CptS 443/543 Early Data Gathering Report

Team Members' Names:

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Jasmeetsingh Darshankumar Khalsa

Date: 25 March, 2022

Abstract:

At Washington State University, we have multiple buildings, and we can find these buildings easily using google or apple maps. However, when we enter a building, it is difficult to find a particular room or office in the building. Voiland College of Engineering and Architecture contains more than one building Connected like Dana, Sloan, ETRL, EME. New students or staff often wander around to find a particular room. Currently, Washington State University has a poster version of WSU Building WayFinding. If people want to find a room, they need to memorize the route or take a picture of the map and then try to locate the room. We observed that there is no convenient way to locate a room. In order to solve this issue, we are going to design a mobile application that will help user to easily navigate through the building. As a first step, we will conduct contextual inquiry session to gather customer requirements and data gathering.

Design project focus and research questions:

a) *The problem the software aims to address*
The main problem the software will focus is that user often get lost in a new building. Our software will help the user to easily navigate the building without any assistance from a human being.

b) Proposed software solution description
Google map provides us to find our way in a new place. Nowadays, we cannot imagine going to a new place without having access to google map. We may download the map if there is no network on that area. We do not have to carry a paper map and carefully deduct which roads we are currently. Google maps provide us live navigation. We aim to design a similar map which will give user similar experience when he/she enter a new building. When user enter a building, the application will show users their live location and a blueprint of the whole building. User can select the current floor he is residing and follow the path to their desired destination. User can select whether he prefers staircase or lift to travel floor to floor, and the WayFinding app will show the user accordingly. Also, it will show the shortest path to reach to a destination. User can review a particular room; report any problem he sees as he moves around the building.

c) Products that address similar or related problems
Mazemap is a powerful data visualization and indoor wayfinding tools for an organization. In Mazemap, they provide solutions that allow our users to get a to b directions, monitor occupancy, book spaces, and manage facilities more efficiently.
Sonarax developed a unique protocol based on sound waves beyond hearing range that enables navigating inside any building and even on the ground with amazing precision. Sonarax enters a revolutionary solution for indoor mapping and navigation based on sound waves and fusion technology that works on any smartphone. The system deploys easily. It doesn't require a network and starts a media calibration of the indoor space coordinates. Sonarax provides an intuitive mapping interface simply drag and drop objects to create a digital map of any indoor location. Moreover, the system enables easy tagging of specific indoor locations for triggering events such as special pricings and augmented reality. Promotions that will pop on the user's screen while he or she passes by. Once the indoor space is mapped users can navigate with the same ease they navigate outside, move around any building with real-time indication of where you are and easily locate anything.

d) Proposed software's prospective users
"WSU Building WayFinding" will be used for all the student, stuffs, and visitor of Washington State University.

e) *Research contextual inquiry questions*
RQ1: When you enter a new building, do you search for a floor map to guide you? If so, how do you remember the information?
RQ2: Describe one time you lost in a building.
RQ3: When you enter a new building, what is the first thing you look for?
RQ4: Which updates regarding a building would you like to have daily?
RQ5: How do you find a room in the building?
RQ6: If you face any problem in a particular room, how would you like to report the problem?
RQ7: Which medium do you generally use for going floor to floor? Stair or Lift?
RQ8: Do you know where the fire escapes in your workplace? How would you like to have this information?
RQ9: Do you use any technologies or other resources (including people) to assist him/her while finding a room? Which ones? How are they used?
RQ10: How do you share any news or updates of a room in your workplace?

Participants

Participant 1 is a graduate student in Material science department at Washington State University. Participant 1 is a Bangladeshi and identifies as male. He is 25 years old, and he is working as a research assistant. We conducted the interview at Sloan building where he spends most of time. He was visiting the French Administration building for personal work and he invited to join since he has never there, and we may get some valuable experience there. However, we visited with him and did not record anything because he was not comfortable of recording while moving into a building. He shared his experience in the interview and made some detailed analysis on the experience. For us, it was a rewarding experience as we have observed someone who is visiting a new building for the first time and their thinking process.

Participant 2 is a graduate student at Washington State University. Participant 2 is a Chinese and identifies as female. She is 25 years old, and she is working at international program office. We conducted the interview Spark building where she generally studies. She shared her experience in the building she had classed and present many important points. She had classes on building on "Cleveland Hall" where she often got lost because there is another building named "Education Addition" is connected. When she is in hurry, mistakenly sometimes she took wrong path. There are also some hidden doorways which confused the visitors sometime.

Participant 3 is a graduate student in EECS department at Simon Fraser University. Participant 3 is a Canadian and identifies as male. He is 28 years old, and he is working as a research assistant. Since he is in Canada now, we did the interview online. Since he is new to his university, he has lots of valuable experiences to share with us. We did the interview online. It is also a very interesting experiment doing this online interview.

Contextual Inquiry Sessions

Process and Environment

During the span of two days, the contextual inquiries were conducted in Pullman. We have conducted one interview while one participant is going to a building of Washington State University named "French Administration Building". The participant was never visited this building before and some personal work he needs to visit that building. It was our golden chance to observe how a person navigate when he enters a completely unknown building. Our participants came to building comfortably using the google map and when he entered the building, he was confused. After wandering for some time, he asked someone's help to find the room he wanted to go. However, the direction was not clear, and he again got lost. He has to ask

again someone for directions. The participant informed us he often faces this problem. Even if, he asked someone for direction, sometimes he misunderstood the direction or the person he has asked misunderstood his query. Finally, he was able to find the room and completed his task. Now, he wants to go to restroom to get fresh and need a water fountain to drink some water. However, we found that in that building the sign of the restrooms were beside the lift and there was no restroom there. It was very confusing for us and after wandering around, we also found the restrooms. Next, we need to find a water fountain. Unfortunately, there is no sign or indication for where the water fountains are available. After searching for some time, we did not find any water fountain. There was a shop on the ground floor of that building and we have bought water from there. It was a rewarding experience to monitor a participant's activity and what problem one person may face in a building.

For participant 2 and 3, we were not able to conduct similar type of session like participant 1. We have conducted the interview of the second participant on his office and third participant's interview was conducted via zoom. However, we find some interesting experience and suggestions from them.

In general, our contextual review was conducted by two people in which each had a different role. One person was responsible for recording the audio tape and asking questions and the second person for main note taking. We are a four-member team. All of us participates in the interview session. We have asked them a series of questions (including follow up) throughout the session. Each session approximately lasted 10-20 minutes depending on their elaboration in responses.

Common Tasks and Themes

Live direction

The main requirement of the application is to show the live direction while user moves in the building. The navigation should be accurate and precise without any delay.

Shortest path to a room

Application should show the shortest path to reach a room. User should be able to select stair or lift and according to that the appropriate path should be shown

Search for a room by category

Search options should be filtered out like categories. If a user search for a collaboration room all collaboration room of that building should be shown.

Basic information regarding the room:

If the user selects a particular room, information about the room should be shown like the room is still open or not, a picture of the room if the room is not for only authorized use.

Unique features of individual CI sessions

Use beacon to share user's location

Most of the time users are in an open space of a building and want to share their location. They need to inform the user which room is nearby or give some directions to reach the open space. Participants feels if they were able to send exact location via the app, it would be easier for someone find them. The person only needs to follow the direction on the map to the beacon in order to find them. Participant 2 would like to share her location using this way.

Heatmap of a building

Participants wants to see the peak hour a building and at any time how many people are there in the building. It would be helpful for them whether they are going to find any place that would be not crowded and can do their work. This information will save their time because they don't have to wandering around the building finding a convenient place. If they can see the building is crowded, they may avoid that building and go to another building. Participant 2 indicates this information would be helpful to plan.

Emergency alert notification

Participant would like to hear emergency alert via the application. User may be too busy or in a meeting and often cannot hear fire alarm or other important siren. However, the mobile most of the time near them and if the mobile informs them about an emergency, it would be very helpful to them. Also, in case of emergency, they would like to know the nearest emergency exit of the building. If users are in a building where they have never been before and suddenly an emergency arises, they would not know where the emergency exit is.

Share events and get notification

People often do not what events are in place in a building. Sometimes they passed a room and did not know there was free food or that room is registering for some events. If the users can share the locations of these events, other user whenever enter the building will get a notification what is happening on that building. Also, while they are passing the room, they will get notification from the application.

Synthesis of Findings

Requirements

Functional Requirement	**Associated Usability Target(s)**	**Empirical Source/Rationale**
User must be able to download a building map without being there.	Users must be able search the room and find the result within one minute.	Participants 1 cited that if he has a good idea where the room is located in advance, he will try to use entrance that will be near to that room.

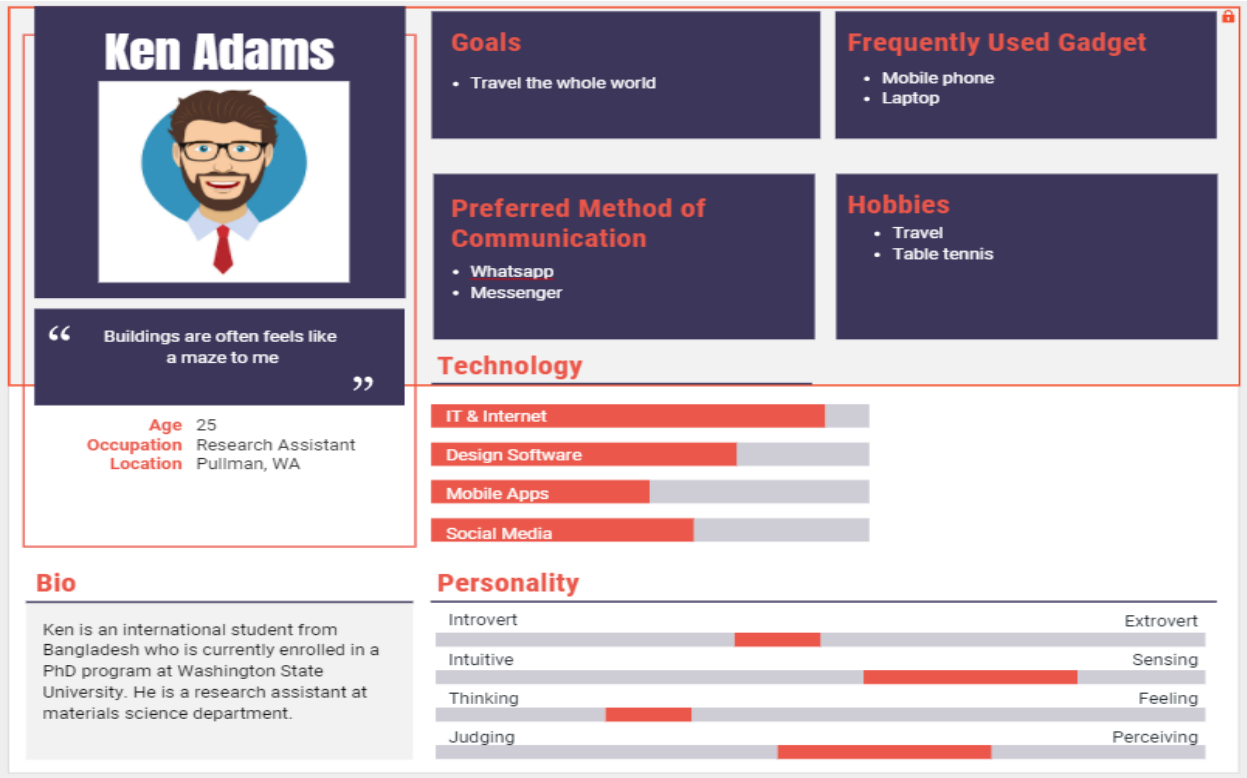
Users must be able to see live navigation while moving	Users must be able to see his updated location if he moves 2 or 3 meters.	This is to provide accurate, and precise location without any delay.
Users must be able see where she is facing.	Users must be able to which direction she is moving within one second.	The participants suggested that sometimes the pointer does not indicate correctly where she is facing.
Users must be able to review or share some news of an event in a building.	Users must be able to access the event or review page within 10 seconds and see or give reviews.	The participants told us that in a building they want to rate some study place or any place they have enjoyed being there. Also, they can share any event so that if any people enter a building or passing by the building, he/she can be aware of the event.
Users must be able to send a beacon to their friend to let them know where they are.	Users must be able to send the beacon within 10 seconds.	The participants want an easy way to let their friends know their location.
User must be able to get information about the nearest emergency exit.	Users must be able to see the shortest route and the nearest emergency exit in a building with 5 seconds,	In case of emergency, users would like to see nearest fire exit. Sometimes people get panicked and forget where emergency exit located.
User must get notification when there is a fire situation in the building	User must get notification within 5 seconds of the fire alarm ring.	Users sometimes wear headphone and did not hear any sound. If the mobile show notification, it would be helpful for them to notice any emergency event.
User must be able to search room by categories like study room, restrooms, labs etc.	User must be able to see the available categories ins search result while typing within 3 second.	Users sometime forget the real name of a room. However, they remember the category. Showing the result of a category will help them to recall the room they wanted to visit.

User must be able to see which place or room of a building is crowded.	User must be able to see the heatmap of the building within 3 second.	Participant 2 indicates that sometimes it took more time to find a place because some places are too crowded, and the participant did not this information beforehand.

User Experience Requirement	**Empirical Source/Rationale**
Users must rate the live navigation as a 9 or higher on a scale of 1-10 in terms of precision.	For all participants, they needed to show map correctly and accurately.
Users must rate find the shortest route to reach a room rate as a 9 or higher in terms of satisfaction on a scale from 1-10.	All users will use the application to find the room easily. It is one of the main features of the application.
Users must rate the searching result as a 9 or higher on a scale of 1-10 in terms of how relevant and fast they can get the result.	For all participants, it is important for them if they search for the result should be shown within a moment.
Users must rate sharing event feature as an 8 or higher on a scale of 1-10 in terms of ease of access.	All participants want very simple UI and faster way to share an event within couple of seconds
Users must rate the notification alert as an 8 or higher on a scale of 1-10 in terms of getting important notification.	All participants emphasize it would be great if they can get important notifications whenever they enter a building.
Users must rate find the shortest route to reach a room rate as a 9 or higher in terms of satisfaction on a scale from 1-10.	All users will use the application to find the room easily. It is one of the main features of the application.
Users must rate the overall application as a 9 or higher in terms of ease to use on a scale from 1-10.	Most user wants to have an easy-to-use application which will help them to navigate throughout the building.

Personas:


Regina Phallange
"Sometimes buildings are just chaos"
Age 25
Occupation Graduate Assistant
Location Pullman, WA
Goals
• Getting enough sleep; being slim and pretty .
Frequently Used Gadget
• iPhone
Preferred Method of Communication
• Instagram
• iMessage
Hobbies
• Reading
Technology
IT & Internet
Design Software
Mobile Apps
Social Media
Motivations
Ease of Use
Creativity
Problems Solved
Price
Updates
Bio
Regina is an international student from China who is currently enrolled in a PhD program at Washington State University. She is a graduate assistant at international program office who trained intern and lead the weekly meeting with interns
Personality
Introvert Extrovert
Intuitive Sensing
Thinking Feeling
Judging Perceiving


Ken Adams
"Buildings are often feels like a maze to me"
Age 25
Occupation Research Assistant
Location Pullman, WA
Goals
• Travel the whole world
Frequently Used Gadget
• Mobile phone
• Laptop
Preferred Method of Communication
• Whatsapp
• Messenger
Hobbies
• Travel
• Table tennis
Technology
IT & Internet
Design Software
Mobile Apps
Social Media
Bio
Ken is an international student from Bangladesh who is currently enrolled in a PhD program at Washington State University. He is a research assistant at materials science department.
Personality
Introvert Extrovert
Intuitive Sensing
Thinking Feeling
Judging Perceiving

Shan Li

"Whenever outside, map on the phone is my highest priority app"

Age 28
Occupation Research Assistant
Location Burnaby, BC

Goals

- Healthy and wealthy.

Frequently Used Gadget

- iPhone
- MAC
- iPad

Preferred Method of Communication

- Face to face

Hobbies

- Singing

Technology

- IT & Internet
- Design Software
- Mobile Apps
- Social Media

Bio

Shan is an international student from Canada who is currently enrolled in a Master of Applied Science program at Simon Fraser University in Canada. He is a research assistant and his job is high performance computing & developing hardware accelerators based on FPGAs

Personality

- Introvert / Extrovert
- Intuitive / Sensing
- Thinking / Feeling
- Judging / Perceiving

Scenarios

Scenarios 1

Ken wants to check up with a doctor in cougar health service. Since he is new here, he does not know exactly which room the doctor sees patients. Also, he wants to know whether the service he needs is covered by the health insurance or not. However, he doesn't know where he can get the information. John opens the WSU wayfinding app; he searches for the room that will provide him health insurance related information. He also checks whether they are currently available or not. He gets some idea regarding the room location, and it helps him to park his car to the nearest exit.

Scenarios 2

Regina goes to university recreation center every day. He performs various of activities like swimming, gym, and rock climbing. Today she wants to go for swimming. Whether the swimming pool is crowded or not to check that Regina opens the WSU WayFinding app and search for the heatmap of swimming pool. She found out that the swimming pool is closed due to maintenance. However, university is giving alternative option: Smith and Gibbs pool are open for swimming for the student. Regina is happy that he checked before hopping into the car. If she has not been checked the status of the pool, she would have gone directly to the university recreation center, find a place to park the car and had to return to home. Now, she can directly go to the Smith or Gibbs pool for swimming without wasting any time.

Scenarios 3

Shan wants to participate in the school orientation, and it is the first day at school. He drives around and tries hard to figure out which parking lot to park and such a parking lot is close and convenient to get to the orientation meeting room. He opens the WSU wayfinding app and enter the orientation room, then the app search the parking lot that near to the room/building he needs to go and there is a shortest path from parking lot to such room (the app provides direction for inside and outside the building)

Appendix A: Informed Consent

Informed Consent Agreement to Participate In Contextual Inquiry

Abrar Akhyer Abir, Shengya Zhang, Congying Wang, Jasmeetsingh Darshankumar Khalsa

School of Electrical Engineering and Computer Science
Washington State University

Description of Study: I understand that I, Xuejiao Li have been asked to participate in a contextual inquiry to inform the design of a new software application being created as part of the above persons' (henceforth, "the designers") course project for CptS 443/543 at Washington State University. My participation in this activity will help the designers to better understand the needs of prospective users of the software. I have been asked to spend about 15 minutes participating in this test. This will involve sharing my experience and thoughts when I visit a new building and what information would I like to have about a particular building that will help me to take better decision. The designers will observe, ask questions, and take notes.

The designers will record the session on audiotape. My name will not be on the audiotape. When the researchers describe their work to other people in class (which may entail playing segments of the audiotape), they will not use my name.

Risks and Benefits Expected: The contextual inquiry will not do me any harm. It is not expected to help me directly. The results may help inform the design of the designers' software.

Confidentiality: I understand that any information about me that is obtained from this contextual inquiry, including what I say, will be confidential. My real name will be kept in a locked file and only the researchers will have access to it. Only my code name will be associated with data collected on me. Reports and presentations involving those data will not use my real name and will not present other data that could be used to identify me. Any recordings made within this contextual inquiry will be destroyed within two years.

Right to Refuse or End Participation: I understand that I may refuse to participate in this study or stop participating at any time.

Certification: I certify that I have read and that I understand the foregoing, that I have been given satisfactory answers to my inquiries concerning this contextual inquiry, and that I have been advised that I am free to withdraw my consent and to discontinue participation in the project or activity at any time.

I herewith give my consent to participate in this activity with the understanding that such consent does not waive any of my legal rights, nor does it release the researchers or any agent thereof from liability for negligence. I understand that I shall remain anonymous in all written and verbal reports of this study. If I am recorded, I agree to allow the designers to present to their instructor and classmates excerpts of any recordings taken during the study for educational purposes. I understand that I may request a copy of this form to keep.

March 24

Signature of individual participant Date

(If you cannot obtain satisfactory answers to your questions or have comments or complaints about your treatment in this activity, please contact Professor Christopher Hundhausen, Washington State University, 509-335-4590 or hundhaus@wsu.edu.)

Informed Consent Agreement to Participate In
Contextual Inquiry

Abrar Akhyer Abir, Shengya Zhang, Congying Wang, Jasmeetsingh Darshankumar Khalsa

School of Electrical Engineering and Computer Science
Washington State University

Description of Study: I understand that I, Azmain Faek Islam have been asked to participate in a contextual inquiry to inform the design of a new software application being created as part of the above persons' (henceforth, "the designers") course project for CptS 443/543 at Washington State University. My participation in this activity will help the designers to better understand the needs of prospective users of the software. I have been asked to spend about 15 minutes participating in this test. This will involve sharing my experience and thoughts when I visit a new building and what information would I like to have about a particular building that will help me to take better decision. The designers will observe, ask questions, and take notes.

The designers will record the session on audiotape. My name will not be on the audiotape. When the researchers describe their work to other people in class (which may entail playing segments of the audiotape), they will not use my name.

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Confidentiality: I understand that any information about me that is obtained from this contextual inquiry, including what I say, will be confidential. My real name will be kept in a locked file and only the researchers will have access to it. Only my code name will be associated with data collected on me. Reports and presentations involving those data will not use my real name and will not present other data that could be used to identify me. Any recordings made within this contextual inquiry will be destroyed within two years.

Right to Refuse or End Participation: I understand that I may refuse to participate in this study or stop participating at any time.

Certification: I certify that I have read and that I understand the foregoing, that I have been given satisfactory answers to my inquiries concerning this contextual inquiry, and that I have been advised that I am free to withdraw my consent and to discontinue participation in the project or activity at any time.

I herewith give my consent to participate in this activity with the understanding that such consent does not waive any of my legal rights, nor does it release the researchers or any agent thereof from liability for negligence. I understand that I shall remain anonymous in all written and verbal reports of this study. If I am recorded, I agree to allow the designers to present to their instructor and classmates excerpts of any recordings taken during the study for educational purposes. I understand that I may request a copy of this form to keep.

Azmain Faek Islam	March 24, 2022
Signature of individual participant	Date

(If you cannot obtain satisfactory answers to your questions or have comments or complaints about your treatment in this activity, please contact Professor Christopher Hundhausen, Washington State University, 509-335-4590 or hundhaus@wsu.edu.)

Informed Consent Agreement to Participate In
Contextual Inquiry

Abrar Akhyer Abir, Shengya Zhang, Congying Wang, Jasmeetsingh Darshankumar Khalsa

School of Electrical Engineering and Computer Science
Washington State University

Description of Study: I understand that I, Leo Liu have been asked to participate in a contextual inquiry to inform the design of a new software application being created as part of the above persons' (henceforth, "the designers") course project for CptS 443/543 at Washington State University. My participation in this activity will help the designers to better understand the needs of prospective users of the software. I have been asked to spend about 15 minutes participating in this test. This will involve sharing my experience and thoughts when I visit a new building and what information would I like to have about a particular building that will help me to take better decision. The designers will observe, ask questions, and take notes.

The designers will record the session on audiotape. My name will not be on the audiotape. When the researchers describe their work to other people in class (which may entail playing segments of the audiotape), they will not use my name.

Risks and Benefits Expected: The contextual inquiry will not do me any harm. It is not expected to help me directly. The results may help inform the design of the designers' software.

Confidentiality: I understand that any information about me that is obtained from this contextual inquiry, including what I say, will be confidential. My real name will be kept in a locked file and only the researchers will have access to it. Only my code name will be associated with data collected on me. Reports and presentations involving those data will not use my real name and will not present other data that could be used to identify me. Any recordings made within this contextual inquiry will be destroyed within two years.

Right to Refuse or End Participation: I understand that I may refuse to participate in this study or stop participating at any time.

Certification: I certify that I have read and that I understand the foregoing, that I have been given satisfactory answers to my inquiries concerning this contextual inquiry, and that I have been advised that I am free to withdraw my consent and to discontinue participation in the project or activity at any time.

I herewith give my consent to participate in this activity with the understanding that such consent does not waive any of my legal rights, nor does it release the researchers or any agent thereof from liability for negligence. I understand that I shall remain anonymous in all written and verbal reports of this study. If I am recorded, I agree to allow the designers to present to their instructor and classmates excerpts of any recordings taken during the study for educational purposes. I understand that I may request a copy of this form to keep.

Leo Liu	03.23.2022
Signature of individual participant	Date

(If you cannot obtain satisfactory answers to your questions or have comments or complaints about your treatment in this activity, please contact Professor Christopher Hundhausen, Washington State University, 509-335-4590 or hundhaus@wsu.edu.)

Appendix B: Raw Data

Links to Recordings

https://drive.google.com/drive/folders/16LNQuicsqwfJ3_h-OivKb0iLUgAP_hBM?usp=sharing

Notes

Notes for Participant 1

1. When you enter a new building, do you search for a floor map to guide you? If so, how do you remember the information?
    - Normally would look a room with number.
    - Then extrapolate to find the room.
    - If that does not work, look for a map
2. Share your experience in French Administration Building
    - Have to look a room where never been before.
    - Looked for room number but did not work out well.
    - Asked someone for direction.
    - Still could not find the room.
3. Which updates regarding a building would you like to have daily?
    - Working on chemical labs
    - Sometimes rooms are off limit because of chemical breach.
    - Had to inform many people manually. Took a lot of time.
    - Building should have app that can inform others there is an issue in some room.
4. If you face any problem in a particular room, how would you like to report the problem?
    - Informs administrative personnel of that building.
5. Which medium do you generally use for going floor to floor? Stair or Lift?
    - Normally for short distances stairs
    - Otherwise lift.
6. Do you know where the fire escapes in your workplace? How would you like to have this information?
    - Have been working over for one year in workspace.
    - That's why knew where the fire escape is.
    - If asked in one week of joining, would not be able to tell where the fire escape is.
    - A map would be great in emergency situations.
    - An app would be best if it can guide someone to emergency exit.
    - Will suggest the nearest fire escape.
7. Do you use any technologies or other resources (including people) to assist him/her while finding a room? Which ones? How are they used?
    - Only map (paper map)
8. How do you share any news or updates of a room in your workplace?
    - Slack or MS teams.
    - To warn people regarding chemical breaches or there is glass broken on the floor.
9. What kind of features you would like to have in our app?
    - User experience.
    - Important functionality.
    - Hierarchy of features.
    - Share warning.
    - Emergency notification.

Notes for Participant 2

1. When you enter a new building, do you search for a floor map to guide you? If so, how do you remember the information?
    - If room contains number, then follow the number to find the room.
    - Otherwise, will look for map and take a picture.
2. Describe one time you lost in a building.
    - Classroom in Cleveland Hall and another building is connected.
    - Accidently went to the wrong building.
    - Classroom in the corner.
    - So many doors blocked the view of other rooms.
3. What would you suggest avoiding this type of confusion?
    - Show the overview of hidden the areas or alert.
    - Remove all the door so that it does not block anyone's view.
4. When you enter a new building, what is the first thing you look for?
    - Whole structure of the building.
    - Function of the building.
    - What is the function of the building?
5. When you enter a new building, what is the first thing you look for?
    - Directly ask a student or someone for directions.
6. Which updates regarding a building would you like to have daily?
    - Capacity of the building.
    - Is the building crowded or not?
7. If you face any problem in a particular room, how would you like to report the problem?
    - Depends on the place.
    - Technique support student.
    - In classroom, will ask to the professor.
    - If working place, will ask supervisor to fix the issue.
    - If possible, will try to fix the issue on my own.
8. Which medium do you generally use for going floor to floor? Stair or Lift?
    - Over 10 floors, take lift.
    - If 5 floor, would prefer stair.
9. Do you know where the fire escapes in your workplace? How would you like to have this information?
    - Have a training to know what to do on emergency
    - In shopping mall, may be near the restroom.
    - In a university campus, not sure where the fire escapes are.
10. Do you use any technologies or other resources (including people) to assist him/her while finding a room? Which ones? How are they used?
    - Slack or other medium let other friends to know the location.
11. How do you share any news or updates of a room in your workplace?
    - No Specific app.
    - However, Microsoft team contains some information regarding the availability of a room.
12. What kind of features you would like to have in our app?
    - Find a room.
    - Recommend fastest route.
    - Share a location to a friend.
    - Sharing events of a building.

Notes for Participant 3

1. When you enter a new building, do you search for a floor map to guide you? If so, how do you remember the information?
    - Yes, probably only 1-2 blocks and several room numbers.
2. Describe one time you lost in a building.
    - One time I am going to find a room in a new building when I entered the building, all the room numbers of this floor start with 9.
    - I am looking for 1108, so I got confused.
    - Then I spend several times to find the right floor, all the room numbers on the right floor start with "11".
    - However, I find the right floor, I still couldn't find the right room; Then I realized the room holds back of a door.
    - Also, 1108 is a lab. It has been hiding in a larger lab room. So, if I want to find 1108, I need to go inside the large lab room first, then find the corner where 1108 is located.
3. When you enter a new building, what is the first thing you look for?
    - Room number or significant mark
4. When you enter a new building, what is the first thing you look for?
    - Directly ask a student or someone for directions.
5. Which updates regarding a building would you like to have daily?
    - Facility information like when the building will open/ close, power outage.
6. If you face any problem in a particular room, how would you like to report the problem?
    - If the room has issue, I may change to a new room.
    - But if I have to use this room, I prefer to talk to someone in person. It would be fast) report to front desk or facility person.
7. Which medium do you generally use for going floor to floor? Stair or Lift?
    - Lift.
8. Do you know where the fire escapes in your workplace? How would you like to have this information?
    - Yes, I do, I saw the emergency exit.
9. Do you use any technologies or other resources (including people) to assist him/her while finding a room? Which ones? How are they used?
    - There is one app called "FSU room finder"
    - However, it doesn't work well. It can only tell me the room location (which floor and approximate location). Sometimes inaccurate.
10. How do you share any news or updates of a room in your workplace?
    - Sending an email to a specific person.