INFO90010 Technology Innovation Project

Final Report - Focus Finder

Where Silence Meets Productivity

Group K

Student Name	Student ID	Student Email	Job Role
Chaoyi Shi	1069250	chaoyis@student.unimelb.edu.au	Creative Lead
Hongda Zhu	1259524	hongdaz1@student.unimelb.edu.au	Software Developer
Xubin Zou	1059403	xubinz@student.unimelb.edu.au	User Researcher
Yuwei Zhao	1352598	yuwezhao2@student.unimelb.edu.au	Project manager

Executive Summary

The "Focus-Finder" mobile application aims to improve student life at the University of Melbourne by addressing critical issues related to study space availability on campus. We investigated user needs among students and staff and found significant dissatisfaction with the current library booking system and the difficulty of finding appropriate study spaces.

The application includes visual and intuitive components that offer various functionalities, including map navigation, interactive floor maps, and forecasting graphs, all designed to assist users effectively.

Key Features:

- Optimized Resource Utilization: Through displaying real-time capacity and noise levels data, and utilizing occupied rooms to help students easily find appropriate study spaces.
- Forecasting System: 24-hour capacity and noise level forecasting help students avoid peak time and plan their study time.
- System Integration: Work with the existing university system, and provide a seamless user experience while using university services.

Focus-Finder significantly enhances the usability of university study spaces, making it easier for students to find and utilize these areas effectively. It not only improves individual study experiences but also optimizes the utilization of campus facilities. The application's forecasting features enable students to plan their study times efficiently, avoiding crowded times and areas while minimizing noise disruptions.

The innovations we have introduced include machine learning for noise prediction and an integrated API system. However, we have encountered several challenges, including the integration of real-time data processing, ensuring data privacy, and seamless operation with existing university systems. Future developments will focus on enhancing the accuracy of predictions and maintaining the platform in alignment with updates to university systems. Most importantly, the development team needs to continue listening to users and improving the product based on their needs.

In conclusion, Focus-Finder represents a transformative approach to managing campus study spaces. By applying the latest technology and innovation, it delivers substantial benefits to students and the university.

Table of Contents

1. Introduction

Problem Statement

The University of Melbourne, with its vast Parkville campus, accommodates over 50,000 students (Smith, 2021). As the student population grows, library service is a pivotal aspect of campus life, that is facing increasing pressure. Many students encounter difficulty in finding quiet study spaces, locating available study rooms and other facilities, and booking project rooms efficiently and fairly.

User Needs Investigation

Our investigation is based on semi-structured interviews. The interviewees are students and staff at the University of Melbourne from various academic backgrounds and cultures. The user needs including:

i. Library Booking System
    a. The current booking system has a time limit on project room bookings of two hours and does not allow booking individual seats.
    b. Many students are struggling to secure study spaces during peak periods, especially before exams.
    c. Complaints about “Okta Verify” verification are too frequent.
ii. Quiet Study Spaces
    a. Many students are complaining about the difficulty in finding quiet study spaces.
iii. Library Infrastructure
    a. Inadequate number of chargers, printers, and some chairs are imbalanced.
    b. Difficult to locate these facilities within the building.

Design Requirements

Based on these user needs, we identified the following design requirements for our solution:

Core Functional Requirements:

- Real-time Noise Levels and Capacity Detection.
- 24-Hour Noise Levels and Capacity Forecasting.
- Interactive Floor Plan Map that displays the locations of lecture theatres, tutorial rooms, project rooms, and other facilities.
- Check the rooms’ status and schedule.
- Integrating with the current Library Booking System.
- Check-in the project room.

Non-Functional Requirements:

- Data Requirement: Location, Noise Level, Capacity, User Information.
- Environment: Physical University Infrastructure, Social Trust.
- Organizational: No conflicts with existing policy, work with existing system.
- Technical Constraints: High Concurrency, Machine Learning Model, Platform Maintenance.
- Usability and User Experience Goal: Sustainability, Compatibility, Scalability, Reliability.
- Ethical Issues: Data Privacy, Fair Access.

2. Initial Design Concepts

Initial Solution

Our initial solution sketch is shown in Figure 1. The low-fidelity prototype is shown in Figure 2.

Key Concepts

i. The main page lists all buildings, displaying their capacity and noise levels.
   a. Core User Needs: Check the buildings' overall capacity and noise levels. Quickly decide which building is appropriate for studying.
   b. User Tasks: Browse all buildings with capacity and noise levels.

ii. Map navigation to the selected building
   a. Core User Needs: Guide users to the building
   b. User Tasks: Navigate to the chosen building.

iii. 3D building interactive map to show each floor with its noise level and capacity.
   a. Core User Needs: Check each floor’s capacity and noise levels. Help users to decide which floor is appropriate for studying.
   b. User Tasks: Select each floor level and check its capacity and noise levels.

iv. Interactive floor plan map to check the rooms' status and location of other facilities.
   a. Core User Needs: Find a suitable study space (including checking room status) or some facilities (e.g., chargers, printers).
   b. User Tasks: Locate specific facilities and rooms, check room status

v. 24-Hour capacity and noise level forecasting
   a. Core User Needs: To avoid peak periods, plan study time in advance.
   b. User Tasks: See 24-hour forecasting graphs, and plan study time in advance.

vi. Redirects to the library booking system. Students log in and book the room.
   a. Core User Needs: Provide a more convenient way to book rooms.
   b. User Tasks: Redirect to the library booking system, students log in, and book rooms.

vii. Use GPS to check in the booked room.

a. Core User Needs: Ensure fair and efficient use of project rooms.
b. User Tasks: Checking into booked rooms and ensuring availability for others.

3. Evaluation

Aims/Expectation

In our hypotheses, our innovation solution is intended to solve the three main problems of our users:

- Hard to find a quiet study space.
- Hard to find available study space.
- The university's system is too fragment.

Our innovation solution is expected to provide a user-friendly interface to let users see each building and library's real-time capacity and noise level on mobile devices. In addition, users can find the available time of lecture theatre/project room/tutorial room on each floor online rather than needing to visit the location physically. Our innovations are also expected to provide noise level and capacity forecasting for users to see today's situation. Therefore, they can decide when to go to the building/library to get the best conditions for study.

Methods

To evaluate our initial design ideas, we gathered feedback about low-fidelity prototypes from our intended users and the previous interviewees. Our low-fidelity prototype is made using Figma. It shows the main function of our innovation solution but without any UI design.

The feedback gathering ensures our prototype can solve users' pain points and improve our solution. Each feedback-gathering session is processed face-to-face to provide a comprehensive demonstration of our prototype and get more precise feedback. Our team have processed 18 times interviews, and all interviewees are from different faculties. Therefore, our innovation solution has universal applicability in different academic backgrounds.

We have created a list of questions to ensure we can get useful feedback from the interview. The following is our question list:

- Could you understand our prototype without any hints?
- Do you think this prototype could solve your pain points such as hard to find quiet study space?
- Are there any good things in this prototype?
- What kind of improvement do we need based on the current prototype?

In addition, we also did the cognitive walkthrough to check that the logic of our innovation solution is making sense. Regarding cognitive walkthroughs, our team went through different scenarios, such as finding a quiet study space at home or finding available study space after class to increase the user experience.

Besides the interview and cognitive walkthrough, we consulted with our tutor to get professional feedback about our low-fidelity prototype to ensure we were on the right track.

Findings

Based on our interview with the intended users, we received many valuable comments that improved our application. Most of them think the current solution is enough to solve their pain points, but some comment points out the lack of our initial design ideas.

For the noise level display, most interviewees think it is very beneficial for them to find a suitable study space. “Effective” and “Useful” are two words used to describe this function. However, “I have no sense about what is 34dB”, said one of our interviewees, indicating a problem: the quantity of noise is usually hard to understand. For example, interviewees do not know that the 34dB is quiet or noisy. They suggested using the colour to distinguish a different range of noise. For example, 0-40dB using green and 40-60dB is displayed in yellow.

In our low-fidelity prototype, we have designed the display of the floor plan of each building to show the infrastructure of the building and the status of lecture theatres/tutorial rooms/project rooms. In our initial design concepts, we have put water fountains, bathrooms, computers, chargers and printers on the floor plan. However, interviewees said, “I do not want to see these irrelevant things unless it can help me to find the study space”. In their opinion, the location of water fountains or bathrooms does not contribute to finding study space during the peak period.

The main page of the low-fidelity prototype showed the names and icons of each building to give an overview of capacity and noise level. However, our interviewees complained that it was inconvenient because users could not find the building they wanted to visit directly. They suggested adding the search function to provide better user experiences.

Lessons

Based on the findings from our interviews, we decided to change our prototype to provide better user experiences and solve users' pain points.

- Information Card about Noise Decibel Level

The Information Card page helps users understand the noise level's quantitative value. For example, the 10dB equals the normal breathing noise, and 50dB equals the noise of rainfall. The Information

Card page can solve the users' lack of awareness about noise decibel levels and offer an understandable match between numbers and everyday life.

- Floor Plan Simplification

Based on the comments, we only leave the icons of chargers, project rooms, lecture theatres, and tutorial rooms on the floor plan. Therefore, the user can focus on the most essential information. By simplifying the floor plan, users can have better user experiences and also decrease the workload of developing relevant pages.

- Searching Function

The search function is introduced on our overview page to help users find their preferred location more conveniently. Users can use this function to find the specific library or building directly. It increases user experience.

4. Final Design Concept

User tasks or goals

- Find a study seat efficiently in peak time.

From face-to-face interviews with UniMelb Students and Staff, most participants stated that in the peak time (1pm - 7pm) and final revision week, many students prefer studying on campus as it enhances their concentration for academic assessments. However, the quantity of individual study seats in the library cannot satisfy all students and the distance between each library is far. Consequently, the majority of seats are occupied during these critical periods, making it challenging and exhausting for students to find a place to study. Our users express a strong desire for a more efficient method of finding available study seats.

User Scenario:

Meet Andrew, a Master student of UniMelb, He frequently utilizes the library to maximize his productivity. During the final revision week, he arrived at the Law Building at 1pm to review his subjects. Unfortunately, all seats were occupied. This forced him to traverse through multiple libraries and building levels in search of a study seat, resulting in wasted time and increased fatigue. Andrew is keen on finding a more efficient approach to finding a study seat.

- Find a quiet study space on campus accurately.

It is an ongoing problem for students to find a quiet study space on campus. Although the school designed quiet study spaces in each building, due to the lack of monitoring, students still talk in these

areas as usual. Thus, it is imperative to devise a solution that accurately identifies quiet study spaces on campus.

User Scenario:

Catherine, a Bachelor's student at UniMelb, struggles to concentrate in noisy environments. She has observed that our school has designated several quiet study areas across various buildings, and she is eager to utilize these spaces for her studies. However, when she came to the place, she found that some students still talked which significantly influenced her study experience. Catherine is motivated to explore a more reliable method of identifying truly quiet study places on campus.

- Use school service websites seamlessly and smoothly

One prevalent issue we explored in the investigation was that the campus service websites were fragmented. For instance, when a student needs to locate a vending machine, they may use Lost on Campus to find the nearest one. Alternatively, if they require a printer, they might resort to searching for the UniMelb printer online to access the relevant website. In addition, when it comes to reporting a building issue, students often lack clarity on where to submit their concerns. It is imperative to establish an integrated way that consolidates all current school service websites for improved accessibility and convenience.

Core functions

With the aim of addressing the identified user pain points and enhancing campus life for UniMelb students and staff, our group has developed an application called Focus-Finder. This app integrates several core functions tailored to meet the needs of its users.

- Building Capacity and Room Occupation Status Visualisation

To meet the first user goal, Focus Finder will offer real-time updates on the capacity of each building and level on campus. Instead of walking through the whole campus in search of a study seat, users can simply check the current capacity via their phones. This information will assist them in deciding where to head for a study spot. At the same time, an interactive floor plan will display the location of individual seats, project rooms, lecture theaters, tutorial rooms, and school infrastructure such as chargers, providing users with an effortless way to navigate the campus.

Moreover, Focus Finder will not only indicate occupancy status of project rooms, but also release available lecture theaters and tutorial rooms to students which will alleviate the shortage of study seats on campus. This feature also ensures the optimal utilization of school spaces, making it easier for students to find a study space.

- Project Room Check-In

This is another function which is targeted at project rooms. Focus Finder developed it to address the first user goal. From the investigation, we found that many students booked the project room via DiBs, however, they didn't come and the project room was left empty in that period which was a waste of study space resources. To mitigate this situation, each project room will be equipped with an interactive screen displaying its current status and booking information, such as the reservation time and the next available slot. Students who booked the room must verify their booking by entering their student id or taping their student cards on the screen. If no verification occurs within 15 minutes of the booked time, the room will be marked as available on the Focus Finder app, allowing other students to utilize it. This system ensures the efficient utilization of study space resources on campus.

- Real Time Noise Level Detection and Future Forecasting

This is a core function to solve the second user goal. Multiple high-sensitivity sensors will be installed across the campus, including within each building level. These sensors will capture and process current noise levels, allowing the app to display real-time noise levels for each building and level. This feature ensures that students can easily identify truly quiet study spaces at any given time.

Furthermore, through the implementation of edge computing and machine learning, Focus Finder will generate two graphs: 24 hour noise level and capacity trend which contain the real detected data before and the forecasting data for the rest of the day by our special algorithm. This predictive functionality offers students a reliable way to plan their study sessions and locate quiet study spaces effectively.

- System Integration

To address the last user need, Focus Finder seamlessly integrates with existing school websites such as DiBs and the ticket system. Through APIs, the app connects to these platforms, allowing students to navigate between them with a single click. This integration ensures a smooth and seamless experience, enabling users to access the necessary systems effortlessly.

Value

The development of Focus Finder promises to deliver significant value to its target users and corresponding stakeholders. By understanding and exploring real user pain points, it provides multiple innovation solutions to ensure a reliable, efficient and creative experience to users. It addresses all user needs in an innovative way.

For instance, quiet study spacing finding is an ongoing problem, with the combination of advanced technology such as edge computing and machine learning, a noise level forecasting graph will be generated. It can provide reliable evidence for students to find a truly quiet study space conveniently and efficiently.

Furthermore, the identified pain points at UniMelb are not unique, as similar challenges are faced by students at other universities. By scaling the application to more campuses across Australia, Focus Finder has the potential to become an integrated campus system in the future, significantly enhancing the campus life of Australian students nationwide.

After implementing this prototype in a user trail, our group is eager to assess the real accuracy and usability of the noise level forecasting feature. With multiple adjustments and enhancements, we are confident that our application can achieve the optimal utilization. Additionally, we are committed to gather user feedback from various perspectives to continuously improve students' campus life.

5. Discussion

Further development and response to feedback

From the feedback, we understand our pitch should pay attention to the user needs and explain more about how this problem is solved, instead of the technical details. In order to give a convincing presentation of our project, we would like to explain in more detail the user pain points and conduct in-depth market research in order to gain a better understanding of the main challenges and confusions faced by users in this area so that we can create targeted solutions for them. Additionally, there is one critical aspect we initially overlooked: the ability to accommodate live data that changes moment-to-moment. It is possible for noise levels to fluctuate rapidly following the arrival of a new student and their loud talk. In order to be able to tackle this issue, our system needs to be able to integrate real-time data processing capabilities to ensure that it can adapt and respond promptly to such changes in a dynamic environment, thereby providing a robust, user-friendly solution.

For the additional function in our system. Firstly, we think about to integrate the three-dimension map in our application, the benefits of this function can help the user easily to navigate to the different buildings and find the available space. Also, we are considering implementing a lost and found function. The main reason is that most students tend to lose their personal belongings on campus. The system would allow students to report lost items and search for found items. With a centralized and efficient lost and found service, we can help students recover lost items faster and more efficiently, enhancing their experience of campus life.

Ethics in design and implementation

There are several ethical issues we still need to consider in our application. First of all, we have to be aware of the importance of the privacy. To achieve the noise level and capacity prediction, we have to install some sensors in classroom. Although this method can easily help our AI system to collect the data from the students, during this stage may compromise their privacy. Firstly, there is a concern that

these sensors will be able to collect a lot more data than necessary, including sensitive conversation information on campus. For example, there are some concerns about how the data is stored and how the data is used in future. To mitigate these potential risks about privacy, we need to implement robust data anonymization techniques during data collection which can ensure that individual identities are protected at all times.

Secondly, data security is the other main concern. Our system will integrate the current Unimelb platform. Once we deploy the application, the student's personal information will be automatically collected and stored in our online database. For example, the student's name, age, email, address and contact information will be recorded and uploaded to our database. To protect this sensitive information in database, we should implement stringent data security measures from an ethical perspective to ensure its safety. Some approaches can be taken to ensure that data is protected, including using encryption protocol to protect data in transit and at rest. Make sure all data is protected by strict access controls and conduct regular security audits in order to identify and resolve vulnerabilities.

Thirdly, accountability also plays a crucial role in ensuring our system operates effectively. Our system will be working for the long term on campus. As a result, we need to establish clear lines of responsibility and accountability within teams and organizations. This includes defining roles and responsibilities for managing data, maintaining systems, and providing user support. The system will have a direct impact on students' daily lives and the overall functioning of the school, so designating individuals or teams to oversee these activities is essential. Moreover, we should implement regular audits to track system usage and data access to detect and address any irregularities or violations quickly. The regular audits will contribute to maintaining transparency and trust, making sure all actions taken within the system are documented and able to be reviewed as needed.

Limitations

However, there are some limitations in our system. During the investigation stage, we found that the most significant pain points in campus life revolve around the library booking system. However, due to time constraints in the survey stage, our survey relied heavily on face-to-face interviews and limited number of user interviews, which may not have fully captured the diversity of user needs and behaviors. The sample size is also small and may not be representative of the entire student and staff population at the University of Melbourne. This may affect the generalizability of our findings and the relevance of the proposed solutions. Secondly, there is the budget constraint in our system. Before we fulfill the core function of prediction, we need to install a lot of sensors in the classrooms around the campus, which will spend massive of money. Only the high-precision sensors for noise measurement and real-time occupancy tracking can improve the accuracy of prediction in noise level and capacity usage significantly. Moreover, integrating our system with the University of Melbourne's existing

platforms presented technical challenges. Data synchronization issues and compatibility issues limited the seamless operation of some features. To make sure that noise levels and room capacities could be updated in real-time, for instance, sophisticated backend support would have to be implemented, which is beyond the scope of our prototype at the moment.

In conclusion, even though our prototype enhances the student experience at the University of Melbourne, limitations such as the relatively small sample size, technical challenges, and budget constraints will require greater attention in the future. In future iterations, these issues will be addressed, making the system more robust, flexible, and ethical. In this project, it not only helps students provide an innovative and comprehensive campus resource management system developed to meet student needs but also promotes continuous innovation in campus life.

Reference

Smith, K. (2021, March 9). University of Melbourne: Australia's #1 university. About Us. https://about.unimelb.edu.au/facts-and-figures

Appendix

Draft Design Sketches

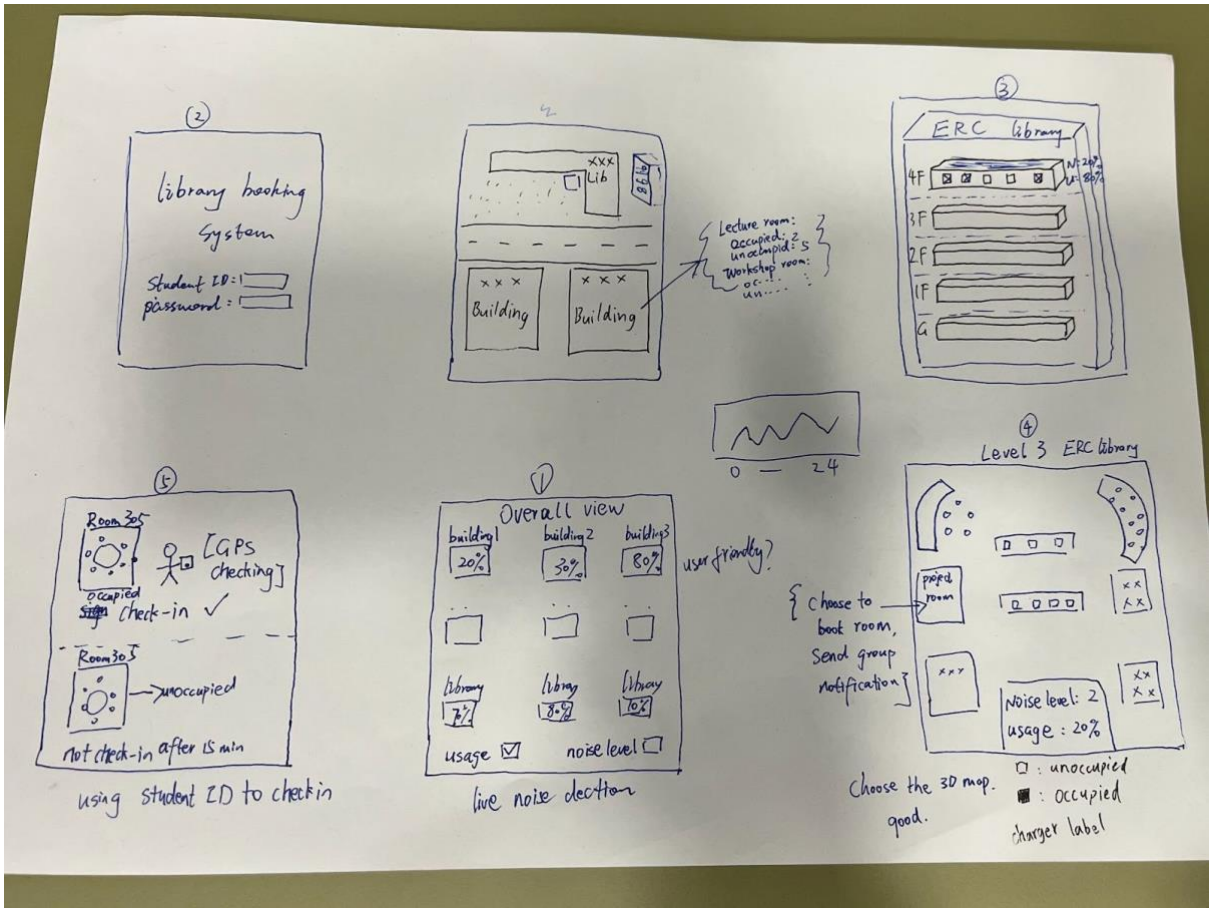

Figure 1 Hand-made Prototype

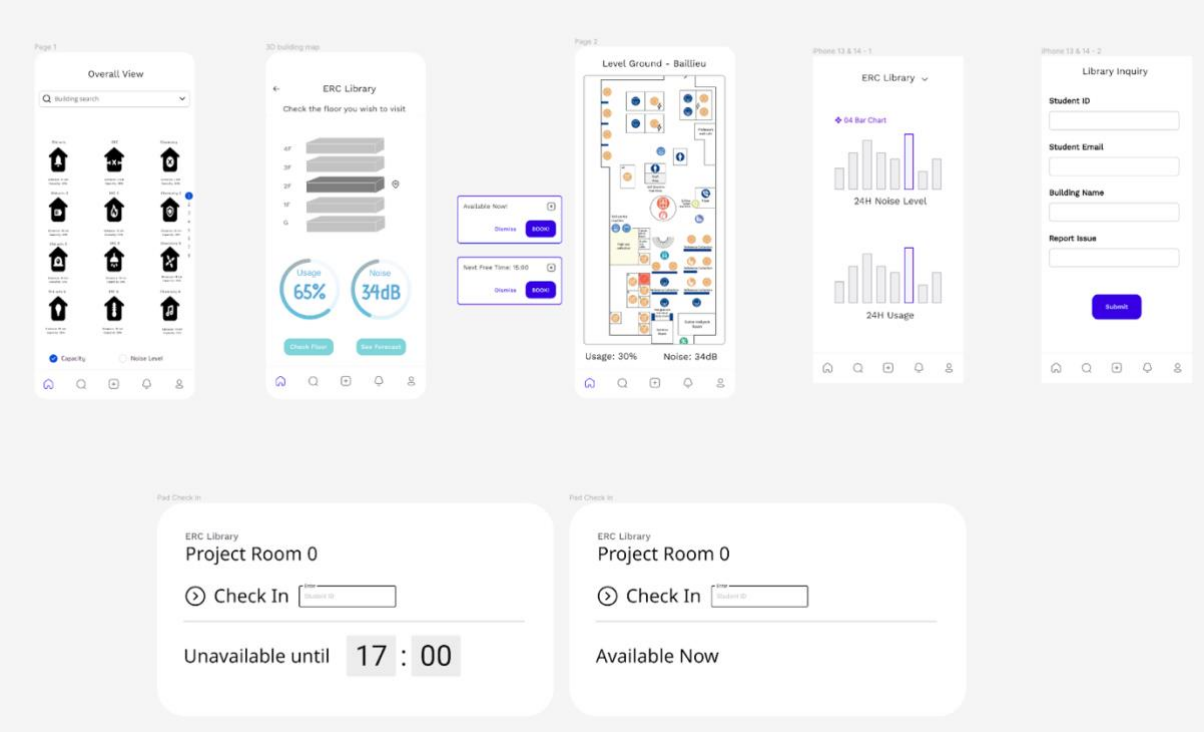

Figure 2 Low-Fidelity Prototype

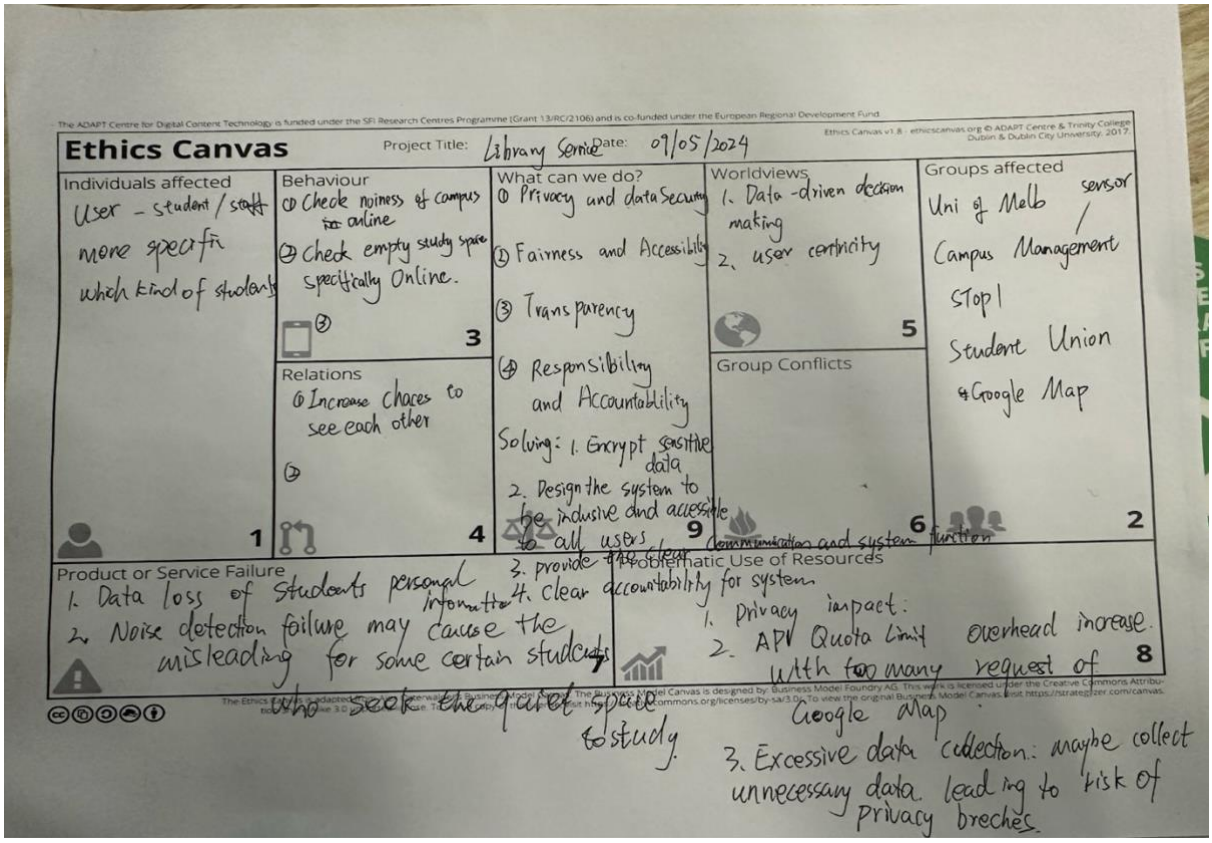

Figure 3 Ethics canvas

Raw Data

Catherine

1. MIT HCI. second year
2. The first year. Welcome party, clubs, queue to take hotdog
3. Make sure all new students know facilities and activities.
4. Twice a week, attend the class. Go to the library once a week.
5. Depends on class time.
6. Gym, library. Attend swimming club. Seats are difficult to book. New booking system Cafe, signs to navigate to the building
7. LMS, myUnimelb, lost on campus(first year). Give the direction to the building. Hard to find vending machines and printers.
8. Didn't attend. Saw in the email.
9. Na.

Sonia

1. M Management, B commerce. 6 years.
2. Attend at the first year. Camps tour, peer mentor show around the campus.
3. Tour is short, familiar to the campus, but not specific. Different background, so a general tour. Group based on major to get related info.
4. Every day.
5. tired , just seminar. Library, new area. Screen to show capacity, but like to know at home. Noisy or quiet in advance. Hard to find discussion space. Prefer old booking system, cuz can choose building.
6.
7. Canvas, myUnimelb. The new system is more holistic. Verifying is frequent.
8. Did attend. Multiple session for majors, disable students. Messy, hard to get useful info. Specific links to provide. The map is inconvenient.
9. Lost student id card in the printer. Stuff in the information desk. Central reception in the student union. Cannot contact the person, public announcement about the daily stuff. Identification.

Bertrand

1. MIS, BC. more than 4 years.
2. First-year student, campus tour.
3. Helpful for new students, to know more about campus。
4. 3 days per week
5. Library to do homework, 4-5 hours per day. Graduate student space in giblin, quiet. No enough space, have to go to early to find a good seat. Only book group room, better to boom individual seats. Charger is not enough. Contruct a restaurant.
6. Lost on campus. To find room location. Just soso. Some theater not appear. Search the building code instead of building name.
7. No
8. No. his friend lost laptop. No idea.

David

1. Bachelor of science, major in computer science.
2. 3 years
3. Yes. Play table tennis.
4. Yes, have the chance to get familiar about campus, know more friends.
5. Go to campus 3 - 4 times a week
6. 4 hours
7. Used services: Stop 1 booking assistances, ed discussion, my.unimelb
8. Yes. They are easy to use.
9. Students from outside of Australia. It is hard to contact stop 1, sometimes the waiting queue is around 2 weeks.
10. Never attend works fair.
11. Never lost any item on campus.

Celine

1. Bachelor of science, major in psychology and data science.
2. 1 year.
3. Yes. Collecting jumper. Attend campus tour.
4. Oweek is a bit helpful. But too many things to remember. It can help to get familiar with campus. Feel welcome to unimelb.
5. Go to campus 2-3 times a week.
6. Go to tutorial. The time staying campus depends on the tutorial. Go to library because it's a good place for studying. Meet friends on campus. Use microwave to heat lunch.
7. Library. In library, the quite environment help me to focus, and I can feel the pressure that stimulate me to study.
   a. Wish library was equipped with more printers.
8.
   a. Online library. Find the latest published papers.
   b. Ed discussion.
   c. PeerWise. A website for psychology exam preparation. Students can post questions and answers.
   d. Lost on campus.
9. Generally, these services are easy to use. However, online library's searching functionality is not so easy to use, sometimes you have to search by very specific key words. Lost on campus, sometimes the app stuck or crashed.
10. Never attend works fair.
11. Never lost any item on campus.

Xinghui

1. Phd. Infectious disease and epidemiology.
2. Nearly 1 year
3. Never attend Oweek
4. Go to campus on every working day
5. Stay on campus between 9am-5pm
6. Working in office.

7. Only used library. Library staff are very kind to help me to find the books or papers I need.
8. Online library. It's easy to use. Never meet any difficulty.
9. Never attend works fair.
10. Never lost any item on campus.

Kevin

1. Bachelor of Arts 1 year
2. Did attend. Clubs, stock.
3. Good period to know campus and meet friends. For clubs, can find friends in similar hobbies
4. 3 days a week. Lecture and tut classroom. After class, go to library if free. Infrastructure in the library is not good. Desks and chairs, imblanced chairs.
5. Canvas, homework and due. Lost on campus, Google is more helpful, cuz it can navigate to specific directions
6. No.
7. No. but his friends lost airpods, found by iphone.
8. No.

August

1. postgraduate 4 years
2. Didn't attend Oweek busy
3. Not helpful, didn't attent the Oweek
4. Twice a week research project, report the project progress to the tutor
5. Lost on campus, know some specific building and navigate to those building
6. Library, Erc library Bailiu library, For study and group meeting
7. Stop1, Ask the academic question and study plan
8. Yes, little bit help, HR connection, but not suitable for international students
9. No

George

1. Hornor, 4years

2. Didn't attend, during the covid 19

3. Helpful, know more about the campus and make new friends

4. Six day per week, research project, do some chemical analysis and experiment

5. More than eight hours stay in the labs and do some experiments

6. Erc library or office in the chemistry building

7. Stop1, booking the general requirement which always waiting for a long time

8. No, don't have time to attend

9. Lost student card, but found it on social media little red book

Vera

It's hard to gather information, cannot attend university activities in time. (e.g free food relief, free swimming class)

Kerr

1. MSE, 2years
2. Yes, campus tour. Free gift
3. Get quick familiar to the campus. Be specific, like major info
4. 3 days per week.
5. 5 hours, go to lecture and tut.
6. Library, project room is not enough, prefer a quite place to study. Always construct infrastructure near the campus building. The building number that cannot match the building name.
7. My unimelb, unimel moves. Can not hire the coach or equipment。
8. No. Cannot get the job description for in-person meetings.
9. No.

Andrew, Dylan and Zheng Li

1. MSE second semester.
   MSE second year.

   Phd finance, first year.

2. Free food, campus tour.

   NO.

   Campus tour, free lunch and hoodie

3. A little bit.
   No.

   Not really, cannot recognise buildings

4. 4 times

   4 days

   5 days

5. Attend lec and tut, finish assignment. gym.
   Lecture and tut. Project room

   Lec, tut, study group, phd office.

6. Book the room in limited time(2 hours).
   Limited time, different booking method, longer booking time.

   No issues.

7. The campus's restaurant is not enough
   Need a Shuttle bus on the campus.

8. Myunimelb. Difficult to see final results.
   Myunimelb. Verification

   Canvas. The building name is not specific.

   My timetable. Difficult to choose a preference.

9. no
   No

   No

10. Apple pencil. Lost and found office but not open.
    Towel. Still there.

Elsy

1. System engineering. Phd computer system since 2020. 4 years
2. No. miss all activities due to late arrival, the coordinator introduced the school.
3. You dont ask, you dont know the school.
4. Only know Stop1 can ask for help. School provides good service(coffee machine, laptop) to phd students (study in connect where is close to stop, easy to ask help)
5. Don't use too much about the website of unimelb, only LMS and email
6. When she has tutorial. Library
7. No difficulties when using the library service, installing some specific tools on laptop may cause some issue, IT service of the Library is not efficient and waits for long time to solve. Provide more area in the library.
8. Don't use too many facilities on campus, only know there is a gym
9. Don't know too much information about the school service, and nobody tell you about that information
10. Don't go to work fair.
11. Don't lose any item on campus, don't know how to find the lost item, call the campus security, spend too much time to find, call someone.
12. Posting the lost item on social media, also depends on which kind of item I lose, if something is valuable, worried about the privacy of the item information.
13. Need more people to know the politics to deal with the pandemic situation.

Joshua

1. Bachelor of Arts. 2 years

2. Yes. Attend club recruitment activities. Play ping-pong. Campus tour.
3. Yes, it's helpful. It helps new students to get familiar with the campus quickly.
4. Come to campus almost every workday.
5. Usually stay from 10am to 5pm.
6. Go to the tutorial and study in the library
7. It's hard to find a seat with chargers in the library.
8. Current facilities are good.
9. Use my.unimelb to manage personal information and library booking website.
10. They are easy to use.
11. Attended works fair once. Not really helpful.
12. Never lost anything on campus.
13. Just use booking website to book a room and study with friends together. No interaction with staff.

Tom

1. Master of information Technology 2023--2024. Bachelor of sci 2019–2021 7 years
2. Yes. I went to the Oweek to collect the hoodie, but did not attend the campus tours.
3. I think it is helpful because it is hard to find the all lib and building that you need to attend to.
4. Everyday. Because I think lib is the suitable palace for study
5. 8 hours per day for doing the assignment and group meeting.
6. I used lib a lot. I love our lib because it gives enough space for studying. However, I think the quiet area of study is limited. For example, In the Bailieu Lib, it said lv2 is a quiet area for studying but it is usually so noisy. I hope we can have the system that can find the quiet area for studying.
    a. But I hope we can have more restaurants in our campus, especially healthy food. Or at least the navigation to the nearest healthy food store.
7. MyUnimelb. It is not easy to use because it is hard to find the specific service such as finding my grade.
8. No
9. No
10. Allg

Aria

1. Master of IT, 1.5 years.
2. Yes. campus tour and club exhibition.
3. A little bit. The tour is general, with no specific info about IT students. Join the club.
4. 4 days per week.
5. 5 hours. For assessments, group work, lecture and tutorial.
6. Library. Find a quiet place for studying. Booking time limit and not enough room in the final period.
7. Myunimelb, canvas and lost on campus. The info on lost on campus do not update, and the navigation is hard
8. No
9. No
10. no.

Tony:

1. Master of IT 2023-2024 Bachelor of Science 2019-2022
2. Yes, I have joined the free food line and some lawn games
3. Yes, it is very helpful. I make some friends during the orientation week and know some important facilities such as stop1
4. Four times a week, because I have a class every day except the Friday

5. Literally, I will stay on campus for around 6 hours, After I finish my tutorial and workshop, I will go to the library to study.
6. Normally, I play table tennis in the gym each Wednesday, because I like to play ping-pong and I have already played it for over ten years.
7. No, I think the number of single seats in the library is not enough, also it is difficult to book a room during the exam period
8. Yes, it is useless, because half of the job positions need the pr as a prerequisite
9. No
10. No

Meeting Notes

Meeting 1 - 29/02/2024

Time: 3:15 PM - 5:15 PM

Present: All

Location: PAR-104-L1-102

Activities:

- Form the group and enrol the group on LMS.
- Create a Group Folder on Google Drive.
- Read through project requirements.
- Start brainstorming the project topic, such as language learning, lost and found…

Decision:

- Doing research about the potential topics

Meeting 2 - 04/03/2024

Time: 2 PM - 4 PM

Present: All

Location: ERC

Activities:

- Review and brainstorm potential project topics, with contributions from all attendees, to gather a wide range of ideas.
- Brainstorming any investigation method in the future to gather information from other people.

Decision:

- Doing more research about the topics

Meeting 3 - 07/03/2024

Time: 3:15 PM - 5:15 PM

Present: All

Location: PAR-104-L1-102

Activities:

- Have a discussion with a tutor about the topic we chose: Improving Student Campus Life - Lost and Found
- Brainstorming how we investigate the user needs of students.

Decision:

- Based on the tutor's comment, start to design the investigation method.

Meeting 4 - 11/03/2024

Time: 9:30 AM - 11:30 AM

Present: All

Location: Law Building

Activities:

- Decided to use semi-structured interviews as our investigation method
- Brainstorming interview question

Decision:

- Complete the draft of the interview question

Meeting 5 - 14/03/2024

Time: 3:15 pm - 5:15 pm

Present: All

Location: PAR-104-L1-102

Activities:

- Discussed with a tutor about our interview questions
- Redesign the interview questions

Decision:

- Finalised the interview questions

Meeting 6 - 18/03/2024

Time: 8:30 PM - 9:30 PM

Present: All

Location: ZOOM

Activities:

- Review and integrate the final version of the interview questions.
- Mock interview process.

Decision:

- Start to do the interview

Meeting 7 - 21/03/2024

Time: 3:15 PM - 5:15 PM

Present: All

Location: PAR-104-L1-102

Activities:

- Proceed to discuss with a tutor some findings from the interview
- Redesign some questions of the interview based on the comments from interviewees and the tutor

Decision:

- Proceed with interviews with more people
- Coding the script of the interview for further data analysis

Meeting 8 - 28/03/2024

Time: 5:15 PM - 7:15 PM

Present: All

Location: Law Building

Activities:

- Coding all interview scripts
- Create an affinity diagram by clustering similar Post-it notes.
- Data analysis.

Decision:

- Finding user requirements based on the result of data analysis

Meeting 9 - 08/04/2024

Time: 10:00 AM - 12:00 AM

Present: All

Location: Law

Activities:

- Discuss the current user requirements and investigate the main user requirements for students

Decision:

- Decide to change the topic to improve the user experience of the library

Meeting 10 - 11/04/2024

Time: 5:15 PM - 7:15 PM

Present: All

Location: Law

Activities:

- Refine user needs and concerns.
- Design functional requirements.

Decision:

- Persona’s detail and when to finish.
- Finalised initial functional requirements
- Finish the presentation slides and prepare presentation scripts before the next meeting

Meeting 11 - 14/04/2024

Time: 10:30 AM - 12:30 AM

Present: All

Location: Law

Activities:

- Presentation rehearsal

Decision:

- Finish rehearsal before next meeting

Meeting 12 - 18/04/2024

Time: 5:15 PM - 7:15 PM

Present: All

Location: PAR-104-L1-102

Activities:

- Functional requirement analysis: all the group members did the customer segments and value proposition. We discussed the pain, gain, and customer jobs for our project. On the other side, we illustrate the gain creator, pain relievers and product service.

Decision:

- Finalise the function requirement of our project

Meeting 13 - 21/04/2024

Time: 10:00 AM - 12:00 AM

Present: All

Location: Zoom

Activities:

- Review each section by reading through each part.
- Grammar check and peer review the report

Meeting 14 - 25/04/2024

Time: 13:00 AM - 15:00 AM

Present: All

Location: ERC

Activities:

- Summarise the content of our initial design ideas
- Discuss the function we should have in our prototype
- Discuss the tool we use for the low-fidelity prototype

Decision:

- Everyone’s role in low-fidelity prototype

  Vera - Data Display

Steven - Building Display

Honda - Building Level Display, Project Room Check-in

Nick - Floor Plan Display

- The tool we use for the prototype – Figma

Meeting 15 - 29/04/2024

Time: 5:15 PM - 7:15 PM

Present: All

Location: Law

Activities:

- Update the current status of everyone's work on the low-fidelity prototype
- Solving the problem we met while doing the prototypes

Decision:

- Decide the interviewees for our low-fidelity prototype - interview the people from user needs investigation.

Meeting 16 - 02/05/2024

Time: 13:00 AM - 15:00 AM

Present: All

Location: ERC

Activities:

- Summarise the interview records
- Discuss new functions based on the interview records summary

Decision:

- Decide the improvement we make in our prototype - new functionality/UI improvements

  Searching Function

  Simply the floor plan

  Information Card for noise level

Meeting 17 - 06/05/2024

Time: 17:00 AM - 19:00 AM

Present: All

Location: Zoom

Activities:

- Update the current working status of the final prototype
- Solve the problem we met during the development of the final prototype

Decision:

- Decide the due date for developing the final prototype: 12/05/2024

Meeting 18 - 14/05/2024

Time: 1:00 PM - 5:30 PM

Present: All

Location: Law

Activities:

- Discuss some limitations of using Figma with our high-fidelity prototype
- Write the user case scenario of our prototype
- Record the several shortcut videos in the law-building

Decision:

- Plan the timeline of the later assignment - report, video, presentation
- Steven is responsible for the initial part introduction of the project in the video
- Vera, Nick and Honda are responsible for editing and clipping the video in two days

Meeting 19 - 18/05/2024

Time: 11:00 PM - 3:30 PM

Present: All

Location: Zoom

Activities:

- Review and finalise the video of the project
- Practice the presentation in the Zoom meeting

Decision

- Improve some parts of the presentation such as technical skill
- Add some relative pictures in the Slide, like evidence of the interview
- Practice the presentation in a later time

Meeting 20 - 25/05/2024

Time: 6:00 PM - 8:30 PM

Present: All

Location: Zoom

Activities:

- Write some test cases for find study space functionality
- Write some test cases for find quiet place functionality
- Write some test cases for Integrate Current Campus Websites functionality
- Write some test cases for check-in functionality
- Review the final prototype on Figma
- Discuss the structure of the final report

Decision

- Task allocation for our project
- Nick will write the introduction part of the project
- Honda will write the initial design part of the project
- Vera will write the evaluation part of the project
- Steven will write the discussion part of the project

Meeting 21 - 02/06/2024

Time: 8:00 PM - 10:30 PM

Present: All

Location: Zoom

Activities:

- Review all the parts of the final project report
- Provide some advice on the report about ethical issue of our project
- Discuss how to write the executive summary

Decision

- Honda will write the executive summary
- Vera will organize the structure of the report and unified font and format for the report
- Steven and Nick record the meeting notes for the final meeting and check the grammar of the report before the deadline