



Mengchen Zhang
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The University of Melbourne

Master

Information Technology

(Human Computer Interaction stream)



Fieldwork for Design; Social Computing; Web Information Technology; Evaluating User Experience; Algorithms and Complexity;

Northeast Forest University

Bachelor

Communication Engineering



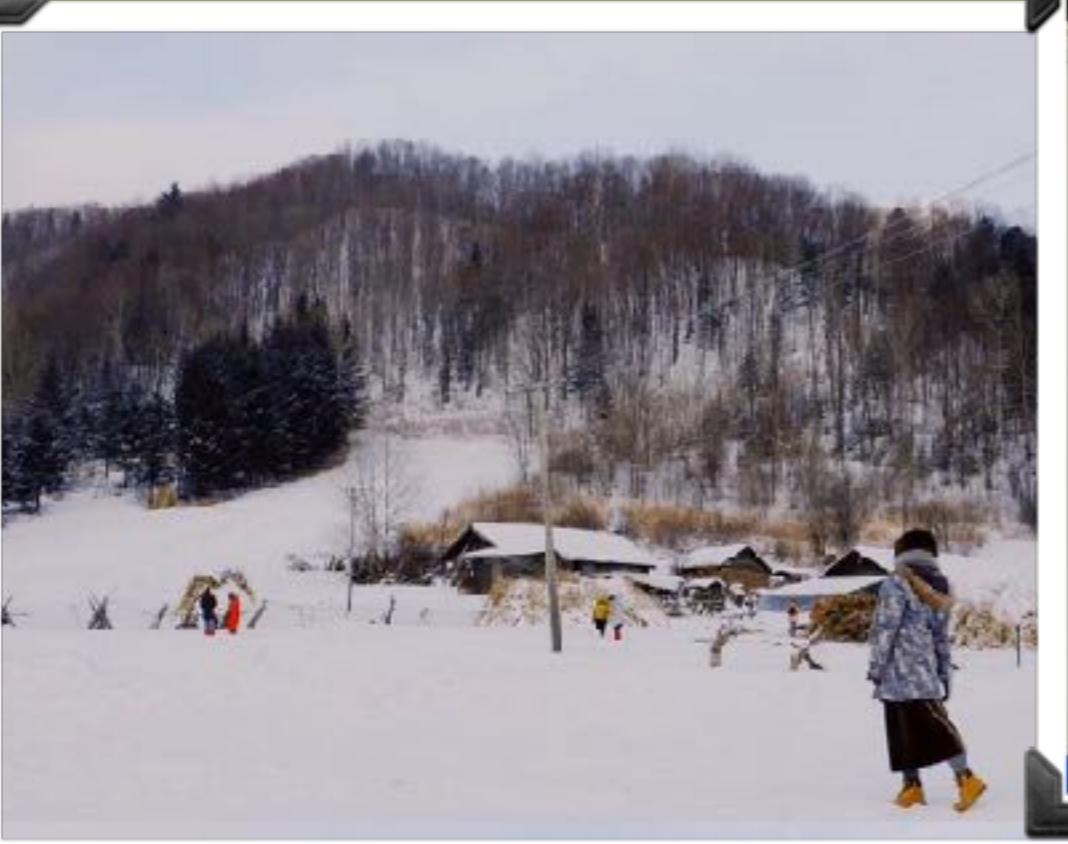
Signal and System; Probability and mathematical statistics; Fundamentals of Mono-chip Computers;

I-Shou University Exchange student

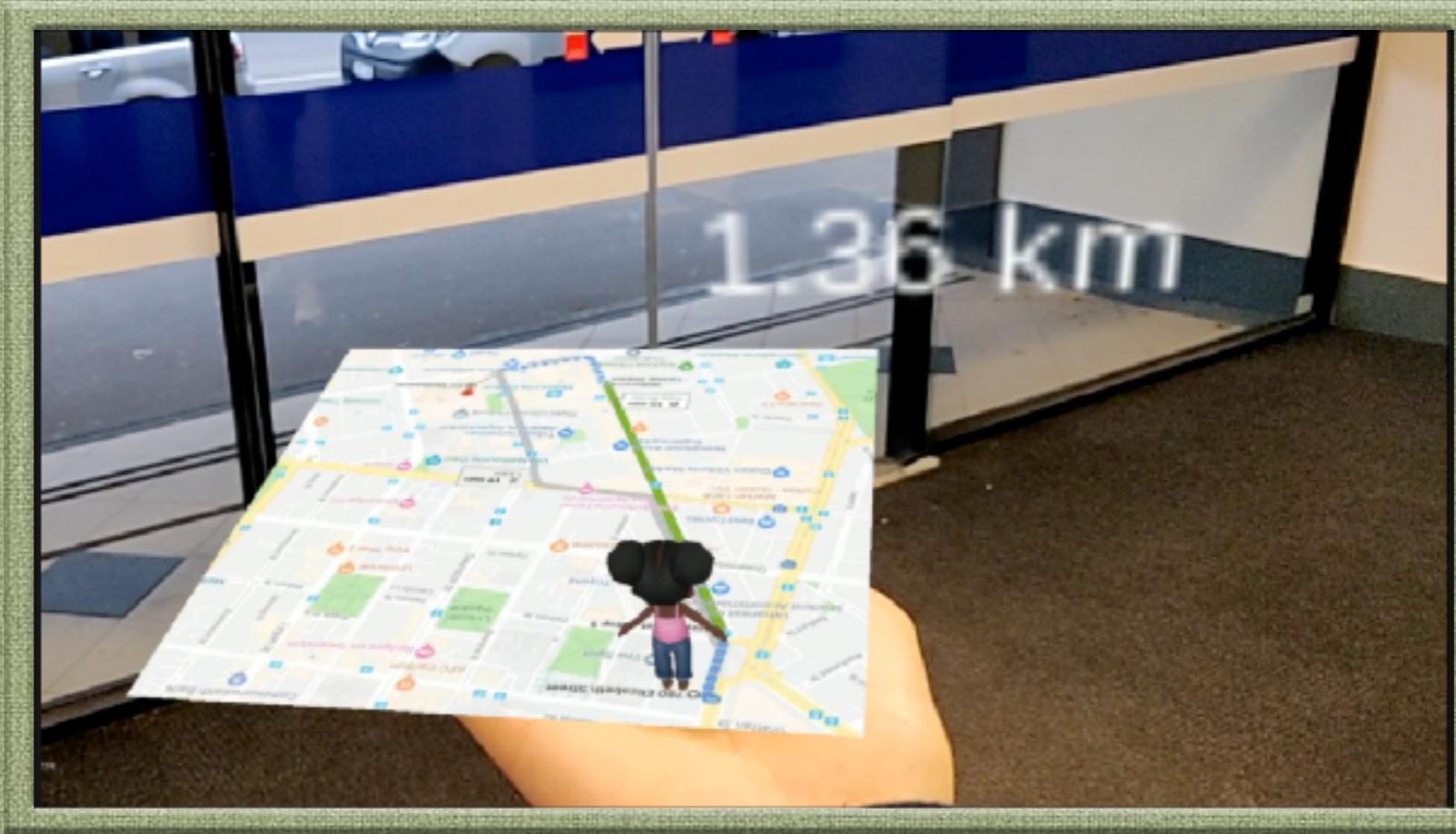
Communication Engineering



Mengchen Zhang



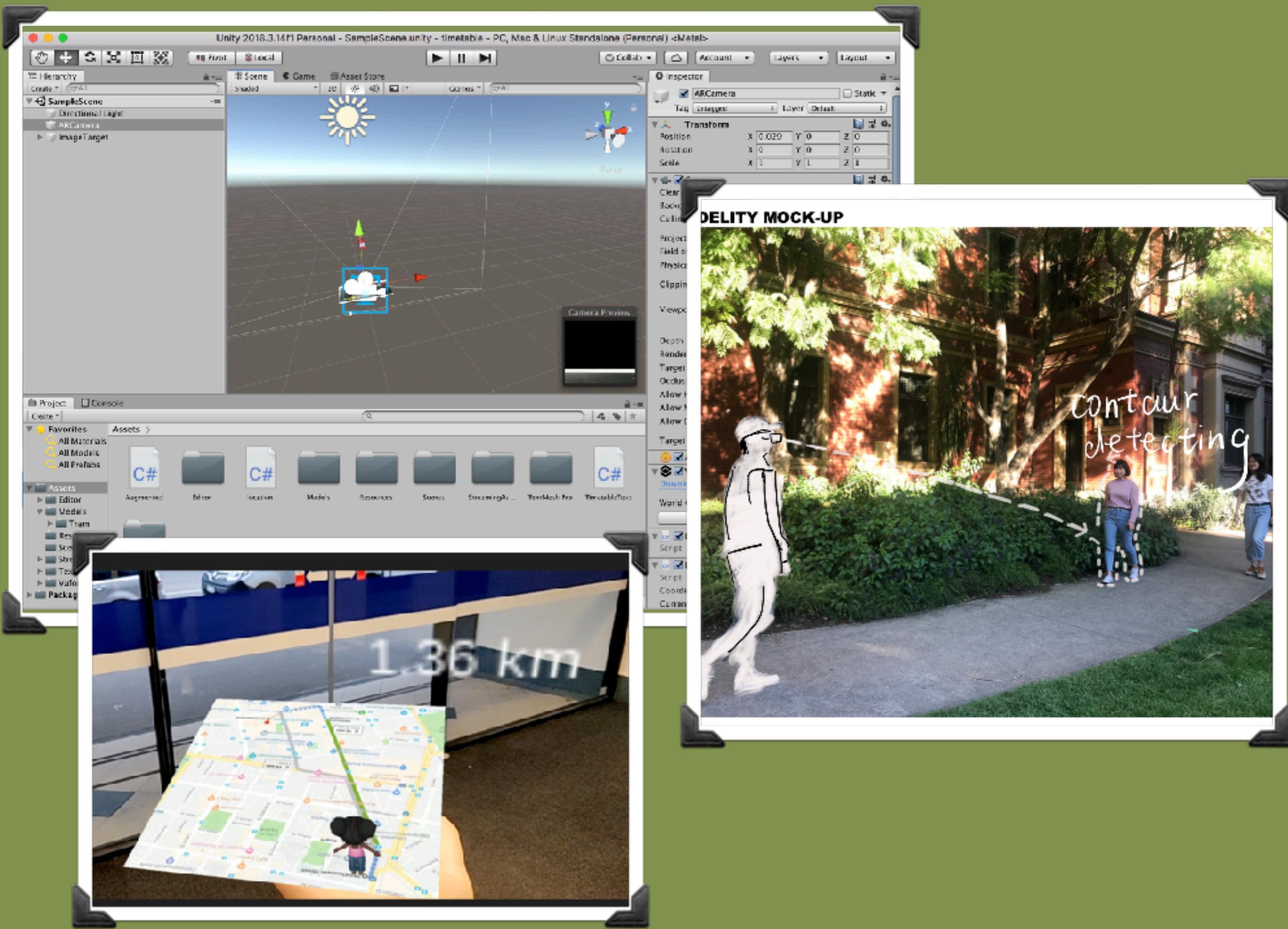
- 1 H!WAY**
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- 7 AirBeans**
- 8 ArcGIS site selection**



H!WAY

Intelligent Navigation System based on AR code

Video:<https://share.weiyun.com/arM14a8F>



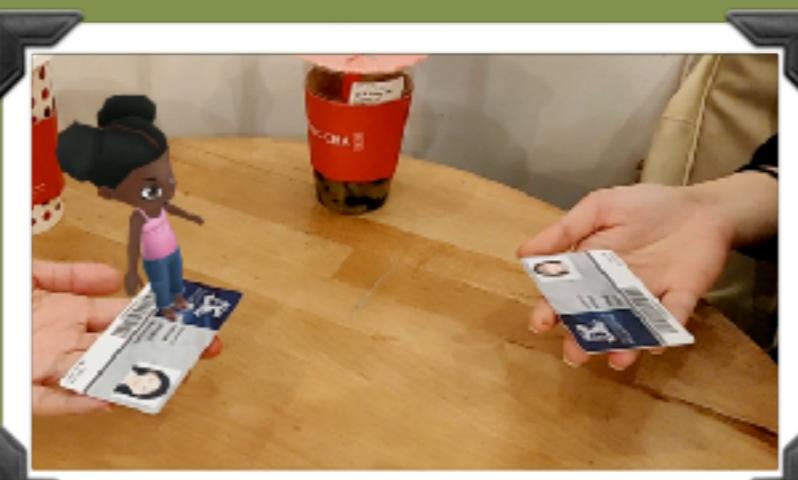
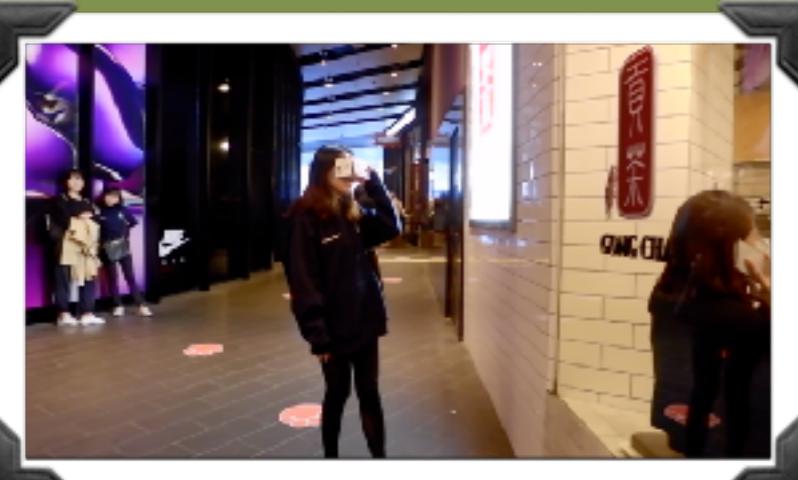


By scanning AR Code on VIP card, get the navigation to destination (Google Map API)



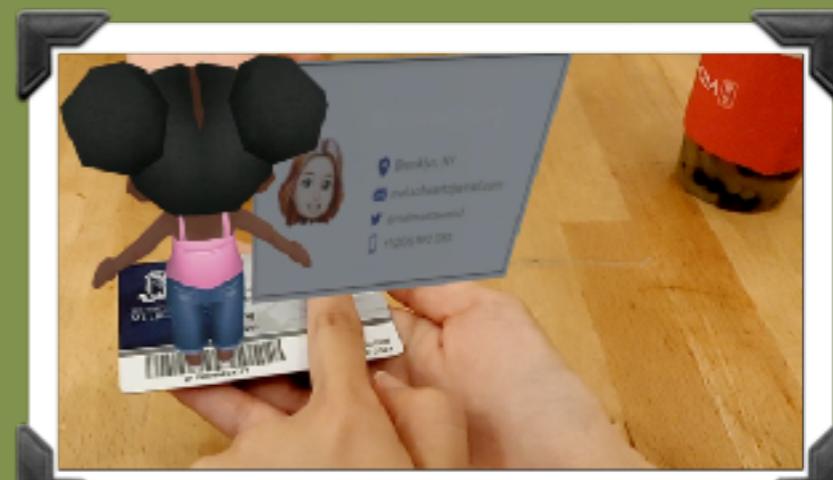
By scanning AR code on Myki card, get transportation timetable

Destination logo appeared when arrive



By scanning AR code on logo, Get detailed information

By Scanning AR code on ID card, Get virtual personal character



Exchange information for social application

iCamDo

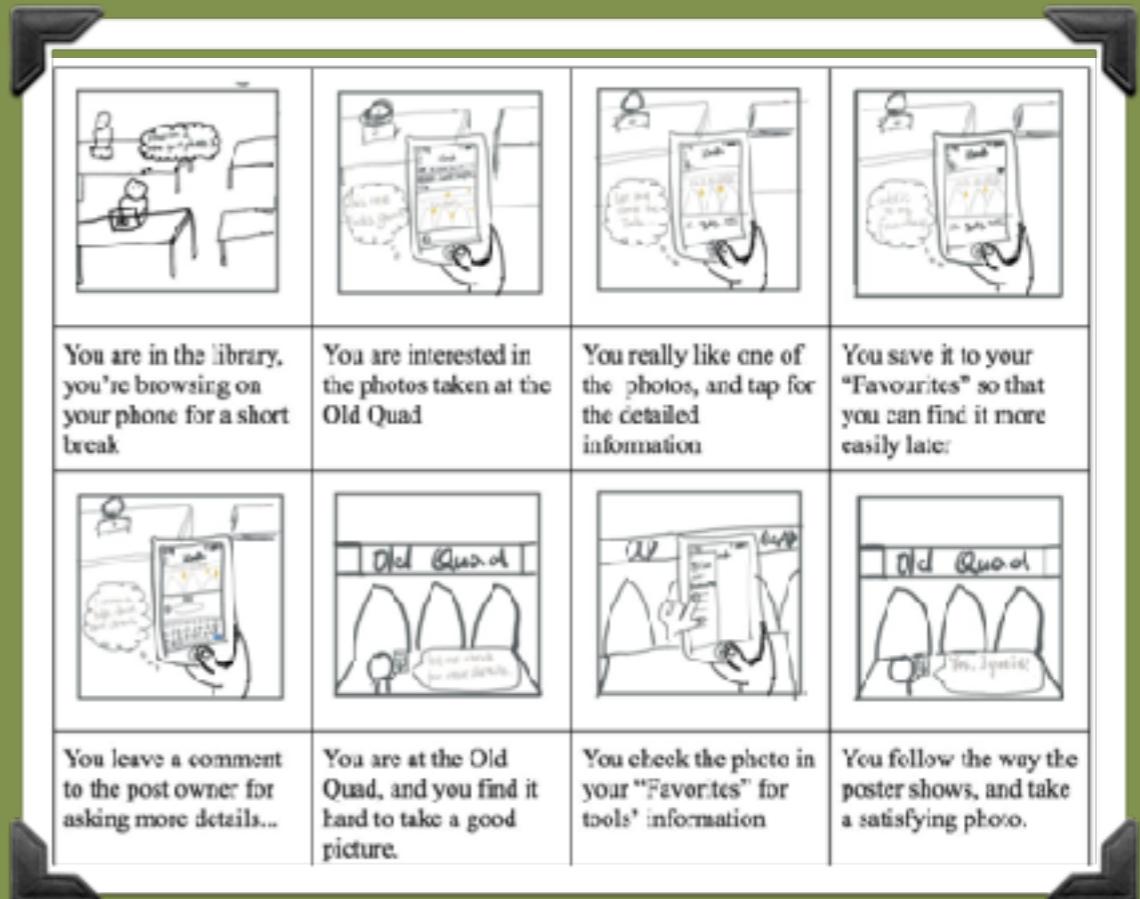
Photo-taking tutorial app

Video: <https://share.weiyun.com/E1YYrqeE>





iCamDo workflow



storyboard

Prototype link: <https://xd.adobe.com/view/fe58d80d-290b-4bc9-7001-fb251c6c314c-8869/>

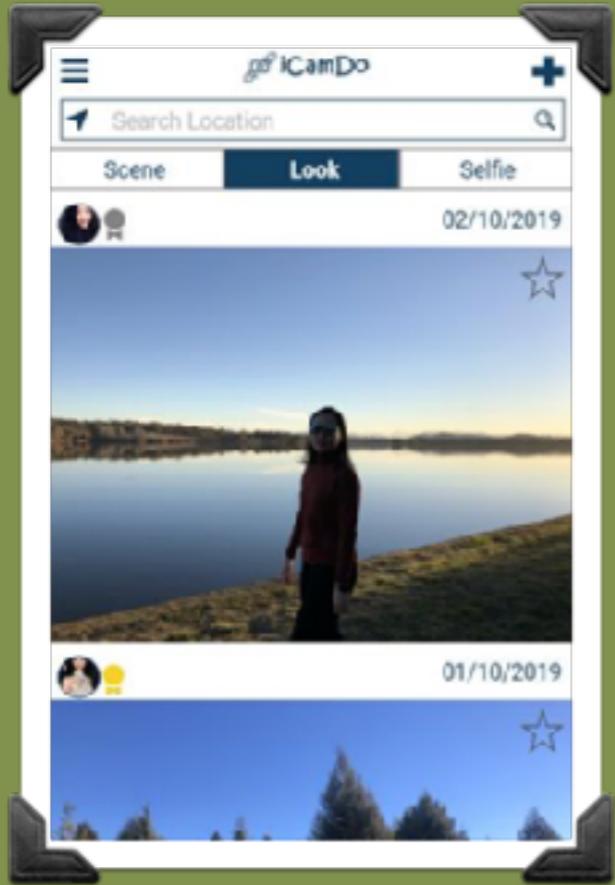


Image sharing

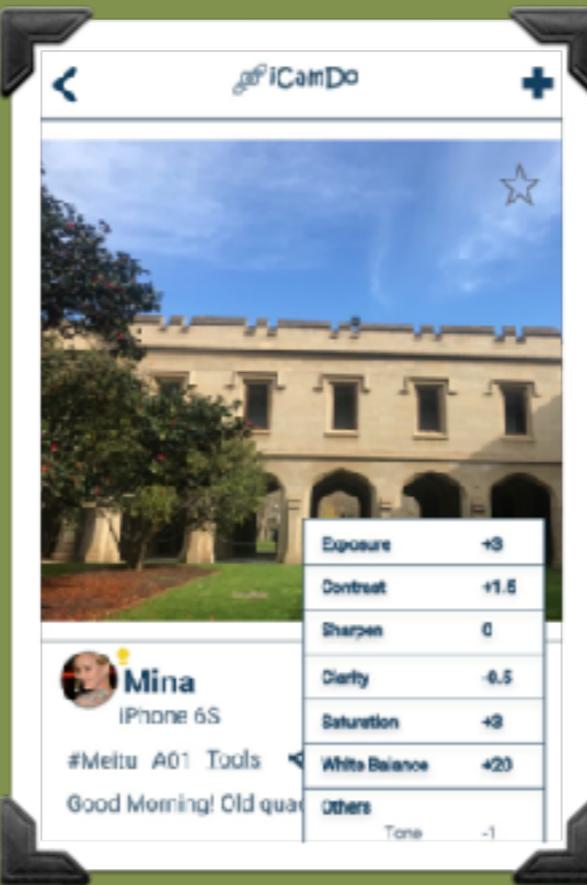
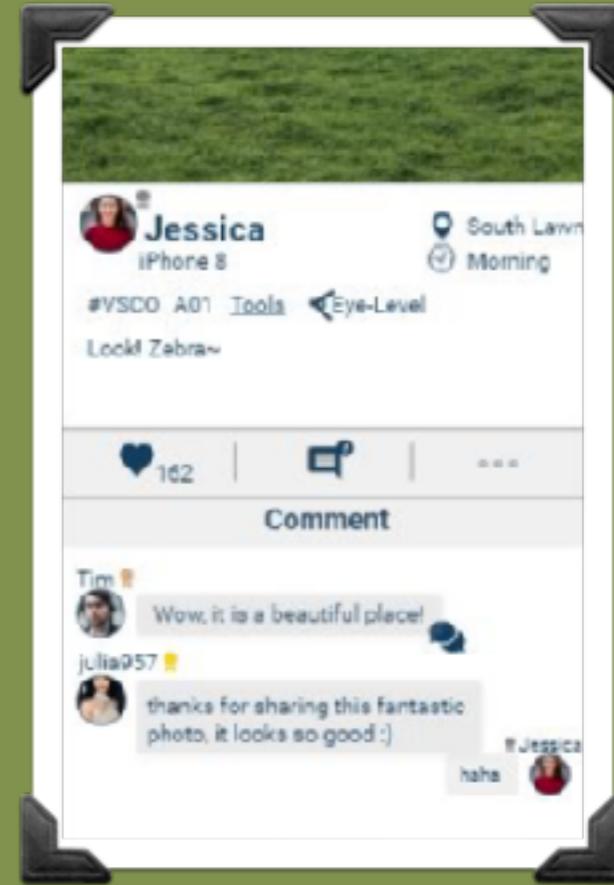
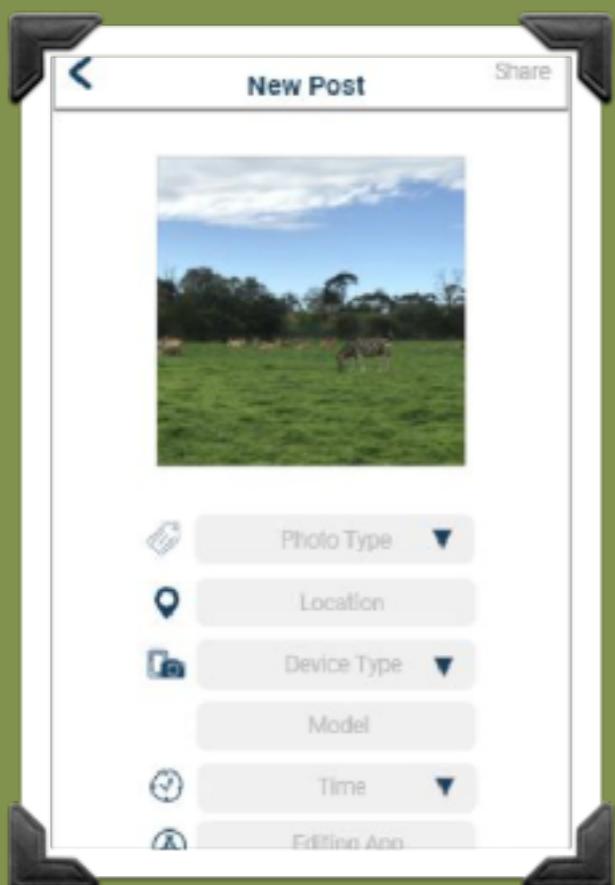


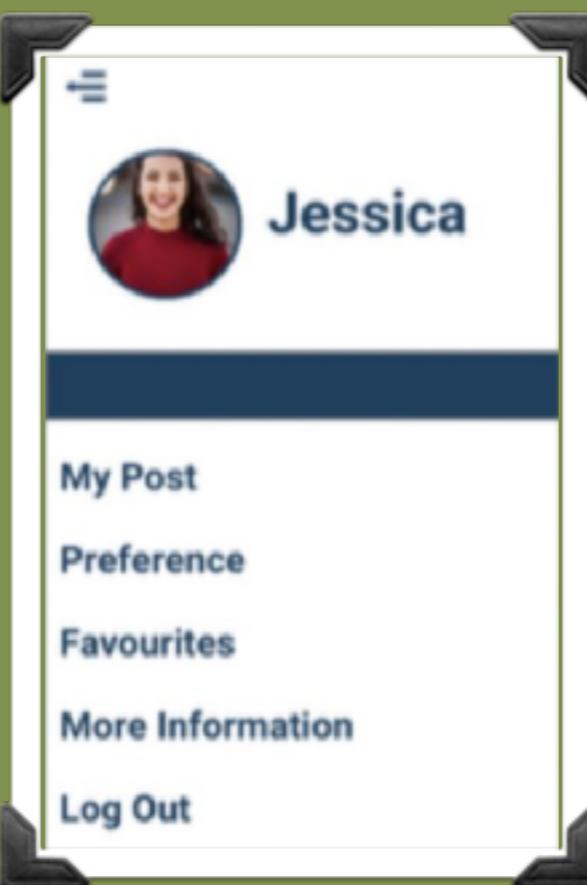
Photo details



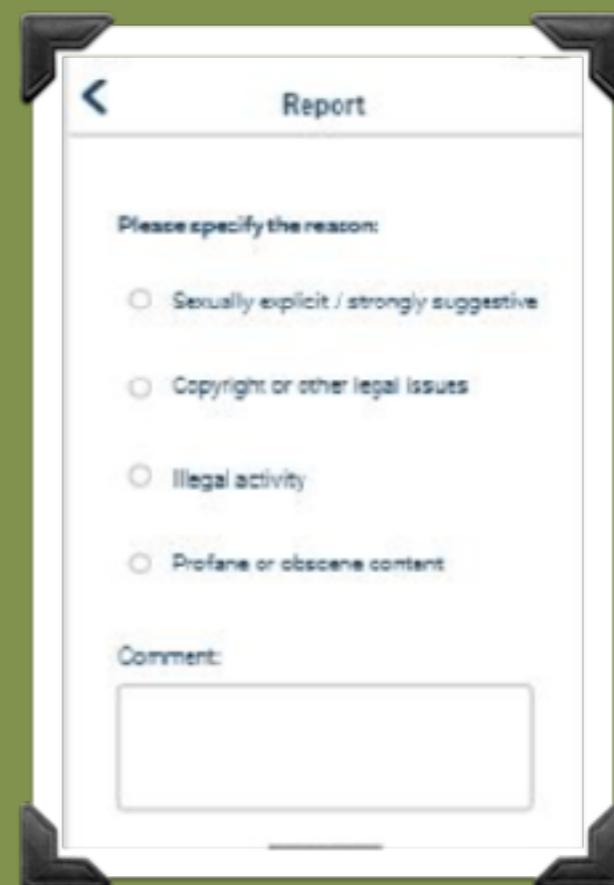
Comments



Edit page

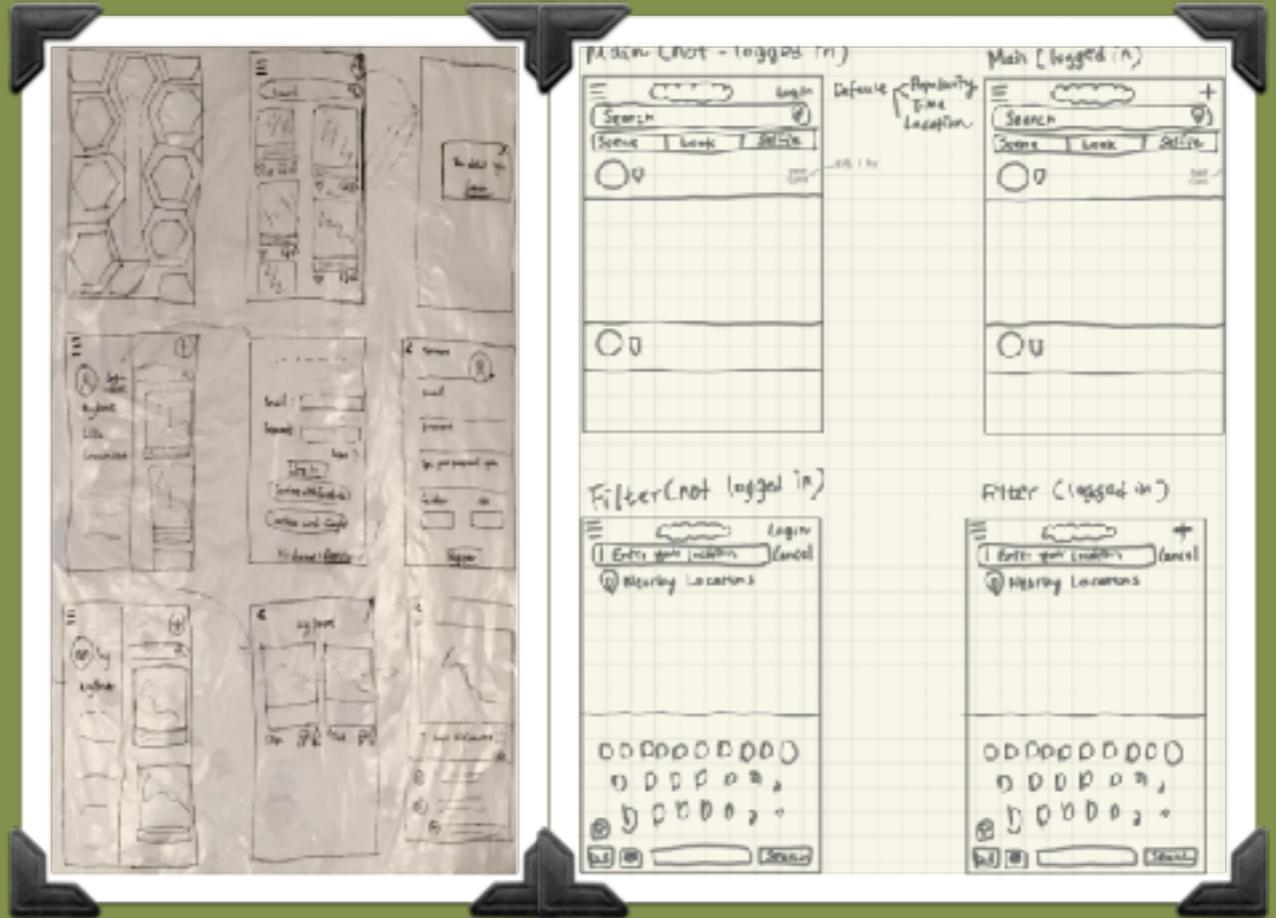


Menu Bar

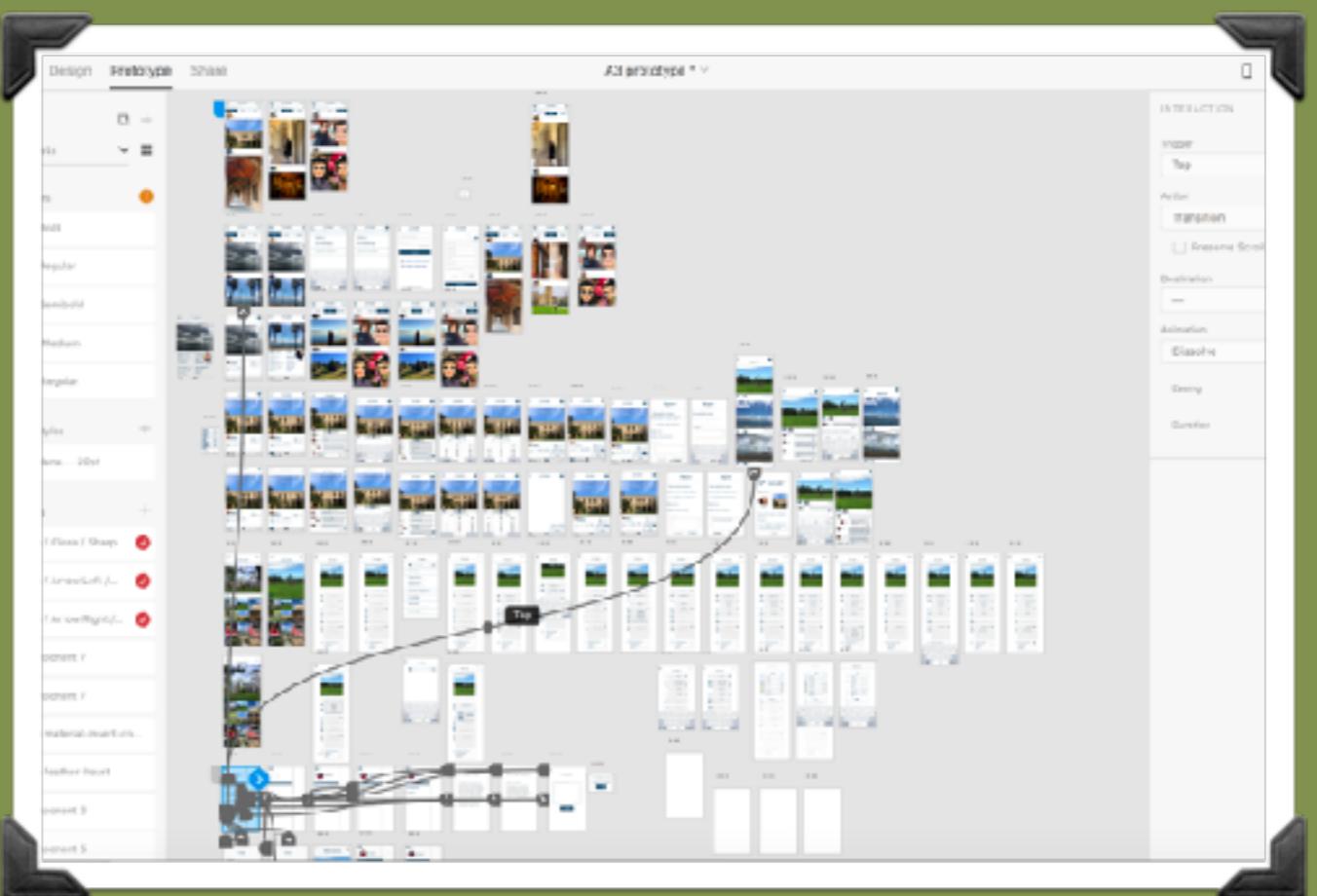


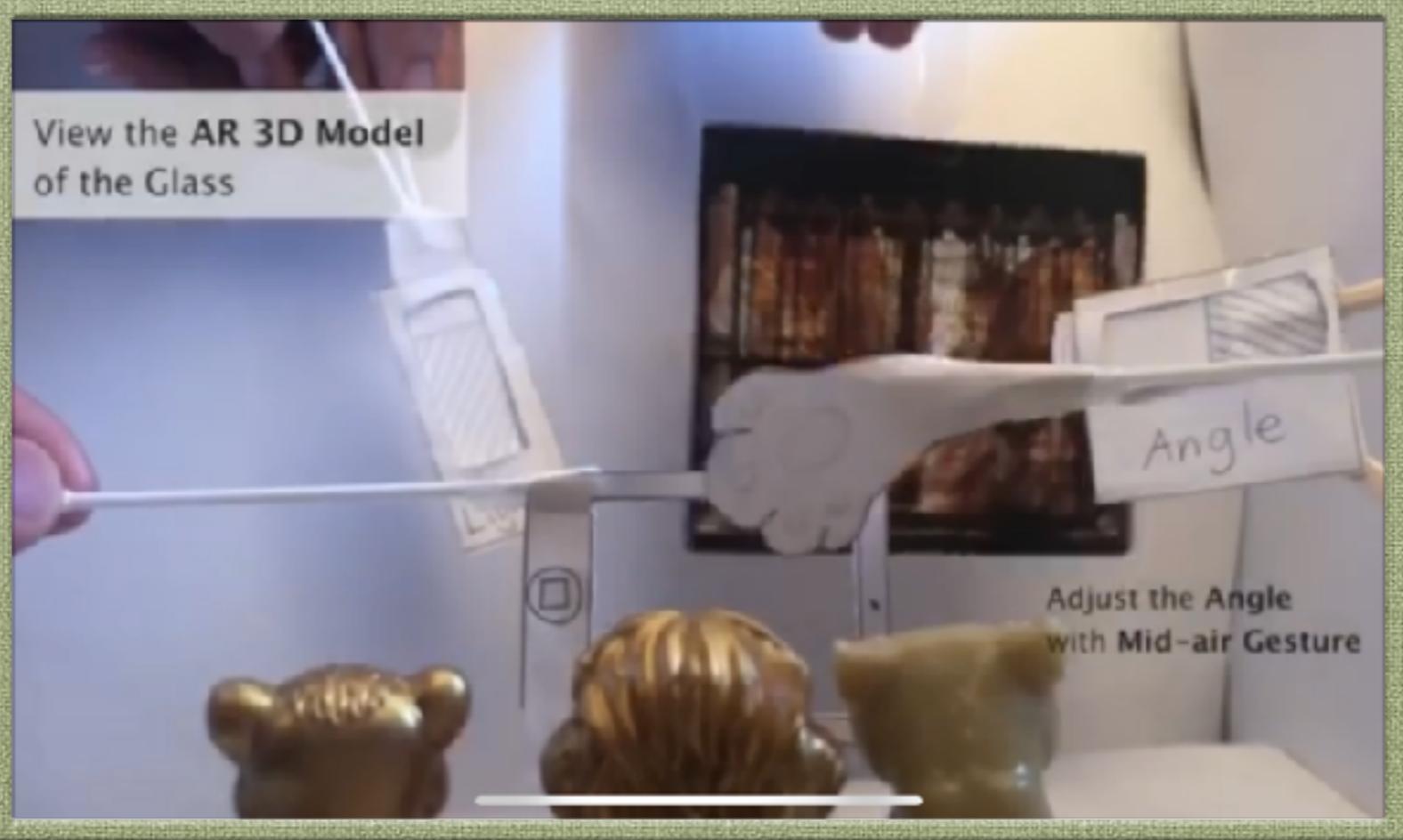
Report

low fidelity prototype



high fidelity prototype
(Adobe XD)





Old Quad Gallery

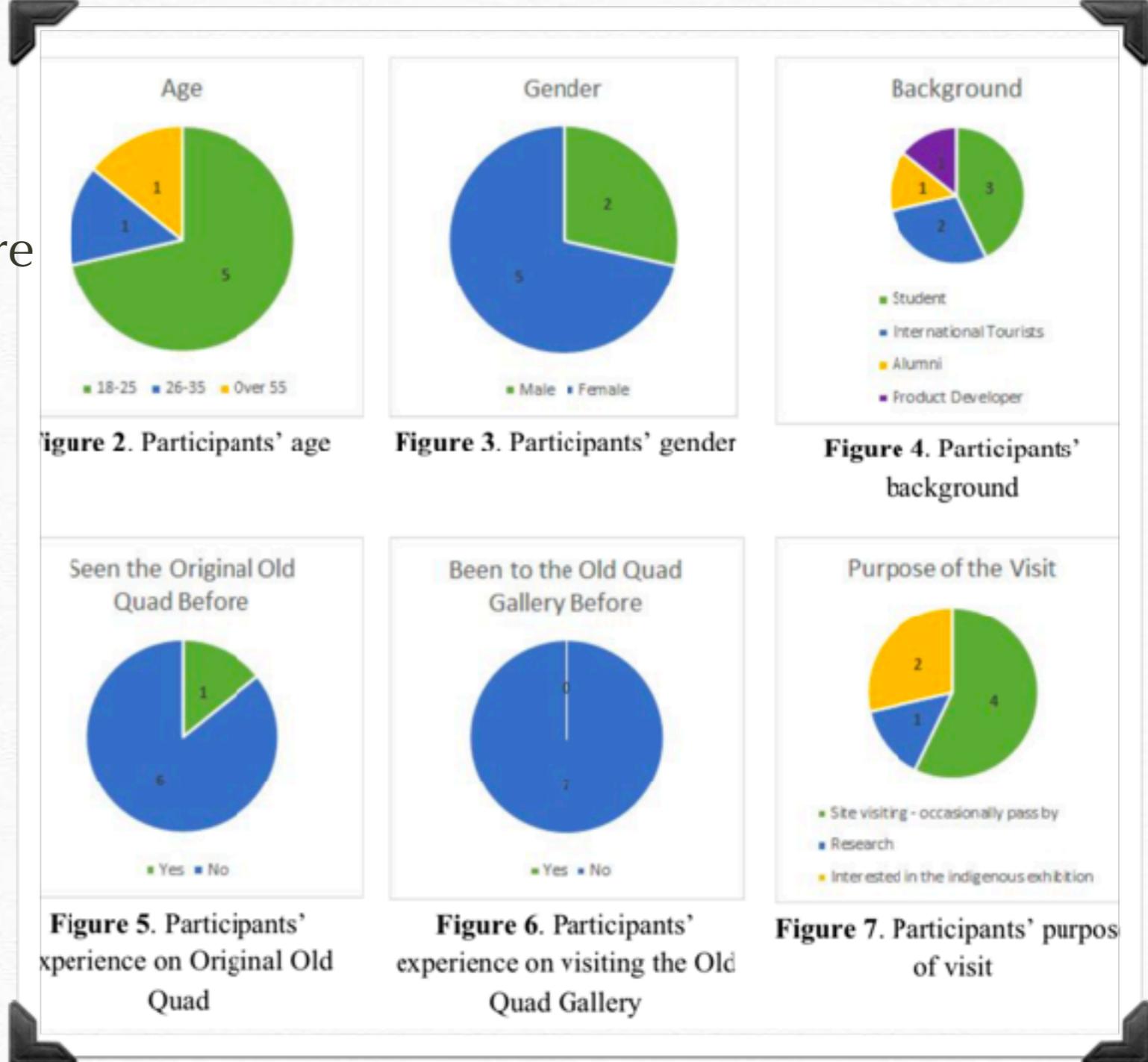
Fieldwork for Design

video: <https://share.weiyun.com/E0I98uEG>

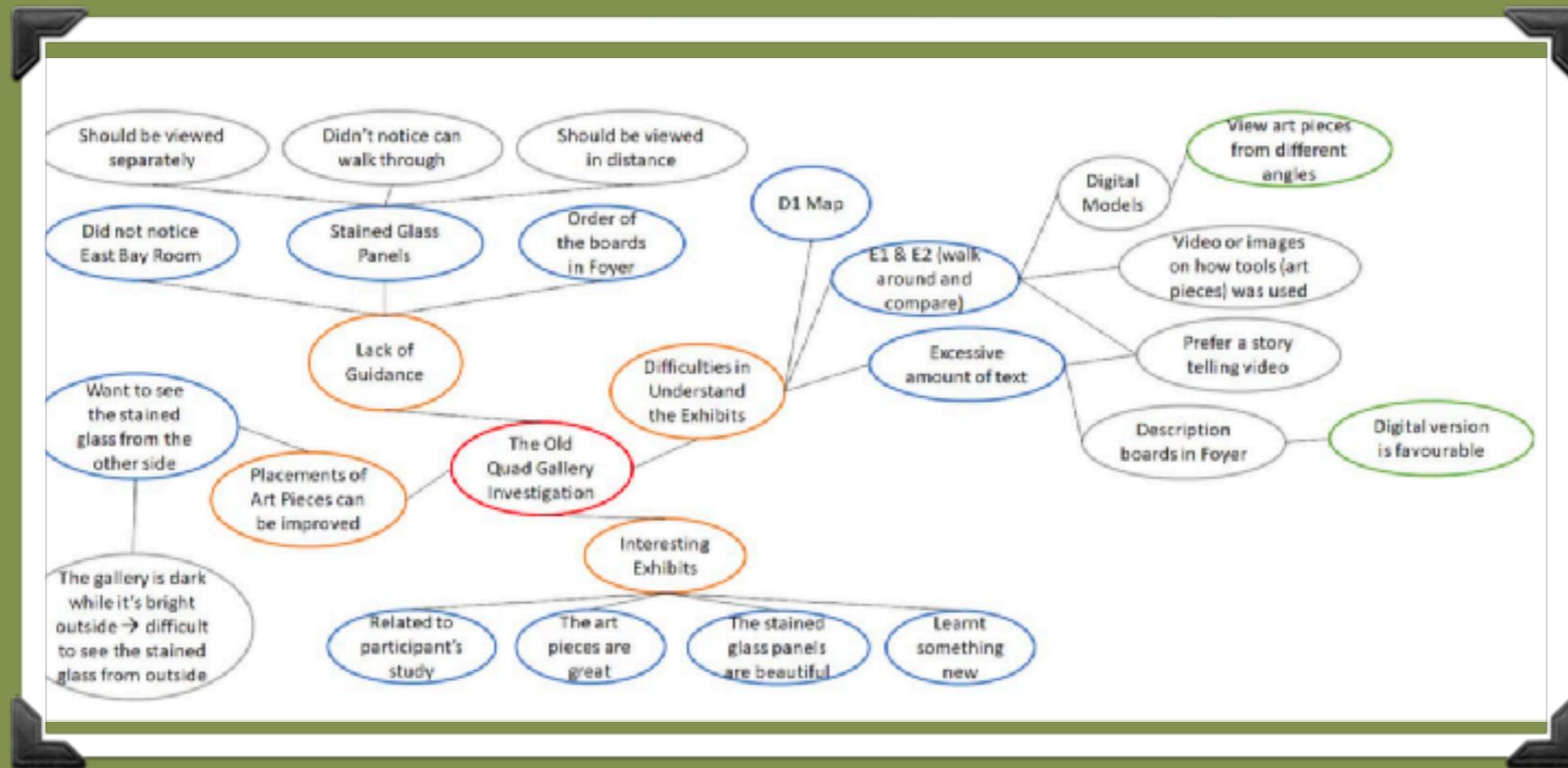
Fieldwork Methods

Investigation

- Background questionnaire
- Participants



Fieldwork Findings



- Lack of guidance at the hidden East Bay Room
- Order of the Boards in Foyer
- Placement of Art Pieces can be improved

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persona

ersona - Della



Della is a 23 years old female short-sighted student of the University of Melbourne, studying Master of Arts, with specialisation in History. Her mother is an aboriginal from Victoria, hence, she more or less has some interests in indigenous culture.

Della heard about the “Ancestral Memory” exhibition from a relative of her mother, she decided to visit the exhibition with her brother during her free time as it is in the University. Since Della is a conscientious person, she researched about the exhibition prior to the visit. However, she still encounters difficulty in understanding the art pieces.

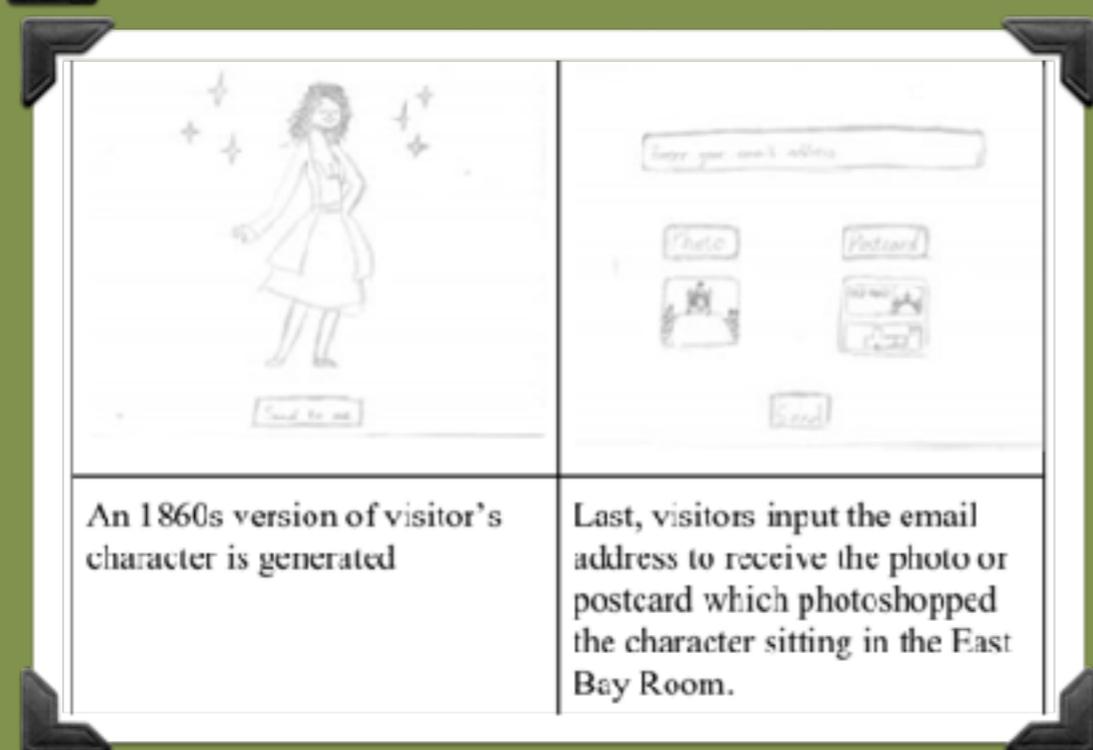


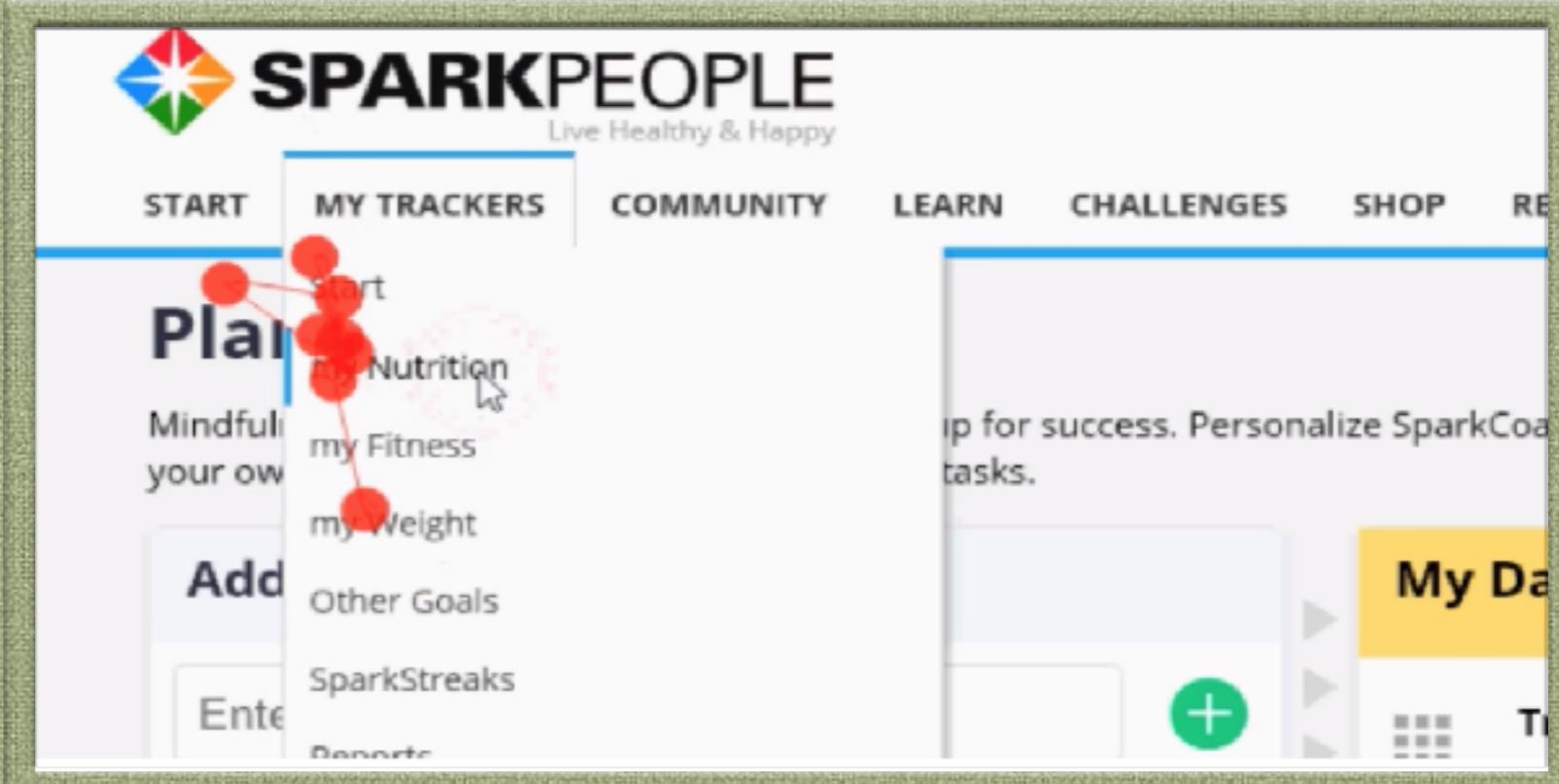
Jason, who is a 65 years old retired male architect, has just moved back to Melbourne. Additionally, Jason is graduated from the Master of Architecture from the University of Melbourne. Since Jason likes to socialise with others, he is actively involved in the alumni network of the University of Melbourne.

He heard that the Old Quadrangle has reopened in May 2019 from the alumni network, and he missed the Old Quadrangle as he had been there to admire the architectural structure of the original Old Quadrangle during his study, he decided to visit the gallery and looked forward to pick up some old memories.

After the visit, Jason was surprised that there is an exhibition of other theme in the Old Quad Gallery and was a bit disappointed that he did not see much exhibits related to the University of Melbourne or the building itself.

Prototype sketches





SparkPeople

User Experience Report

Website link:<https://www.sparkpeople.com/>

Evaluation Methods

Investigation

- Background questionnaire
- Participants
- post questionnaire
- Think aloud
- Say what you think when testing

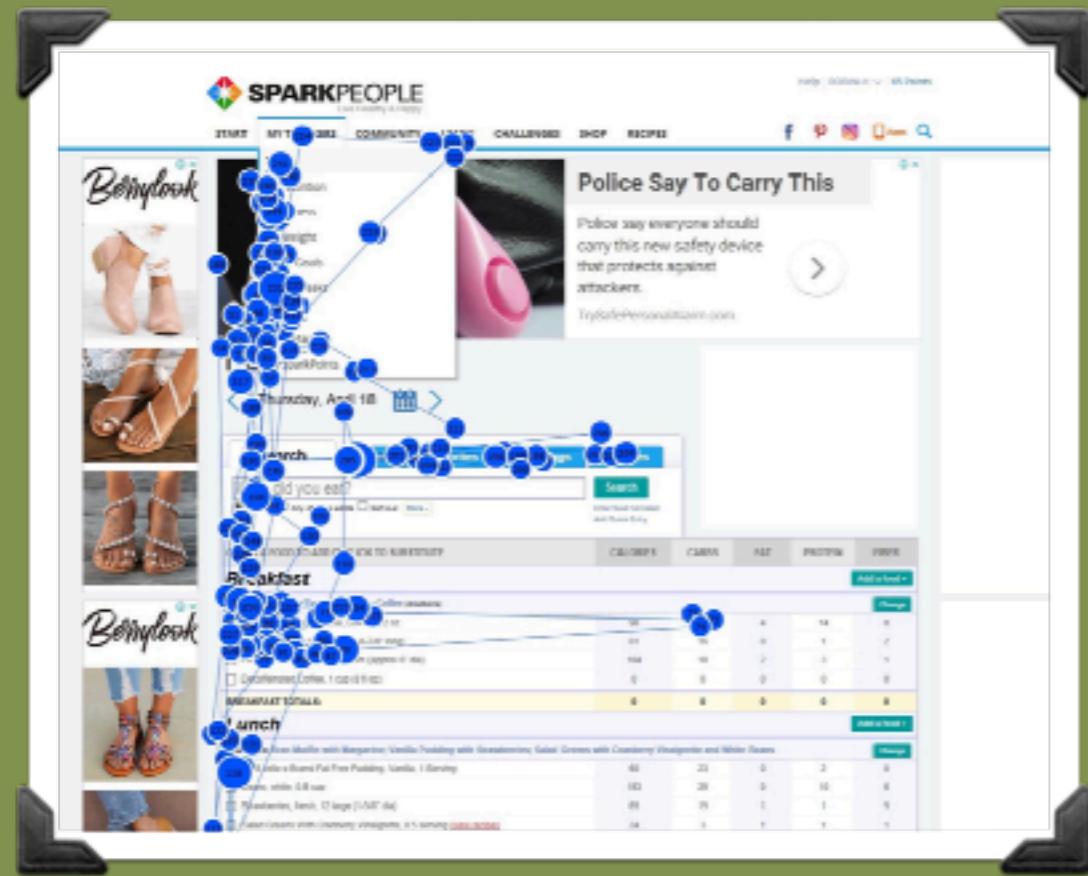
Data Analysis

- Qualitative data
- Quantitive data

Eye-tracking

- Heat Map

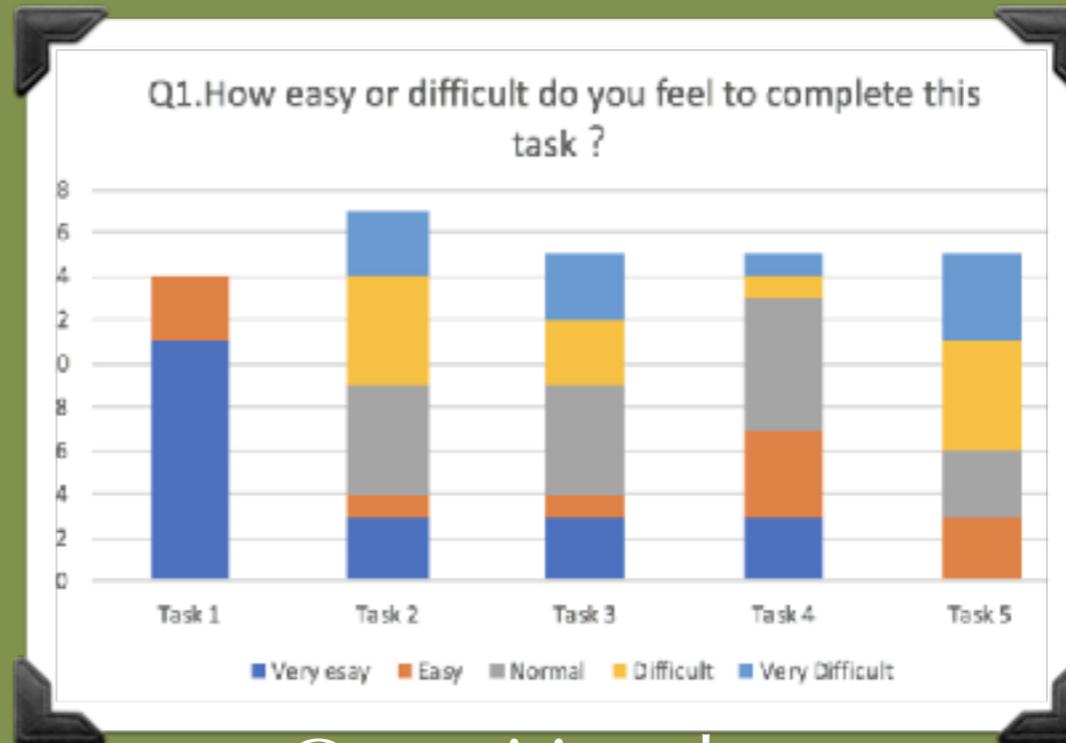




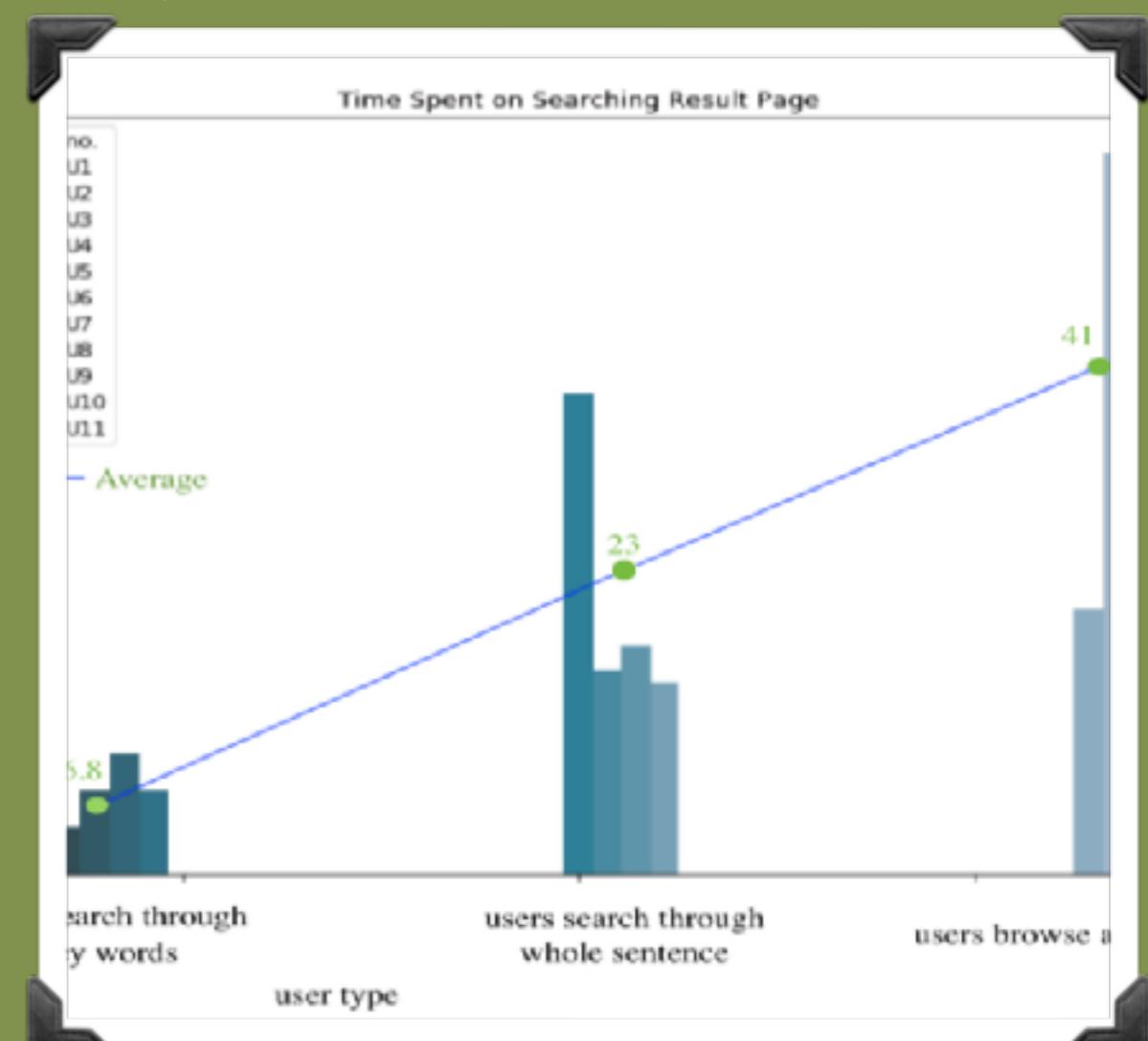
Eye tracking

User no.	Users' comments
User 11	"If I wouldn't understand, I will choose 'Learn'."
User 4	"Is there no 'help' function?"
User 5	"I just want to know how to use it. I'm looking for tutorial or something (looking at the foot page)."
User 13	"It should be in 'Learn'."
User 12	"I want to use Google for searching (but it is not allowed)."

Qualitative data



Quantitive data



Quantitive data

Evaluation Findings

Finding	Scope	Frequency	Severity
F1.1	80%	60%	HIGH
F1.2	30%	30%	LOW
F1.3	90%	20%	MEDIUM
F1.4	20%	30%	LOW
F2.1	60%	80%	HIGH
F2.2	40%	90%	MEDIUM
F3.2	30%	30%	LOW
F3.3	80%	60%	HIGH
F4.0	80%	60%	HIGH

- Irrelevant information on result list
- Button is not in the clear place
- Some descriptions of items or buttons are unclear or misleading

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What is UniElection?

UniElection is a comprehensive online voting and candidate recommendation system made for university student elections. We strive to make it easier to both vote and find which candidates share their opinions

Find Out Suitable Candidates.

Take one-minute survey.

Recommend

Already Know Your Answer?

Vote for the candidates directly.

Vote

Be the Candidate.

Create your candidate profile. [Sample profile](#)

Apply

UniElection

Website:<https://umelection.herokuapp.com/>

UniElection

Tools: Html5, CSS, ajax, MongoDB, Javascript

The screenshot shows a user profile for 'Gusta Erik' from the 'Marketing' department. A large orange circle highlights the profile picture. Below the profile, a red '1' indicates the user's rank. The text '50% match' is displayed. To the right, there is a section titled 'You disagree on:' with four questions and their answers:

Question	Your answer	Candidate's answer
Question 3: Outside food should be allowed in the Ida Bar.	● (Orange)	● (Teal)
Question 4: Smoking should not be allowed at the uni entrances.	● (Teal)	● (Orange)
Question 5: Workshops and tutorials should be recorded.	● (Teal)	● (Orange)
Question 6: Voting in the student election should be more convenient.	● (Teal)	● (Orange)

- Recommendation System

Recommend voters the most suitable candidates

- Vote System

Email verification voters, vote for three candidates

- Apply System

Candidates could apply the election form

UniElection

Verify Email

To ensure students only vote once we need to verify your email.
Please enter your student email. After clicking verify we will email you a passcode that you must enter when you submit your vote.

Email
Your email is: user@student.unimelb.edu.au

Validate

Email verification

UniElection

Vote

Type in your preferences (1-8) next to the candidate name, 1 being the most preferred candidate. You must put in all 8 preferences and you cannot use a number more than once.

Preference 1
Choose your option
Bella Erik 50%
Didget Kevach 50%

Marylaine Houltham 30%
Desi Finn 40%
Macki Grigoriwkin 40%
Tina Arber 20%
Leonor Burgos 20%
Johnny Nifat 10%

Preference 2
Choose your option

Preference 3
Choose your option

Preference 4
Choose your option

Broad Passcode
Please enter the 5 digit passcode we emailed you:
candidate@student.unimelb.edu.au

Vote!

Recommendation-vote page

UniElection

Candidate Application

Information

Name
Name

Party
Party

Description
Please write a short description of yourself!

Email
Email
Your email is: user@student.unimelb.edu.au

Photo
Please upload either a .png or .jpg photo of yourself

Survey

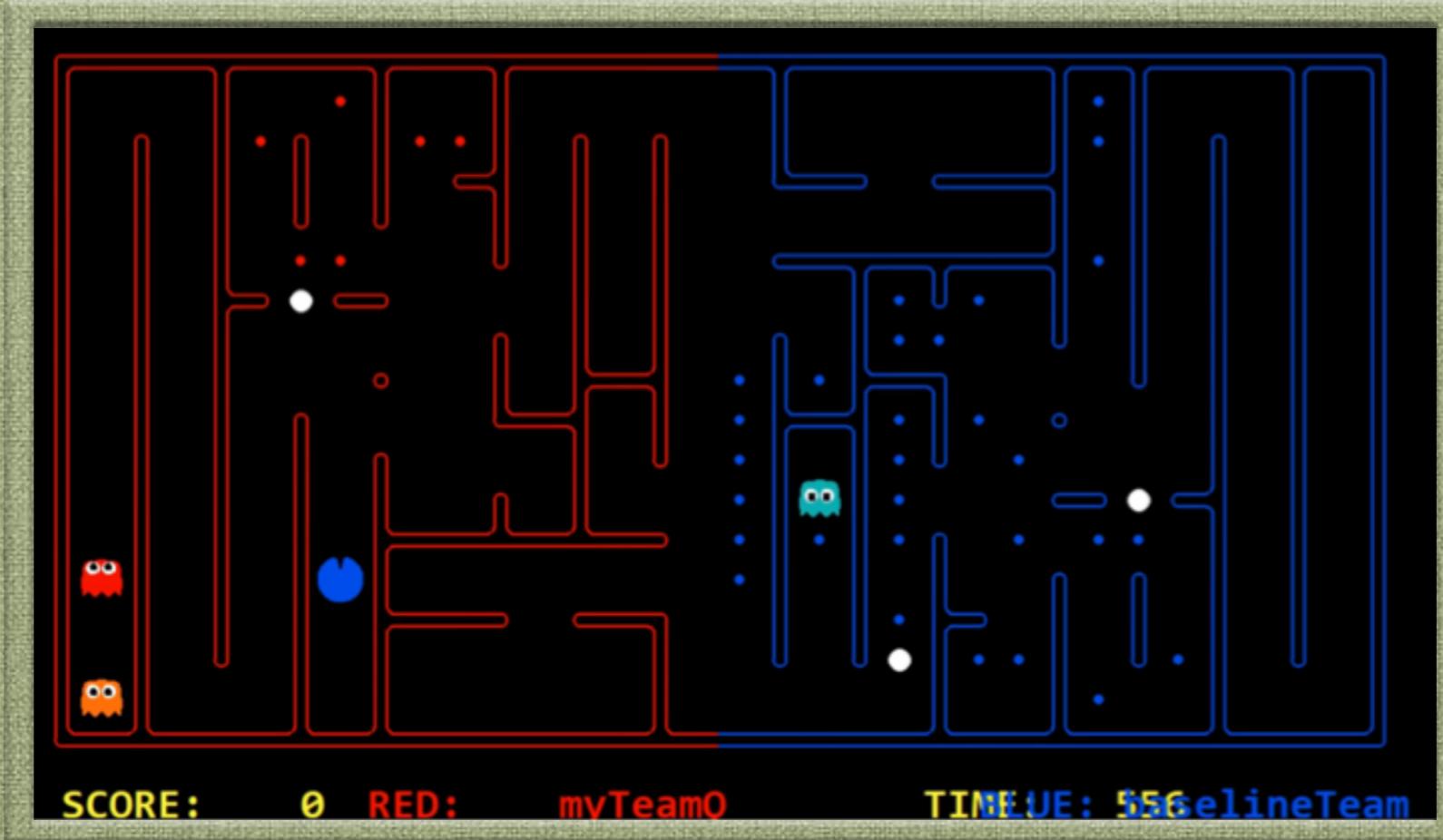
In order to recommend you to voters we need you to answer the following questions:

	Yes	No	Na
1. The free tram zone should be extended.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
2. Clubs need more funding.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Decaffeinated coffee should be allowed in the cafeteria.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
4. Smoking should not be allowed at the uni entrances.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Workshops and tutorials should be recorded.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
6. Voting in the student election should be more convenient.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. More buildings should be accessible at night.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
8. INFO30005 Web Infra-Tech should have more useful powerpoint slides.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
9. Cafes are better than dogs.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
10. Enviro-vac should be two weeks long.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Apply

Candidate apply page

Survey for Recommendation



Pacman - AI planning for Autonomy

Strategy and Methods



Heuristic

Defender stay at the middle of the interface

Offender every time eat 5 dots before back



Monte Carlo Tree Search

Explore with 5-depth



Q-Learning

$$Q(S,A) = (1-\alpha)Q(S,A) + \alpha[Reward + \gamma * \max_a Q(S',a)]$$



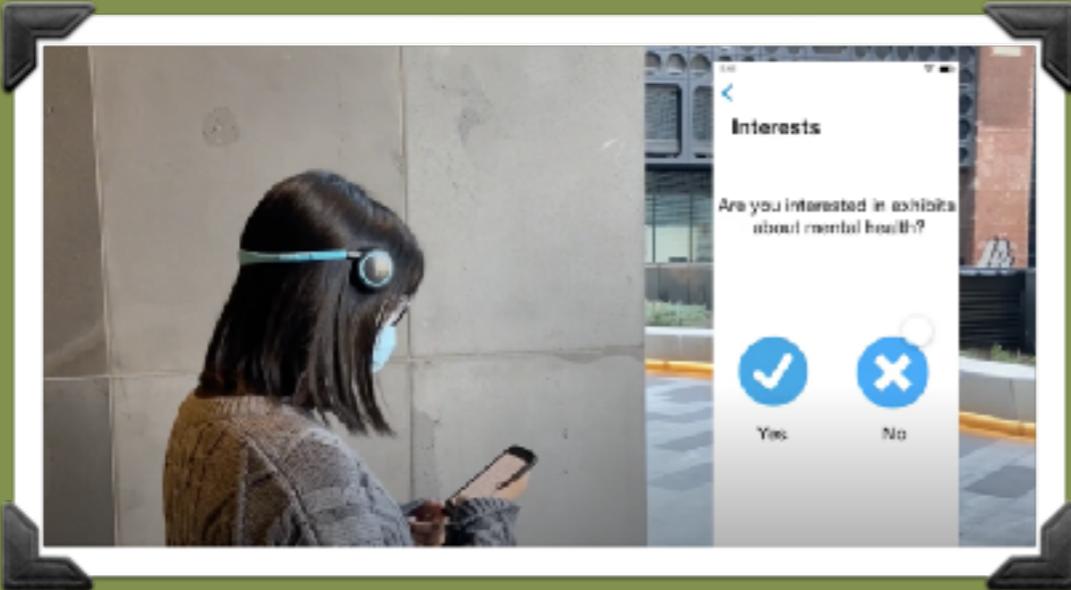
Decisions Tree

Explore with different weights

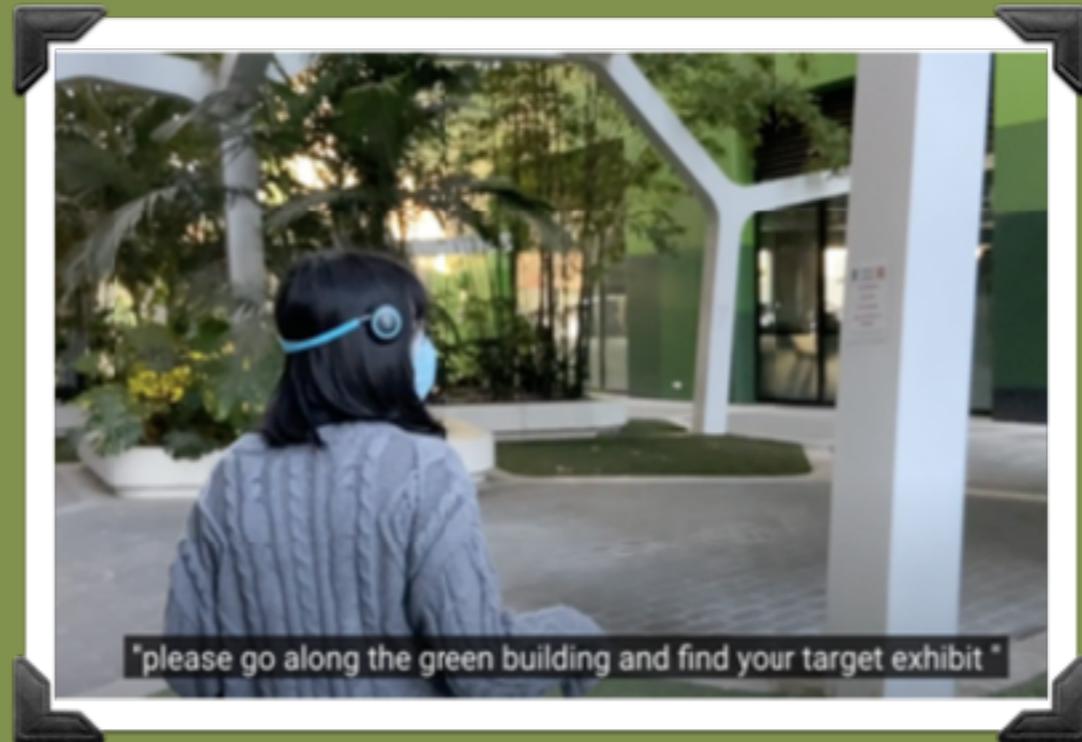


AirBeans Intelligent Voice Assistant for Gallery guide

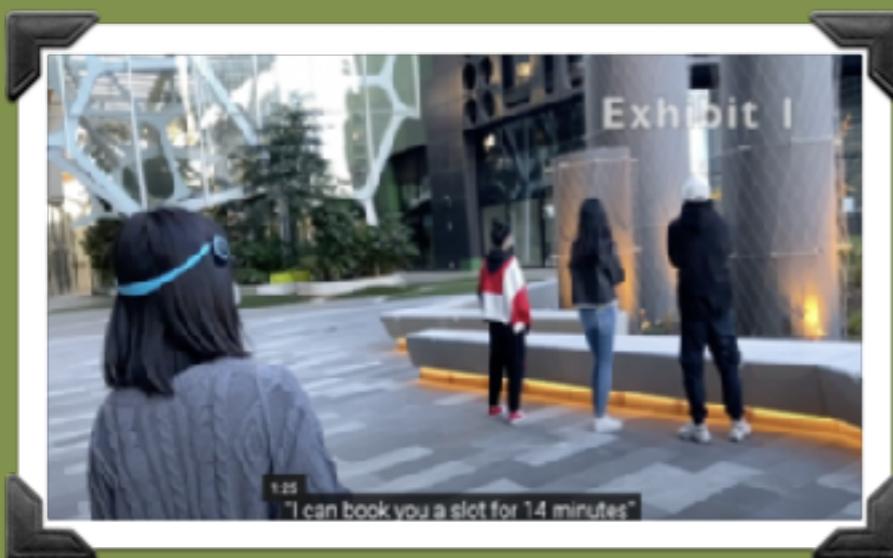
video:<https://share.weiyun.com/ZNF63qAf>



Short survey for recommendation



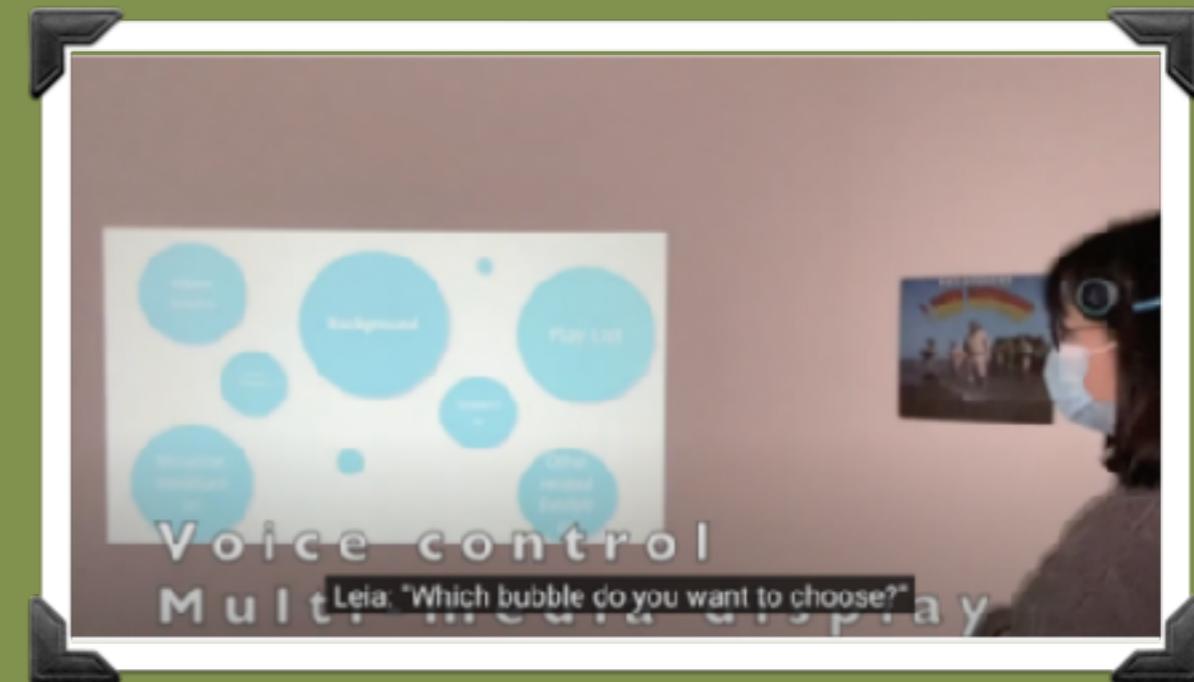
Navigation



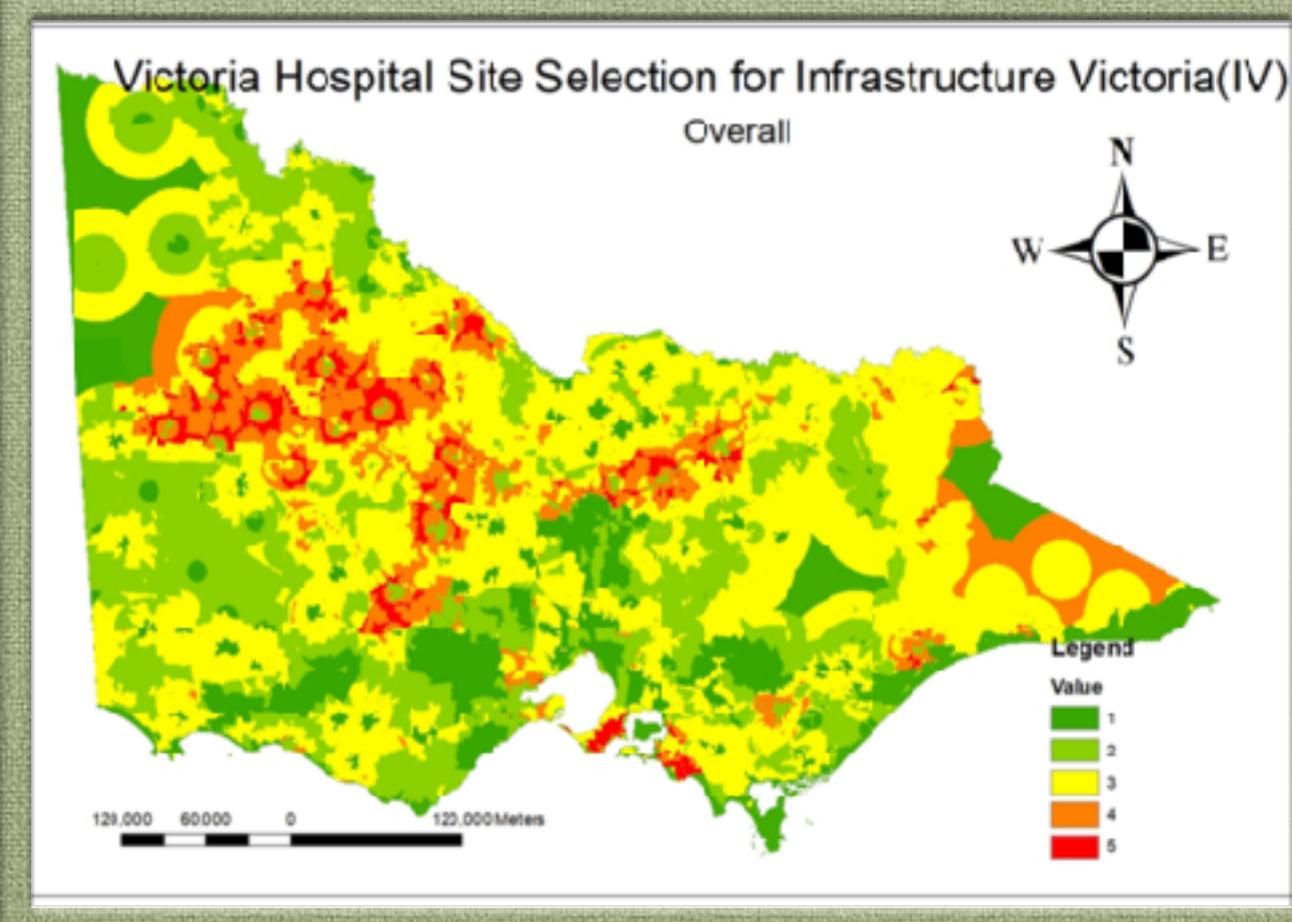
Queue reminder



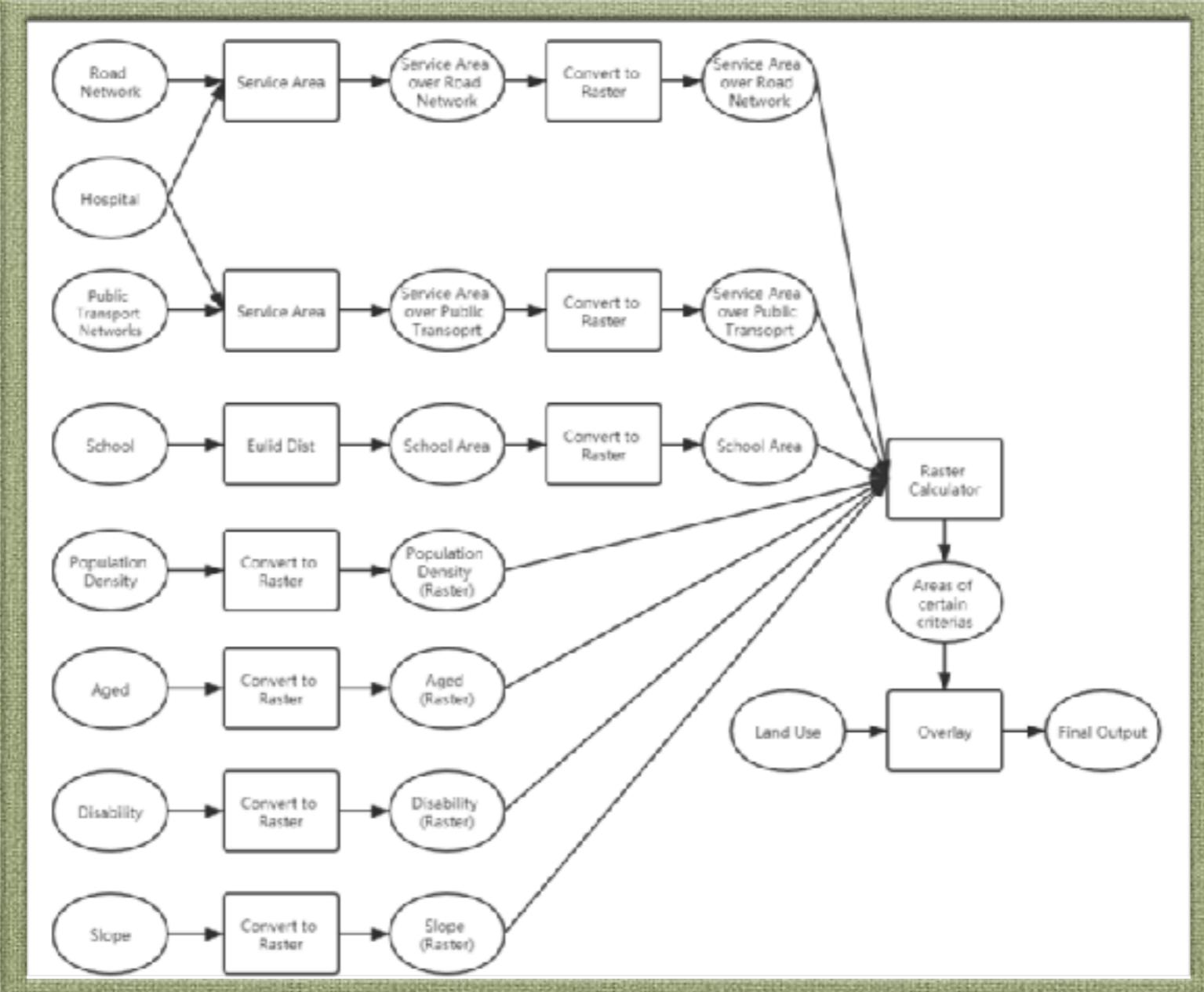
Product video display



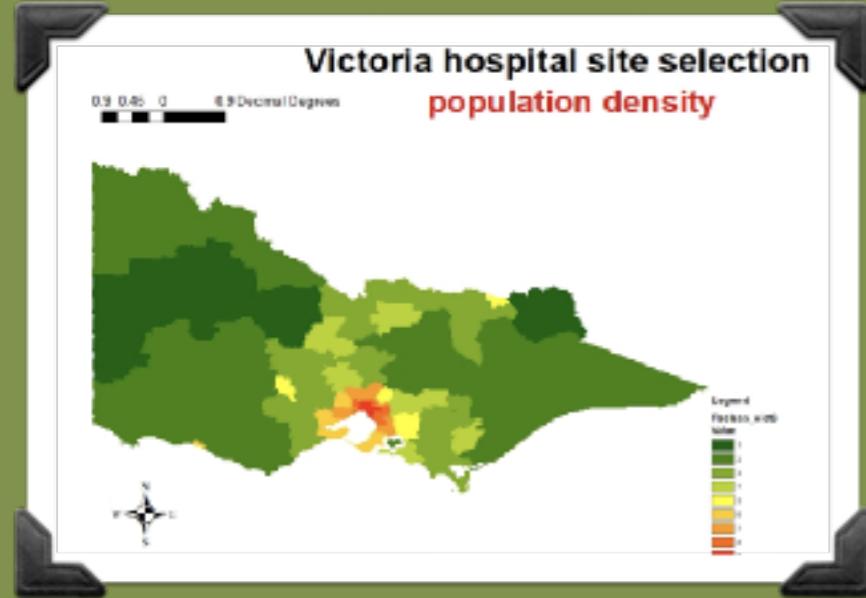
Voice control



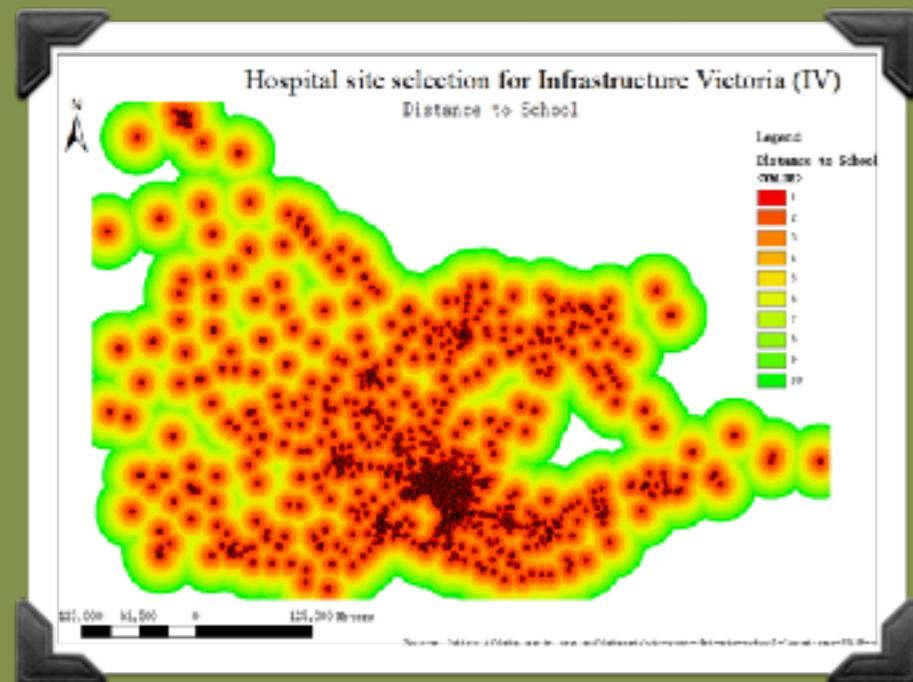
Victoria Hospital Site
Selection for Infrastructure
Victoria (IV) based on ArcGIS



Workflow



Victoria Hospital Site Selection



Distance to School

