Participant Information Sheet

Study Title: A study of indoor navigation behaviour by visually impaired and blind people.

Investigator: Watthanasak Jeanwatthanachai
Ethics number: ERGO/FEPS/23512

Please read this information carefully before deciding to take part in this research. If you are happy to participate you will be asked to sign a consent form.

What is the research about?
This research is trying to help visually impaired and blind people to have a confident to navigate independently inside buildings with safety awareness. To help them, this study proposes a data representation of buildings which will be used towards the construction of indoor navigation systems. Consequently, this study is first to identify what important factors, obstacles, and useful information needed by visually impaired and blind people.

Why have I been chosen?
At this stage, this study is trying to collect information about behaviour of indoor navigation by visually impaired and blind people. Thus, visually impaired and blind people including staff, who work closely with these people, are invited to participate in this study.

What will happen to me if I take part?
If you are visually impaired or blind, you will be interviewed about indoor navigation behaviour inside buildings, which consists of five sections and will take 30-40 minutes to complete.

If you are staff, you will fill out a given questionnaire which will take no more than 25 minutes. The questionnaire is comprised of five sections regarding behaviour of indoor navigation by visually impaired and blind people.

Are there any benefits in my taking part?
By taking part, you have the opportunity to help us development the technology to help visually impaired and blind people to have freedom and confidence in navigating inside buildings by themselves.

Are there any risks involved?
There is no any risk involved for participants completing the questionnaires and interviews.

Will my participation be confidential?
The name of the participants will not be taken and participation will be kept anonymous. All data will be safe in a protected computer. All will be destroyed once the research is completed.

What happens if I change my mind?
You have the right to withdraw from doing the questionnaire or interview at any time.

What happens if something goes wrong?
If you have any concern or complaint with this study, please contacts Watthanasak Jeanwatthanachai at wj1g14@ecs.soton.ac.uk
Where can I get more information?
If you would like to get more information about this study, please feel free to contact Watthanasak Jeamwatthanachai at wjlgl4@ecs.soton.ac.uk
Instruction:

This questionnaire will take approximately 1.30 - 2 hours to finish.

Questions can be answered in 3 ways:

- Boxes: Insert an X mark in the appropriate box  
  e.g. ✓

- Letters: circle the appropriate letter  
  e.g. (a.) important

- Spaces: Write the answer in the space provided  
  e.g. 2 years

This study aims to help visually impaired and blind people to have the freedom and confidence to independently navigate unfamiliar spaces inside buildings.

In ALL cases, the questions refer ONLY to unfamiliar spaces inside buildings.

The questions do NOT refer to: Familiar spaces (regardless of whether these familiar spaces are inside or outside) Outdoor spaces (regardless of whether these outdoor spaces are familiar or unfamiliar)
Section 1  Basic information

1. How long have you been working closely with visually impaired and blind people?
   _______________ years (approximately)
Section 2  Behavior and Indoor Navigation

2. Is a mobility training course (e.g. orientation and mobility) important to visually impaired and blind people?
   a. Important
   b. Important, but not necessary
   c. Not important

3. Which assistance do visually impaired and blind people use when they navigate inside buildings by themselves? How often do they use this assistance?
   - White Cane
     Frequency: □ Everyday
                 □ Few times a week
                 □ Once a week
                 □ Once a month
                 □ Occasionally
                 □ Never, please give a reason: ________________________________
   - Guide Dog
     Frequency: □ Everyday
                 □ Few times a week
                 □ Once a week
                 □ Once a month
                 □ Occasionally
                 □ Never, please give a reason: ________________________________
   - Sighted Guide
     Frequency: □ Everyday
                 □ Few times a week
                 □ Once a week
                 □ Once a month
                 □ Occasionally
                 □ Never, please give a reason: ________________________________
   - Tactile Map
     Frequency: □ Everyday
                 □ Few times a week
                 □ Once a week
                 □ Once a month
                 □ Occasionally
                 □ Never, please give a reason: ________________________________
• Other: 

<table>
<thead>
<tr>
<th>Frequency</th>
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<td>Everyday</td>
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<td>Few times a week</td>
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<td>Once a week</td>
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<td>Once a month</td>
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<td>Occasionally</td>
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<td>Never, please give a reason:</td>
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</tbody>
</table>

4. How do visually impaired and blind people estimate the distance while navigating inside buildings by themselves?
   a. By foot steps
   b. By length unit, e.g. feet or meter
   c. By time, e.g. 5 seconds
   d. Other, please specify ____________________________
Section 3  Unfamiliar Spaces

**Definition:** Unfamiliar spaces are places that visually impaired and blind people rarely visit or have not learnt to navigate by themselves. Examples of unfamiliar spaces could include the university, hospital, museum, department store or airport.

5. How often do visually impaired and blind people navigate by themselves inside unfamiliar spaces, e.g. university, hospital, department store, museum, and airport?

- **University**
  
  Frequency: □ Everyday  
  □ Few times a week  
  □ Once a week  
  □ Once a month  
  □ Occasionally  
  □ Never

  Please give a reason: ____________________________________________

- **Hospital**
  
  Frequency: □ Everyday  
  □ Few times a week  
  □ Once a week  
  □ Once a month  
  □ Occasionally  
  □ Never

  Please give a reason: ____________________________________________

- **Department Store**
  
  Frequency: □ Everyday  
  □ Few times a week  
  □ Once a week  
  □ Once a month  
  □ Occasionally  
  □ Never

  Please give a reason: ____________________________________________

- **Museum**
  
  Frequency: □ Everyday  
  □ Few times a week  
  □ Once a week  
  □ Once a month  
  □ Occasionally  
  □ Never

  Please give a reason: ____________________________________________
• Airport
  Frequency: □ Everyday
             □ Few times a week
             □ Once a week
             □ Once a month
             □ Occasionally
             □ Never
  Please give a reason: ____________________________________________

• Other: ________________________________________________________
  Frequency: □ Everyday
             □ Few times a week
             □ Once a week
             □ Once a month
             □ Occasionally
             □ Never
  Please give a reason: ____________________________________________

6. While navigating inside buildings by visually impaired and blind people, what is the level of difficulty to navigate the following unfamiliar buildings?

• University
  Level of Difficulty: □ Easy
                         □ Moderate
                         □ Hard
  Please give a reason: ____________________________________________

• Hospital
  Level of Difficulty: □ Easy
                         □ Moderate
                         □ Hard
  Please give a reason: ____________________________________________

• Department Store
  Level of Difficulty: □ Easy
                         □ Moderate
                         □ Hard
  Please give a reason: ____________________________________________

• Museum
  Level of Difficulty: □ Easy
                         □ Moderate
                         □ Hard
  Please give a reason: ____________________________________________
7. Do visually impaired and blind people have confidence to navigate by themselves through the following unfamiliar spaces inside buildings?

- **Airport**
  
  Level of Difficulty:  
  - Easy
  - Moderate
  - Hard
  
  Please give a reason:  

- **Other**:  
  
  Level of Difficulty:  
  - Easy
  - Moderate
  - Hard
  
  Please give a reason:  

- **Wide open spaces without any landmarks**
  
  Level of Difficulty:  
  - Yes
  - No
  - Not sure
  
  Please give a reason:  

- **Hallway**
  
  Level of Difficulty:  
  - Yes
  - No
  - Not sure
  
  Please give a reason:  

- **Room (e.g. office)**
  
  Level of Difficulty:  
  - Yes
  - No
  - Not sure
  
  Please give a reason:  

- **Large room (e.g. auditorium, conference room, movie theatre, and exhibition)**
  
  Level of Difficulty:  
  - Yes
  - No
  - Not sure
  
  Please give a reason:  

8. In unfamiliar spaces inside buildings, how do visually impaired and blind people know where they are?
9. In unfamiliar spaces inside buildings, how do visually impaired and blind people reach their destination?

10. How do visually impaired and blind people find their orientation or the direction they are heading to? Orientation means knowing which direction you are heading to, and where landmarks are located.

11. What landmarks are visually impaired and blind people looking for in order to help them to navigate by themselves through unfamiliar spaces?

12. Have visually impaired and blind people ever asked anybody (e.g. reception and local people) for directions or instructions to reach the destination?
   a. Yes, they have
   b. No, they have not

13. Have visually impaired and blind people ever found that directions or instructions from local people have been confusing or ambiguous?
   a. Yes
   b. No

If Yes, Please give example
Section 4 Obstacles and Hazards

14. Have visually impaired and blind people experienced any problems or challenges while navigating inside buildings? For example, ground/body/head-level obstacles, noise, silent, or light.
   a. Yes, please give example ____________________________________________
   b. No

15. When navigating unfamiliar spaces inside buildings, do visually impaired and blind people experience a collision by the following obstacles?
   • Ground-Level Obstacles e.g. Curb, drop-off, sloped floor, hole
     Frequency: ☐ Always
                 ☐ Often
                 ☐ Sometimes
                 ☐ Rare
                 ☐ Never
     Please give a reason: ________________________________________________
   • Body-Level Obstacles e.g. Furniture, wall-mounted equipment
     Frequency: ☐ Always
                 ☐ Often
                 ☐ Sometimes
                 ☐ Rare
                 ☐ Never
     Please give a reason: ________________________________________________
   • Head-Level Obstacles e.g. Stairs and hanging objects
     Frequency: ☐ Always
                 ☐ Often
                 ☐ Sometimes
                 ☐ Rare
                 ☐ Never
     Please give a reason: ________________________________________________
   • Noise Obstacles e.g. Too much noise in the area
     Frequency: ☐ Always
                 ☐ Often
                 ☐ Sometimes
                 ☐ Rare
                 ☐ Never
     Please give a reason: ________________________________________________
• Silence Obstacles e.g. Too silent in the area
   Frequency: 
   - Always
   - Often
   - Sometimes
   - Rare
   - Never
   Please give a reason: 

• Light Obstacles e.g. Too much lighting
   Frequency: 
   - Always
   - Often
   - Sometimes
   - Rare
   - Never
   Please give a reason: 

• Moving Obstacles e.g. People, pet, trolley
   Frequency: 
   - Always
   - Often
   - Sometimes
   - Rare
   - Never
   Please give a reason: 

• Other:
   Frequency: 
   - Always
   - Often
   - Sometimes
   - Rare
   - Never
   Please give a reason: 

16. What obstacles can they detect by their assistance (e.g. white cane, guide dog, tactile map)? Please select all that apply.
   - Objects on the floor
   - Edges and holes
   - Other, please specify 

17. What obstacles are they not able to detect by their assistance (e.g. white cane, guide dog, tactile map)? Please select all that apply.
   - Slippery and sloped surfaces
   - Objects above waist (body and head level obstacles)
   - Other, please specify 

18. While navigating inside buildings by visually impaired and blind people, how do they perceive any dangers in their way? Please select all that apply.

☐ Using assistance (cane, guide dog, sighted guide, or tactile map)
☐ Using hearing sense
☐ Using odor sense
☐ Other, please specify ________________________________________________________

19. Have they ever found that using stairs, escalators, or elevators is difficult and dangerous? For example, the handrail is difficult to find or installed at a level too high or too low. Another example is that the stair width is too wide and non-standard.

   a. Yes, please give example __________________________________________________
   b. No
   c. Not sure
Section 5  Accessibility and Essential Information

20. While navigating inside buildings, is any accessibility information available to visually impaired and blind people? For example, tactile maps, tactile pavements, Braille, audio or haptic feedback?
   a. Yes
   b. No
   If Yes, Please give example

21. Do you know that there is a tactile map available in some buildings for visually impaired and blind people which provides you with information about the buildings and spaces such as rooms, corridors, and landmark that help them to walk independently?
   a. Yes
   b. No

22. Have they ever used a tactile map to help you find directions to your destination?
   a. Yes  IF YES, GO TO QUESTION 23
   b. No   IF NO, GO TO QUESTION 25

23. Did the tactile map take them to their destination?
   a. Always
   b. Sometimes, why ____________________________
   c. Never, why ____________________________

24. What is the most important information they look for while using a tactile map in order to reach their destination?
25. Different kinds of information may be helpful to visually impaired and blind people to help them navigate independently inside buildings with safety awareness. How would you rate the importance of the following information in terms of safety awareness for visually impaired and blind people while they are navigating inside?

<table>
<thead>
<tr>
<th>Information</th>
<th>Very Important</th>
<th>Important</th>
<th>Somewhat Important</th>
<th>Not Very Important</th>
<th>Not at all Important</th>
<th>No Opinion</th>
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</thead>
<tbody>
<tr>
<td>Building profile (e.g. opening hours)</td>
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<td>Floor Plan (e.g. rooms and layout)</td>
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<td>Toilet and Bathroom</td>
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<td>Entrance and Exit</td>
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<td>Door</td>
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<td>Emergency Exit</td>
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<td>Wi-Fi Coverage</td>
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<td>Tactile Pavement</td>
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<td>Stairs</td>
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<td>Steps, Drop-off, and Curb</td>
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<td>Elevator</td>
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<td>Escalator</td>
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<td>Event and Exhibition</td>
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<td>Furniture</td>
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<td>Dangerous Areas</td>
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<td>People are walking</td>
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<td>Reception</td>
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<td>Noise</td>
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</table>
26. How important is it to visually impaired and blind people to know where landmarks are located while navigating inside buildings by themselves?
   a. Very important
   b. Important
   c. Somewhat important
   d. Not at all important
   e. No Opinion

27. While navigating inside buildings by visually impaired and blind people, which of the following are important to them in order to learn and remember layouts and environments inside the buildings? Please select all that apply.
   - [ ] Landmarks (e.g. escalators, elevators, pillars, office plants, and statues)
   - [ ] Sound and noise
   - [ ] Floor texture
   - [ ] Smell
   - [ ] Other, please give example ____________________________
26. How important is it to visually impaired and blind people to know where landmarks are located while navigating inside buildings by themselves?
   a. Very important
   b. Important
   c. Somewhat important
   d. Not at all important
   e. No Opinion

27. While navigating inside buildings by visually impaired and blind people, which of the following are important to them in order to learn and remember layouts and environments inside the buildings? Please select all that apply.
   □ Landmarks (e.g. escalators, elevators, pillars, office plants, and statues)
   □ Sound and noise
   □ Floor texture
   □ Smell
   □ Other, please give example  ____________________________________________________