

# Participant Information Sheet

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

**Investigator:** Watthanasak Jeamwatthanachai

**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 Jeamwatthanachai at [wj1g14@ecs.soton.ac.uk](mailto: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 Jeanwatthanachai at [wjlg14@ecs.soton.ac.uk](mailto:wjlg14@ecs.soton.ac.uk)

## Interview

**Study Title:** Helping visually impaired and blind people to independently navigate unfamiliar spaces

**Investigator:** Watthanasak Jeamwatthanachai

**Ethics number:** ERGO/FEPS/23512

## Invitation

Thank you for reading this. I would like to invite you to take part in my research study by completing this questionnaire. It is entirely up to you whether you participate but your responses would be valued. You have been identified as a potential participant by your expertise, experience and knowledge in the area.

My study is trying to help visually impaired and blind people to have the freedom and confidence to independently navigate unfamiliar spaces inside buildings.

The questionnaire is anonymous and your confidentiality is assured:

- Completed questionnaires will be scanned to create a single PDF file.
- This single PDF file will not be duplicated - only one copy will be created.
- This PDF file will be stored on a password protected computer at the University of Southampton.
- This PDF file will be destroyed 1 year after the completion of my PhD study.
- The original questionnaire sheets (paper transcripts) will be stored in a locked filing cabinet at the University of Southampton.
- The original questionnaire sheets (paper transcripts) will be destroyed 1 year after the completion of my PhD study.

If you have any questions, please contact the investigator (Watthanasak Jeamwatthanachai, PhD researcher) and my supervisors.

Yours Sincerely,

Watthanasak Jeamwatthanachai	Investigator, PhD researcher	<a href="mailto:wj1g14@ecs.soton.ac.uk">wj1g14@ecs.soton.ac.uk</a>
Prof Gary Wills	Primary Supervisor	<a href="mailto:gbw@ecs.soton.ac.uk">gbw@ecs.soton.ac.uk</a>
Prof Mike Wald	Secondary Supervisor	<a href="mailto:mw@ecs.soton.ac.uk">mw@ecs.soton.ac.uk</a>

## 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
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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. What is your gender?

- a. Male
- b. Female

2. Please specify your age range?

- a. 18-29 years old (Young adult)
- b. 30-49 years old (Middle-aged adult)
- c. 50-64 years old (Older adult)
- d. 65+ years old (Elder)
- e. Prefer not to say

3. Which of the following describes your sight?

- a. I am blind, BUT I had sight before. When did you lose it? \_\_\_\_\_ years old
- b. I was born blind
- c. I am visually impaired. Please check all that apply
  - ☐ I can see LIGHTS
  - ☐ I can see SHADOWS
  - ☐ I can see COLORS
  - ☐ I can see MOVEMENT
- d. Other, please specify \_\_\_\_\_

## Section 2 Behavior and Indoor Navigation

4. Did you attend a mobility training course, e.g. orientation and mobility?

- a. Yes
- b. No

5. Which assistance do you use when you navigate inside buildings by yourself? How often do you use the assistance for your daily routines?

- 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: \_\_\_\_\_

Frequency: ☐ Everyday  
☐ Few times a week

- ☐ Once a week
- ☐ Once a month
- ☐ Occasionally
- ☐ Never , please give a reason: \_\_\_\_\_

6. How do you estimate the distance while navigating inside buildings by yourself?

- 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.

7. How often do you navigate by yourself 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: \_\_\_\_\_

8. What is the level of difficulty to navigate the following unfamiliar spaces?

- 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: \_\_\_\_\_

- Airport

Level of Difficulty: ☐ Easy  
☐ Moderate  
☐ Hard

Please give a reason: \_\_\_\_\_

- Other: \_\_\_\_\_

Level of Difficulty: ☐ Easy  
☐ Moderate  
☐ Hard

Please give a reason: \_\_\_\_\_

9. Do you have confidence to navigate inside buildings by yourself through the following unfamiliar spaces?

- 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: \_\_\_\_\_

10. Inside unfamiliar spaces inside buildings, how do you know where you are?

11. Inside unfamiliar spaces inside buildings, how do you reach your destination?

12. How can you find your orientation or the direction you are heading to? Orientation means knowing which direction you are heading to, and where landmarks are located.

13. 13. What landmarks are you looking for in order to learn or to help you to navigate by yourself through unfamiliar spaces?

14. 14. Have you 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

15. 15. Have you ever found any directions or instructions from local people has been confusing or ambiguous?

- a. Yes
- b. No

If Yes, Please give example

## Section 4 Obstacles and Hazards

16. Have you experienced any problems or challenges while navigating by yourself inside buildings? For example, ground/body/head-level obstacles, noise, silent, or light.

a. Yes, please give example \_\_\_\_\_  
b. No

17. By navigating inside buildings by yourself, have you ever experienced hitting or being hit 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: \_\_\_\_\_

18. What obstacles can you detect by your assistance (e.g. white cane, guide dog, tactile map)? Please select all that apply.

☐ Objects on the floor  
☐ Edges and holes  
☐ Other, please specify \_\_\_\_\_

19. What obstacles are you not able to detect by your 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 \_\_\_\_\_

20. While navigating inside buildings, how do you sense or know any dangers in your 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 \_\_\_\_\_

21. Have you 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

22. While navigating inside buildings, is any accessibility information available to you? For example, tactile maps, tactile pavements, Braille, audio or haptic feedback?

- a. Yes
- b. No

If Yes, Please give example

23. 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 you to walk by yourself?

- a. Yes
- b. No

24. Have you 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

25. Did the tactile map take you to your destination?

- a. Always
- b. Sometimes, why \_\_\_\_\_
- c. Never, why \_\_\_\_\_

26. What is the most important information you look for while using a tactile map in order to reach your destination?

27. To help you navigate by yourself inside buildings with safety awareness, how can you rate the following information in terms of importance to you while you are navigating?

[illegible]

28. 28. How important is it to you to know where landmarks are located while navigating inside buildings by yourself?

- a. Very important
- b. Important
- c. Somewhat important
- d. Not at all important
- e. No Opinion

29. While navigating inside buildings by yourself, which of the following are important to you in order to learn and remember 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 \_\_\_\_\_