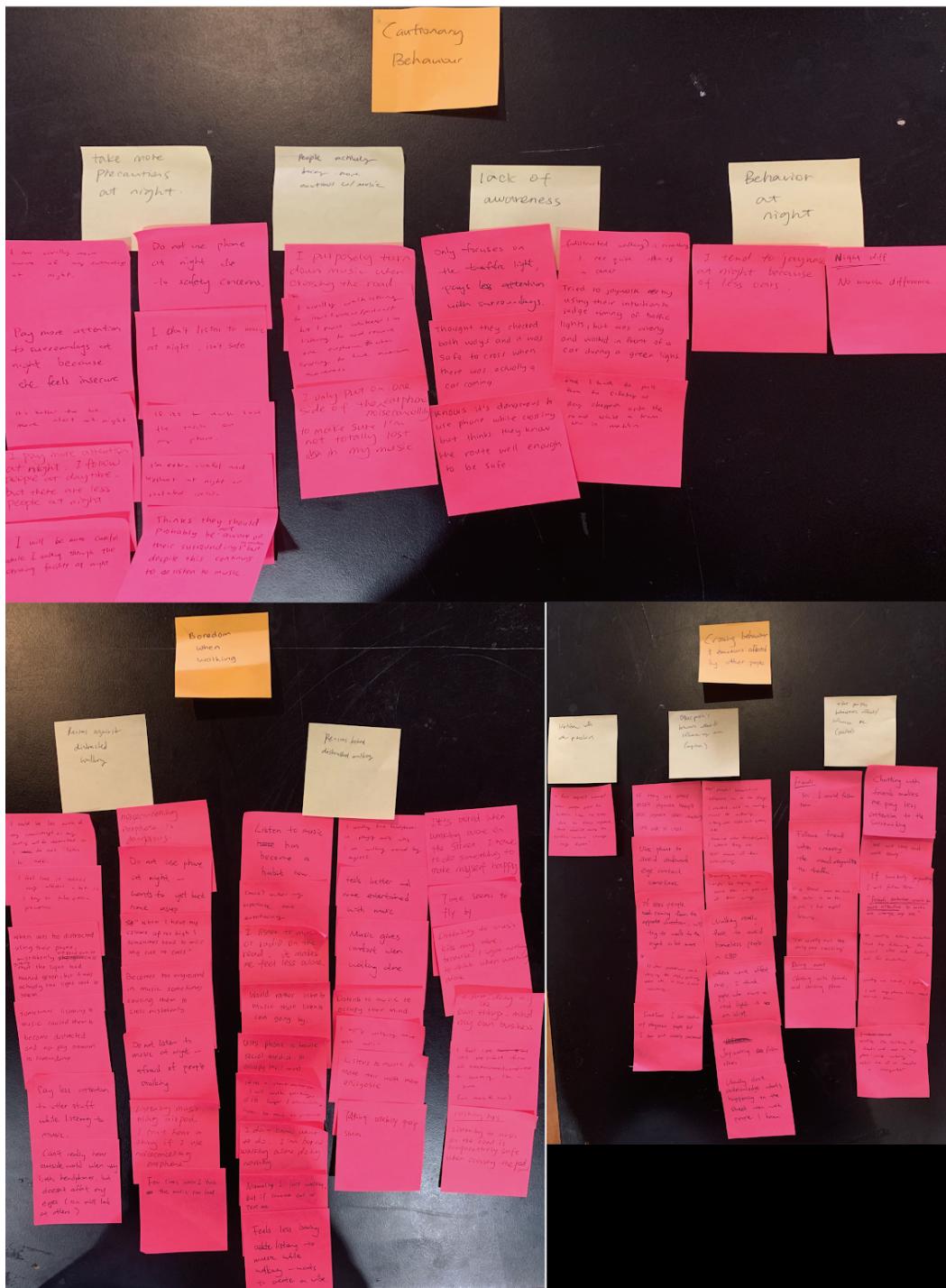
Too lazy to take headphones out

Total Respondents: 100



Appendix E: Affinity Diagram

Affinity Diagram



Appendix A: SWOT Analysis

SWOT Analysis A.1: Light the Way



SWOT Analysis A.2: Borealis

- Buttons are fun and intuitive to use
- Allows for personalised engagement through different buttons and light combinations
- Does not distract drivers' attention
- Serves dual purpose as bollards even without interactive aspect for pedestrians

S

STRENGTHS

W

WEAKNESSES

- Limited direct participants
- Interactions are very one dimensional
- Drawing patterns are lack of variety

O

OPPORTUNITIES

T

THREATS

- Could replace existing traffic bollards stationed at crossing areas

- Weather Conditions (Corrosion)
- Visibility in terms of the strength of light in different conditions

SWOT Analysis A.3: STREETIVITY

- Encourage collaborations with multiple participants
- An easy method of interaction through scanning QR codes
- Community Engagement
- Drawings and interactions are personalised and varied based on each user

S

STRENGTHS

- Requires a smartphone with internet access
- The web server must be managed and maintained to allow others to successfully interact
- Cost of hardware (for a large screen)
- Phone use may accidentally encourage lack of awareness

W

WEAKNESSES

- Easy to participate and reaches a wide audience since many pedestrians use their phones a lot
- Widely accepted use of QR code technology enables easy access

O

OPPORTUNITIES

- Inappropriate language/drawings
- Weather conditions (rain makes it difficult to draw on the phone)
- Participation relies on internet providers (e.g. Telstra, Optus, etc) to not crash.

T

THREATS

SWOT Analysis A.4: Lightline

- Unique interactions through voice
- The continual interaction creates an interesting and engaging “adventure”.
- Interesting visual (pay-phone shape) draws attention.
- Further engagement through randomisation of the generated pattern

S

STRENGTHS

- Might cause confusion between the roulette and the microphone use if the instruction isn't clear enough
- Projector visuals are not very strong, especially during day-time
- Direct interaction limits to one pedestrian at a time

W

WEAKNESSES

- Interactions could be easy to understand with voice input and recognition becoming more common
- Using voice as a form of interaction is unique to pedestrian experiences

O

OPPORTUNITIES

- Noise complaints at night
- Weather can affect visibility of the projection
- Possible obstruction of the projection due to crowds

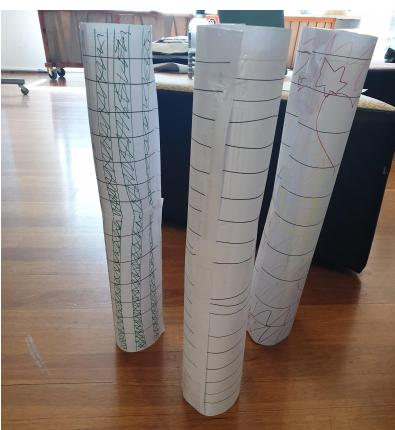
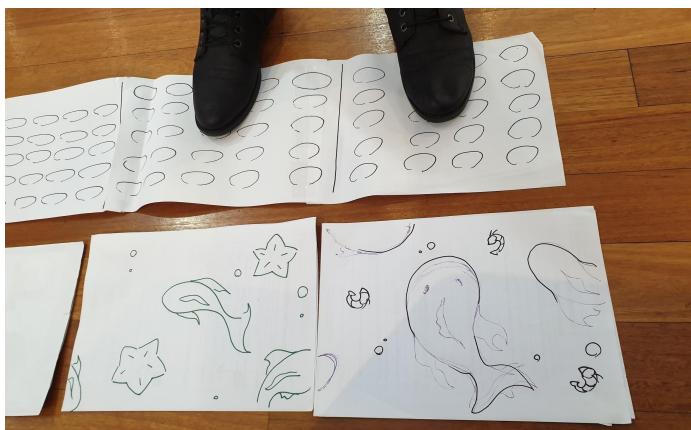
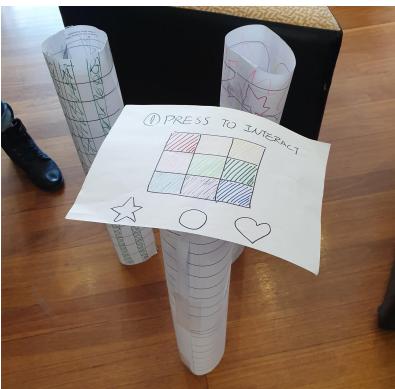
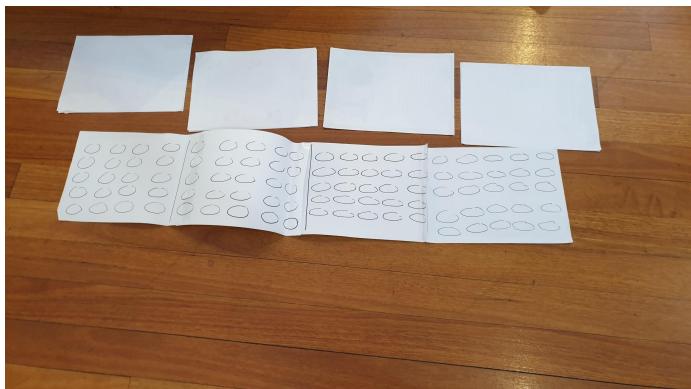
T

THREATS

Appendix B: Decision Matrix

Criteria	Weight (1-5)	Light the way	Borealis	Streetivity	Lightline
Is it effective in creating engagement?	5	3	1	1	3
How fun is the interaction?	5	1	1	1	1
How cheap is it? (COST)	5	0	1	1	0
How easy is its accessibility?	3	2	2	1	1
How immersive is it?	5	1	1	2	1
Is the interaction easy to understand?	5	3	3	2	2
Can it be easily implemented in the current environment?	3	0	1	2	2
How aesthetically pleasing is it?	2	3	2	2	3
Durability	3	1	1	3	1
Does it take less space?	1	1	2	1	1
		56	53	58	54

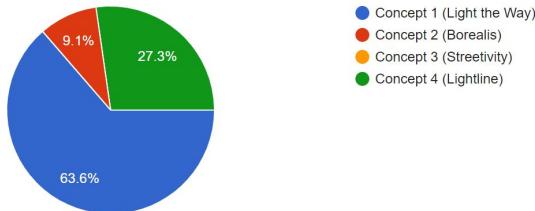
Appendix C: Paper Prototypes



Appendix D: Paper Prototype Survey Results

Which concept do you like the best?

11 responses



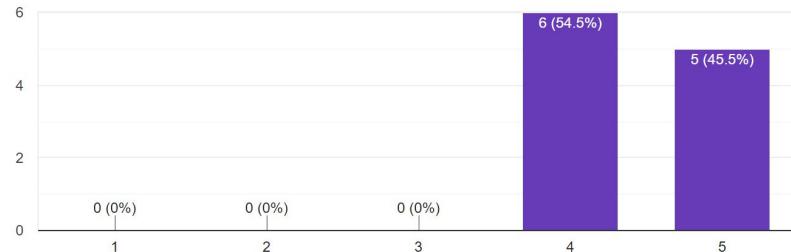
Why?

11 responses

- I like the changes of picture
- I like the aesthetics of it
- The wave sound is really interesting. The change of formation is attractive and can help wait more times. The interaction is also good (even i don't really like to interact, it is fun to watch others interact) lol
- Let the users to interact with the product. With enough interaction.
- since it seems like a dance machine, I love dance machine. It can help to exercise.
- very cool. awesome.
- I really like the idea of a public phone ringing to grab attention. I feel like this would be very effective in pulling me out of my everyday routine and into using the product.
- It was very simple and intuitive. I think it also doesn't interrupt what you're trying to do.
- flexibility of duration.
- I think the first concept can easily grab the pedestrians' attention. It can also allow all the pedestrians to be engaged within the activity.
- It can catch up the attention of passengers very immediately, and the alerting affect is beneficial to the public

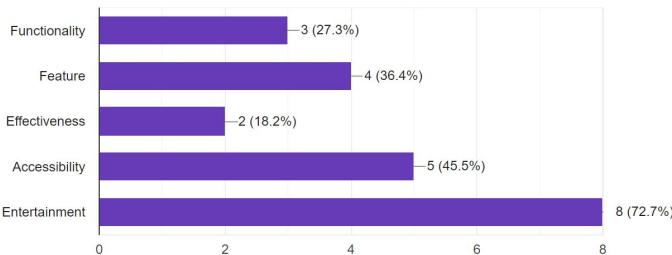
How likely would you use this design when you are at the crossing?

11 responses



Which part of this concept attracts you the most?

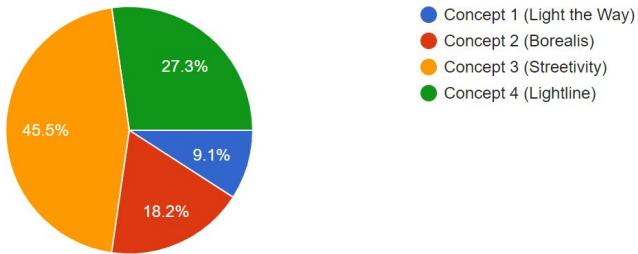
11 responses



Appendix D: Paper Prototype Survey Results

Which concept do you think it's the worst?

11 responses



Why?

11 responses

Too simple, Drawing picture is boring

Only one person can play each time

All concepts are good, but concept involve bit more on phone uses. (imaging if you are using a phone while waiting, you can do a lot more things than interacting with the traffic light

If there are lots of people waiting in the crossing road, no one can pay attention on the change of ground.

It will be hard to understand by the user since they have to learn a lot to know how to use it.

Because I think that picking up phone is so complicated for me, I wont go to pick the phone when I see this

Compared to the other concepts, this one seems to be the least engaging/least likely to grab my attention.

This one requires a lot of effort. You need to whip out your phone to participate in this. What if I was busy and doing other things on my phone? I will feel very unlikely to change what I'm doing.

Only one interaction specific to one user

this concept involved the scanning of QR code which i think is too complicated and quite difficult to get the pedestrians to engage.

It's a bit awkward to draw together with others, and it doesn't withdraw people's attention from mobile phone

Do you have any suggestions for future improvement?(can be concept of your choice)

11 responses

Too hard to achieve (concept 1)

I think it will be better to allow multiple user to play each time (concept 2), like how the other one let everyone draw and play together

The QR Scanning could add more functionalities, it is really fun, but a little bit single-tone.

For the concept 4, give a topic for the users to chat with others.

For the first idea, it is great but the screen can be more attractive. The last one can be simplified to just make the call to make some changes.

4.lightline. hygiene is big problem, because of most of people will touch it, and the phone will have a contact with your skin, it is really hard to keep the staff clean.

Would love to see more interaction with the phone concept! I think there's a lot of potential there.

Concept 4 seems really fun. But it seems to be something that can be vandalised. Someone can take it away or press on it repeatedly and get it broken.

A interactive visualisation is a fun way to invest extremely short time.

can use recyclable staff to design the images to highlight the concept of environmental protection

I reckon accessibility and functionality are more important than entertainment.

Appendix E: Light the Way Paper Prototype Think Aloud and Observations

Think Aloud & Observations E.1: Cindy

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	They seem a bit intrigued but also slightly confused with the overwhelming explanations.
When they approach it	Confused Intrigued Neutral Bored Excited	They seem more interested as they begin to understand and approach it.
When they interact with it	Confused Intrigued Neutral Bored Excited	"Oh I see, that makes sense".
After using it	Confused Intrigued Neutral Bored Excited	"It looks interesting, I think it would be cool if it works."

Think Aloud & Observations E.2: Eric

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Seems to not fully get what it is at first.
When they approach it	Confused Intrigued Neutral Bored Excited	After explanations are given, wants to interact with it. "Do I just step on this?"
When they interact with it	Confused Intrigued Neutral Bored Excited	Understands more as they begin to interact with it. "Ah I get it now".
After using it	Confused Intrigued Neutral Bored Excited	"I think I saw something like this somewhere."

Think Aloud & Observations E.3: Rose

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Has no interest or disinterest as they listen to explanation.
When they approach it	Confused Intrigued Neutral Bored Excited	"Okay I got it."
When they interact with it	Confused Intrigued Neutral Bored Excited	Understands more as they begin to interact with it. "Oh so when I step on it the animation appears? That's cool."
After using it	Confused Intrigued Neutral Bored Excited	"It would be cool if you could make this actually work."

Think Aloud & Observations E.4: Hanchi

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	When they see it they don't really know what it is.
When they approach it	Confused Intrigued Neutral Bored Excited	"So if I step on this, something will appear?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"I see now." "But if two people step on one, will it make two things appear? Or just one?"
After using it	Confused Intrigued Neutral Bored Excited	"What happens if there's heaps of people?" "Will it work when there are lots of people?"

Think Aloud & Observations E.5: Miao

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Is interested at first.
When they approach it	Confused Intrigued Neutral Bored Excited	"At first, I didn't really get it when you were explaining."
When they interact with it	Confused Intrigued Neutral Bored Excited	Seems to understand more as they interact and explanations are given.
After using it	Confused Intrigued Neutral Bored Excited	"That seems cool."

Think Aloud & Observations E.6: Zhuo

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	They don't have any particular response, almost disinterested.
When they approach it	Confused Intrigued Neutral Bored Excited	"Is this at the edge of the crossing? Or on the road?"
When they interact with it	Confused Intrigued Neutral Bored Excited	When more explanations are given starts to understand. "Ah I get it now, so it reacts to my feet."
After using it	Confused Intrigued Neutral Bored Excited	"I like the designs and if it lights up it will be really cool."

Think Aloud & Observations E.7: Richard

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	At first, doesn't seem to have much reaction.
When they approach it	Confused Intrigued Neutral Bored Excited	"So where is the road?" "Is this on the road?"
When they interact with it	Confused Intrigued Neutral Bored Excited	Continually tries to step on all the panels. "If I step on it more than once, will it react to me more than once?"
After using it	Confused Intrigued Neutral Bored Excited	"I like how it's on the floor, so if I'm looking down or on my phone then I can see it easily."

Think Aloud & Observations E.8: Kinson

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	At first, doesn't seem to have much reaction.
When they approach it	Confused Intrigued Neutral Bored Excited	Has no comments to give.
When they interact with it	Confused Intrigued Neutral Bored Excited	"I like how I can easily use my feet to interact."
After using it	Confused Intrigued Neutral Bored Excited	"That's cool."

Think Aloud & Observations E.9: Ben

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Is neutral while listening to explanations.
When they approach it	Confused Intrigued Neutral Bored Excited	"Would this be on the road?" "Wouldn't it affect the cars?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"So if there's more than one person, how does that work?" "Does jumping or stepping on it more than once affect the animations?"
After using it	Confused Intrigued Neutral Bored Excited	"Is this for improving accessibility?" "I get it, but I don't really see how it will stop pedestrians."

Think Aloud & Observations E.10: Jan

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Has no interest or disinterest as they listen to explanation.
When they approach it	Confused Intrigued Neutral Bored Excited	Seems interested but cautiously tries to step on it. "Do I just step on this bit?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"Oh I see, I think this would be cool." "Does the timer come on all the time or just when it's not being used?"
After using it	Confused Intrigued Neutral Bored Excited	Seems to easily understand. "This is good because all I have to do is step on it."

Think Aloud & Observations E.11: Mary

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Has no interest or disinterest as they listen to explanation.
When they approach it	Confused Intrigued Neutral Bored Excited	Has no comments to give.
When they interact with it	Confused Intrigued Neutral Bored Excited	<i>"The designs are cool, I like the fish."</i>
After using it	Confused Intrigued Neutral Bored Excited	<i>"Aesthetically I like it a lot."</i> <i>"I think it would catch my attention if it were in real life."</i>

Appendix F: Borealis Paper Prototype Think Aloud and Observations

Think Aloud & Observations F.1: Cindy

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Did not seem to be attracted by the prototype compared to the previous light the way.
When they approach it	Confused Intrigued Neutral Bored Excited	"What are these poles?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"What would appear after I press the buttons?"
After using it	Confused Intrigued Neutral Bored Excited	Did not give any comments or ask any questions and moved on to the next one quickly.

Think Aloud & Observations F.2: Eric

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Keen to find out what this prototype actually does.
When they approach it	Confused Intrigued Neutral Bored Excited	Was reading the instructions on the panel
When they interact with it	Confused Intrigued Neutral Bored Excited	"I pressed one colour, and another, will they both show on the pole? How will it be shown tho?"
After using it	Confused Intrigued Neutral Bored Excited	"I felt like it was just pressing buttons... I don't know what the visualisation would be exactly."

Think Aloud & Observations F.3: Rose

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Seem to understood how it worked
When they approach it	Confused Intrigued Neutral Bored Excited	Questioned how to use the control panel why were there three poles for demonstration.
When they interact with it	Confused Intrigued Neutral Bored Excited	"How many buttons can I press at the same time?"
After using it	Confused Intrigued Neutral Bored Excited	"This concept is pretty simple." Did not look too engaged by it.

Think Aloud & Observations F.4: Hanchi

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Asked a couple more questions before approaching
When they approach it	Confused Intrigued Neutral Bored Excited	Could not understand that the paper was mimicking the control panel on top of the pole
When they interact with it	Confused Intrigued Neutral Bored Excited	Scratched hair, frown "Does this only show the colour? I can't tell if it shows other patterns or not."
After using it	Confused Intrigued Neutral Bored Excited	Did not give any comments but seemed to understand the concept

Think Aloud & Observations F.5: Miao

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Understood the concept with calm facial expression.
When they approach it	Confused Intrigued Neutral Bored Excited	Waited for instructions, didn't seem too keen to explore until told by the instructors.
When they interact with it	Confused Intrigued Neutral Bored Excited	"Okay I just press the buttons, pretty easy."
After using it	Confused Intrigued Neutral Bored Excited	"I don't like this one, the last one is better."

Think Aloud & Observations F.6: Zhus

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Wanted to explore.
When they approach it	Confused Intrigued Neutral Bored Excited	"Let's see what's the difference."
When they interact with it	Confused Intrigued Neutral Bored Excited	Tired to press different buttons several times.
After using it	Confused Intrigued Neutral Bored Excited	Disappointed with the interaction.

Think Aloud & Observations F.7: Richard

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Noded
When they approach it	Confused Intrigued Neutral Bored Excited	The facial expressions were neutral.
When they interact with it	Confused Intrigued Neutral Bored Excited	Pressed the buttons but asked "I can't imagine what visuals it would appear on the this (pole)."
After using it	Confused Intrigued Neutral Bored Excited	Didn't go into exploring the details of the concept.

Think Aloud & Observations F.8: Kinson

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Looking forward to trying out the new concept.
When they approach it	Confused Intrigued Neutral Bored Excited	Seemed curious of what this concept could do, wanted to try out.
When they interact with it	Confused Intrigued Neutral Bored Excited	"Oh cool! I'd be better if I could see what's going on when I press multiple buttons, but I sort of get what this does."
After using it	Confused Intrigued Neutral Bored Excited	"It's actually pretty interesting, looked like the rubbish bin idea I saw on vivid."

Think Aloud & Observations F.9: Ben

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	"Okay so these are just poles with LED lights right?"
When they approach it	Confused Intrigued Neutral Bored Excited	Knew which was the control panel and wanted to try out the interactions.
When they interact with it	Confused Intrigued Neutral Bored Excited	"How many buttons can I press at the same time? Only two max?"
After using it	Confused Intrigued Neutral Bored Excited	"Pretty straightforward for me, you just press buttons. But I'm not sure if I would use this multiple times unless the visuals are generative or different each time I encounter it on different crossings."

Think Aloud & Observations F.10: Jan

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	"What do you mean by borealis, just colourful images on the poles?"
When they approach it	Confused Intrigued Neutral Bored Excited	"Okay I see three poles right there."
When they interact with it	Confused Intrigued Neutral Bored Excited	"Isn't the screen attached to the pole or not?"
After using it	Confused Intrigued Neutral Bored Excited	"Alright cool." Did not give extra comments just moved to the next one.

Think Aloud & Observations F.11: Mary

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Looked at the poles and nodded.
When they approach it	Confused Intrigued Neutral Bored Excited	Pointed at the poles and walked towards it. Neutral facial expression.
When they interact with it	Confused Intrigued Neutral Bored Excited	"Would the visuals be upgraded?" "Are these patterns or just colours? Are they generative or not?"
After using it	Confused Intrigued Neutral Bored Excited	"This one is not bad, but I think animation would be slightly more interesting."

Appendix G: STREETIVITY Paper Prototype Think Aloud and Observations

Think Aloud & Observations G.1: Cindy

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Got the idea that the paper represented their phones.
When they approach it	Confused Intrigued Neutral Bored Excited	Did not see the "big screen" at first, the instructor had to remind her.
When they interact with it	Confused Intrigued Neutral Bored Excited	"Wait how many people can draw together?" Flipped through the different paper representing different patterns a couple of times.
After using it	Confused Intrigued Neutral Bored Excited	"I'd like to draw to kill time sounds good to me."

Think Aloud & Observations G.2: Eric

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	"How does it work at the same time?" "Is this like a bus stop billboard kind of screen?"
When they approach it	Confused Intrigued Neutral Bored Excited	Got the idea that the drawings would appear simultaneously on the phone and screen.
When they interact with it	Confused Intrigued Neutral Bored Excited	"It's just drawing on my own phone right."
After using it	Confused Intrigued Neutral Bored Excited	"Umm I feel like if I'm already on my phone I wouldn't bother to scan the QR code I would just continue whatever I'm doing on my phone."

Think Aloud & Observations G.3: Rose

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	"Drawing sounds fun to me!"
When they approach it	Confused Intrigued Neutral Bored Excited	"Let's tried this out?" Smiled a bit.
When they interact with it	Confused Intrigued Neutral Bored Excited	"Oh cool so I can draw with my friends at the same time, right?"
After using it	Confused Intrigued Neutral Bored Excited	Seemed to like the idea of creativity.

Think Aloud & Observations G.4: Hanchi

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Understood the idea briefly
When they approach it	Confused Intrigued Neutral Bored Excited	"Which represents what?" Confused with the phone screen and the big screen in form of a paper version.
When they interact with it	Confused Intrigued Neutral Bored Excited	"I suck at drawing I don't want to embarrass myself but the idea of collaboration is still interesting."
After using it	Confused Intrigued Neutral Bored Excited	"I don't like the QR code it takes too long to scan."

Think Aloud & Observations G.5: Miao

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Asked if there would be enough time to draw anything since the waiting time at the crossings is short.
When they approach it	Confused Intrigued Neutral Bored Excited	Neutral facial expressions.
When they interact with it	Confused Intrigued Neutral Bored Excited	Just nodded and flipped the pages.
After using it	Confused Intrigued Neutral Bored Excited	"Would other people write random inappropriate things?"

Think Aloud & Observations G.6: Zhuo

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	"Drawing isn't my best interest..."
When they approach it	Confused Intrigued Neutral Bored Excited	Picked the paper phone up but put down quickly.
When they interact with it	Confused Intrigued Neutral Bored Excited	"Are we only able to draw patterns?"
After using it	Confused Intrigued Neutral Bored Excited	Did not give extra comments and moved onto the next one.

Think Aloud & Observations G.7: Richard

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	"Okay got it."
When they approach it	Confused Intrigued Neutral Bored Excited	"What do these pictures (represent)?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"Are there different brush tools for the final concept?"
After using it	Confused Intrigued Neutral Bored Excited	"From what I've seen so far it required too much effort for me to draw."

Think Aloud & Observations G.8: Kinson

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	"What do you mean by generative patterns?"
When they approach it	Confused Intrigued Neutral Bored Excited	Seems intrigued by the paper prototypes and phones given.
When they interact with it	Confused Intrigued Neutral Bored Excited	"Concept wise I understand, but it seems not as interactive as the others"
After using it	Confused Intrigued Neutral Bored Excited	"It seems interesting but I just think scanning QR code can be bothersome."

Think Aloud & Observations G.9: Ben

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	"So will this be at a bus stop? Or on the traffic light?"
When they approach it	Confused Intrigued Neutral Bored Excited	Has no particular reaction as the paper prototype has the designs already drawn on.
When they interact with it	Confused Intrigued Neutral Bored Excited	"I like how other people can use it at the same time, that's interesting."
After using it	Confused Intrigued Neutral Bored Excited	"But then doesn't that mean people can draw inappropriate stuff?"

Think Aloud & Observations G.10: Jan

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	"What are these squiggles?"
When they approach it	Confused Intrigued Neutral Bored Excited	"So do I just use my phone to scan the QR code?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"Where will the QR code be?"
After using it	Confused Intrigued Neutral Bored Excited	"I think it's an interesting idea, especially being able to see your drawings on the big screen."

Think Aloud & Observations G.11: Mary

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Seems to have no particular reaction.
When they approach it	Confused Intrigued Neutral Bored Excited	"What if I can't scan the QR code?"
When they interact with it	Confused Intrigued Neutral Bored Excited	Seems a bit hesitant as they pretend to draw on the paper phone.
After using it	Confused Intrigued Neutral Bored Excited	"I like the drawing aspect, but I'm not sure how long I'd use it for."

Appendix H: Lightline Paper Prototype Think Aloud and Observations

Think Aloud & Observations H.1: Cindy

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Seems a bit overwhelmed as explanations are given.
When they approach it	Confused Intrigued Neutral Bored Excited	"Wait so what do I do first?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"I like the idea of my voice being shown as sound waves."
After using it	Confused Intrigued Neutral Bored Excited	"I do think it's cool, but the first few steps were really confusing at first."

Think Aloud & Observations H.2: Eric

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	"Why is it a phone?"
When they approach it	Confused Intrigued Neutral Bored Excited	"Do I just speak into it?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"So can you hear anything from the phone?"
After using it	Confused Intrigued Neutral Bored Excited	"It's a lot of steps, but I like the voice thing."

Think Aloud & Observations H.3: Rose

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Has no particular reaction.
When they approach it	Confused Intrigued Neutral Bored Excited	Tries to speak into the phone first instead of pressing the button.
When they interact with it	Confused Intrigued Neutral Bored Excited	Tries to speak into the phone correctly this time.
After using it	Confused Intrigued Neutral Bored Excited	"Will there be music playing when I use it?"

Think Aloud & Observations H.4: Hanchi

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Has no particular reaction.
When they approach it	Confused Intrigued Neutral Bored Excited	"Will there be music playing out loud?"
When they interact with it	Confused Intrigued Neutral Bored Excited	Pretends to speak into the phone.
After using it	Confused Intrigued Neutral Bored Excited	"I think I'll be embarrassed to use it if everyone is looking at me."

Think Aloud & Observations H.5: Miao

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	"Why is it a payphone though?"
When they approach it	Confused Intrigued Neutral Bored Excited	"Is the roulette a digital screen or a real thing?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"I think the voice and designs are cool."
After using it	Confused Intrigued Neutral Bored Excited	"What if everyone starts screaming on the street though?"

Think Aloud & Observations H.6: Zhuo

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Seems to have not much reaction.
When they approach it	Confused Intrigued Neutral Bored Excited	"Where will the projection be coming from?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"So I have to look at the floor to see it?"
After using it	Confused Intrigued Neutral Bored Excited	"I think it's interesting, I like seeing my voice."

Think Aloud & Observations H.7: Richard

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Seems to be tired, since it's the last concept.
When they approach it	Confused Intrigued Neutral Bored Excited	"Can you see the projection during the day though?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"Where will the phone be connected to?"
After using it	Confused Intrigued Neutral Bored Excited	"So only one person at a time can use it right?"

Think Aloud & Observations H.8: Kinson

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	"But where will the phone be?"
When they approach it	Confused Intrigued Neutral Bored Excited	"Do I have to press the button to speak?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"I just speak into this phone right?"
After using it	Confused Intrigued Neutral Bored Excited	"It'll be even better if you could add music playing from a speaker as well."

Think Aloud & Observations H.9: Ben

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	"Is the projector on the traffic light?"
When they approach it	Confused Intrigued Neutral Bored Excited	"If the phone is connected via wire, then that's going to get stolen straight away."
When they interact with it	Confused Intrigued Neutral Bored Excited	Tries to speak into the phone.
After using it	Confused Intrigued Neutral Bored Excited	"It's a lot of steps to remember, I think I forgot already."

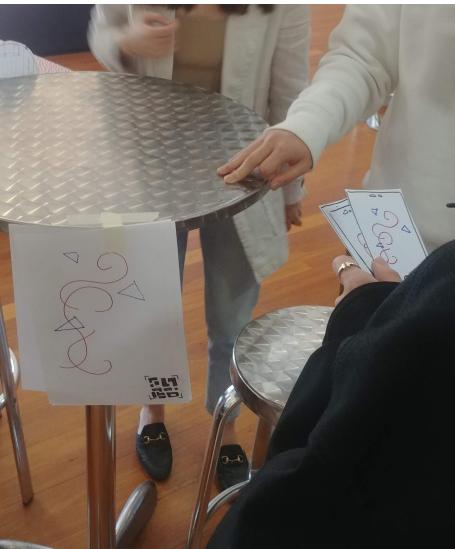
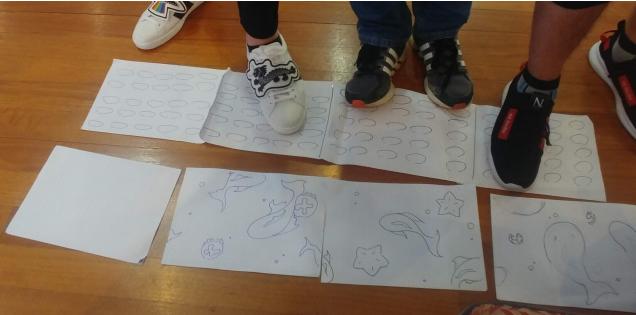
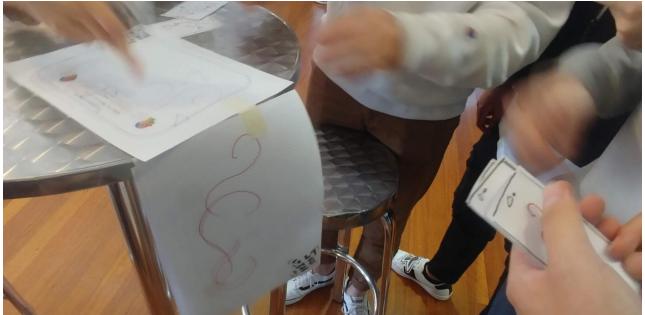
Think Aloud & Observations H.10: Jan

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Seems neutral in reaction.
When they approach it	Confused Intrigued Neutral Bored Excited	"I just pick up the phone right?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"I'm just wondering what if everyone starts screaming at it."
After using it	Confused Intrigued Neutral Bored Excited	"It'll be cool if I could like speak according to music."

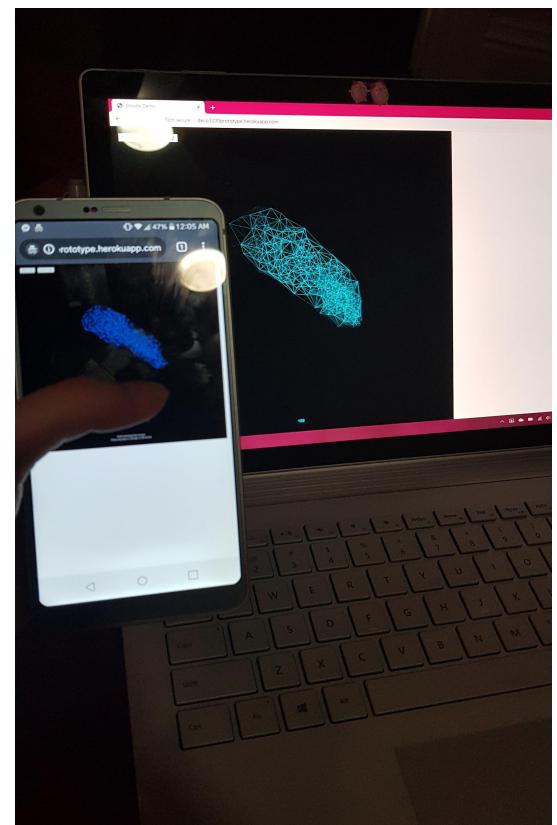
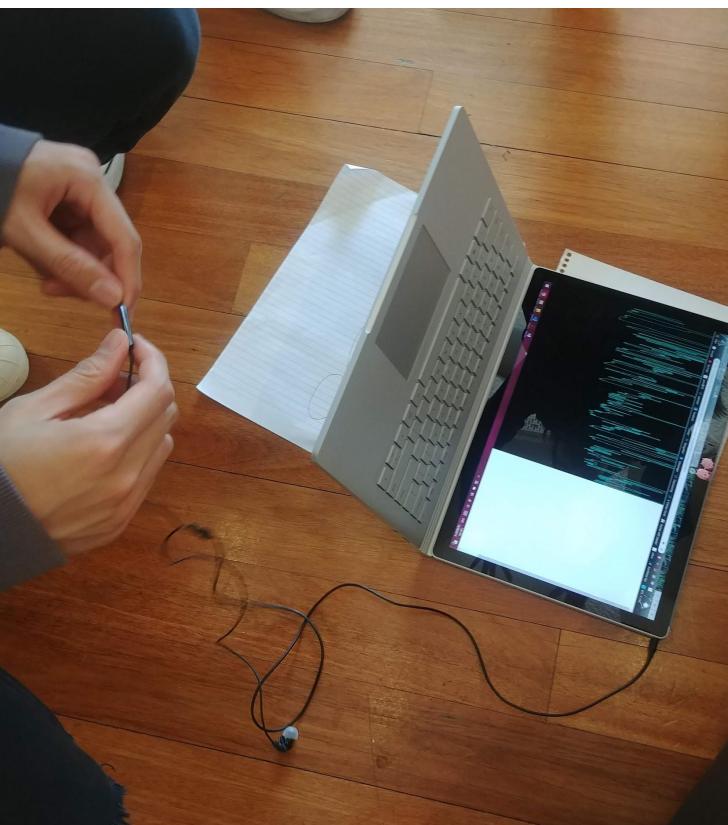
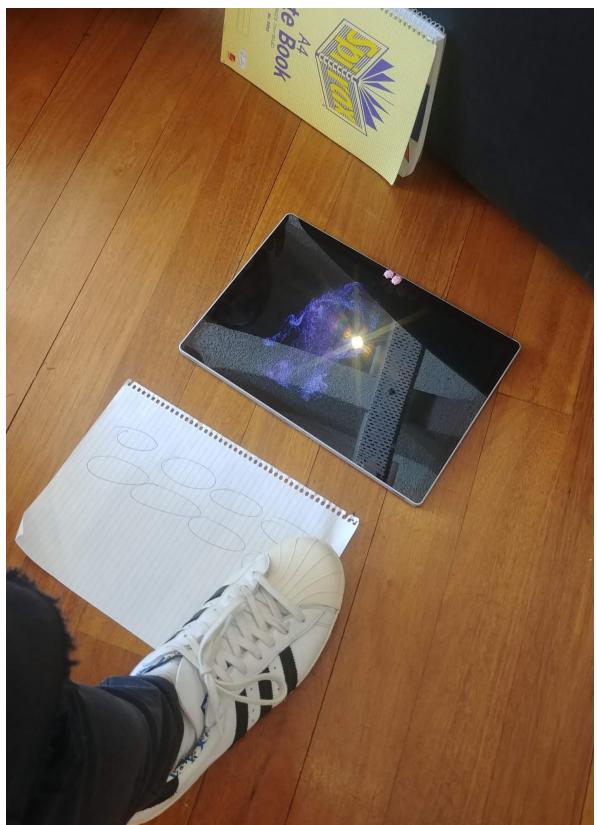
Think Aloud & Observations H.11: Mary

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Seems neutral in reaction.
When they approach it	Confused Intrigued Neutral Bored Excited	"Can you hear anyone from the other side of the phone? That would be cool."
When they interact with it	Confused Intrigued Neutral Bored Excited	Tries to speak into the paper phone. "Where's the projection again?"
After using it	Confused Intrigued Neutral Bored Excited	"I think people will think I'm weird, seeing me speaking to myself."

Appendix I: Paper Prototype Testing Photos



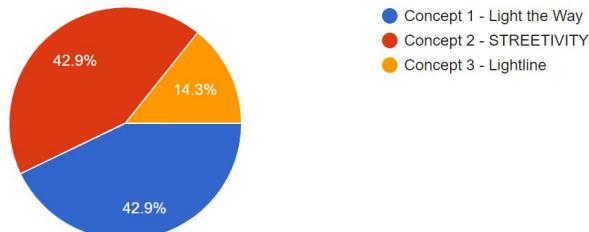
Appendix J: Low Fidelity Prototypes



Appendix K: Low Fidelity Prototype Survey Results

Which Concept did you like the most?

7 responses



Why?

7 responses

Because it was the most interactive so I like it the most on an interactive and engaging level but in regards to functionality I would say concept 1 would be the most effective. Maybe there could be a way to merge the two concepts.

Concept 1 made me get away from my phone more. Although Concept 2 didn't allow me to go on phone and use social media, I still needed to use my phone to draw on the big screen.

because i think the drawing concept is a really cool idea- and multiple people can do it at the same time- i think it's a really good idea when you're bored and just waiting for the bus

Its very subtle and doesn't distract with the surrounding environment, it's a really creative way also to prevent road related accidents - helpful in keeping people's attention,

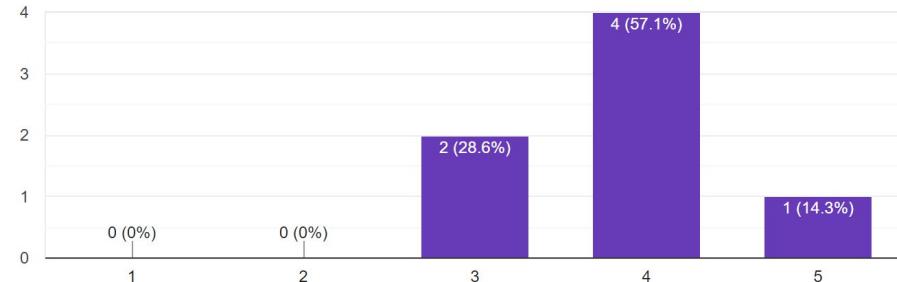
it's was interesting

the interaction with my voice is cool

In comparison to the other concepts I felt this was the most interactive, you hand the opportunity to interact and create your own design. Furthermore although it was fun I felt it lack direction and actual overall meaning.

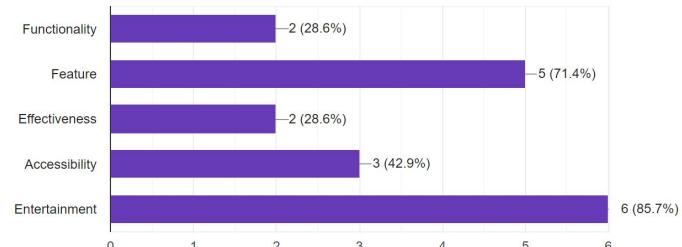
How likely would you use this design when you are at the crossing?

7 responses



Which part of this concept attracts you the most?

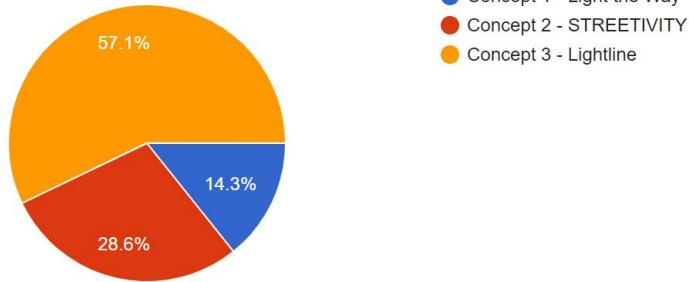
7 responses



Appendix K: Low Fidelity Prototype Survey Results

Which Concept did you think is the WORST?

7 responses



Why?

6 responses

Because it would result in lots of people screaming and there aren't affordances or instructions such as "sing along".

The projection on the floor makes me have to pay attention to the floor as I am speaking to the microphone in the pole. Whereas, in Concept 1, although I am still looking at the floor, my other senses can still be attentive to the lights for crossing the road.

not really sure i just though it was the least entertaining and not as fun and interactive as the other ones

Least entertaining, a bit complicated to understand - had a hard time understanding myself when you were explaining the concept to me, but it would still be an enjoyable experience for some other people maybe.

I need to use my mobile phone

It was too complex and required too much interactions for the given context being at the traffic light.

Do you have any suggestions for future improvement?(can be concept of your choice)

7 responses

Ambient music or audio could help in concept 3 and concept 1 & 2 have the possibility of being merged.

I really liked Concept 1 & 2 equally. So because of this, I think maybe there could be some way to integrate the two concepts together in terms of functionality and entertainment. Maybe some audio cues would be cool with the animation. It's very aesthetic though. Awesome.

Maybe for concept three- it was a bit complicated as there were so many functions going on -maybe try to simplify it? i did like the idea of pressing the button and then it spins and projects lights

Concept 3 was abit complicated to understand, maybe consider more simpler functions!

animation can make more different styles

concept3 should allow more users to play together

I suggest defining the actual problem of the concept designs as I felt they lacked stronger meaning. The interactions were fun but I felt they didnt add overall value and functionality to the experience.

Appendix L: Light the Way Low Fidelity Prototype Think Aloud and Observations

Think Aloud & Observations L.1: Jared

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Has no distinct reaction. "So is this the crossing?"
When they approach it	Confused Intrigued Neutral Bored Excited	"Oh I see, so would this be the part I step on?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"I think it's cool, but if someone else steps on it, will it trigger something else? Or is it just one time only?"
After using it	Confused Intrigued Neutral Bored Excited	"I like how I just have to use my feet, and the animation visually was nice to see."

Think Aloud & Observations L.2: Han

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Has no distinct reaction.
When they approach it	Confused Intrigued Neutral Bored Excited	"So this is the crossing?" "Do I step on the laptop?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"Does the animation change when I step on it lots, or when I'm jump?"
After using it	Confused Intrigued Neutral Bored Excited	"Yea I think it's cool."

Think Aloud & Observations L.3: Elaine

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Has no distinct reaction. "So is this the crossing?"
When they approach it	Confused Intrigued Neutral Bored Excited	"Oh I see, so would this be the part I step on?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"I think it's cool, but if someone else steps on it, will it trigger something else? Or is it just one time only?"
After using it	Confused Intrigued Neutral Bored Excited	"I like how I just have to use my feet, and the animation visually was nice to see."

Think Aloud & Observations L.4: Jerry

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Is a bit confused about what it is at first sight.
When they approach it	Confused Intrigued Neutral Bored Excited	"Would this part be on the road?"
When they interact with it	Confused Intrigued Neutral Bored Excited	Is intrigued as they understand more.
After using it	Confused Intrigued Neutral Bored Excited	"I like the animation, I think it would grab my attention."

Think Aloud & Observations L.5: Ailene

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Does not have much of a reaction.
When they approach it	Confused Intrigued Neutral Bored Excited	"I see, so this is just a panel on the ground?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"Ohh that seems cool."
After using it	Confused Intrigued Neutral Bored Excited	"I like how it's using existing technology, I think I've seen things like this before."

Think Aloud & Observations L.6: Lin

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Does not have much of a reaction.
When they approach it	Confused Intrigued Neutral Bored Excited	Seems a bit hesitant to step on the prototype.
When they interact with it	Confused Intrigued Neutral Bored Excited	"Is it just one animation? Or does it change?"
After using it	Confused Intrigued Neutral Bored Excited	"I like it, I think it would be cool if I saw this at the crossing."

Think Aloud & Observations L.7: Edmond

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Does not have much of a reaction.
When they approach it	Confused Intrigued Neutral Bored Excited	"So these are those bumpy braille things? And there's a sensor underneath?"
When they interact with it	Confused Intrigued Neutral Bored Excited	<i>"I like how I don't need to do much to interact with it, it's not difficult."</i>
After using it	Confused Intrigued Neutral Bored Excited	<i>"I think it's cool, because if I were to see this at a crossing, even if I were in a rush, I'd still have time to at least interact with it."</i>

Appendix M: STREETIVITY Low Fidelity Prototype Think Aloud and Observations

Think Aloud & Observations M.1: Jared

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	They seem interested with the explanation given.
When they approach it	Confused Intrigued Neutral Bored Excited	Continue to seem interested.
When they interact with it	Confused Intrigued Neutral Bored Excited	Is particularly impressed with the multiplayer aspect. "Oh wow this is really good for a low fidelity prototype."
After using it	Confused Intrigued Neutral Bored Excited	"I like the multiplayer bit, how everyone can join in."

Think Aloud & Observations M.2: Han

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Has a neutral reaction to it.
When they approach it	Confused Intrigued Neutral Bored Excited	Seems interested once explanations and demos are shown.
When they interact with it	Confused Intrigued Neutral Bored Excited	Thinks it is interesting.
After using it	Confused Intrigued Neutral Bored Excited	"I think it would be interesting, since everyone can join in."

Think Aloud & Observations M.3: Elaine

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Seems interested as explanations are given.
When they approach it	Confused Intrigued Neutral Bored Excited	"Is this a giant screen, how big is the screen?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"I like how smooth it is."
After using it	Confused Intrigued Neutral Bored Excited	"This is cool, I like how I can interact with others."

Think Aloud & Observations M.4: Jerry

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Seems interested as explanations are given.
When they approach it	Confused Intrigued Neutral Bored Excited	"The visuals are very nice and cool."
When they interact with it	Confused Intrigued Neutral Bored Excited	"So I need a phone to use it?"
After using it	Confused Intrigued Neutral Bored Excited	"I think it's cool and it responds well, but I'm not sure about needing a phone."

Think Aloud & Observations M.5: Ailene

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Seems interested as explanations are given.
When they approach it	Confused Intrigued Neutral Bored Excited	"Will this screen be on the side of the road?" "Does that mean the drivers can see it?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"This is cool!"
After using it	Confused Intrigued Neutral Bored Excited	"It works well, I like how I can see what I'm doing on a big screen as well."

Think Aloud & Observations M.6: Lin

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Seems interested as explanations are given.
When they approach it	Confused Intrigued Neutral Bored Excited	Hesitantly interacts with the drawings.
When they interact with it	Confused Intrigued Neutral Bored Excited	"It's only one colour though."
After using it	Confused Intrigued Neutral Bored Excited	"It's easy to understand, so I think it would work well if done well."

Think Aloud & Observations M.7: Edmond

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Has a neutral reaction to it.
When they approach it	Confused Intrigued Neutral Bored Excited	Seems a bit interested once explanations and demos are shown.
When they interact with it	Confused Intrigued Neutral Bored Excited	<i>"It seems to lag a bit."</i> <i>"What do the buttons do?"</i>
After using it	Confused Intrigued Neutral Bored Excited	<i>"I think it's pretty cool."</i>

Appendix N: Lightline Low Fidelity Prototype Think Aloud and Observations

Think Aloud & Observations N.1: Jared

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Seems overwhelmed with the explanations.
When they approach it	Confused Intrigued Neutral Bored Excited	"So is the visualisation on the floor?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"Oh cool. I like how it shows my voice."
After using it	Confused Intrigued Neutral Bored Excited	"I think it's an interesting idea, but I don't really get the phone."

Think Aloud & Observations N.2: Han

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Has a neutral reaction to it.
When they approach it	Confused Intrigued Neutral Bored Excited	Seems interested once explanations and demos are shown.
When they interact with it	Confused Intrigued Neutral Bored Excited	Thinks it is interesting.
After using it	Confused Intrigued Neutral Bored Excited	"I think the voice visualisation, is interesting, but there's a lot going on."

Think Aloud & Observations N.3: Elaine

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Seems to be interested but also struggles to understand parts of the concept.
When they approach it	Confused Intrigued Neutral Bored Excited	"How is the visualisation being displayed?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"Oh that's cool."
After using it	Confused Intrigued Neutral Bored Excited	"The design is cool, but it's a bit difficult to use, because I have to speak into a microphone but look at the floor at the same time."

Think Aloud & Observations N.4: Jerry

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Has no particular reaction.
When they approach it	Confused Intrigued Neutral Bored Excited	"Where or what do you speak into?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"The visuals are interesting and look good."
After using it	Confused Intrigued Neutral Bored Excited	"It's an interesting concept, but I don't like how I have to look at the floor to see what I'm doing."

Think Aloud & Observations N.5: Ailene

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Has no particular reaction.
When they approach it	Confused Intrigued Neutral Bored Excited	"Is it a microphone or a phone?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"It responds to my voice well, so it's quite interesting."
After using it	Confused Intrigued Neutral Bored Excited	"I'm just wondering if it will cause people to start screaming on the street though."

Think Aloud & Observations N.6: Lin

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	"It's a voice visualisation?"
When they approach it	Confused Intrigued Neutral Bored Excited	"So do I press the button to speak?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"The designs are quite cool."
After using it	Confused Intrigued Neutral Bored Excited	"There's a lot of steps, it seems kinda complicated."

Think Aloud & Observations N.7: Edmond

Touchpoint	Reaction	Comments/ Observations
When they see it and are given explanations	Confused Intrigued Neutral Bored Excited	Seems confused with the continual explanations.
When they approach it	Confused Intrigued Neutral Bored Excited	Seems hesitant to interact with it.
When they interact with it	Confused Intrigued Neutral Bored Excited	<i>"What's being used to display the visualisation?"</i>
After using it	Confused Intrigued Neutral Bored Excited	<i>"It's cool, but I don't understand how this will stop phone usage with pedestrians."</i>

Appendix O: Low Fidelity Post Testing Interview

Interview O.1: Jared

1. For the concept you liked the most, what do you think about the interaction?

I think concept 3 stood out to me the most. The interaction wasn't bad, kinda interesting since it's based on my voice.

2. What's good about it compared to other concepts?

Compared to concept 2 it's more interactive... It also doesn't require users to use their phone, which I think would most likely be something people won't be bothered to do at the street.

3. Would you feel entertained while waiting at the traffic light?

Yes, I would be entertained for sure. I like the way it communicates with me through my voice.

4. If the concept is installed in real life, would you be more likely to wait at the traffic light? why/why not.

I would definitely try it when I first see it... But probably not after a few times since I'd already know what it does..

5. Are there any suggestions you could provide for further improvement?

For the third concept... I feel like it could have more interactive animations. Maybe add a multiplayer aspect for a better social engagement experience?

Interview O.2: Han

- 1. For the concept you liked the most, what do you think about the interaction?**

1st for sure. I think it's very interesting... I would stop using my phone for it because it has my attention.

- 2. What's good about it compared to other concepts?**

Well... I think I like it because I can see how other people's actions affect me? Like with other people's panels interacting with my own panel. It makes it interesting, definitely will reduce the usage of my phone cause it's ever changing.

- 3. Would you feel entertained while waiting at the traffic light?**

If it existed, since I find it fun I feel like I'd be entertained. Especially since the red light is usually short so I only need to be distracted for a bit before it informs me to go.

- 4. If the concept is installed in real life, would you be more likely to wait at the traffic light? why/why not.**

Yes. Because it's innovative I think I would be likely to wait. However. if it is everywhere I'm not sure I will use it for a long time since I feel like it'll just be the same thing.

- 5. Are there any suggestions you could provide for further improvement?**

Not sure... If you can add some more variation maybe, then maybe I'd consider using it for longer.

Interview O.3: Elaine

- 1. For the concept you liked the most, what do you think about the interaction? What's good about it compared to other concepts?**

Uhh, for the interaction... overall I think it would be the drawing concept for my favourite. I felt it was the most fun and enjoyable. Since you're drawing something on a large digital display and everyone can see what you do.

- 2. Would you feel entertained while waiting at the traffic light?**

Yes for the part I would feel entertained if I had the opportunity to use this while waiting at the traffic light.

- 3. If the concept is installed in real life, would you be more likely to wait at the traffic light? why/why not.**

Somewhat... yes, I guess? I already wait at the traffic light for my own safety so I don't think it would affect my waiting behaviour but I would use the concept because I feel it's very immersive and fun.

- 4. Are there any suggestions you could provide for further improvement?**

Possibly maybe a more interesting design concept or interaction ...probably a more gamified aspect because right now it's like random drawing with no purpose?

Interview O.4: Jerry

1. Jerry. For the concepts you like the most. What do you think about the interaction?

For concept 2, I think I like that the most. The interaction is really nice. It's pretty smooth already even for the prototype and I think it's very fun. I think the only part that sticks out is that I don't know about switching apps on my phone just for waiting at the crossing....

I probably want to be able to use this functionality whilst still being able to do on my phone what I was originally doing and not have to stop whatever you're doing to get into the interaction. Oh, but concept one I can still stick to using my phone with what I was doing so I kind of like that

2. So What's good about it compared to other concepts?

The entertainment value and interaction is really well done. Already like the art style as well.

3. Would you feel entertained while waiting at the traffic lights?

Yes, for sure since I would be actively doing an activity, like drawing.

4. If concept is installed in real life, would you be more likely to without traffic lights? Why or why not?

Yeah, I think it makes the waiting more fun than doing nothing.

Interview O.5: Ailene

1. For the concept you liked the most, what do you think about the interaction?

So I liked concept 1 the most. I thought the interaction was really cool since it integrated the use of existing technology, the floor thing that are in some art museums and malls I think.

2. What did you like the most about it?

I think the animation for sure and I think that interaction itself was really good and I really like that one out of the three.

3. Would you feel entertained while waiting at the traffic light?

More like mesmerized because there's an animation showing on the floor. So yeah, mesmerized since it catches my attention.

4. If the concept is installed in real life, would you be more likely to wait at the traffic light? why/why not.

For concept one? Yeah, I would. Yeah, I would want to look at this animation and want to see, so I'll be more inclined as well to wait.

5. Are there any suggestions you could provide for further improvement?

Nothing for now! I think it's got a lot of potential, really interested to see how you guys go with it.

Interview O.6: Lin

1. For the concept you liked the most, what do you think about the interaction?

I liked the second concept a lot, the drawing one. The fact that you could see what you were doing on other people's screens, and the big screen was really cool.

2. What did you like the most about it?

Like I said earlier, how lots of people can join in and participate and see what each other is doing. No one gets left out that way, and it's a good way for just killing time.

3. So would you feel entertained while waiting at the traffic light?

Yea definitely, I think if it's just for a short while then I'd find it entertaining. It's only for a while, so it's quick and easy to interact with.

4. If the concept is installed in real life, would you be more likely to wait at the traffic light? why/why not.

Hmm, yeah I think so. Because I'd want to interact with it, so I'd probably stack back and draw because I find it fun. That is, unless I'm in a rush, I think in that case I'd be too busy to focus on anything else.

5. Are there any suggestions you could provide for further improvement?

Not much, if you can get different drawings maybe? Then it'd be even better.

Interview O.7: Edmond

1. So which concept do you like the most?

I liked concept one.

2. What do you think about the interaction level?

I think it's very good since you don't need a lot of guessing of what it's going to do as the response is automatic. And like, you don't need to use your brain too much because the action happens for you. Also I like how it doesn't distract from incoming drivers.

3. What did you like the most about it?

I think it's nice that it like sort of blends into the environment, since it is supposed to use the bumpy pads on the road right? Also like, sometimes, if you do something, you need to give up what you were originally doing to get involved but you don't need to make that sacrifice for this concept. You could potentially like, waste your time on just staring at it without having to think about it.

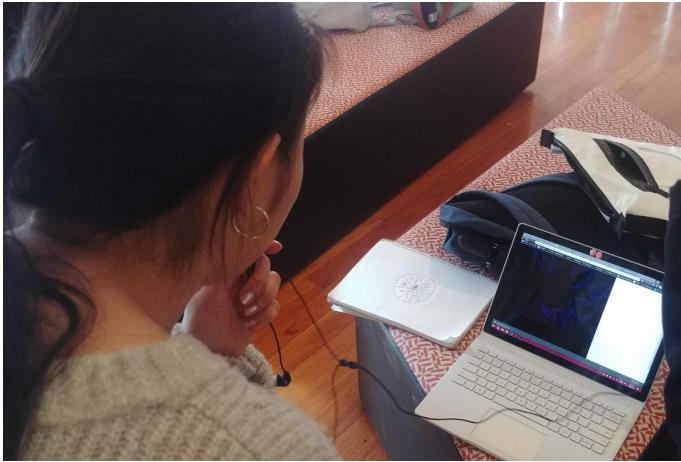
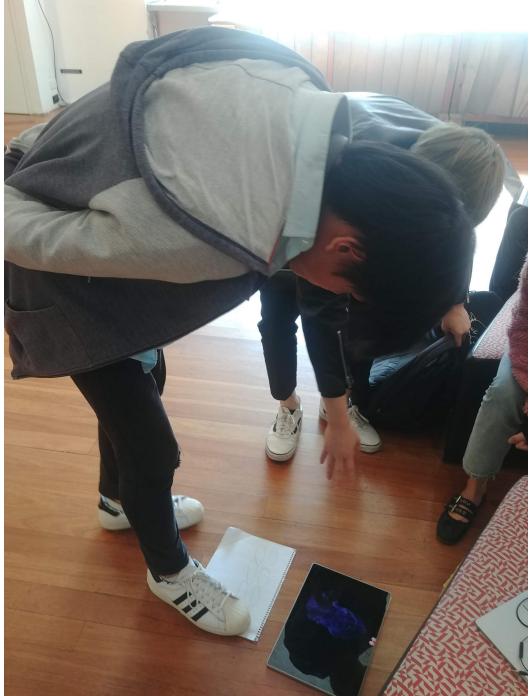
4. Would you feel entertained while waiting at the traffic light?

Yeah, because especially if you're like, trying to get to places on time, it's just.... you don't have time to do other stuff since you're in a hurry. Right, so like, you just do stuff on that just comes up on your way, like this concept, so it's real nice.

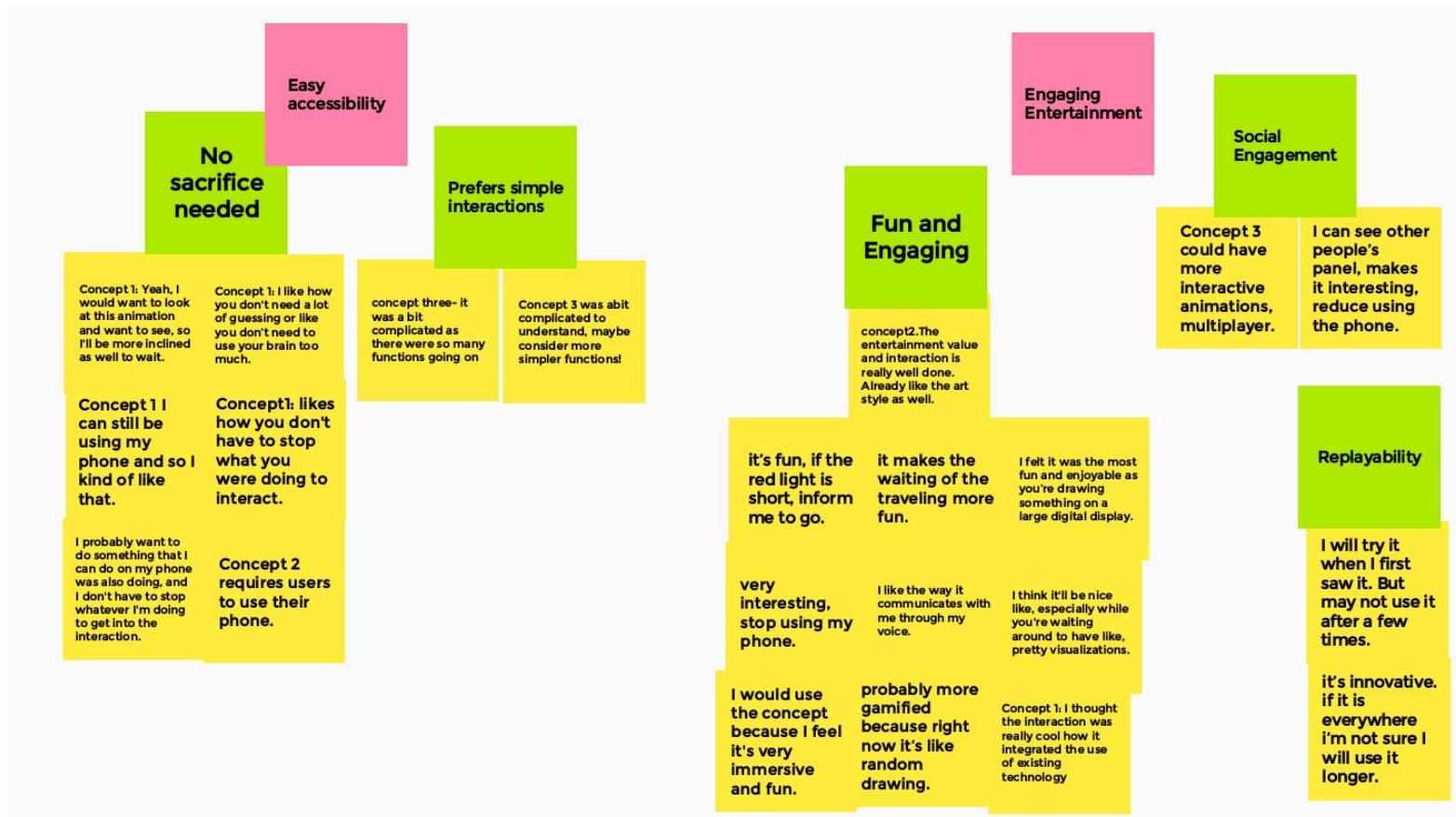
5. If the concept is installed in real life, would you be more likely to weather the traffic tonight? Will you stop using your phone?

Yeah, for sure. Like I get distracted by a lot of like little things as well. So like, I think it'll be nice like, especially while you're waiting around to have like, pretty visualizations.

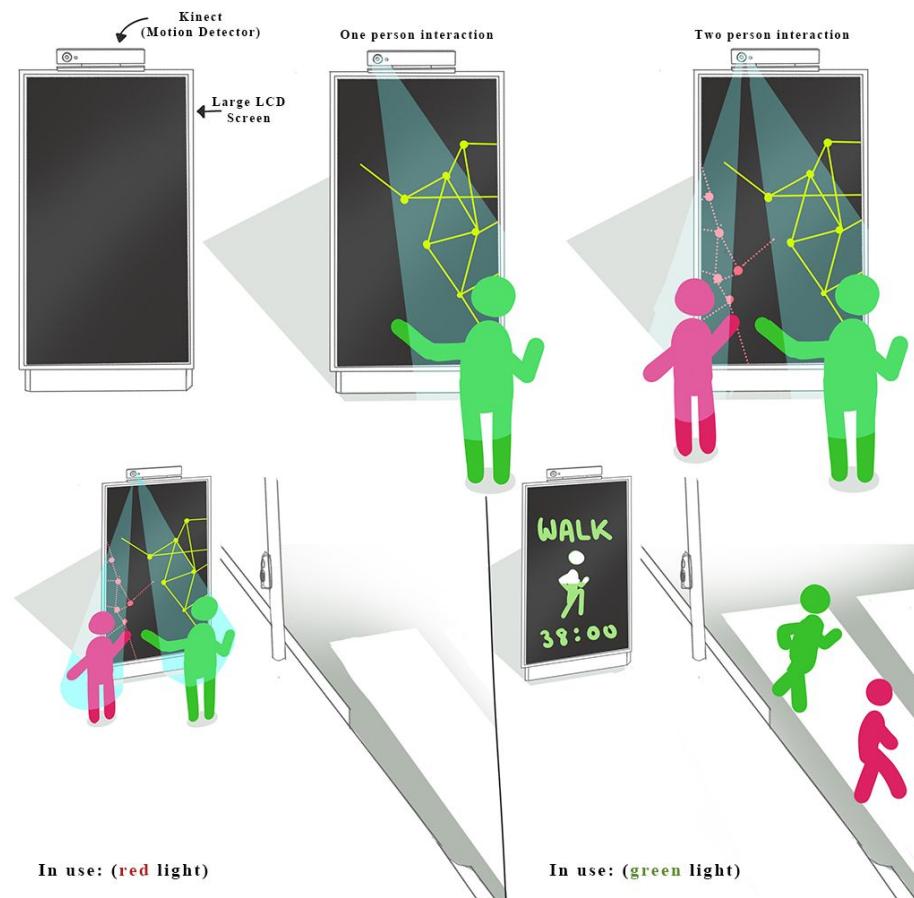
Appendix P: Low Fidelity Prototype Testing Photos



Low Fidelity Findings Affinity Diagram

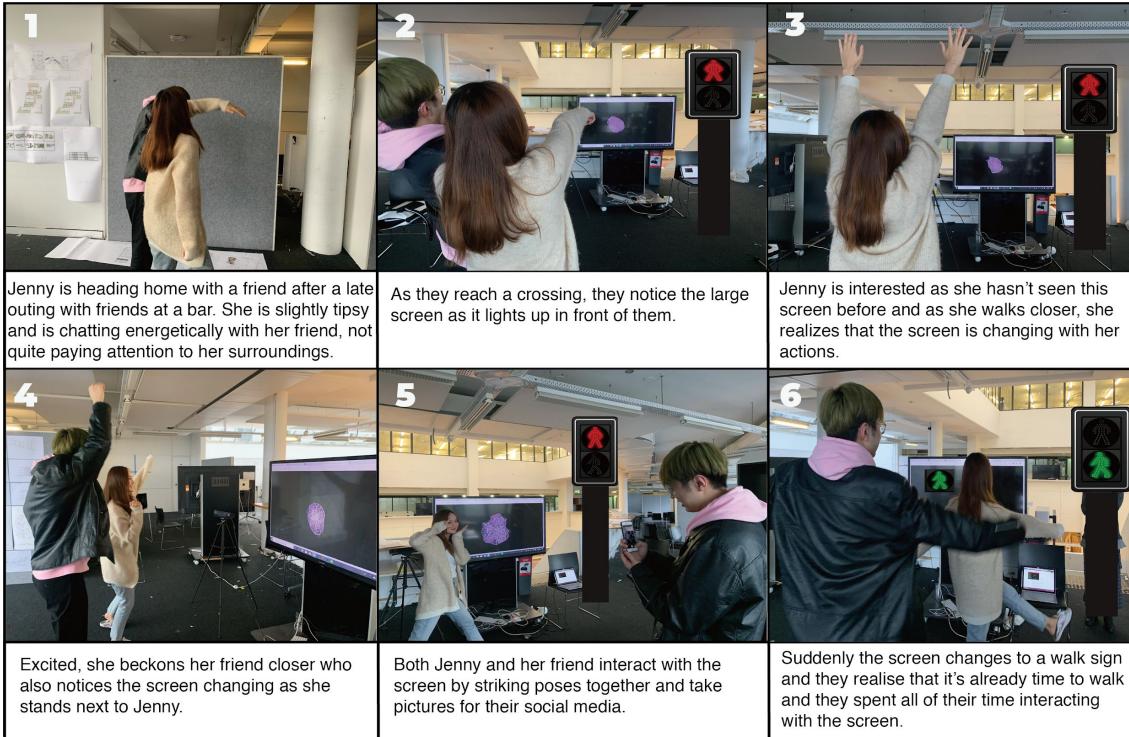


Appendix R: Fantasia Concept Art

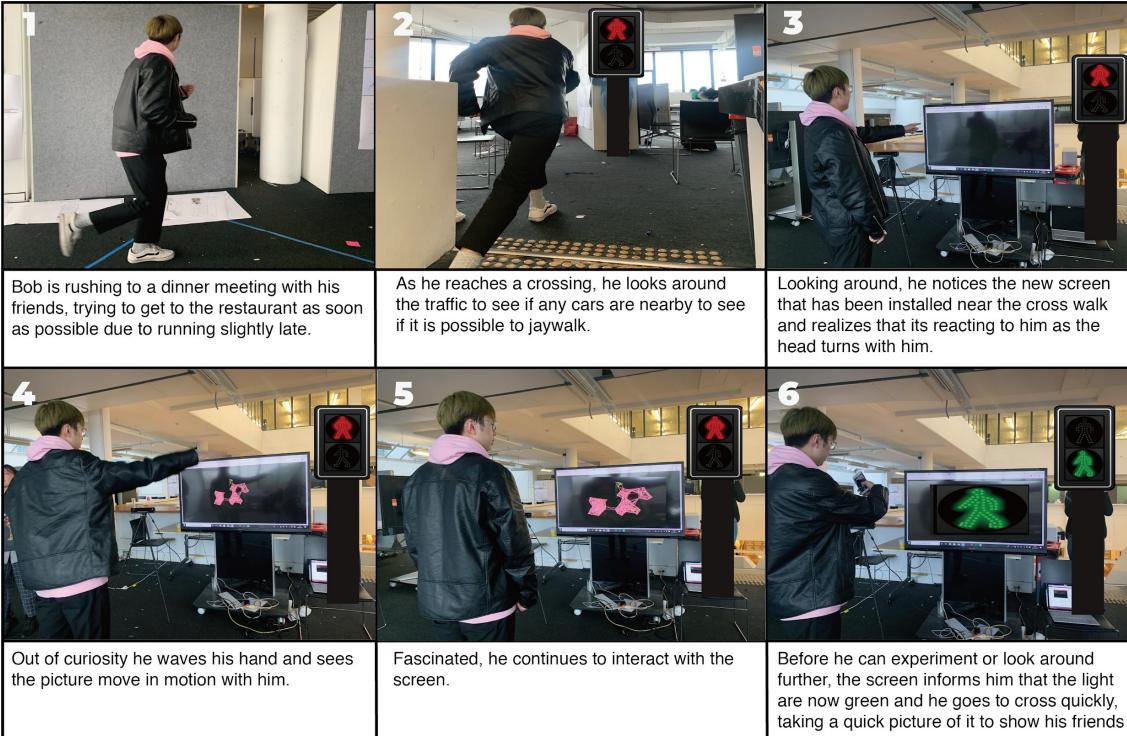


Persona Based Walkthrough

Persona Based Walkthrough 1: Jenny



Persona Based Walkthrough 2: Bob



Appendix T: Neo Kinesis Low Fidelity Prototype Demo Video

See uploaded NeoKinesisDemoVideo.mp4 or [click here](#):

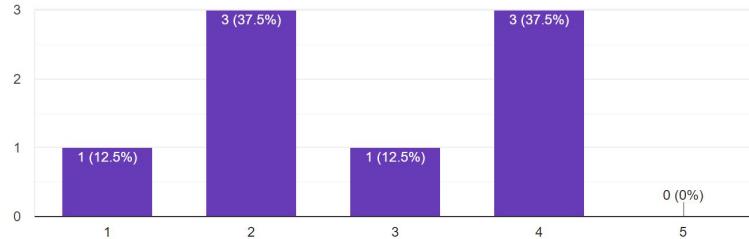


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Neo Kinesis Low Fidelity Pre Test Survey Results

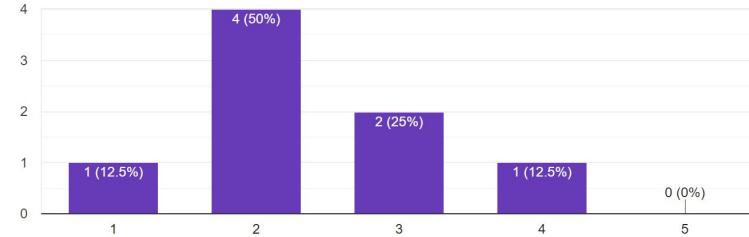
How frequent do you use your mobile phone while waiting at the crossing?

8 responses



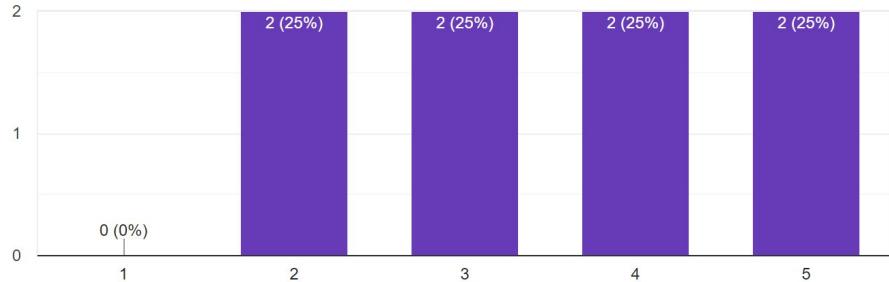
How likely would you socialise with others while waiting at the crossing?

8 responses



To what extent would you prefer to be entertained while waiting at the crossing?

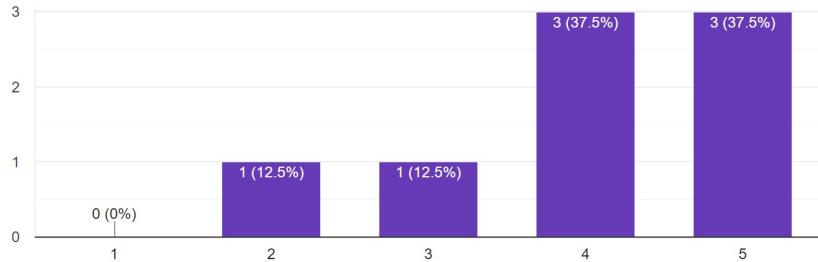
8 responses



Neo Kinesis Low Fidelity Post Test Survey Results

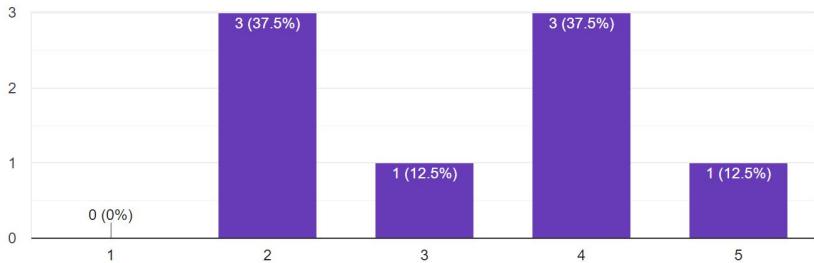
1. How enjoyable did you find this concept?

8 responses



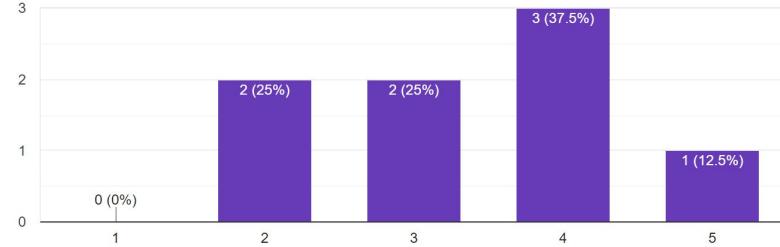
2. How easy was it to understand and use?

8 responses



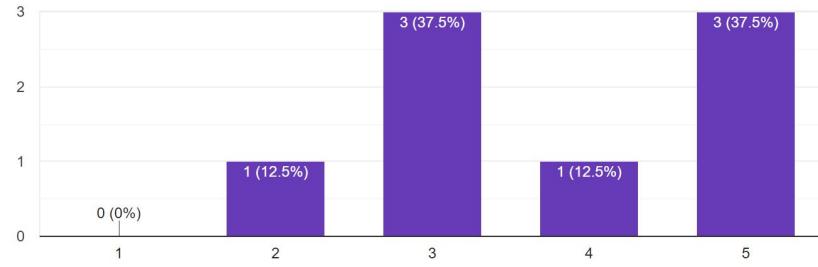
3. How much freedom did you feel you had when interacting with the concept?

8 responses



4. If this idea were to be installed at a crossing on the street, how likely would you interact with it?

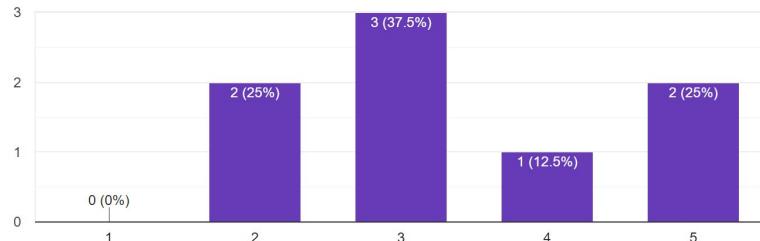
8 responses



Appendix V: Neo Kinesis Low Fidelity Post Test Survey Results

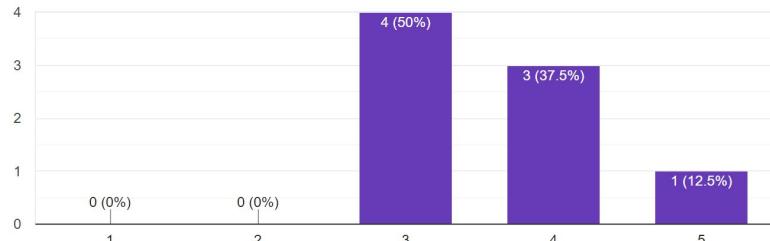
5. If this idea were to be installed at a crossing on the street and you had already seen it before, on a separate occasion how likely would you be to interact with it again?

8 responses



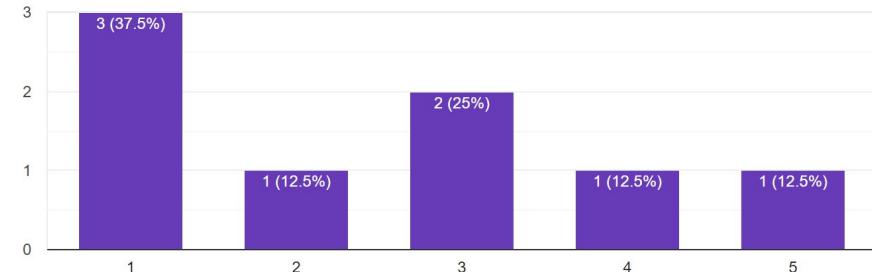
6. If this idea were to be installed at a crossing on the street, how accessible do you feel the concept would be?

8 responses



7. If this idea were to be found at a crossing on the street, to what extent would you feel the installation very cumbersome (*awkward) to use?

8 responses



Neo Kinesis Low Fidelity Prototype Think Aloud and Observations

Think Aloud & Observations W.1: Kinson

Touchpoint	Reaction	Comments/ Observations
When they see it	Confused Intrigued Neutral Bored Excited	The user gets closer to the installation.
When they approach it	Confused Intrigued Neutral Bored Excited	Doesn't seem to understand what the screen can do. <i>"As there's know instructions, I don't really understand what the screen can do."</i>
When they interact with it	Confused Intrigued Neutral Bored Excited	He finally get what the interaction is. <i>"Oh I see, I get it now"</i>
After using it	Confused Intrigued Neutral Bored Excited	The user gets excited.

Think Aloud & Observations W.2: Zhuo

Touchpoint	Reaction	Comments/ Observations
When they see it	Confused Intrigued Neutral Bored Excited	He was intrigued by this, and wanted to go closer and see how it works.
When they approach it	Confused Intrigued Neutral Bored Excited	He wants to try it badly. <i>"Cool, I really want to try it now."</i>
When they interact with it	Confused Intrigued Neutral Bored Excited	"Wow"
After using it	Confused Intrigued Neutral Bored Excited	He is excited to interact with other people. <i>"That's cool, it's cool how it works with other people as well, not just me."</i>

Think Aloud & Observations W.3: Miao

Touchpoint	Reaction	Comments/ Observations
When they see it	Confused Intrigued Neutral Bored Excited	He was intrigued by this, and wanted to go closer and see how it works.
When they approach it	Confused Intrigued Neutral Bored Excited	He wants to try it badly. "Cool, I really want to try it now."
When they interact with it	Confused Intrigued Neutral Bored Excited	"Wow"
After using it	Confused Intrigued Neutral Bored Excited	He is excited to interact with other people. "That's cool, it's cool how it works with other people as well, not just me."

Think Aloud & Observations W.4: Rachel

Touchpoint	Reaction	Comments/ Observations
When they see it	Confused Intrigued Neutral Bored Excited	"Cool, I want to try it"
When they approach it	Confused Intrigued Neutral Bored Excited	Seems confused how it works. "Why is it keeps drawing?" "How people's movement relates to it?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"I'm just trying to figure out what my movement relates to the dots." "If it moves seamlessly I get it, but it's not."
After using it	Confused Intrigued Neutral Bored Excited	"I think it's cool but not very smooth, I want to see my movement." "If I can add something to and paint it, it would be really fun." "I would prefer if I could just see the movement of my hands, rather than my whole body, as it seems to be doing."

Think Aloud & Observations W.5: Hanchi

Touchpoint	Reaction	Comments/ Observations
When they see it	Confused Intrigued Neutral Bored Excited	"I wonder what is this screen for?"
When they approach it	Confused Intrigued Neutral Bored Excited	Generally just intrigued by it as it begins to react to them. "What is this?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"But how does the animation connects to my movement, why does this track my movement?"
After using it	Confused Intrigued Neutral Bored Excited	Not very impressed, thought the animation could be more engaging.

Think Aloud & Observations W.6: Jerry

Touchpoint	Reaction	Comments/ Observations
When they see it	Confused Intrigued Neutral Bored Excited	"I wouldn't wave my arm"
When they approach it	Confused Intrigued Neutral Bored Excited	"How does this work?" "I think it needs a label or instruction to help me understand. When I move my arm I see correlation."
When they interact with it	Confused Intrigued Neutral Bored Excited	"I like the overall interaction." "It maybe it can be used on my phone."
After using it	Confused Intrigued Neutral Bored Excited	"I thought it was a game, well if it is a game it would be cool."

Think Aloud & Observations W.7: Ben

Touchpoint	Reaction	Comments/ Observations
When they see it	Confused Intrigued Neutral Bored Excited	"I want to know what is this."
When they approach it	Confused Intrigued Neutral Bored Excited	They're intrigued and wave their arms to see if it triggered the animation.
When they interact with it	Confused Intrigued Neutral Bored Excited	"Which part it is tracking my movement?" "When my head moves and when I move my legs, I don't know how this tracks my movement." "Well sometimes it's catching up."
After using it	Confused Intrigued Neutral Bored Excited	"It would be different with other color, it's interesting but I'm not really into this interaction."

Think Aloud & Observations W.8: Jared

Touchpoint	Reaction	Comments/ Observations
When they see it	Confused Intrigued Neutral Bored Excited	"I wonder what this do?"
When they approach it	Confused Intrigued Neutral Bored Excited	Doesn't really seem to understand how the interaction is triggered. "How can I start the interaction?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"What is this for?" "Why it keeps drawing when I stop?"
After using it	Confused Intrigued Neutral Bored Excited	"The overall interaction is really cool."

Neo Kinesis Low Fidelity Post Testing Interview

Interview X.1: Kinson

1. Overall, what were your impressions?

It's cool, if you think you can make it more responsive it would be more fun. Because right now it's not very engaging and kind of awkward because the animations are a bit slow, only the green dots are moving. And there is only one pattern.

2. Was there any part of the interaction that was difficult to understand?

Better flow, maybe more dots or other forms of expression to show movement because the dots and the hand waving was a bit confusing

3. What aspects in particular did you enjoy about this concept?

The bold colours of the patterns are very interesting to me, however as mentioned before as there's only one it's kind of boring.

4. If this were to be installed at a crossing, do you feel that you'd be able to easily join in and participate?

I think it could use some instructions or some kind of demo to explain to people rather than just a sensor as people who are less digitally inclined may be confused

5. What do you think is the overall purpose of this installation at the crossings?

My first guess would be to entertain people or maybe some kind of art installed by the council.

6. Were there any potential concerns of interacting with this concept if it was found at a crossing?

No, I don't think there's currently any potential concerns as I'm standing in place and just interacting with the screen. It doesn't put me in any danger.

7. Do you have any suggestions for improvements?

Better responses, less lag would make it more engaging as at the moment its limited by its' laggy screen.

Interview X.2: Zhuo

1. Overall, what were your impressions?

It's fancy and your attention gets immediately captured when you see it because of the lights.

2. Was there any part of the interaction that was difficult to understand?

So many green dots you know that it's interactive but you know know which part of your body is being represented by the green dot. I think if there were less dots or somehow able to be more clear with what dot represented what part of me it'd be easier to understand.

3. What aspects in particular did you enjoy about this concept?

The everchanging effects and my ability to control the flow.

4. If this were to be installed at a crossing, do you feel that you'd be able to easily join in and participate?

Yes, I think if it was able to detect more people (such as crowds as crossings can become crowded) I'd be able to join in more easily. As at this time it only really detects one person properly from what I can see.

5. What do you think is the overall purpose of this installation at the crossings?

Making people wait at the crossing instead of just jaywalking

6. Were there any potential concerns of interacting with this concept if it was found at a crossing?

I wouldn't really be concerned about any actual interaction but maybe if there could be a more obvious show sign showing that the light has changed to green as this installation can be too engaging for people to remember the light.

7. Do you have any suggestions for improvements?

Try to add more colours so people can recognise their own body parts when interacting with the screen.

Interview X.3: Miao

1. Overall, what were your impressions?

Don't really have any strong feelings about it, just a screen to engage with whilst waiting for the lights

2. Was there any part of the interaction that was difficult to understand?

I think it's easy to understand as the screen shows the green dot to represent my movement.

3. What aspects in particular did you enjoy about this concept?

I like the flow of the green dots and how it moves with me, I think it's very interesting.

4. If this were to be installed at a crossing, do you feel that you'd be able to easily join in and participate?

I think at the moment because of the lag it's a bit hard to understand immediately what it does. If the response rate was more direct I would be able to more easily understand what the purpose of the screen is.

5. What do you think is the overall purpose of this installation at the crossings?

I would think that the purpose of this is for entertainment

6. Were there any potential concerns of interacting with this concept if it was found at a crossing?

Not really, I don't see any points of concern as all I'm doing is standing in front of a screen.

7. Do you have any suggestions for improvements?

Maybe better animations that are more varied, I think that's it

Interview X.4: Rachel

1. Overall, what were your impressions?

I feel like it's really interesting, I mean there's a long way to go. But it's very engaging because it's reflecting you in the interaction. I think maybe the shape, I wondered what relevance they had to the environment.

2. Was there any part of the interaction that was difficult to understand?

What exactly was controlling what. But I knew that it was me and my movements but I couldn't understand what part of me was controlling what.

3. What aspects in particular did you enjoy about this concept?

The aesthetics are really cool, they're smooth which are nice. Just the visuals, it's captivating.

4. If this were to be installed at a crossing, do you feel that you'd be able to easily join in and participate?

Yes, definitely. It's simple. You don't need to press start of anything. You can just join in. You'd be using it without thinking about it.

5. What do you think is the overall purpose of this installation at the crossings?

To distract, or even just to please the people who are waiting. I would think oh it's a pleasing thing, like entertainment.

6. Were there any potential concerns of interacting with this concept if it was found at a crossing?

No, I don't think so. I don't think it would cause anything, not that I can think of.

7. Do you have any suggestions for improvements?

Making it a bit more subtle and maybe focusing on just your hands rather than your whole figure; so it's almost like you're painting with your hands on the screen.

Interview X.5: Hanchi

1. Overall, what were your impressions?

Looks fancy and fantastic. When I use it, it makes me feel confused, as I don't know how to control it.

2. Was there any part of the interaction that was difficult to understand?

It does not track my movement accurately, which makes me feel confused.

3. What aspects in particular did you enjoy about this concept?

I like the sense of futuristic technology I feel when interacting with this concept, I have never seen this equipment before, I would like to try something new like this.

4. If this were to be installed at a crossing, do you feel that you'd be able to easily join in and participate?

I think I'm more likely to interact with this when I am alone, based on my personality. But if there are many people at the crossing I won't use it, it's embarrassing.

5. What do you think is the overall purpose of this installation at the crossings?

I think it will reduce phone use at crossings and encourage social interaction.

6. Were there any potential concerns of interacting with this concept if it was found at a crossing?

I probably wouldn't use it a second time because I don't think it would interest me in its current stage as there's only really one animation.

7. Do you have any suggestions for improvements?

If the animation is more smooth, it will be better. I think if there's a guide to help people to understand the interaction, that would improve user experience.

Interview X.6: Jerry

1. Overall, what were your impressions?

I liked the green dot, it interacted with me directly.

2. Was there any part of the interaction that was difficult to understand?

The triangle art part, I was a bit confused with it because I don't know what it is representing from me; in contrast to the dot which I got immediate response from.

3. What aspects in particular did you enjoy about this concept?

I think the interactive aspect of it was my favourite part, I have something to distract me when I'm waiting without investing a high level of time or energy.

4. If this were to be installed at a crossing, do you feel that you'd be able to easily join in and participate?

Yes, I can just shake my hand or stand in front of the screen and something or an image just happens instantly.

5. What do you think is the overall purpose of this installation at the crossings?

I think maybe for entertainment because of the interactivity aspect and the animation.

6. Were there any potential concerns of interacting with this concept if it was found at a crossing?

Maybe it would not be as effective during the daytime because of the sunlight.

7. Do you have any suggestions for improvements?

You could make the triangle abstract part more easily understandable by maybe making it better represent the human figure.

Interview X.7: Ben

1. Overall, what were your impressions?

It was fun, I've never seen anything like it before. Unique, obviously low fidelity but its response so that was interesting.

2. Was there any part of the interaction that was difficult to understand?

Not really, it wasn't depicting the shape of the body or anything, so the abstract nature of it meant it was chaotic, but I could accept that. Also until it was clarified, I didn't realise the interaction was only from waist up.

3. What aspects in particular did you enjoy about this concept?

That it's basically going to work, you can walk up to it. So it's kind of like you don't have to start a process and wait for it to end. You just walk up to it and it works.

4. If this were to be installed at a crossing, do you feel that you'd be able to easily join in and participate?

That would depend on the normal social barriers, I don't see any difficulties of engaging with this in comparison to say conversing with a human.

5. What do you think is the overall purpose of this installation at the crossings?

I would think that the purpose of it would be to just be interactive and engaging to entertain the people. Maybe some sort of way to encourage social engagement between two people

6. Were there any potential concerns of interacting with this concept if it was found at a crossing?

If it was at a shelter booth, I wouldn't have any problems with it. But a potential problem I see is that people may be too distracted by it and not pay attention to the street. Particularly if you do end up engaging in social contact with somebody else, it would increase the interaction aspect.

7. Do you have any suggestions for improvements?

Idea of it being added to a pole. It's currently interesting but at the moment it's clearly just a triangular frame animation, if you could add something to the next iteration to make it more interesting.

8. Extra comment: different colours for different people - so you can tell what you did vs what somebody else did. Or maybe some other way to encourage social interaction.

Interview X.8: Jared

1. Overall, what were your impressions?

I think it has a lot of potential, I feel like honestly you guys could gamify to increase the interaction aspect. And increasing interaction will increase engagement. Currently it looks more like an artwork.

2. Was there any part of the interaction that was difficult to understand?

No signage or affordances made it difficult to understand how to interact with it. And if you look at the current screen, there's only a small section that can be interacted with, I was trying to engage with a corner but was unable to. Might have been an issue with the kinect though.

3. What aspects in particular did you enjoy about this concept?

Interactivity comes to mind first and I really like the artwork, there's definitely stuff that could be added to it but it's a really interesting start. Maybe a bit more longevity as right now I use it once and then it fades.

4. If this were to be installed at a crossing, do you feel that you'd be able to easily join in and participate?

Yeah, as there are no objectives or rules with this concept at the moment it's pretty easy to just join in.

5. What do you think is the overall purpose of this installation at the crossings?

I would just think its there for aesthetic/art reasons.

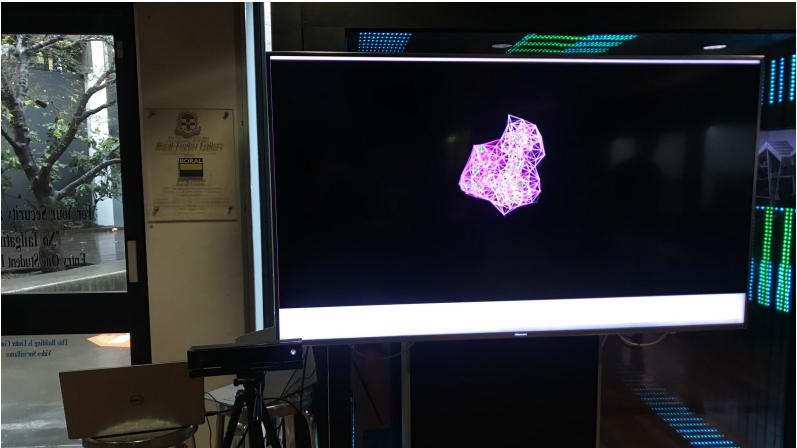
6. Were there any potential concerns of interacting with this concept if it was found at a crossing?

I would be worried about potential vandalism to the device or damage. And the location of the screen as crossing areas could be crowded.

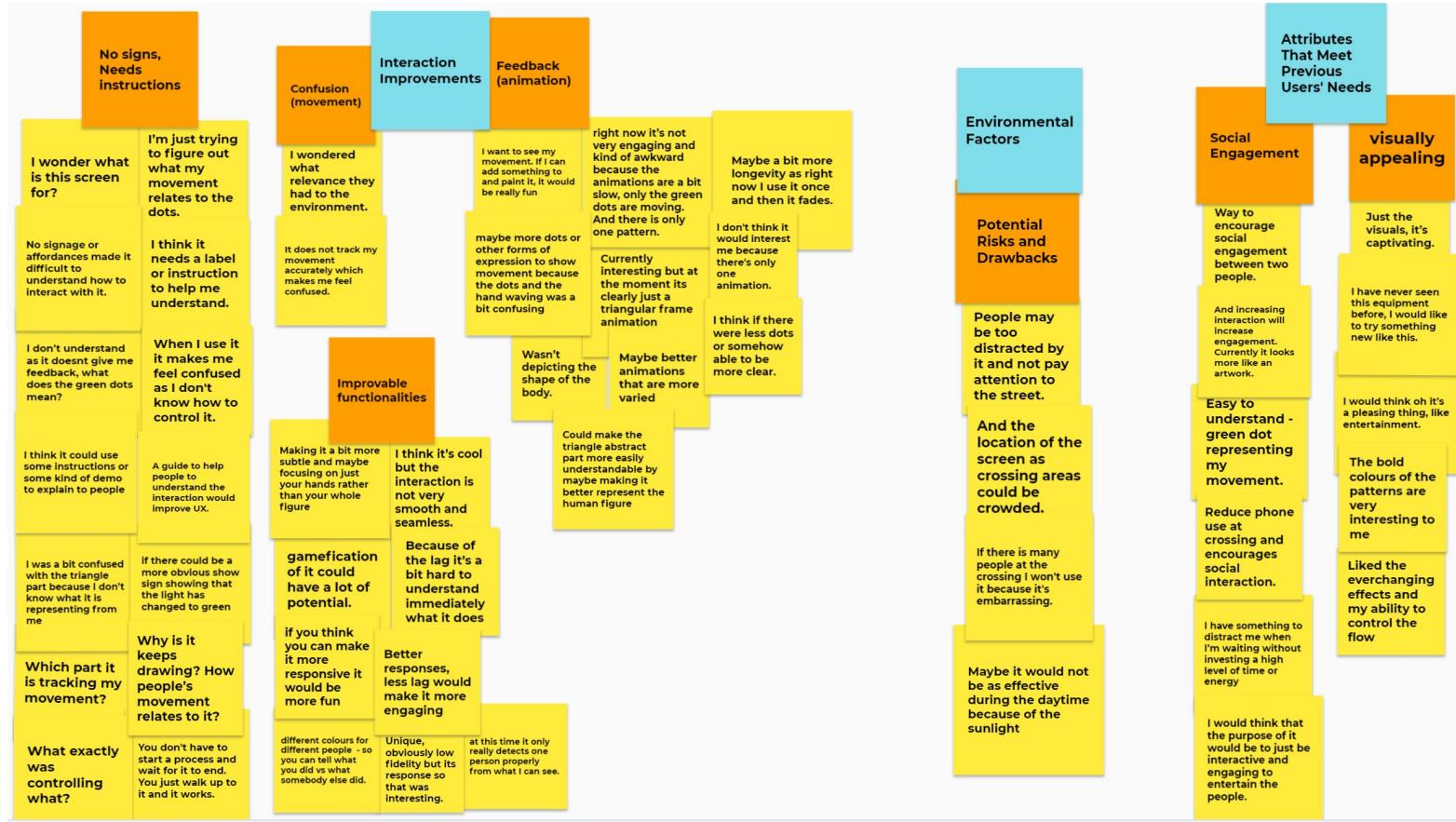
7. Do you have any suggestions for improvements?

I think everything I mentioned above sort of summarises my thoughts on the concept, the gamification of it could have a lot of potential.

Neo Kinesis Low Fidelity Prototype Testing Photos

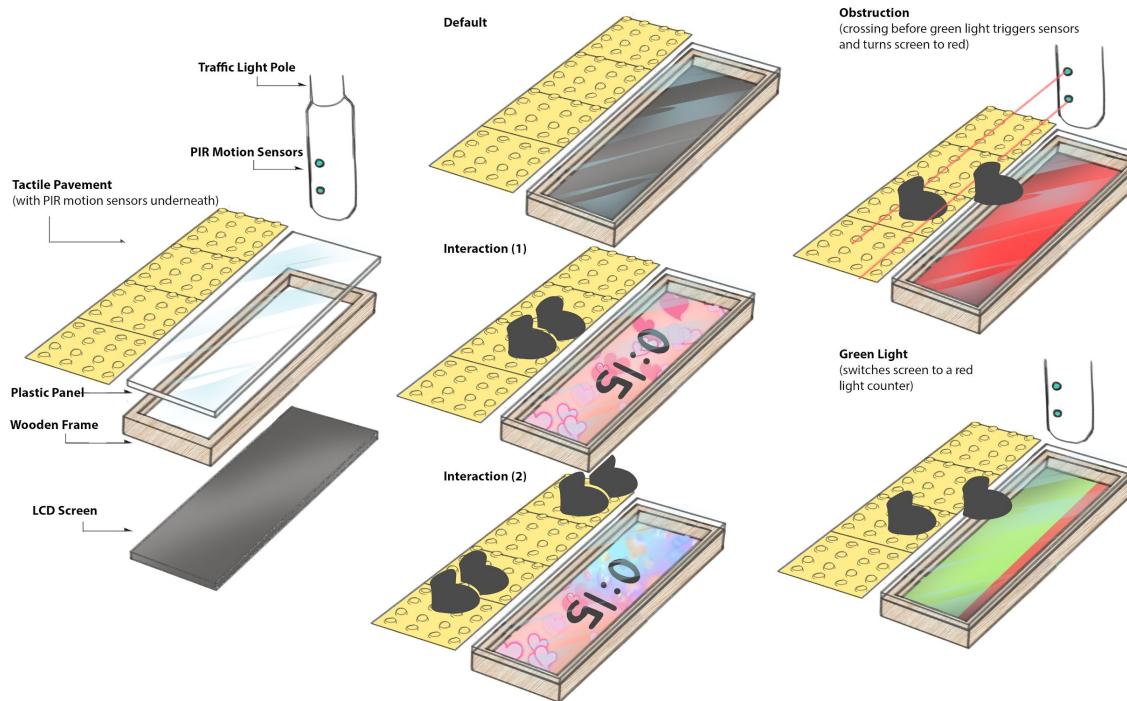


Neo Kinesis Low Fidelity Findings Affinity Diagram

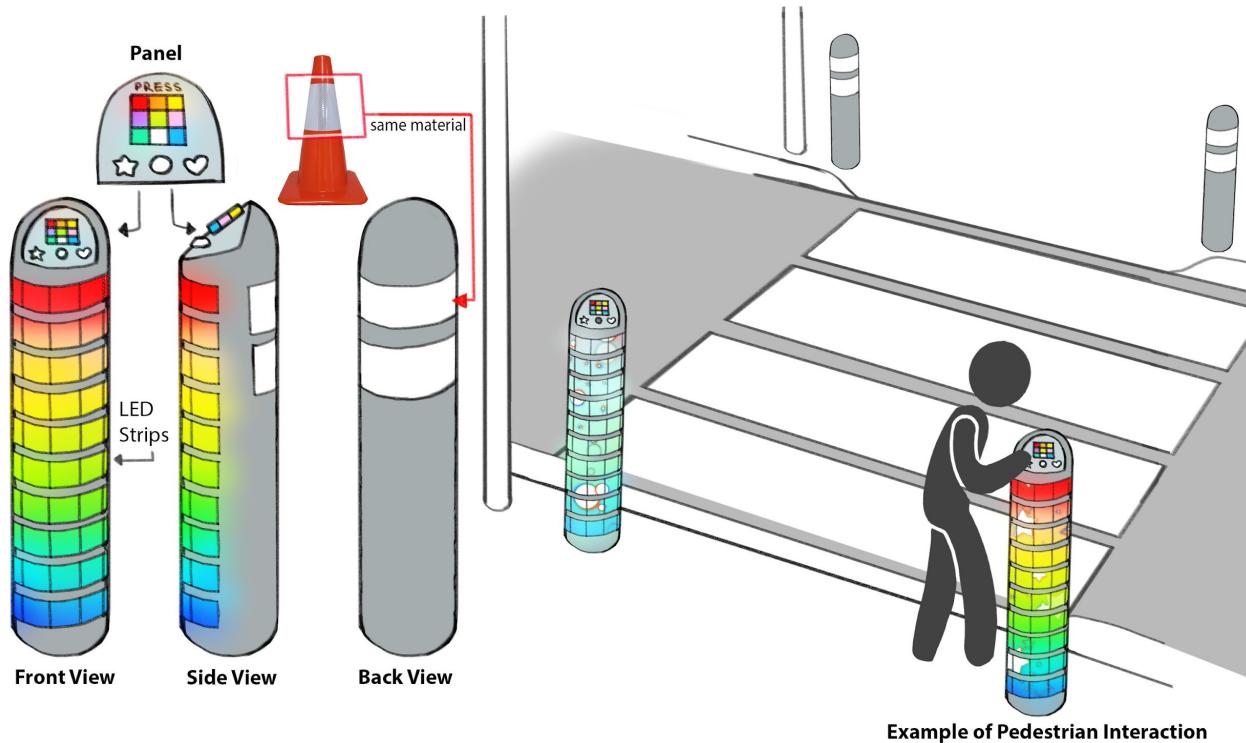


Appendix AA: Original Concepts Concept Art

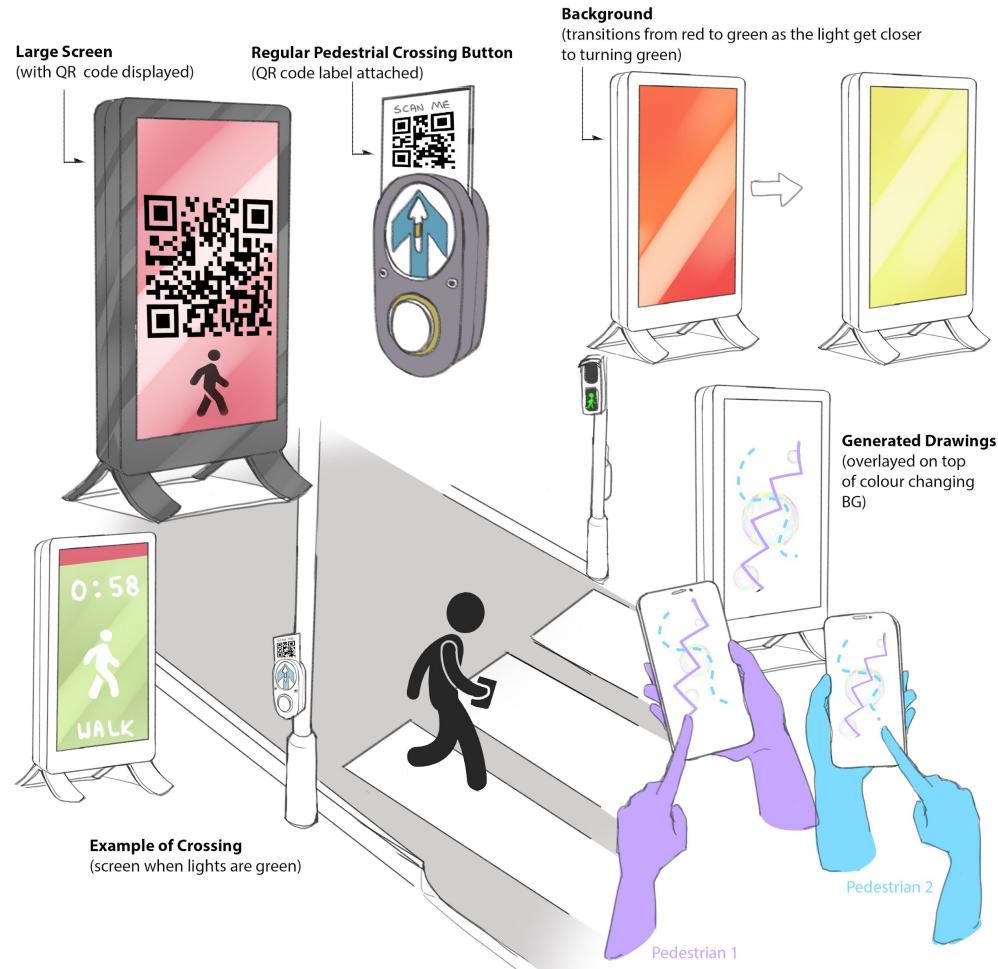
Concept Art AA.1: Light the Way



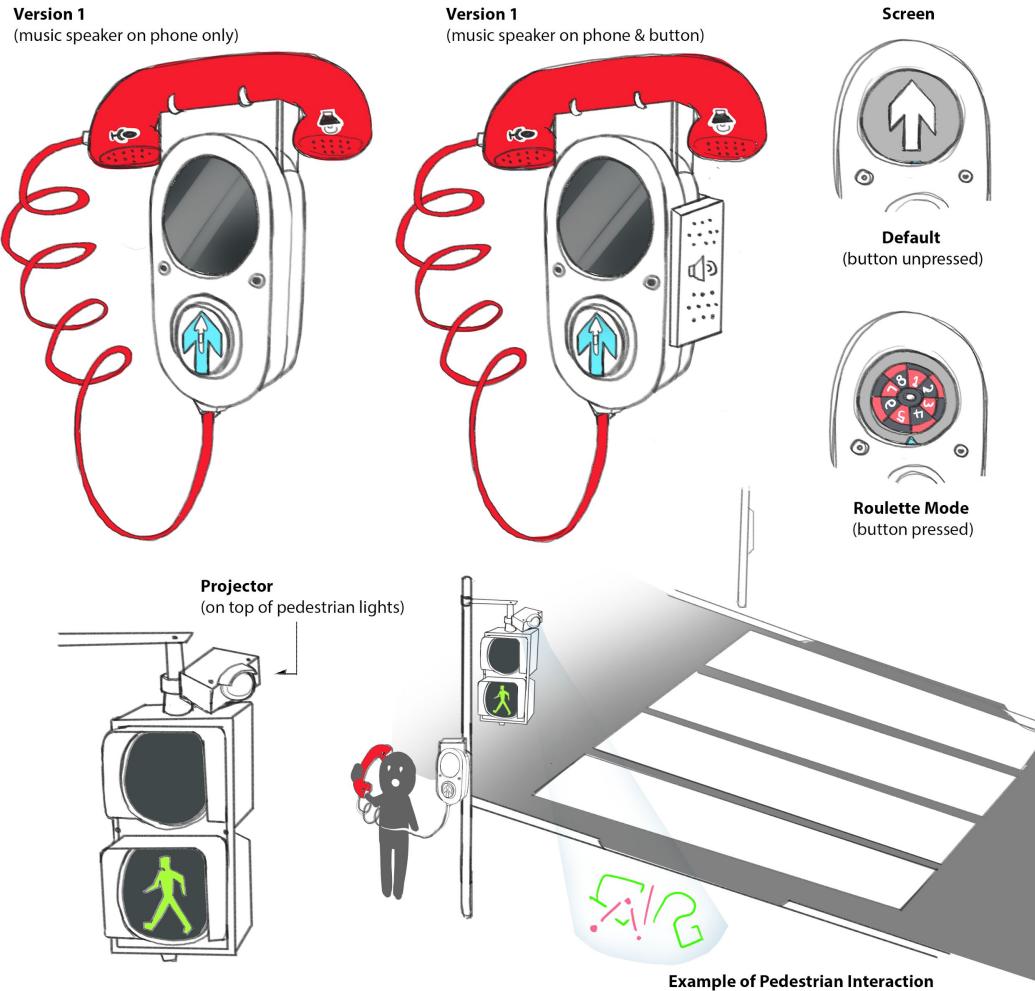
Concept Art AA.2: Borealis



Concept Art AA.3: Streetivity



Concept Art AA.4: Lightline



PRESENTED BY
FREE WI-FIVE

yhan0758 jpar7583 eyew0001 mluo2071 czha0511

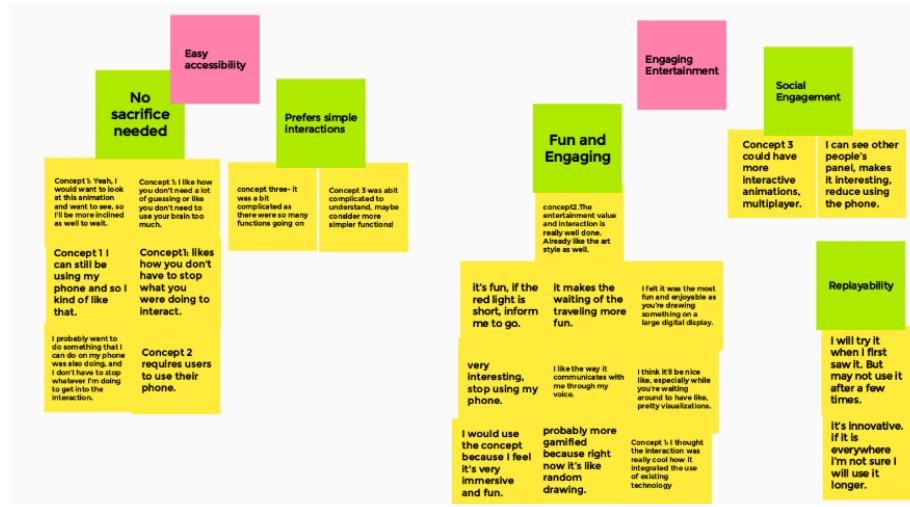
NEO KINESIS

Appendix

Appendix

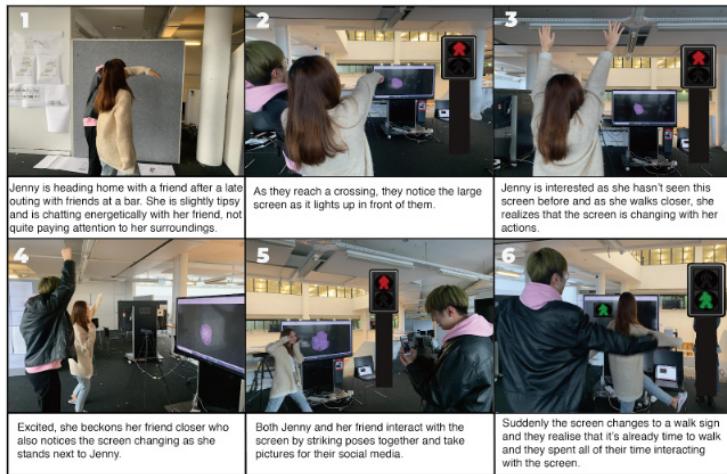
First Low Fidelity Prototype

Low Fidelity Findings Affinity Diagram

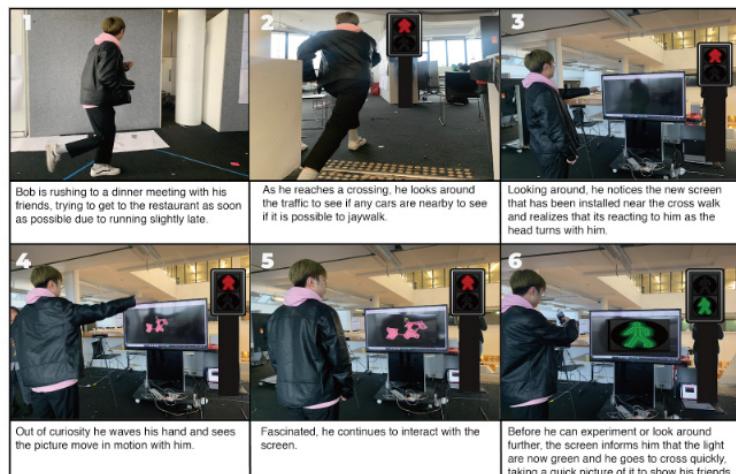


Persona Based Walkthrough

Persona Based Walkthrough 1: Jenny



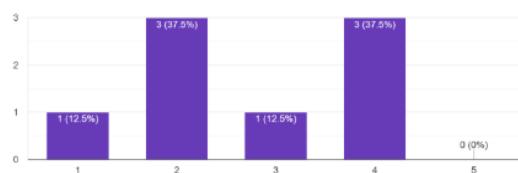
Persona Based Walkthrough 2: Bob



Neo Kinesis Low Fidelity Pre Test Survey Results

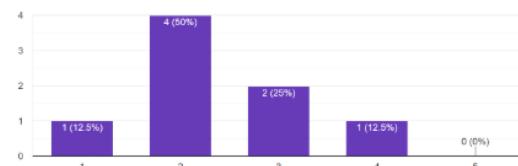
How frequent do you use your mobile phone while waiting at the crossing?

8 responses



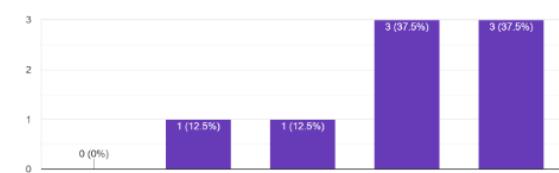
How likely would you socialise with others while waiting at the crossing?

8 responses



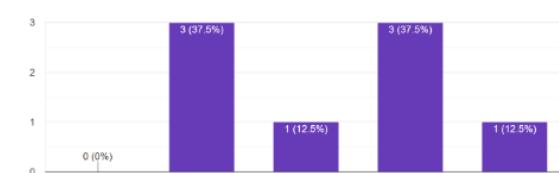
1. How enjoyable did you find this concept?

8 responses



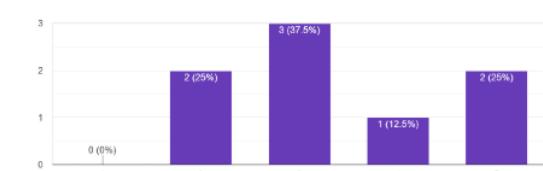
2. How easy was it to understand and use?

8 responses



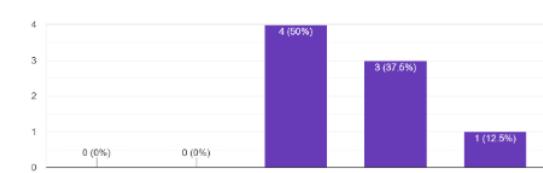
5. If this idea were to be installed at a crossing on the street and you had already seen it before, on a separate occasion how likely would you be to interact with it again?

8 responses



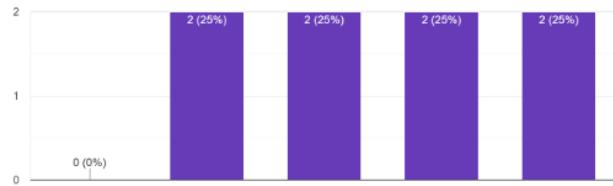
6. If this idea were to be installed at a crossing on the street, how accessible do you feel the concept would be?

8 responses



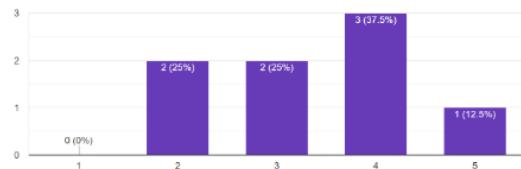
To what extent would you prefer to be entertained while waiting at the crossing?

8 responses



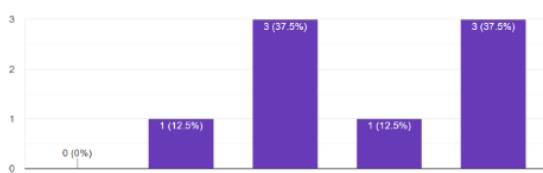
3. How much freedom did you feel you had when interacting with the concept?

8 responses



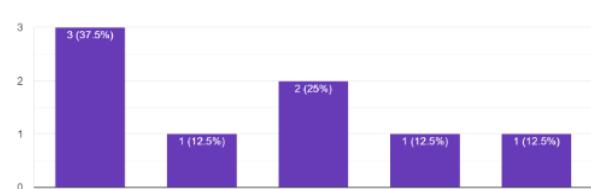
4. If this idea were to be installed at a crossing on the street, how likely would you interact with it?

8 responses



7. If this idea were to be found at a crossing on the street, to what extent would you feel the installation very cumbersome (*awkward) to use?

8 responses



Neo Kinesis

Neo Kinesis Low Fidelity Prototype Think Aloud and Observations

Think Aloud & Observations W.1: Kinson

Touchpoint	Reaction	Comments/ Observations
When they see it	Confused Intrigued Neutral Bored Excited	The user gets closer to the installation.
When they approach it	Confused Intrigued Neutral Bored Excited	Doesn't seem to understand what the screen can do. "As there's know instructions. I don't really understand what the screen can do."
When they interact with it	Confused Intrigued Neutral Bored Excited	He finally get what the interaction is. "Oh I see. I get it now"
After using it	Confused Intrigued Neutral Bored Excited	The user gets excited.

Think Aloud & Observations W.2: Zhuo

Touchpoint	Reaction	Comments/ Observations
When they see it	Confused Intrigued Neutral Bored Excited	He was intrigued by this, and wanted to go closer and see how it works.
When they approach it	Confused Intrigued Neutral Bored Excited	He wants to try it badly. "Cool, I really want to try it now."
When they interact with it	Confused Intrigued Neutral Bored Excited	"Wow"
After using it	Confused Intrigued Neutral Bored Excited	He is excited to interact with other people. "That's cool, it's cool how it works with other people as well, not just me."

Think Aloud & Observations W.3: Miao

Touchpoint	Reaction	Comments/ Observations
When they see it	Confused Intrigued Neutral Bored Excited	He was intrigued by this, and wanted to go closer and see how it works.
When they approach it	Confused Intrigued Neutral Bored Excited	He wants to try it badly. "Cool, I really want to try it now."
When they interact with it	Confused Intrigued Neutral Bored Excited	"Wow"
After using it	Confused Intrigued Neutral Bored Excited	He is excited to interact with other people. "That's cool, it's cool how it works with other people as well, not just me."

Think Aloud & Observations W.4: Rachel

Touchpoint	Reaction	Comments/ Observations
When they see it	Confused Intrigued Neutral Bored Excited	"Cool, I want to try it"
When they approach it	Confused Intrigued Neutral Bored Excited	Seems confused how it works. "Why is it keeps drawing?" "How people's movement relates to it?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"I'm just trying to figure out what my movement relates to the dots." "If it moves seamlessly I get it, but it's not."
After using it	Confused Intrigued Neutral Bored Excited	"I think it's cool but not very smooth." "I want to see my movement." "If I add something to it, it would be really fun." "I would prefer if I could just see the movement of my hands, rather than my whole body, as it seems to be doing."

Think Aloud & Observations W.5: Hanchi

Touchpoint	Reaction	Comments/ Observations
When they see it	Confused Intrigued Neutral Bored Excited	"I wonder what this screen for?"
When they approach it	Confused Intrigued Neutral Bored Excited	Generally just intrigued by it as it begins to react to them. "What is this?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"But how does the animation connects to my movement, why does this track my movement?"
After using it	Confused Intrigued Neutral Bored Excited	Not very impressed, thought the animation could be more engaging.

Think Aloud & Observations W.6: Jerry

Touchpoint	Reaction	Comments/ Observations
When they see it	Confused Intrigued Neutral Bored Excited	"I wouldn't wave my arm"
When they approach it	Confused Intrigued Neutral Bored Excited	"How does this work?" "I think it needs a label or instruction to help me understand. When I move my arm I see correlation."
When they interact with it	Confused Intrigued Neutral Bored Excited	"I like the overall interaction." "It maybe it can be used on my phone."
After using it	Confused Intrigued Neutral Bored Excited	"I thought it was a game, well if it's a game it would be cool."

Think Aloud & Observations W.7: Ben

Touchpoint	Reaction	Comments/ Observations
When they see it	Confused Intrigued Neutral Bored Excited	"I wont to know what is this."
When they approach it	Confused Intrigued Neutral Bored Excited	They're intrigued and wave their arms to see if it triggered the animation.
When they interact with it	Confused Intrigued Neutral Bored Excited	"Which part it is tracking my movement?" "When my head moves and when I move my legs, doesn't it always track my movement?" "Well sometimes it's catching up."
After using it	Confused Intrigued Neutral Bored Excited	"It would be different with other color. It's interesting but I'm not really into this interaction."

Think Aloud & Observations W.8: Jared

Touchpoint	Reaction	Comments/ Observations
When they see it	Confused Intrigued Neutral Bored Excited	"I wonder what this do?"
When they approach it	Confused Intrigued Neutral Bored Excited	Doesn't really seem to understand that the interaction has triggered. "If I can start the interaction?"
When they interact with it	Confused Intrigued Neutral Bored Excited	"What is this for?" "Why it keeps drawing when I stop?"
After using it	Confused Intrigued Neutral Bored Excited	"The overall interaction is really cool."

Neo Kinesis Low Fidelity Post Testing Interview

Interview X.1: Kinson

1. Overall, what were your impressions?

It's cool, if you think you can make it more responsive it would be more fun. Because right now it's not very engaging and kind of awkward because the animations are a bit slow, only the green dots are moving. And there is only one pattern.

2. Was there any part of the interaction that was difficult to understand?

Better flow, maybe more dots or other forms of expression to show movement because the dots and the hand waving was a bit confusing

3. What aspects in particular did you enjoy about this concept?

The bold colours of the patterns are very interesting to me, however as mentioned before as there's only one it's kind of boring.

4. If this were to be installed at a crossing, do you feel that you'd be able to easily join in and participate?

I think it could use some instructions or some kind of demo to explain to people rather than just a sensor as people who are less digitally inclined may be confused

5. What do you think is the overall purpose of this installation at the crossings?

My first guess would be to entertain people or maybe some kind of art installed by the council.

6. Were there any potential concerns of interacting with this concept if it was found at a crossing?

No, I don't think there's currently any potential concerns as I'm standing in place and just interacting with the screen. It doesn't put me in any danger.

7. Do you have any suggestions for improvements?

Better responses, less lag would make it more engaging as at the moment its limited by its' laggy screen.

Interview X.2: Zhuo

1. Overall, what were your impressions?

It's fancy and your attention gets immediately captured when you see it because of the lights.

2. Was there any part of the interaction that was difficult to understand?

So many green dots you know that it's interactive but you know know which part of your body is being represented by the green dot. I think if there were less dots or somehow able to be more clear with what dot represented what part of me it'd be easier to understand.

3. What aspects in particular did you enjoy about this concept?

The everchanging effects and my ability to control the flow.

4. If this were to be installed at a crossing, do you feel that you'd be able to easily join in and participate?

Yes, I think if it was able to detect more people (such as crowds as crossings can become crowded) I'd be able to join in more easily. As at this time it only really detects one person properly from what I can see.

5. What do you think is the overall purpose of this installation at the crossings?

Making people wait at the crossing instead of just jaywalking

6. Were there any potential concerns of interacting with this concept if it was found at a crossing?

I wouldn't really be concerned about any actual interaction but maybe if there could be a more obvious sign showing that the light has changed to green as this installation can be too engaging for people to remember the light.

7. Do you have any suggestions for improvements?

Try to add more colours so people can recognise their own body parts when interacting with the screen.

Interview X.3: Miao

1. Overall, what were your impressions?

Don't really have any strong feelings about it, just a screen to engage with whilst waiting for the lights

2. Was there any part of the interaction that was difficult to understand?

I think it's easy to understand as the screen shows the green dot to represent my movement.

3. What aspects in particular did you enjoy about this concept?

I like the flow of the green dots and how it moves with me. I think it's very interesting.

4. If this were to be installed at a crossing, do you feel that you'd be able to easily join in and participate?

I think at the moment because of the lag it's a bit hard to understand immediately what it does. If the response rate was more direct I would be able to more easily understand what the purpose of the screen is.

5. What do you think is the overall purpose of this installation at the crossings?

I would think that the purpose of this is for entertainment

6. Were there any potential concerns of interacting with this concept if it was found at a crossing?

Not really, I don't see any points of concern as all I'm doing is standing in front of a screen.

7. Do you have any suggestions for improvements?

Maybe better animations that are more varied, I think that's it

Interview X.4: Rachel

1. Overall, what were your impressions?

I feel like it's really interesting, I mean there's a long way to go. But it's very engaging because it's reflecting you in the interaction. I think maybe the shape, I wonder what relevance they had to the environment.

2. Was there any part of the interaction that was difficult to understand?

What exactly was controlling what. But I knew that it was me and my movements but I couldn't understand what part of me was controlling what.

3. What aspects in particular did you enjoy about this concept?

The aesthetics are really cool, they're smooth which are nice. Just the visuals, it's captivating.

4. If this were to be installed at a crossing, do you feel that you'd be able to easily join in and participate?

Yes, definitely. It's simple, You don't need to press start of anything. You can just join in. You'd be using it without thinking about it.

5. What do you think is the overall purpose of this installation at the crossings?

To distract, or even just to please the people who are waiting. I would think oh it's a pleasing thing, like entertainment.

6. Were there any potential concerns of interacting with this concept if it was found at a crossing?

No, I don't think so. I don't think it would cause anything, not that I can think of.

7. Do you have any suggestions for improvements?

Making it a bit more subtle and maybe focusing on just your hands rather than your whole figure; so it's almost like you're painting with your hands on the screen.

Appendix

Neo Kinesis

Interview X.5: Hanchi

1. Overall, what were your impressions?
Looks fancy and fantastic. When I use it, it makes me feel confused, as I don't know how to control it.
2. Was there any part of the interaction that was difficult to understand?
It does not track my movement accurately, which makes me feel confused.
3. What aspects in particular did you enjoy about this concept?
I like the sense of futuristic technology I feel when interacting with this concept, I have never seen this equipment before, I would like to try something new like this.
4. If this were to be installed at a crossing, do you feel that you'd be able to easily join in and participate?
I think I'm more likely to interact with this when I am alone, based on my personality. But if there are many people at the crossing I won't use it, it's embarrassing.
5. What do you think is the overall purpose of this installation at the crossings?
I think it will reduce phone use at crossings and encourage social interaction.
6. Were there any potential concerns of interacting with this concept if it was found at a crossing?
I probably wouldn't use it a second time because I don't think it would interest me in its current stage as there's only really one animation.
7. Do you have any suggestions for improvements?
If the animation is more smooth, it will be better. I think if there's a guide to help people to understand the interaction, that would improve user experience.

Interview X.7: Ben

1. Overall, what were your impressions?
It was fun, I've never seen anything like it before. Unique, obviously low fidelity but its response so that was interesting.
2. Was there any part of the interaction that was difficult to understand?
Not really, it wasn't depicting the shape of the body or anything, so the abstract nature of it meant it was chaotic, but I could accept that. Also until it was clarified, I didn't realise the interaction was only from waist up.
3. What aspects in particular did you enjoy about this concept?
That it's basically going to work, you can walk up to it. So it's kind of like you don't have to start a process and wait for it to end. You just walk up to it and it works.
4. If this were to be installed at a crossing, do you feel that you'd be able to easily join in and participate?
That would depend on the normal social barriers, I don't see any difficulties of engaging with this in comparison to say conversing with a human.
5. What do you think is the overall purpose of this installation at the crossings?
I would think that the purpose of it would be to just be interactive and engaging to entertain the people. Maybe some sort of way to encourage social engagement between two people.
6. Were there any potential concerns of interacting with this concept if it was found at a crossing?
If it was at a shelter booth, I wouldn't have any problems with it. But a potential problem I see is that people may be too distracted by it and not pay attention to the street. Particularly if you end up engaging in social contact with somebody else, it would increase the interaction aspect.
7. Do you have any suggestions for improvements?
Idea of it being added to a pole. It's currently interesting but at the moment it's clearly just a triangular frame animation, if you could add something to the next iteration to make it more interesting.
8. Extra comment: different colours for different people - so you can tell what you did vs what somebody else did. Or maybe some other way to encourage social interaction.

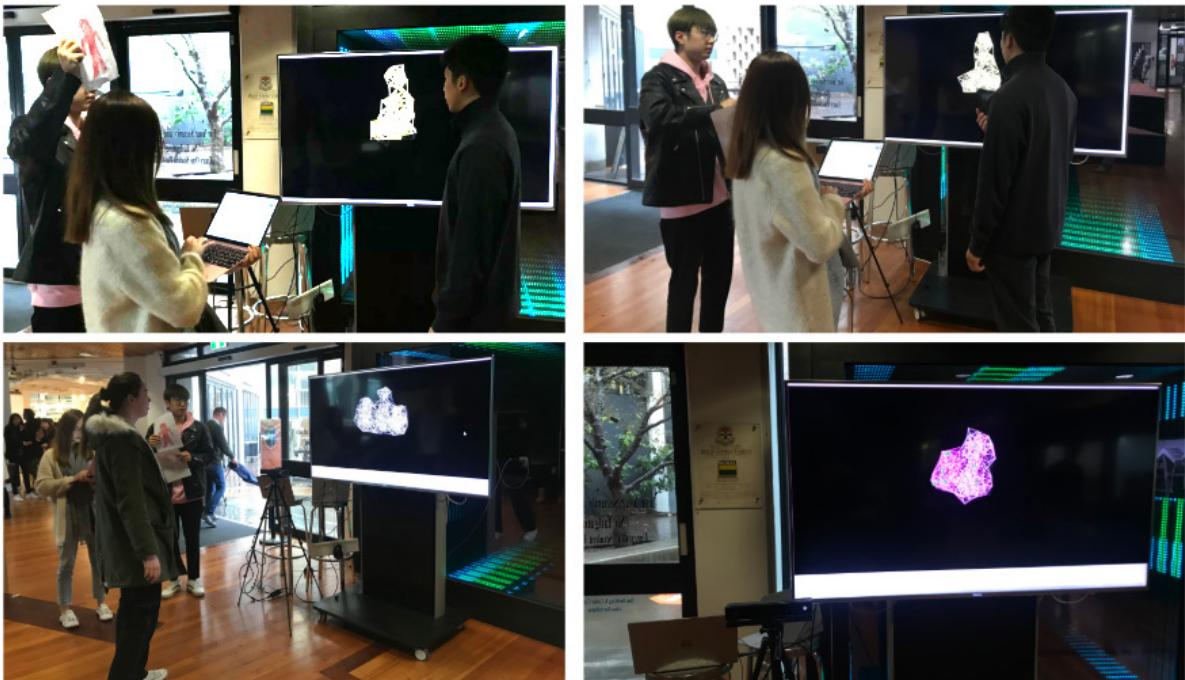
Interview X.6: Jerry

1. Overall, what were your impressions?
I liked the green dot, it interacted with me directly.
2. Was there any part of the interaction that was difficult to understand?
The triangle art part, I was a bit confused with it because I don't know what it is representing from me; in contrast to the dot which I got immediate response from.
3. What aspects in particular did you enjoy about this concept?
I think the interactive aspect of it was my favourite part, I have something to distract me when I'm waiting without investing a high level of time or energy.
4. If this were to be installed at a crossing, do you feel that you'd be able to easily join in and participate?
Yes, I can just shake my hand or stand in front of the screen and something or an image just happens instantly.
5. What do you think is the overall purpose of this installation at the crossings?
I think maybe for entertainment because of the interactivity aspect and the animation.
6. Were there any potential concerns of interacting with this concept if it was found at a crossing?
Maybe it would not be as effective during the daytime because of the sunlight.
7. Do you have any suggestions for improvements?
You could make the triangle abstract part more easily understandable by maybe making it better represent the human figure.

Interview X.8: Jared

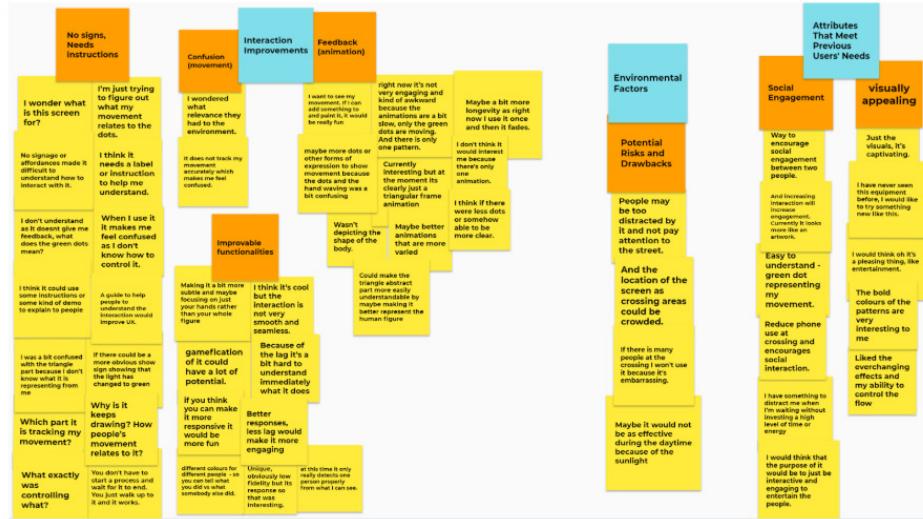
1. Overall, what were your impressions?
I think it has a lot of potential, I feel like honestly you guys could gamify to increase the interaction aspect. And increasing interaction will increase engagement. Currently it looks more like an artwork.
2. Was there any part of the interaction that was difficult to understand?
No signage or affordances made it difficult to understand how to interact with it. And if you look at the current screen, there's only a small section that can be interacted with, I was trying to engage with a corner but was unable to. Might have been an issue with the Kinect though.
3. What aspects in particular did you enjoy about this concept?
Interactivity comes to mind first and I really like the artwork, there's definitely stuff that could be added to it but it's a really interesting start. Maybe a bit more longevity as right now I use it once and then it fades.
4. If this were to be installed at a crossing, do you feel that you'd be able to easily join in and participate?
Yeah, as there are no objectives or rules with this concept at the moment it's pretty easy to just join in.
5. What do you think is the overall purpose of this installation at the crossings?
I would just think it's there for aesthetic/art reasons.
6. Were there any potential concerns of interacting with this concept if it was found at a crossing?
I would be worried about potential vandalism to the device or damage. And the location of the screen as crossing areas could be crowded.
7. Do you have any suggestions for improvements?
I think everything I mentioned above sort of summarises my thoughts on the concept, the gamification of it could have a lot of potential.

Neo Kinesis Low Fidelity Prototype Testing Photos



Appendix

Neo Kinesis Low Fidelity Findings Affinity Diagram



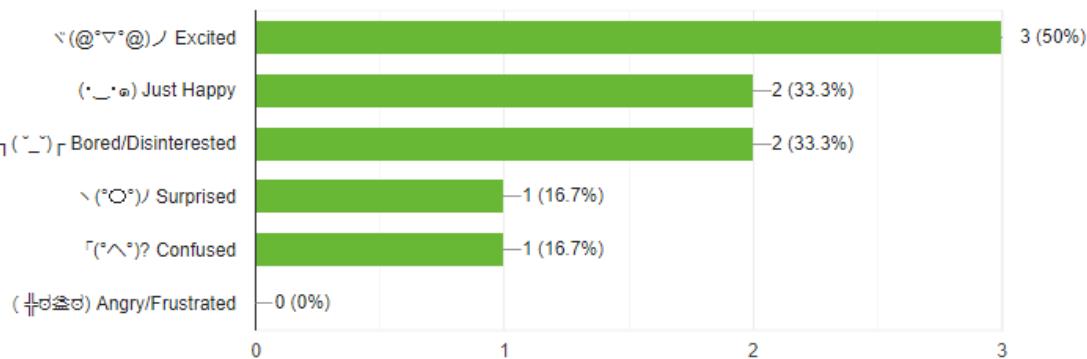
Testing of Three Low Fidelity Prototype Variations A/B Testing



Ver A: One Style and Unique Colours

Emotions when Interacting

6 responses



Observations/Comments

I cant see which one is mine at the first time(lack immediate feedback) tried funny gestures just to see if the patterns change differently, I dont know how wide and far it tracks (area of tracking)

The animation is ambiguous, and the motion is not really clear. "It is much better than only waiting at the traffic with nothing to do"

why is the point not moving with us, neutral, the patterns too simple (movement not obvious), lost interest really quick, no comments on colours (too colourful), prefer drawing patterns and fading away (brushes)

realised it can be played with both hands, animation blurry when hands moving faster, works fine when she moves hands slowly, did not really spot the difference

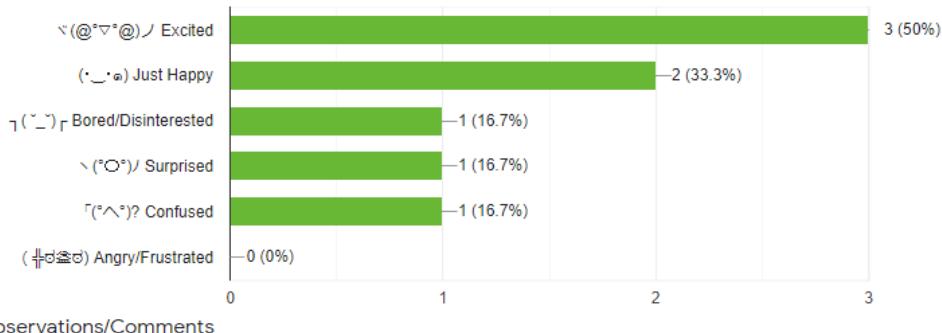
I don't understand which colour represents me.

If I can leave more animation on the screen, it's better. I hope the animation can leave longer on the screen. The animation is boring, if more gestures added it's better.

Ver B: Unique Styles but One Colour

Emotions when Interacting

6 responses



Observations/Comments

It lags more than the first one, track feet maybe

It is much more exciting, the animation is cute, it gives me a sense of love. The animation is not very continual, if it is a line shape which I can draw, it might be better.

Take out phone and record, doesn't feel that his pattern is moving, too messy

is able to find where she was, spotted lagging, asked instructors about how it worked

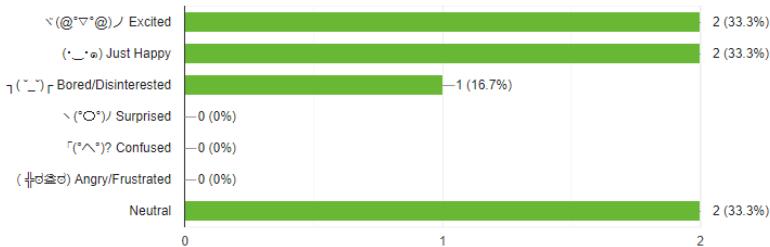
The animation lags.

It's more beautiful but kinda messy and it lags.

Ver C: Unique Styles and Unique Colours

Emotions when Interacting

6 responses



Observations/Comments

Colours way better than Version2, has problems of version 2, knows clearer where he was, noticed shapes are different, swaped with the people next to change colour

The color is like nightclub. The continual movement makes more sense.

doenst really spot the different, lagging issue, 运动轨迹有问题, points did not follow up

Colours seem to be more simple

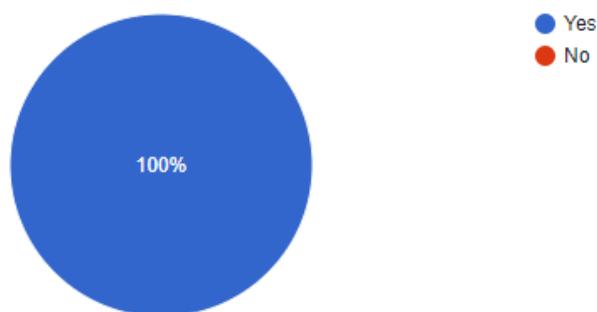
I can finally tell the difference

The animation lags too, I would like to choose my own color.

Final Thoughts

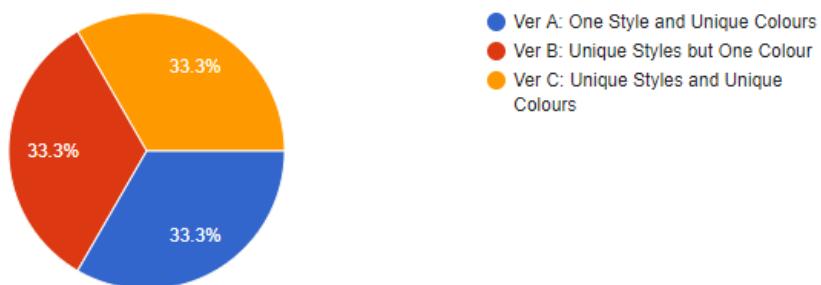
Did they understand the difference between the two versions?

6 responses



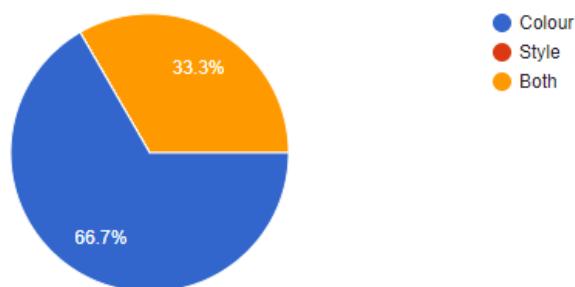
Which version do they prefer?

6 responses



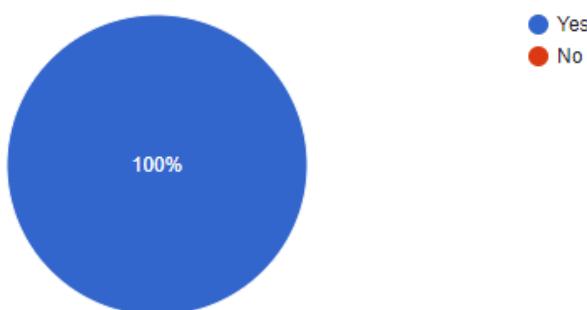
Do they want/prioritise unique colour, style, or both?

6 responses



Would they prefer extra features to be added?

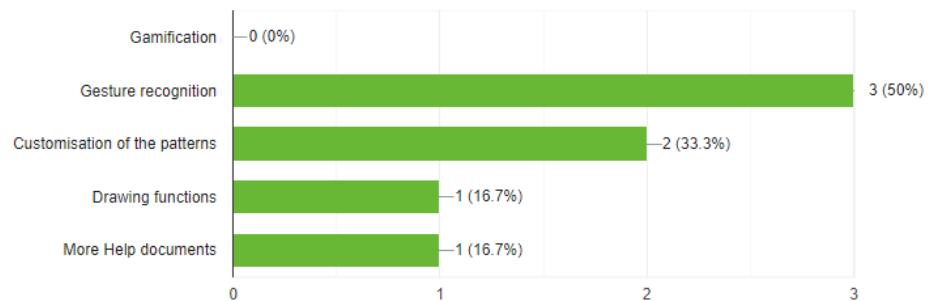
6 responses



Neo Kinesis

If yes, which extra features would interest them the most?

6 responses



Final comments/feedback/suggestions?

No point to add more extra feature as the waiting time is already limited. I prioritise colours more because it can distinguish where I am more clearly, since style is only limited to several different ones and could seem too messy.

If I can draw something and leave it on screen it is more interesting. We can even play "you draw I guess"

Physical engine should be prioritised rather than the aesthetics.

Only feels interesting when moving slowly

If different shape or bigger(can be triangle or circle) is used it makes more sense.

You can add gesture(like human fall flight) game inside, which user can play together. You can add something like you can draw, and leave it on the screen a little longer. I want to choose my color!

Heuristic Evaluation Survey

Name?

6 responses

Benj

Jack

Liangyi Wang

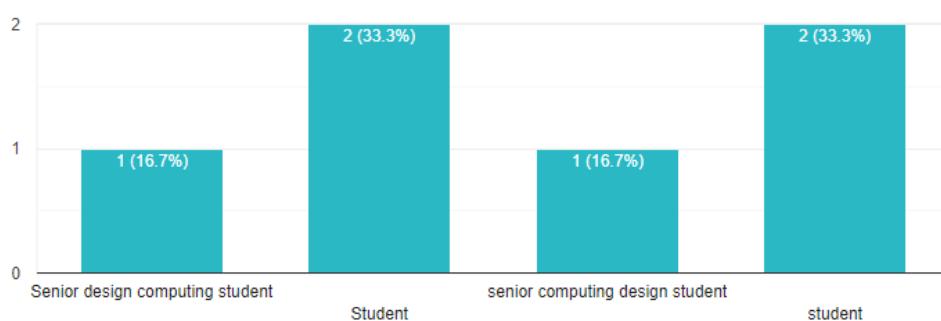
Kinson

miao

Rose

What's your occupation?

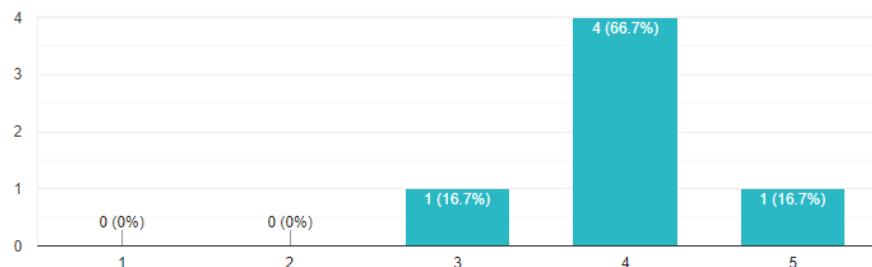
6 responses



Visibility of System Status

Visibility of System Status

6 responses



Any comments regarding your above answer?

2 responses

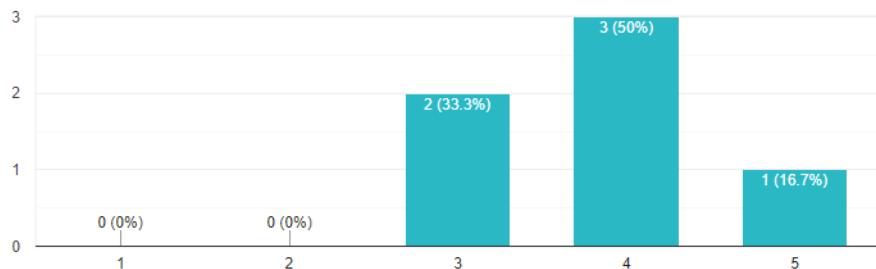
the moving trace is not clear enough

the overall visual design is beautiful and attractive, however, the second and the third one is quite messy to identify where the users' hand is.

Match Between System and The Real World

Match Between System and The Real World

6 responses



Any comments regarding your above answer?

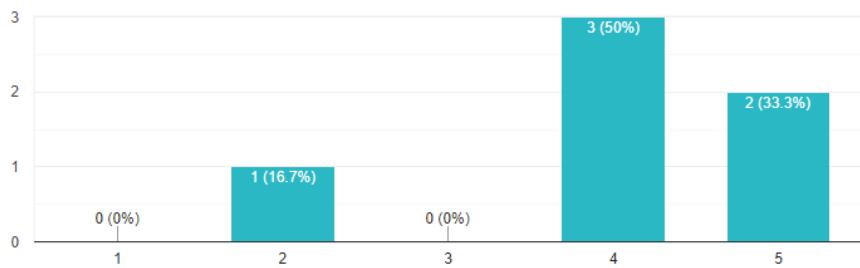
1 response

after moving my hand for serval time I can understand the function and the range is can be detected.
However, the reaction speed is quite slow for the second and the third one.

User Control and Freedom

User Control and Freedom

6 responses



Any comments regarding your above answer?

2 responses

reaction slow

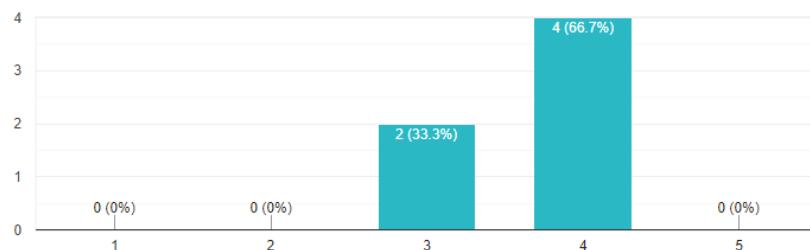
I definitely had freedom in my actions. However, the detected range is limited thus when I am doing a big movement, the sensor may not detect it.

Neo Kinesis

Consistency and Standards

Consistency and Standards

6 responses



Any comments regarding your above answer?

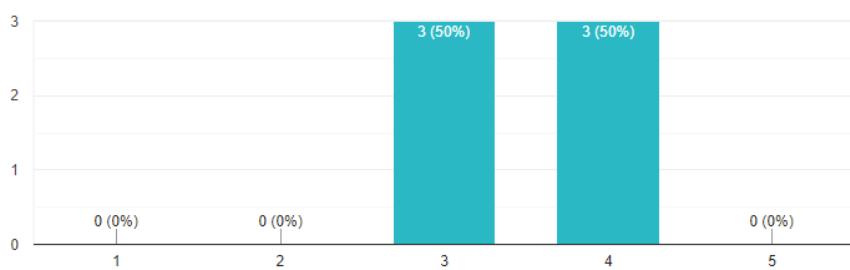
1 response

I am imagine to had a long standing drawing, however, the movement will only leave there for a second, thus it is a little bit different to my original thinking.

Error Prevention

Error Prevention

6 responses



Any comments regarding your above answer?

2 responses

no error could found now

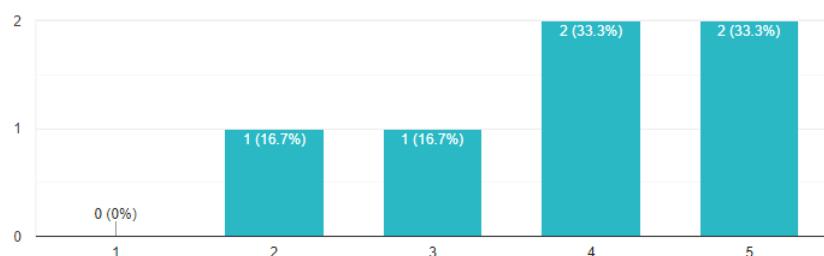
when more players had entered the game, people will be hard to find which point is their hands and get confused.

Neo Kinesis

Recognition Rather Than Recall

Recognition Rather Than Recall

6 responses



Any comments regarding your above answer?

3 responses

it might be confused at first glance

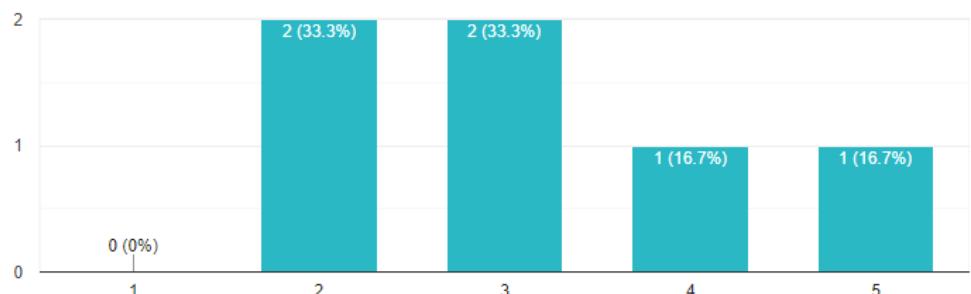
all good but cant find hand at the first time

If you are a human you will first move your hands to try to know how it works, thus without the instruction, people can still easily understand how it works.

Flexibility and Efficiency of Use

Flexibility and Efficiency of Use

6 responses



Any comments regarding your above answer?

1 response

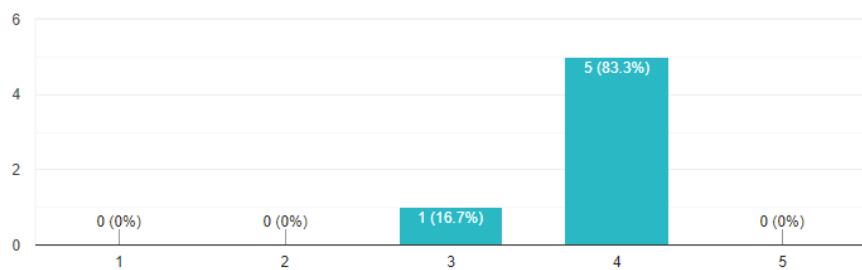
If I want to change the colour of my movement, I can not do it.

Appendix

Aesthetic and Minimalist Design

Aesthetic and Minimalist Design

6 responses



Any comments regarding your above answer?

2 responses

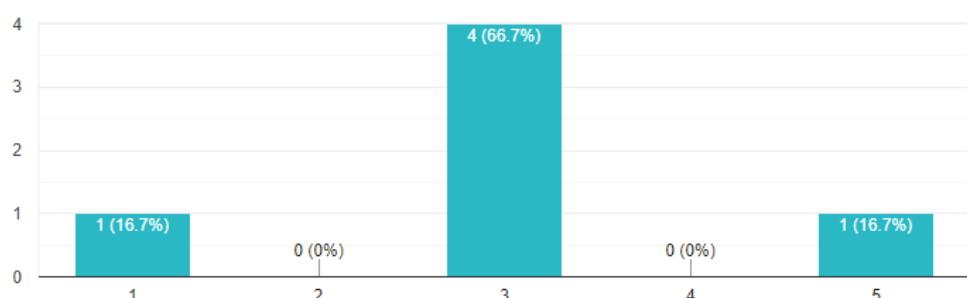
the color and the shape of track are great.

one thing can be irrelevant the the continuing movement of the decorating point. May be it can just be static.

Help Users Recognize, Diagnose, and Recover from Errors

Help Users Recognize, Diagnose, and Recover from Errors

6 responses



Any comments regarding your above answer?

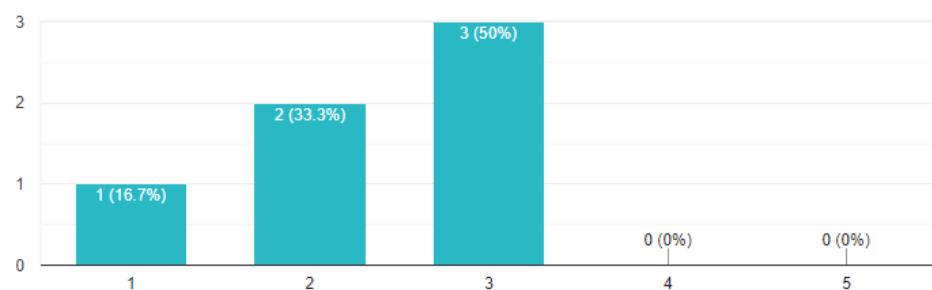
1 response

did not know about the potential errors

Help and Documentation

Help and Documentation

6 responses



Any comments regarding your above answer?

3 responses

it may need more instruction words

there are words to tell the function while did not know whether its the hand

As I just said before, people will be easily understand how it works.

Final Comments

Do you have any other comments or feedback?

4 responses

differenciate the individual moving object

The animation of moving trace effects could be refined further.

Add labels of the main user interacting with the system, so users know who is interacting and where they are

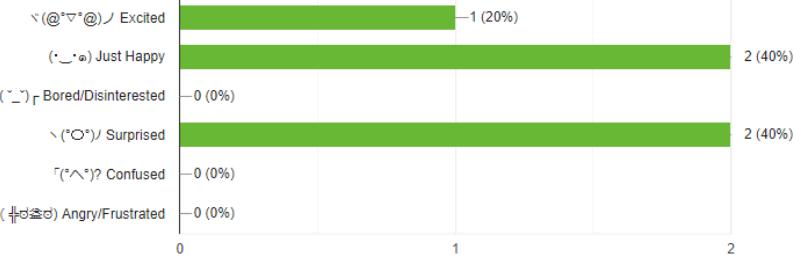
If you ever played human fall flat, you can take the character in to consideration to add more fun to your concepts.

High Fidelity Prototype

Think Aloud

Name?
5 responses
Andrew
Alex
Lewis
Rex
Kinson

Occupation
5 responses
senior design computing student
des comp student
Usyd student
Psych student
Des comp student

Emotions when Interacting																					
5 responses																					
 <table border="1"> <thead> <tr> <th>Emotion</th> <th>Count</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>ヽ(＠*▽*＠)ノ Excited</td> <td>1</td> <td>(20%)</td> </tr> <tr> <td>(・_・。) Just Happy</td> <td>2</td> <td>(40%)</td> </tr> <tr> <td>ヽ(ﾟーﾟ)ノ Bored/Disinterested</td> <td>0</td> <td>(0%)</td> </tr> <tr> <td>ヽ(*○*)ﾉ Surprised</td> <td>2</td> <td>(40%)</td> </tr> <tr> <td>ヾ(^_^)? Confused</td> <td>0</td> <td>(0%)</td> </tr> <tr> <td>(怒)(怒) Angry/Frustrated</td> <td>0</td> <td>(0%)</td> </tr> </tbody> </table>	Emotion	Count	Percentage	ヽ(＠*▽*＠)ノ Excited	1	(20%)	(・_・。) Just Happy	2	(40%)	ヽ(ﾟーﾟ)ノ Bored/Disinterested	0	(0%)	ヽ(*○*)ﾉ Surprised	2	(40%)	ヾ(^_^)? Confused	0	(0%)	(怒)(怒) Angry/Frustrated	0	(0%)
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ヾ(^_^)? Confused	0	(0%)																			
(怒)(怒) Angry/Frustrated	0	(0%)																			

What are your general thoughts on the clapping interaction?
5 responses
very cute. i was surprised to see the hearts pop up.
Good. Sometimes even if I didn't clap it registered as clapping
Cute! I think its a fun interaction that I wasn't expecting.
Interesting, was hoping to see more than just hearts but I think it makes sense with the frame
Good, it was a fun addition that I didn't see when testing before.

What are your general thoughts on the frame?

5 responses

is it supposed to be instagram?

Fun design that looks like instagram. The frame was quite large and I was surprised to see it actually built

I think it works well with the heart interaction, it matches the theme

The frames very big, makes it super visible from even a distance and makes reading the text easy. Is it supposed to be a mobile phone because of the icons on the bottom?

Approval, I didn't expect the frame to be built so quickly. It seems sturdy.

Did you read the text on the frame?

5 responses



● Yes

● No

How does the frame affect your experience?

5 responses

it doesn't really impact me but i think it does attract your attention because it's familiar the layout

The frame helped my experience since I could read what the purpose of the installation was

The frame let me know about the clapping interaction.

helps me understand how to make the hearts appear.

The frame tells me what to do if I want to see extra interactions

Observations/Comments

5 responses

the user was first interested in the drawing function as they first played around to see what it would do. they then took a few seconds to read the text and clapped to try and make the hearts appear.

The user approached the installation and immediately read the text of the frame first before interacting. The user then waved their hand to see what they could do and drew. They then read the frame again before clapping. The user clapped in different areas to see the hearts appear on screen.

the user walked up to the installation and started drawing with his hands. they only spent a few seconds reading the frame before trying to clap in different areas whilst simultaneously trying to draw in further corners

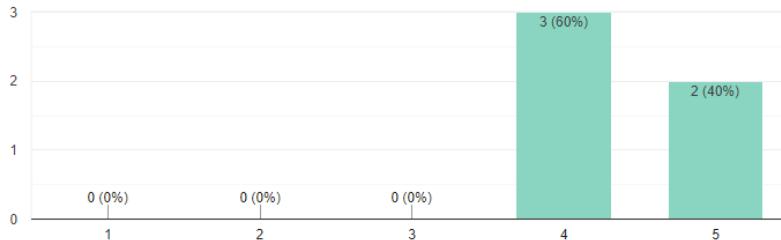
The user didn't read the frame when they first approached and began the interaction by waving one hand to draw pictures. They then waved both hands and read the frame, clapping their hands a few times to create hearts.

The user was familiar with the installation due to testing previously so they didn't spend a lot of time interacting with the drawing aspect. Instead they looked at the frame longer and spent more time clapping and trying to see where they could make the heart appear.

Heuristic Evaluation

Name?	5 responses
Andrew	
Alex	
Lewis	
Rex	
Kinson	

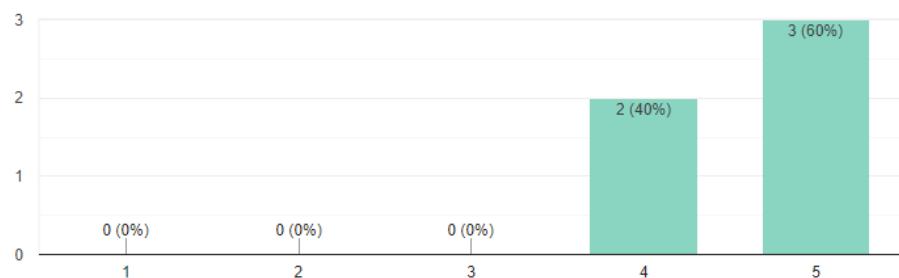
What's your occupation?	5 responses
senior design computing student	
des comp student	
Usyd student	
Psych student	
Des comp student	

Visibility of System Status	
Visibility of System Status	5 responses
	
Any comments regarding your above answer?	
1 response	
I understood the context of the situation and the frame gave all the instructions i needed if i was confused	

Match Between System and The Real World

Match Between System and The Real World

5 responses



Any comments regarding your above answer?

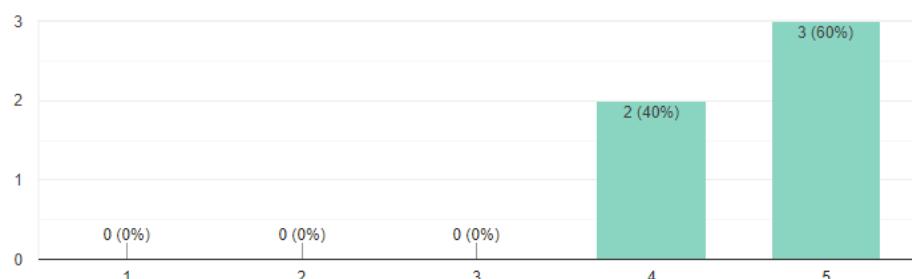
1 response

I think if the actual pedestrian lights were there I could give it a higher rating

User Control and Freedom

User Control and Freedom

5 responses



Any comments regarding your above answer?

2 responses

the detection range seems a bit limited?

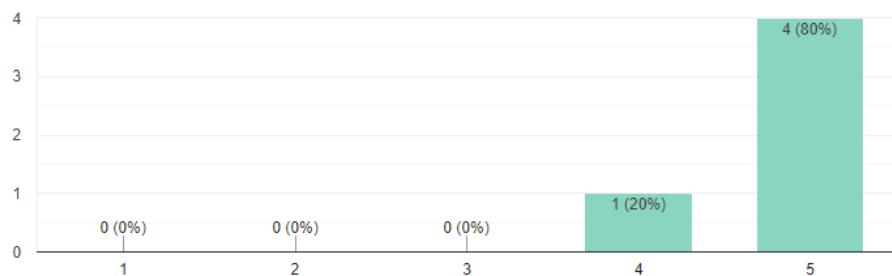
Can walk away any time with no feeling of responsibility or obligation, lots of user freedom

Neo Kinesis

Consistency and Standards

Consistency and Standards

5 responses



Any comments regarding your above answer?

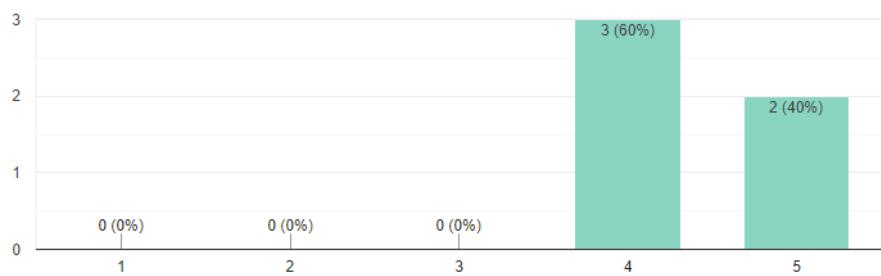
1 response

when the screen switches to the man walking, text instructions could be helpful

Error Prevention

Error Prevention

5 responses



Any comments regarding your above answer?

2 responses

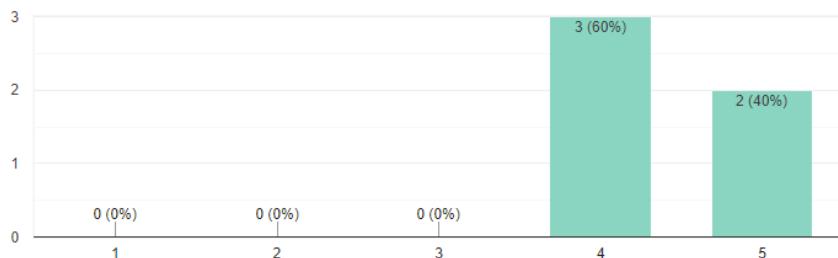
Sometimes the hearts appeared even though I was not clapping

lag made it slow sometimes

Recognition Rather Than Recall

Recognition Rather Than Recall

5 responses



Any comments regarding your above answer?

2 responses

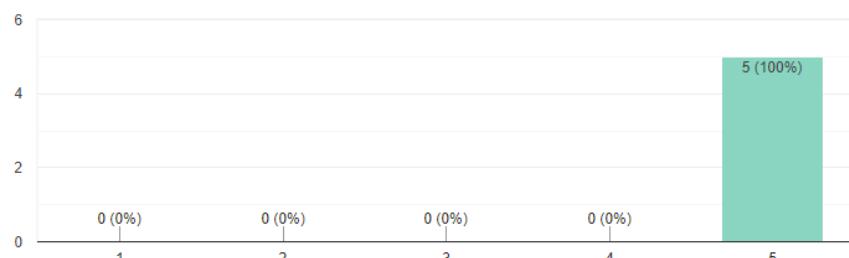
I didn't really need instructions aside from clapping to create hearts.

clapping instructions are only on the frame, some kind of information or demonstration on screen could be more helpful

Flexibility and Efficiency of Use

Flexibility and Efficiency of Use

5 responses



Any comments regarding your above answer?

3 responses

Very easy to use

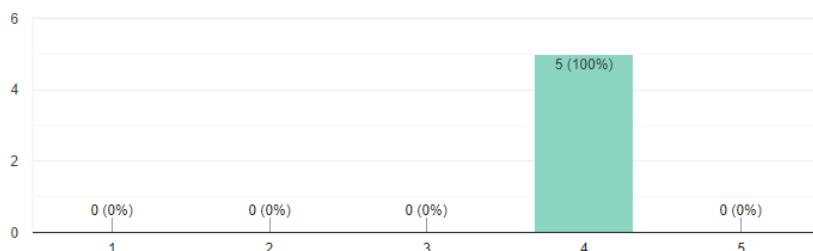
no need for any specific equipment only needs their body

Not a lot of interactions possible so there's not a lot of range

Aesthetic and Minimalist Design

Aesthetic and Minimalist Design

5 responses



Any comments regarding your above answer?

2 responses

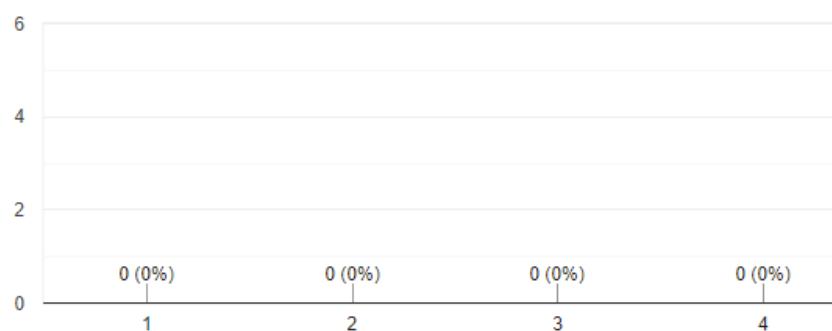
Maybe the bottom of the frame could have less text since a lot of instagram posts usually don't have a lot of text I think??

There felt like a lot of text for a social media post but I understand why

Help Users Recognize, Diagnose, and Recover from Errors

Help Users Recognize, Diagnose, and Recover from Errors

5 responses



Any comments regarding your above answer?

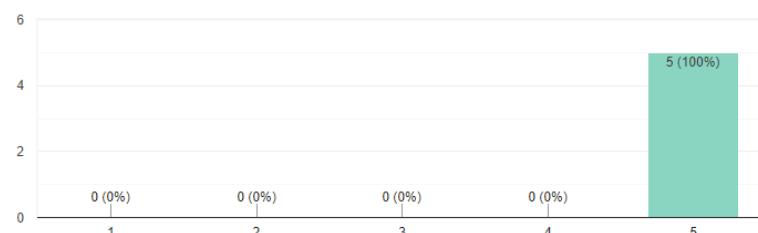
3 responses

Neo Kinesis

Help and Documentation

Help and Documentation

5 responses



Any comments regarding your above answer?

2 responses

The frame text was really helpful

Lots of help on the frame but I wonder if some people might not bother reading it at all in normal circumstances

Final Comments

Do you have any other comments or feedback?

1 response

It was fun, I would have liked to see more different types of interactions and maybe not just clapping.