Project Team Name:	Group B
Present Members:	Princess Kachhadiya, Vishesh Patel, Kruti Panchal
Topic/device:	Find My Way – Mobile and Large Screens

Use Cases and Prototype

Feature 1 : Time Based Highlighting (Indoor Navigation Visual Aid)
Our indoor navigation with time-based highlighting feature simplifies campus navigation by automatically highlighting relevant facilities based on the current time. Whether it's study rooms during peak hours or dining options during mealtimes, users like Abby can easily locate what they need within the same building they're in. This user-friendly feature ensures efficient campus exploration, providing timely information tailored to users' needs.

Task Name:
Abby wants to find a study room using the indoor navigation feature with time-based highlighting.

Task Scenario:
During her lunch break at the Killam Library ground floor, Abby, a DAL 4th-year Engineering student, decides to use the remaining time to study. Uncertain about where to find an empty, quiet study room with amenities on the upper floors, Abby turns to the campus navigation app's indoor navigation feature with time-based highlighting. Her goal is to efficiently locate an available study room suitable for her needs, ensuring a productive study session.

Use-Case

Normal Case

1. User opens the Find My Way app on her smartphone.
2. User selects the Visual Guide feature.
3. User selects the current location option.
4. The system displays a map of the Killam Library ground floor with highlighted study areas and amenities. (current location of user)
5. User taps on the option to view floors.
6. User selects the desired floor for study rooms.
7. The system updates the map to display the upper floors of the library.
8. The system highlights available study rooms on the selected floor, dynamically based on the current time.
9. User selects a study room.
10. The system provides directions to the selected study room.
11. User follows the directions and arrives at the study room.
    11-a) After reaching selected study floor, user sees large display to find way.
    11-b) User make use of large display to locate to desired room.
    11-c) User do not want to repeat process so, user opted for connect to phone option. [this option stores your previous choices and continue from where you left on your phone and help to reach to destination].
    11-d) User sees the pathway to the room which is displayed by large screen.
    11-e) Then user click on button exit on screen

11-f) Again user reaches to home screen.
12. User enters the study room and begins her study session.
13. User exits the navigation and back to home screen.
14. User exits the Find My Way app.

Alternative Case

4.1 User selects the wrong floor for study rooms, the system prompts her to confirm the selection. User can either choose to correct the floor selection or return to the current location map to reassess her options.
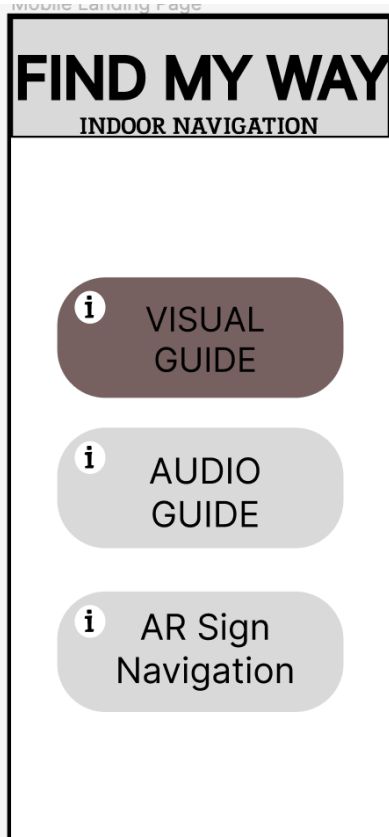
Prototype Images

Image 1: Steps 1 & 2

Mobile Landing Page

FIND MY WAY
INDOOR NAVIGATION

ⓘ VISUAL GUIDE

ⓘ AUDIO GUIDE

ⓘ AR Sign Navigation

Image 2: Step 3

FIND MY WAY

INDOOR NAVIGATION

← **VISUAL GUIDE**

CHOOSE
BUILDING

CURRENT
LOCATION

Image 3: Step 4

← **VISUAL GUIDE** EXIT

◉ **CURRENT LOCATION**

GROUND FLOOR

Image 4: Steps 5 & 6

VISUAL GUIDE   EXIT

GROUND FLOOR

FIRST FLOOR

SECOND FLOOR
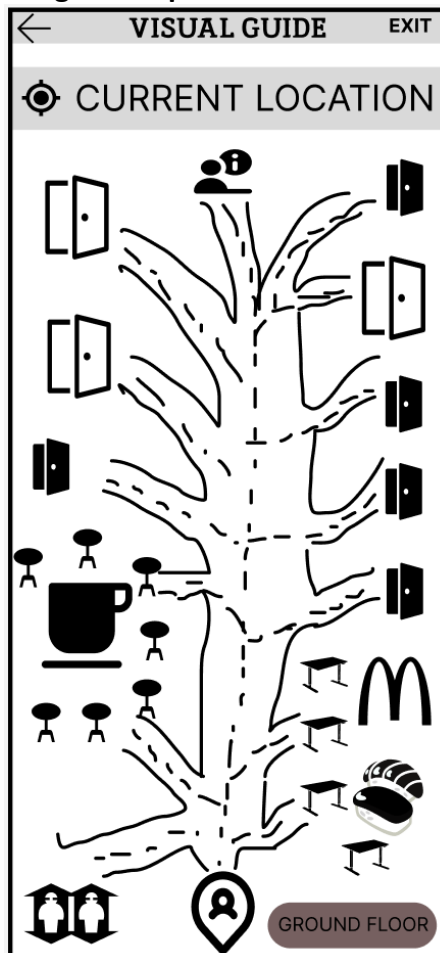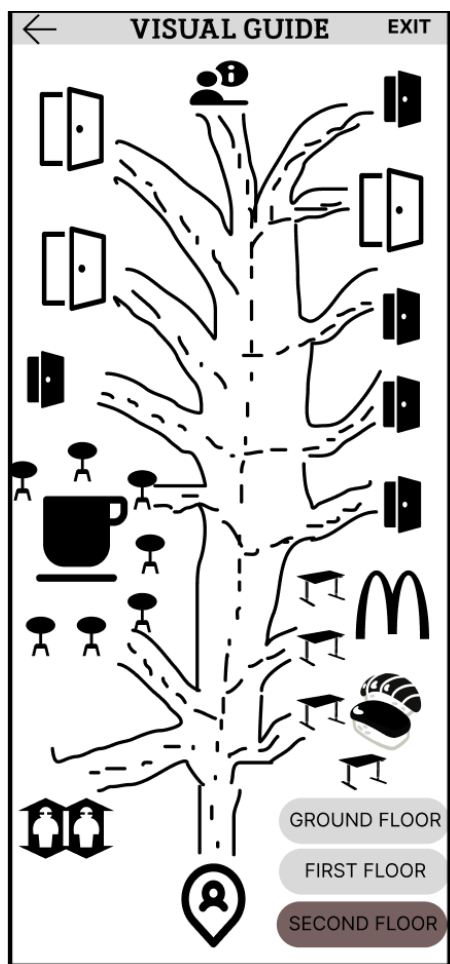
Image 5: Steps 7, 8 & 9
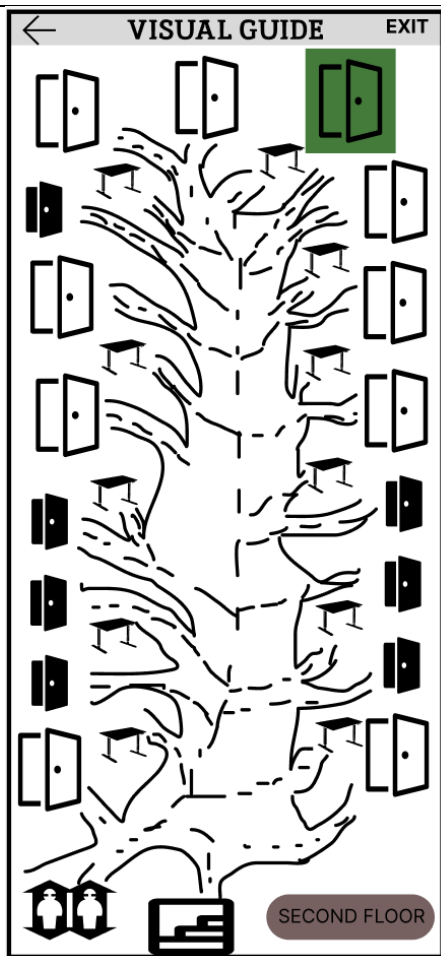
Image 6: Step 10
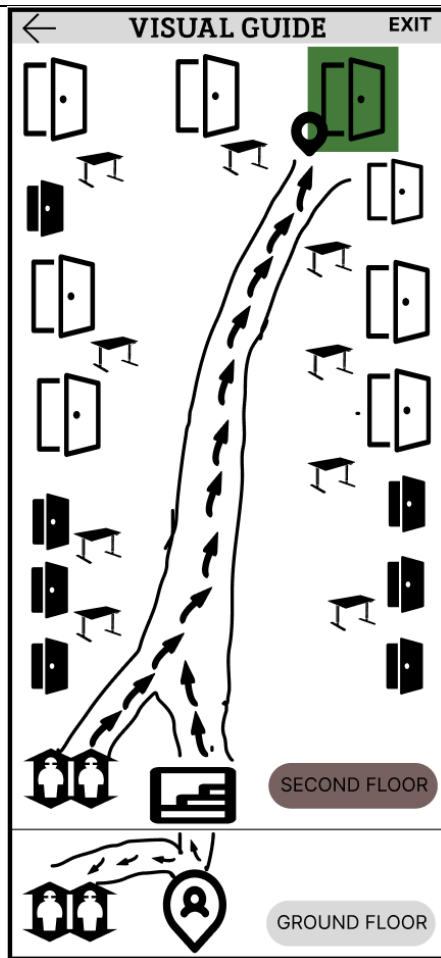
Image 7: Step 11
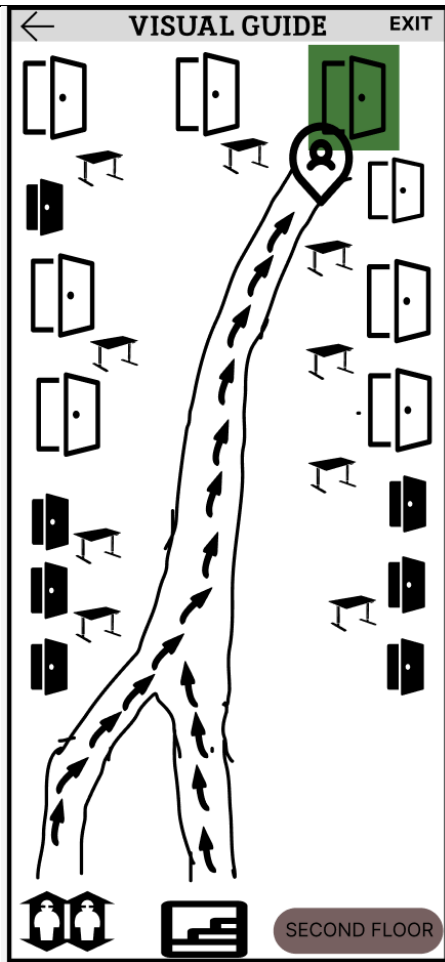
Image 8: Step 11-a & 11-b
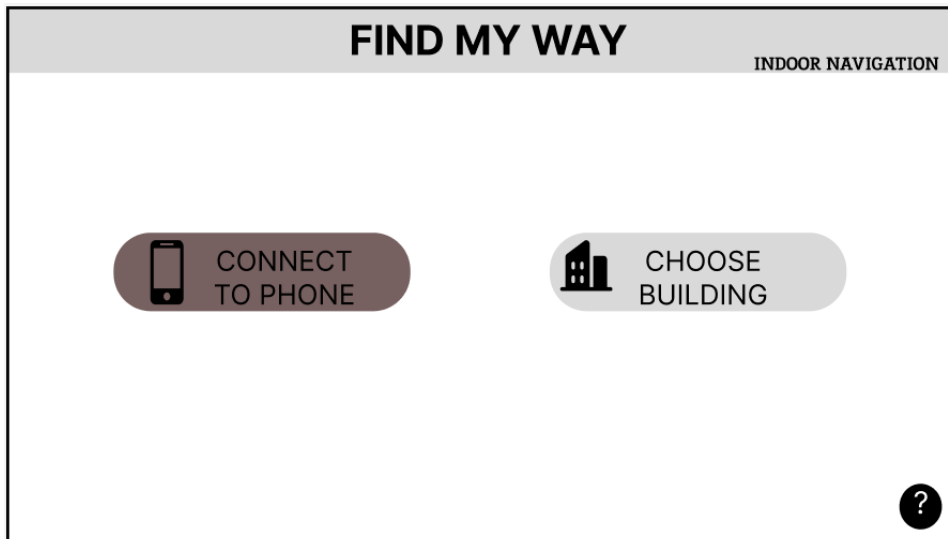
Image 9: Step 11-c

FIND MY WAY

INDOOR NAVIGATION

SCAN QR CODE

EXIT

Image 10: Step 11-d

WELCOME TO KILLAM LIBRARY

FIND MY WAY

EXIT

SECOND FLOOR

Image 11: Step 11-e

WELCOME TO KILLAM LIBRARY

FIND MY WAY

EXIT

SECOND FLOOR

Image 12: Step 11-f

FIND MY WAY

INDOOR NAVIGATION

📱 CONNECT
TO PHONE

🏢 CHOOSE
BUILDING

❓

Image 13: Step 13

FIND MY WAY
INDOOR NAVIGATION

ⓘ VISUAL
GUIDE

ⓘ AUDIO
GUIDE

ⓘ AR Sign
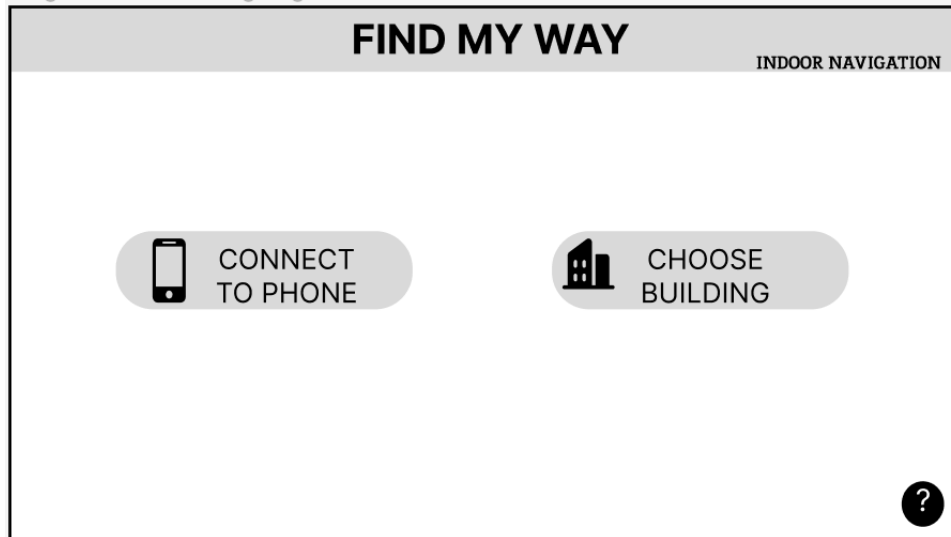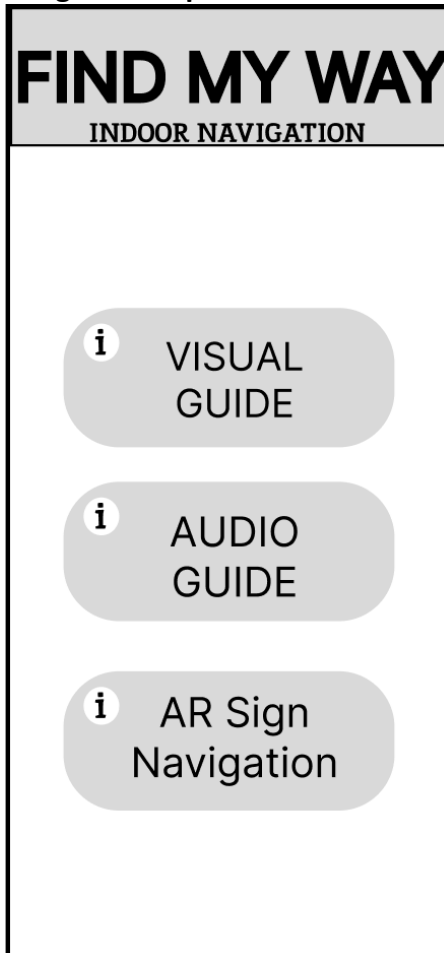Navigation
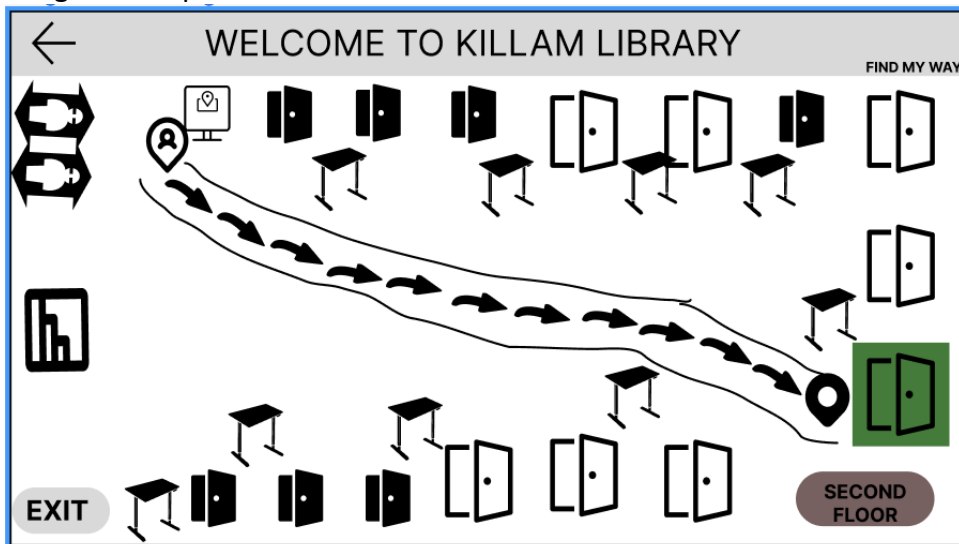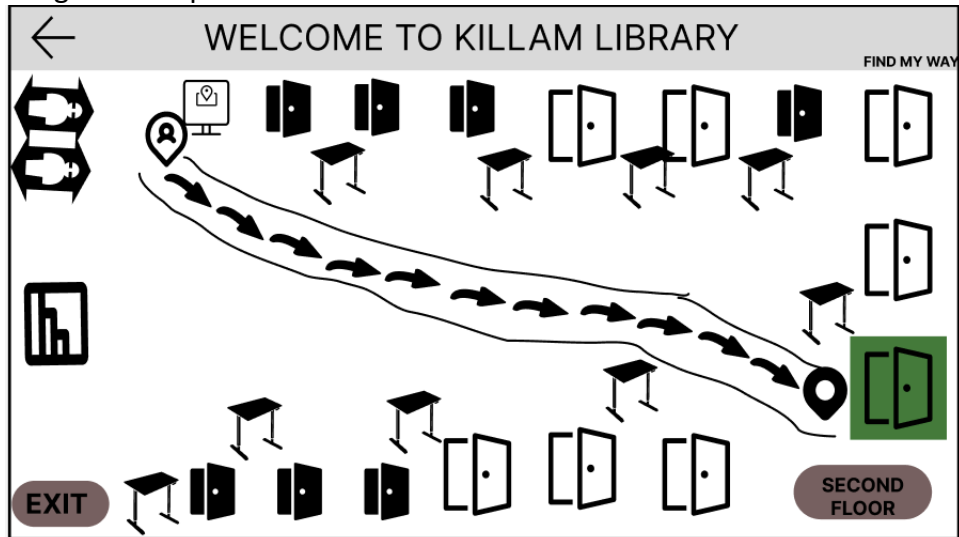
Feature 2:
Indoor navigation using audio assistance – Users can get audio directions to navigate inside the buildings of a campus

Task Name:
Abby wants to find a hall with the help of audio directions without using her phone

Task Scenario:
Abby is attending a campus event hosted by the Mechanical Engineering department, where there will be presentations followed by a networking session with refreshments. She's volunteered to bring some snacks and beverages for the event but realizes she'll need help navigating while carrying the refreshments so she takes the help of audio directions for navigating.

Use-Case

Normal Case
1. User opens the indoor navigation app on her phone and chooses audio guides in features to choose a building.
2. User chooses the campus event venue as the destination, opting for audio instructions.
3. The app begins providing audio directions, guiding user through the campus pathways and buildings
4. User listens carefully to the instructions and adjusts her pace accordingly.
5. The app tells her about the floor number.
6. The app alerts her to upcoming turns and landmarks, helping her navigate through the campus efficiently.
7. The app alerts about the approximate distance she must walk.
8. User gets a confirmation when she arrives outside the venue door.
9. User is told the direction by the system in which the door is present.

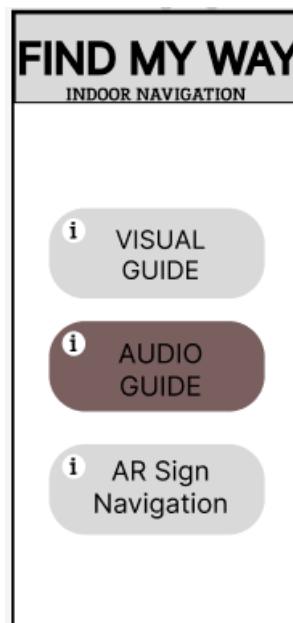| Alternative Case |
|---|
| 6.1 User takes a wrong turn, and the system immediately informs her of the mistake. |

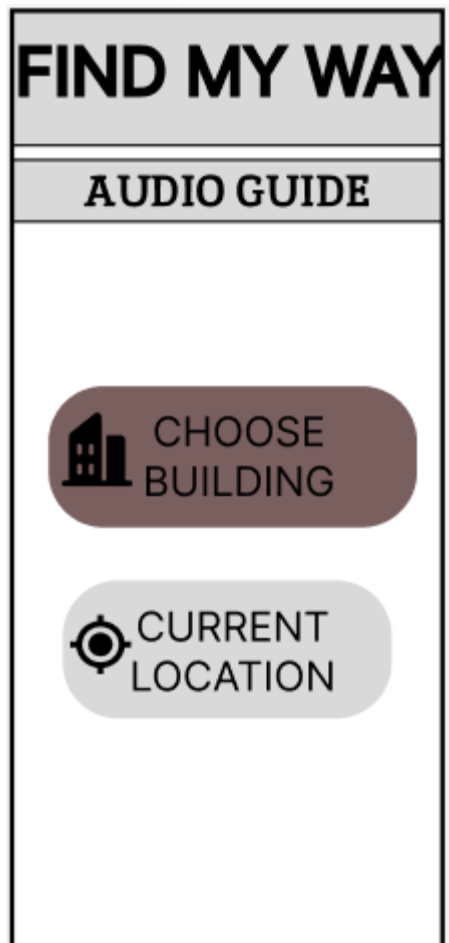| Prototype Images (you may have more or fewer images that rows – add and delete as necessary) |
|---|

Image 1: Steps: 1

Image 2: Steps: 1

FIND MY WAY

AUDIO GUIDE

CHOOSE BUILDING

CURRENT LOCATION

Image 3: Steps: 1

AUDIO GUIDE

🏢 CHOOSE BUILDING

ROWE BUILDING

GOLDBERG

LAW BUILDING

STUDLEY BUILDING

HENRY BUILDING

DALPLEX

ART BUILDING

Image 4: Steps: 2

AUDIO GUIDE

CHOOSE ROOM

ROOM 1001

McCAIN ARTS

ROOM 2002

CONFERENCE HALL

LABORATORY

LOCKER ROOM

WASHROOM

Image 5: Steps: 3-7

AUDIO GUIDE

CONFERENCE HALL

TURN RIGHT UP AHEAD AFTER THE WASHROOM AND CLIMB 2 FLOORS

Image 6: Steps: 8-9

AUDIO GUIDE

CONFERENCE HALL

YOU HAVE REACHED ON THE DOOR OF YOUR DESTINATION

DONE

Feature 3 (with short description):
AR Campus Navigation via Signage Scanning: Upon scanning a navigation sign, the user establishes their current location within the system. Once the destination is inputted, the system employs augmented reality to guide the user to their desired endpoint.
Task Name:
Abby's AR Navigation to Advanced Engineering Workshop
Task Scenario:
Abby, a mechanical engineering student, needs to navigate through the Goldberg Engineering Building to find the location of a workshop titled "Advanced Mechanisms in Robotics." Held in room 2112. Since she is in a hurry and the building is unfamiliar to her, Abby decides to use the "Find My Way" application's AR sign navigation feature for assistance.
Use-Case
Normal Case

1. The user opens the "Find My Way" application upon entering the campus building.
2. The user selects the AR Sign navigation feature in the application.
3. The user selects the choose building option for indoor navigation of selected building.
4. They select their current building from the in-app list.
5. The user scans a nearby signboard to establish their starting point within the building.
6. The system prompts the user to enter the destination they are seeking.
7. The user enters the destination where the workshop is taking place, as indicated by the event schedule.
8. The app displays an AR-guided path on the user's smartphone, overlaying the actual environment.
9. The user follows the AR path provided by the app, leading them through the building to the destination.
10. Upon arrival, the system shows a confirmation message, ensuring the user they have reached the correct location for the workshop.

Alternative Case
4.1. The application cannot process the request due to the erroneous input and displays an error message.
4.2. The user is prompted to either re-enter the destination or scan the signboard again for a correct location.
Prototype Images (you may have more or fewer images that rows – add and delete as necessary)
Image 1: Steps 1,2

FIND MY WAY
INDOOR NAVIGATION

VISUAL GUIDE

AUDIO GUIDE

AR Sign Navigation

Image 2: Steps 3

FIND MY WAY

VISUAL GUIDE

CHOOSE BUILDING

CURRENT LOCATION

Image 3: Steps 4

AR SIGN NAVIGATION

🏢 CHOOSE BUILDING

ROWE BUILDING

GOLDBERG

LAW BUILDING

STUDELY BUILDING

HENRY BUILDING

DALPLEX BUILDING

ART BUILDING

Image 4: Steps 5

Room 1008

Scan The Sign

Image 5: Steps 6,7

AR SIGN NAVIGATION

You're at Room 1008 of Goldberg building

🔍 Enter your destination

Room 4012

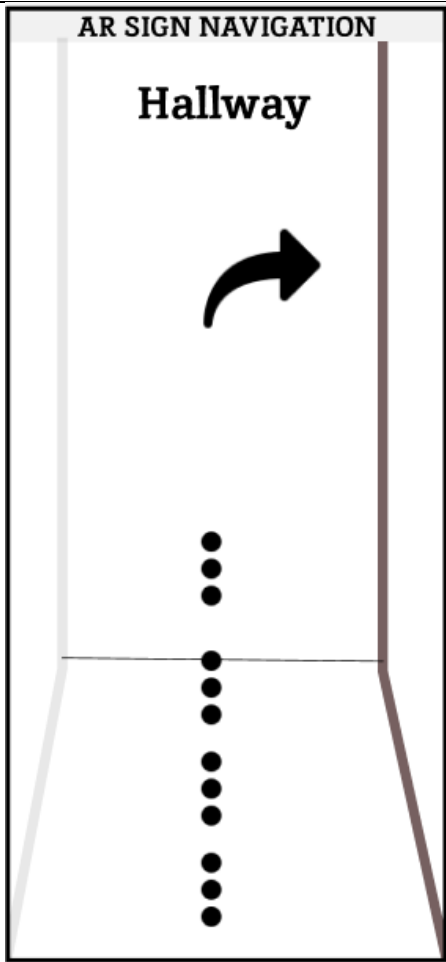Room 2112

Study Room
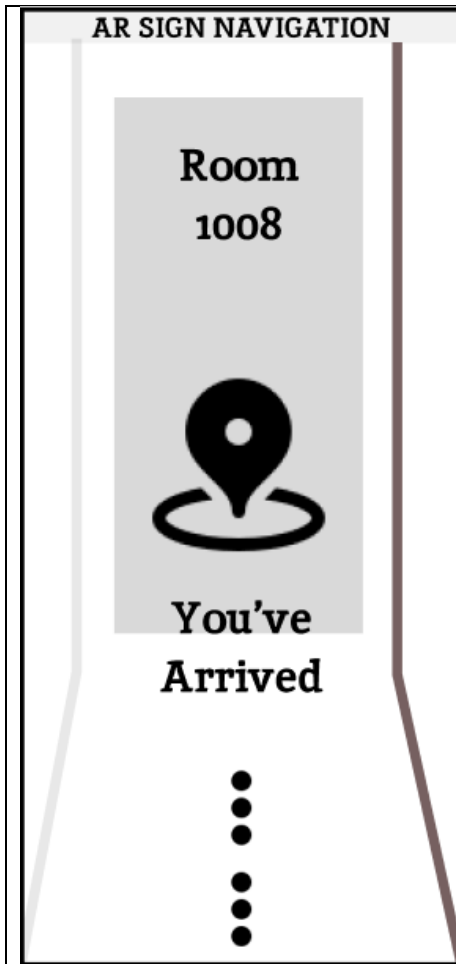
Cafetaria

Lab 138

Image 6: Steps 8,9

Image 7: Steps 10

AR SIGN NAVIGATION

Room 1008

You've Arrived

Part II - Cognitive Walkthrough Sheets

Date of Evaluation: _____

Name of Evaluator: _____

Group Evaluating: _____

Instructions:
In small groups (2-3), the evaluators will be walkthrough the system for each task. For each step of the use-case the evaluators will answer three questions on their own copy (without talking to each other) – if Abby will know what action to take, how to do the action, and then if Abby can tell if the actions taken is correct (yes, no or maybe with a short reasons). Give any problems (a "No" or "Maybe") a severity rating from 1 to 5 (where 1 is minor and 5 is critical.) After all the steps in each task are complete, the evaluators will meet to discuss issues found in each task (that evaluate a feature) to come up with 2-3 Must changes (change your severity rating to M in the table) for each task.

Project Team: Group B
Project Topic: Find My Way - Dal

Description of System:

"Find My Way" is an indoor navigation application designed to cater to various user needs. It offers clear visual maps for straightforward guidance, audio assistance for those who prefer auditory cues, and an Augmented Reality (AR) feature for interactive navigation by scanning signs. Each feature is crafted to ensure ease of use, providing a reliable and user-friendly experience for navigating indoor spaces. This application is a comprehensive solution for effortless indoor orientation, accommodating different preferences and needs.

Typical Users: Abby

Typical Tasks:
1. Users can quickly identify and navigate to highlighted facilities within a campus building appropriate to the current time, like study areas during exams or food services during lunch hours.
2. The system offers a dynamic map that updates available locations in real-time, ensuring users always have access to current information tailored to their immediate needs.
3. Through a user-friendly interface, individuals can easily select different floors and specific rooms they wish to navigate to, with the system providing step-by-step directions.
4. Users can continue their navigation on large displays available within the campus, with an option to sync with their mobile device to retain previous choices and current navigation status.
5. The application delivers auditory navigation cues, offering an inclusive experience for visually impaired users or those who prefer audio instructions to reach their destinations.
6. Augmented Reality (AR) capabilities allow users to scan signage to establish their location and receive an overlaid navigational path to their desired destination on their mobile device.
7. The system confirms arrival at the final destination, ensuring users are precisely where they need to be for events or meetings.
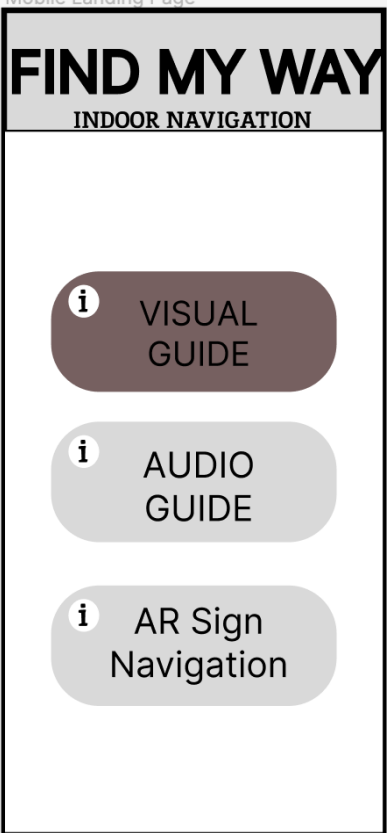
Cognitive Walkthrough Sheet: **Time Based Highlighting**

Task Title: Abby wants to find a study room using the indoor navigation feature with time-based highlighting.

Task Scenario:

During her lunch break at the Killam Library ground floor, Abby, a DAL 4th-year Engineering student, decides to use the remaining time to study. Uncertain about where to find an empty, quiet study room with amenities on the upper floors, Abby turns to the campus navigation app's indoor navigation feature with time-based highlighting. Her goal is to efficiently locate an available study room suitable for her needs, ensuring a productive study session.
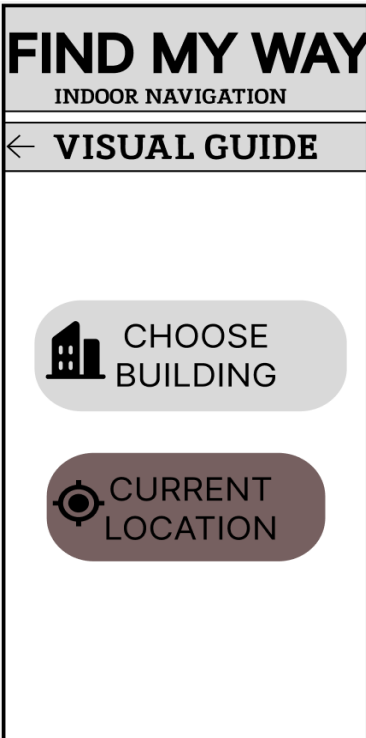
Step 1:

Mobile Landing Page

FIND MY WAY

INDOOR NAVIGATION

ⓘ VISUAL GUIDE

ⓘ AUDIO GUIDE

ⓘ AR Sign Navigation

Question	Yes (reason/s)	No (reason/s)	Maybe (reason/s)	Severity Rating (1-5)
Will the correct action be sufficiently evident to Abby? ("Know what to do?" -Will the Abby know what to do to achieve the task?)				
Will the Abby notice that the correct action is available? ("See how to do it" - Can users see the button or menu item that they should use for the next action? Is it apparent when needed?)				

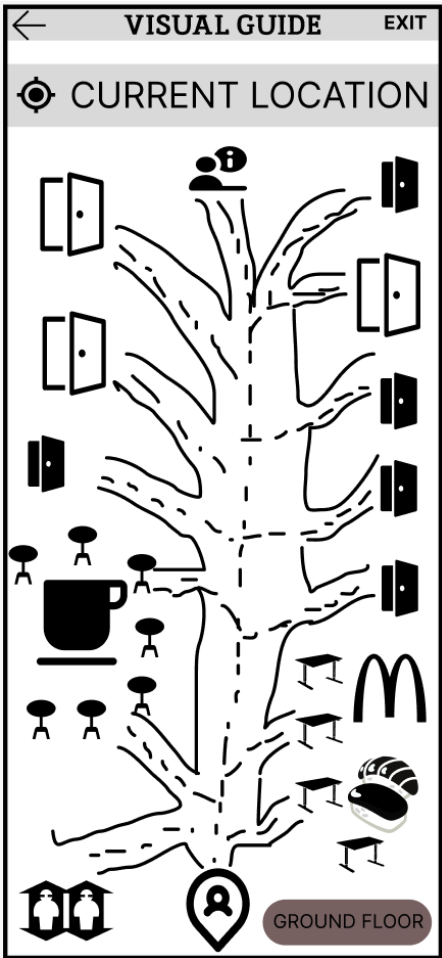|			
Will the Abby associate and interpret the response from the action correctly ("Understand correct action/not correction" - will users know from the feedback that they have made a correct or incorrect choice of action?)			

Step 2:

FIND MY WAY
INDOOR NAVIGATION

← **VISUAL GUIDE**

CHOOSE BUILDING

CURRENT LOCATION

Question	Yes (reason/s)	No (reason/s)	Maybe (reason/s)	Severity Rating (1-5)
Will the correct action be sufficiently evident to Abby? ("Know what to do?" -Will the Abby know what to do to achieve the task?)				
Will the Abby notice that the correct action is available? ("See how to do it" - Can users see the button or menu item that they should use for the next action? Is it apparent when needed?)				
Will the Abby associate and interpret the response from the action correctly ("Understand correct action/not correction" - will users know from the feedback				

that they have made a correct or incorrect choice of action?)			

Step 3:

Question	Yes (reason/s)	No (reason/s)	Maybe (reason/s)	Severity Rating (1-5)
Will the correct action be sufficiently evident to Abby? ("Know what to do?" -Will the Abby know what to do to achieve the task?)				
Will the Abby notice that the correct action is available? ("See how to do it" - Can users see the button or menu item that they should use for the next action? Is it apparent when needed?)				
Will the Abby associate and interpret the response from the action correctly ("Understand correct action/not correction" - will				

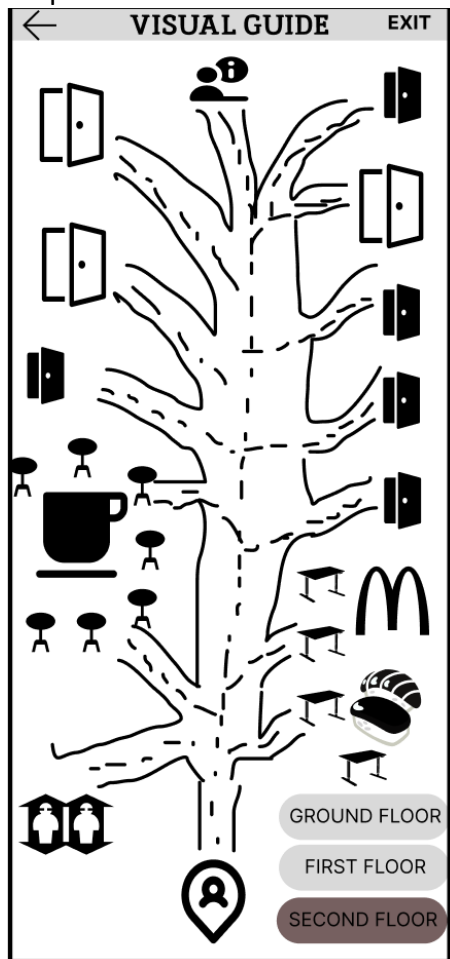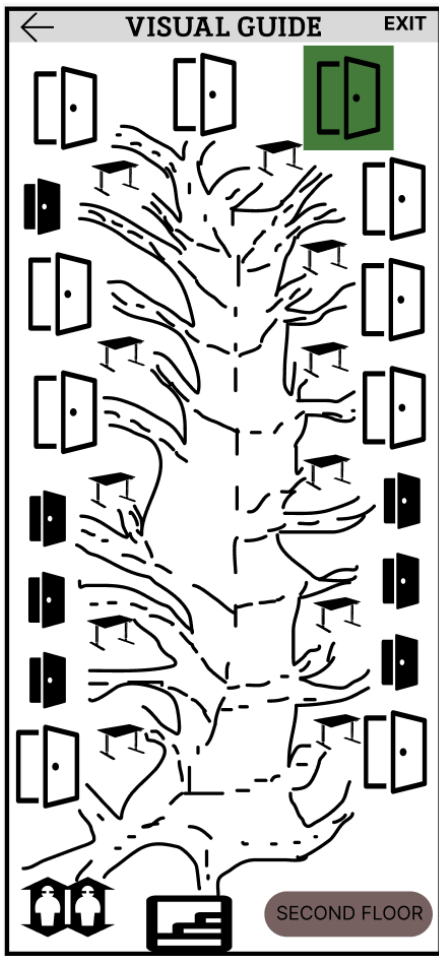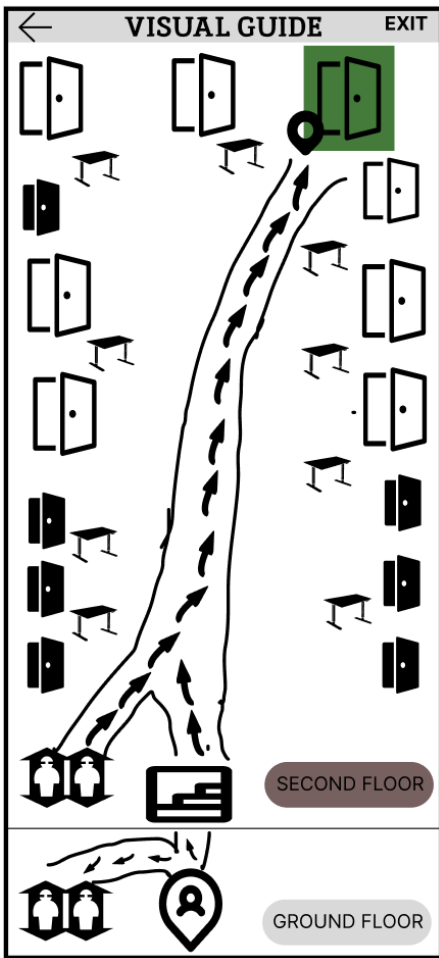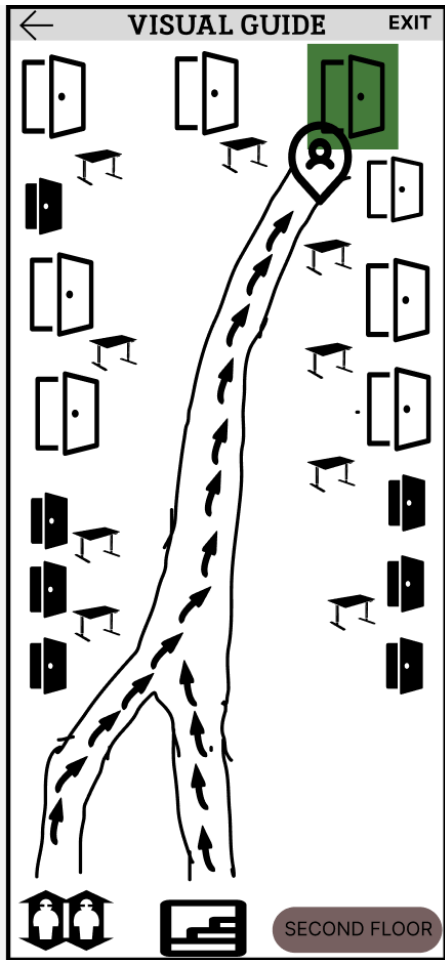| users know from the feedback that they have made a correct or incorrect choice of action?)				

Step 4:
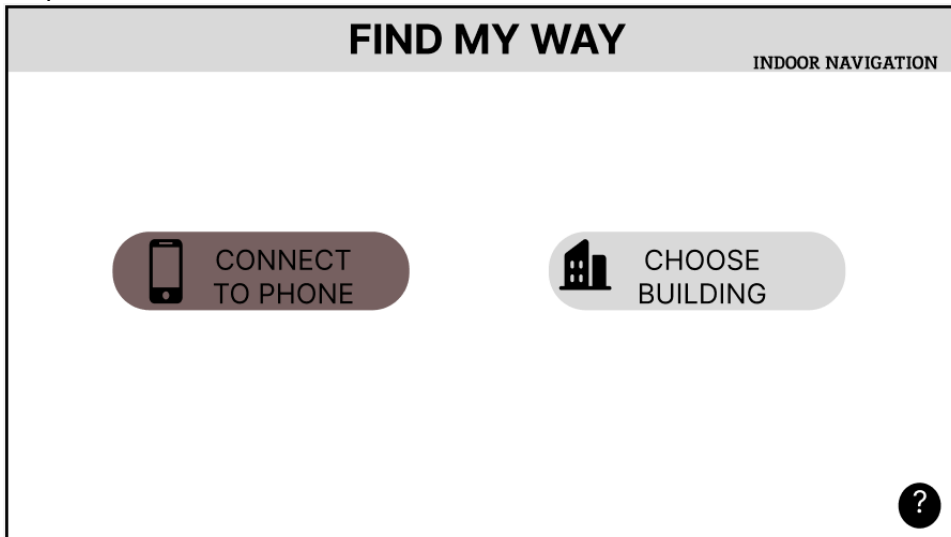
Step 5&6

Step 5:

Step 7,8,9

Step 6:
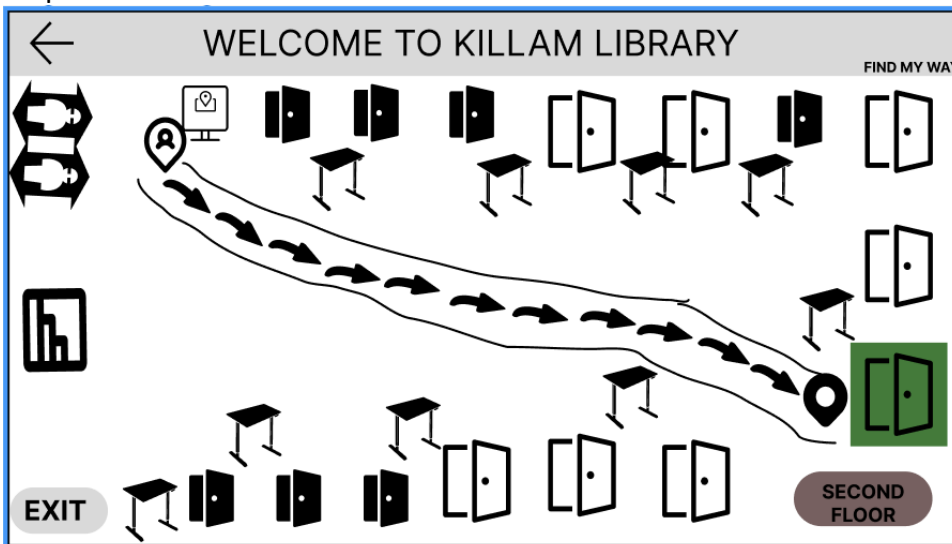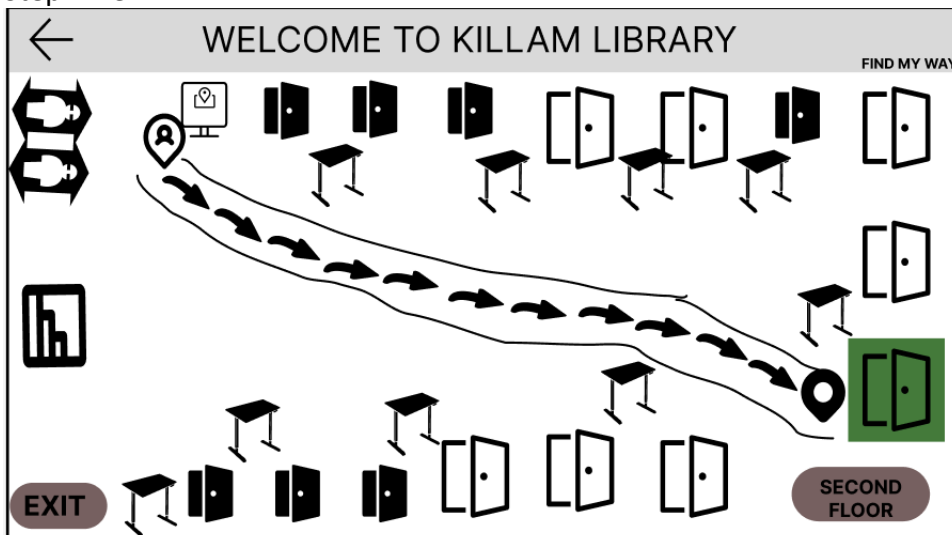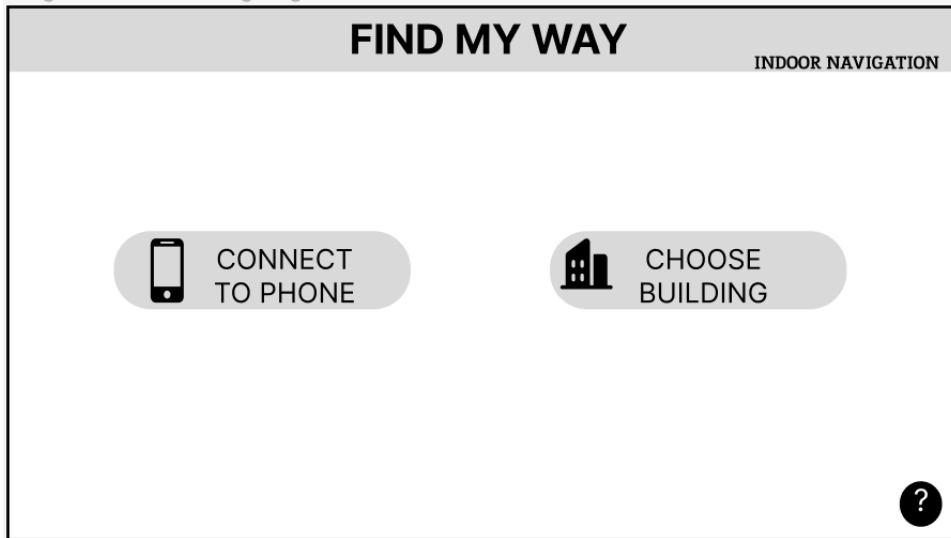Step 10

Step 7:
Step 11

Step 8:
Step 11-a, 11-b

Step 9:
Step 11-c

Step 10:

Step 11-d

Step 11:

Step 11-e

Step 12:

Step 11-f

FIND MY WAY
INDOOR NAVIGATION

CONNECT TO PHONE

CHOOSE BUILDING

?

Cognitive Walkthrough Sheet Indoor navigation using audio assistance
Task Title: Abby wants to find a hall with the help of audio directions without using her phone
Task Scenario: Abby is attending a campus event hosted by the Mechanical Engineering department, where there will be presentations followed by a networking session with refreshments. She's volunteered to bring some snacks and beverages for the event but realizes she'll need help navigating while carrying the refreshments so she takes the help of audio directions for navigating.

Step 1: User opens the indoor navigation app on her phone and chooses audio guides in features to choose a building. Step-1

FIND MY WAY

INDOOR NAVIGATION

ⓘ VISUAL GUIDE

ⓘ AUDIO GUIDE

ⓘ AR Sign Navigation

FIND MY WAY

AUDIO GUIDE

🏢 CHOOSE BUILDING

◎ CURRENT LOCATION

AUDIO GUIDE

🏢 CHOOSE BUILDING

ROWE BUILDING

GOLDBERG

LAW BUILDING

STUDLEY BUILDING

HENRY BUILDING

DALPLEX

ART BUILDING

Question	Yes (reason/s)	No (reason/s)	Maybe (reason/s)	Severity Rating (1-5)
Will the correct action be sufficiently evident to Abby? ("Know what to do?" -Will the Abby know what to do to achieve the task?)				
Will the Abby notice that the correct action is available? ("See how to do it" - Can users see the button or menu item that they should use for the next action? Is it apparent when needed?)				
Will the Abby associate and interpret the response from the action correctly ("Understand correct action/not correction" - will users know from the feedback that they have made a correct or incorrect choice of action?)				

Step 2: User chooses the room to navigate to. Step -2

AUDIO GUIDE

🏢 CHOOSE ROOM

ROOM 1001

McCAIN ARTS

ROOM 2002

CONFERENCE HALL

LABORATORY

LOCKER ROOM

WASHROOM

Question	Yes (reason/s)	No (reason/s)	Maybe (reason/s)	Severity Rating (1-5)
Will the correct action be sufficiently evident to Abby? ("Know what to do?" -Will the Abby know what to do to achieve the task?)				
Will the Abby notice that the correct action is available? ("See how to do it" - Can users see the button or menu item that they should use for the next action? Is it apparent when needed?)				
Will the Abby associate and interpret the response from the action correctly ("Understand correct action/not correction" - will users know from the feedback that they have made a correct or incorrect choice of action?)				

Step 3: The app begins providing audio directions, guiding user through the campus pathways and buildings. Steps: 3-7

AUDIO GUIDE

CONFERENCE HALL

TURN RIGHT UP
AHEAD AFTER THE
WASHROOM AND
CLIMB 2 FLOORS

Question	Yes (reason/s)	No (reason/s)	Maybe (reason/s)	Severity Rating (1-5)
Will the correct action be sufficiently evident to Abby? ("Know what to do?" -Will the Abby know what to do to achieve the task?)				
Will the Abby notice that the correct action is available? ("See how to do it" - Can users see the button or menu item that they should use for the next action? Is it apparent when needed?)				
Will the Abby associate and interpret the response from the action correctly ("Understand correct action/not correction" - will users know from the feedback that they have made a correct or incorrect choice of action?)				

Step 4: User reaches the room. Steps: 8-9

AUDIO GUIDE

CONFERENCE HALL

YOU HAVE REACHED
ON THE DOOR OF
YOUR DESTINATION

DONE

Question	Yes (reason/s)	No (reason/s)	Maybe (reason/s)	Severity Rating (1-5)
Will the correct action be sufficiently evident to Abby? ("Know what to do?" -Will the Abby know what to do to achieve the task?)				
Will the Abby notice that the correct action is available? ("See how to do it" - Can users see the button or menu item that they should use for the next action? Is it apparent when needed?)				
Will the Abby associate and interpret the response from the action correctly ("Understand correct action/not correction" - will users know from the feedback that they have made a correct or incorrect choice of action?)				

Cognitive Walkthrough Sheet: AR Campus Navigation via Signage Scanning

Task Title: AR Navigation to the destination
Task Scenario: Abby, a mechanical engineering student, needs to navigate through the Goldberg Engineering Building to find the location of a workshop titled "Advanced Mechanisms in Robotics." Held in room 2112. Since she is in a hurry and the building is unfamiliar to her, Abby decides to use the "Find My Way" application's AR sign navigation feature for assistance.

Step 1: Abby Opens the Find My Way application and she decides to go with the AR Sign navigation.
   [Steps 1-2]

Question	Yes (reason/s)	No (reason/s)	Maybe (reason/s)	Severity Rating (1-5)
Will the correct action be sufficiently evident to Abby? ("Know what to do?" -Will the Abby know what to do to achieve the task?)				
Will the Abby notice that the correct action is available? ("See how to do it" - Can users see the button or menu item that they should use for the next action? Is it apparent when needed?)				
Will the Abby associate and interpret the response from the action correctly ("Understand correct action/not correction" - will users know from the feedback that they have made a correct or incorrect choice of action?)				

Step 2: Abby decides to choose the building she wants navigation for instead of current location.
[Step -3]

FIND MY WAY

VISUAL GUIDE

🏢 CHOOSE BUILDING

◎ CURRENT LOCATION

Question	Yes (reason/s)	No (reason/s)	Maybe (reason/s)	Severity Rating (1-5)
Will the correct action be sufficiently evident to Abby? ("Know what to do?" -Will the Abby know what to do to achieve the task?)				
Will the Abby notice that the correct action is available? ("See how to do it" - Can users see the button or menu item that they should use for the next action? Is it apparent when needed?)				
Will the Abby associate and interpret the response from the action correctly ("Understand correct action/not correction" - will users know from the feedback that they have				

made a correct or incorrect choice of action?)				

Step 3: Abby chooses the Goldberg building for the navigation. [Step – 4]

AR SIGN NAVIGATION

🏢 CHOOSE BUILDING

- ROWE BUILDING
- **GOLDBERG**
- LAW BUILDING
- STUDELY BUILDING
- HENRY BUILDING
- DALPLEX BUILDING
- ART BUILDING

Question	Yes (reason/s)	No (reason/s)	Maybe (reason/s)	Severity Rating (1-5)
Will the correct action be sufficiently evident to Abby? ("Know what to do?" -Will the Abby know what to do to achieve the task?)				
Will the Abby notice that the correct action is available? ("See how to do it" - Can users see the button or menu item that they should use for the next action? Is it apparent when needed?)				
Will the Abby associate and interpret the response from the action correctly ("Understand correct action/not correction" - will users know from the feedback				

that they have made a correct or incorrect choice of action?)				

Step 4: Abby is currently at Room 1008. So she scans the sign of 1008 to set it as her current location.
   [Step - 5]

AR SIGN NAVIGATION

Room 1008

Scan The Sign

Question	Yes (reason/s)	No (reason/s)	Maybe (reason/s)	Severity Rating (1-5)
Will the correct action be sufficiently evident to Abby? ("Know what to do?" -Will the Abby know what to do to achieve the task?)				
Will the Abby notice that the correct action is available? ("See how to do it" - Can users see the button or menu item that they should use for the next action? Is it apparent when needed?)				
Will the Abby associate and interpret the response from the action correctly ("Understand correct action/not correction" - will users know from the feedback				

that they have made a correct or incorrect choice of action?)				

Step 5: Abby is prompt by the system to enter her destination. Abby adds room "2112" as her destination.
[Step 6-7]

Question	Yes (reason/s)	No (reason/s)	Maybe (reason/s)	Severity Rating (1-5)
Will the correct action be sufficiently evident to Abby? ("Know what to do?" -Will the Abby know what to do to achieve the task?)				
Will the Abby notice that the correct action is available? ("See how to do it" - Can users see the button or menu item that they should use for the next action? Is it apparent when needed?)				
Will the Abby associate and interpret the response from the action correctly ("Understand correct action/not correction" - will users know from the feedback				

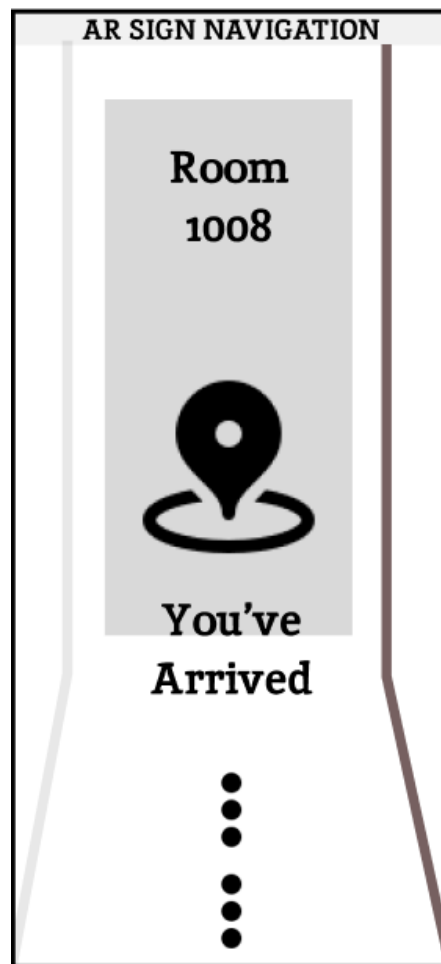| that they have made a correct or incorrect choice of action?)				

Step 6: The system shows the path to destination in mobile by overlaying the actual environment. Abby follows the path provided by system. [Steps 8-9]

Question	Yes (reason/s)	No (reason/s)	Maybe (reason/s)	Severity Rating (1-5)
Will the correct action be sufficiently evident to Abby? ("Know what to do?" -Will the Abby know what to do to achieve the task?)				
Will the Abby notice that the correct action is available? ("See how to do it" - Can users see the button or menu item that they should use for the next action? Is it apparent when needed?)				
Will the Abby associate and interpret the response from the action correctly ("Understand correct				

action/not correction" - will users know from the feedback that they have made a correct or incorrect choice of action?)				

Step 7: Abby reaches the destination. The system shows a confirmation message that "You've arrived".
[Step - 10]

Question	Yes (reason/s)	No (reason/s)	Maybe (reason/s)	Severity Rating (1-5)
Will the correct action be sufficiently evident to Abby? ("Know what to do?" -Will the Abby know what to do to achieve the task?)				
Will the Abby notice that the correct action is available? ("See how to do it" - Can users see the button or menu item that they should use for the next action? Is it apparent when needed?)				
Will the Abby associate and interpret the response from the action correctly ("Understand correct action/not correction" - will				

users know from the feedback that they have made a correct or incorrect choice of action?)				