Participant Consent Form

Project: Audio based Navigation: Learnability and Working Memory
People: Sanchit Aggarwal[2], Koustav Ghosal[2], Pulkit Singhal[1], Anoop Namboodari[2], & Priyanka Srivastava[1]
Center/ Lab: 1. Cognitive Science Lab; 2. Center for Visual Information Technology
Institute: International Institute of Information Technology, Hyderabad

It is our great pleasure to welcome you to be a part of this research

Purpose

The purpose of this study is to examine the role of working memory and modality in learning while performing an " audio-based navigation" task in a simulated environment. The study is part of a research project aims to design an efficient and user-friendly audio-based system for understanding indoor scenes. The current study is under the supervision of Priyanka Srivastava, PhD and Anoop Namboodiri, PhD.

Procedure

If you agree to be a part in this study, you will be requested to do the following:
- Fill the Required Personal Information about yourself.
- Listen to the sounds. Respond to the sounds by pressing the required keyboard input.
- Fill the Feedback form at the end of the experiment.

The total time required to complete the study will be approximately 35-40 minutes including instructions. **Please keep in mind that your personal information will be kept confidential. Your data will be solely used for the research purpose.**

Benefits/Risks to Participant

The study involves two benefits:

1. Participants will learn about the Audio based navigation. The data from current study will help us develop an audio-based navigation system by understanding of auditory cognition for scene understanding.
2. Theoretical understanding of auditory cognition.

The study involves very minimal risks:

1. Audio-sounds may cause discomfort while listening or responding
2. Sitting for 40 minutes may cause discomfort.

To minimize the discomfort, participants will be given 5 minutes break in the middle of experiment.

Voluntary Nature of the Study/Confidentiality

Your participation in this study is entirely voluntary. You may refuse to complete the study at any point during the experiment. You may also stop at any time and ask the researcher any questions you may have. Your name will never be connected to your results or to your response to the stimuli. Your data will be stored with unique anonymous User ID. The data will be accessible only to those working on the project.

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Contacts and Questions

At this time you may ask any questions you may have regarding this study. Further, if you have any query please do not hesitate to contact us for detail.

You can reach us on following contact details:

a) Student: Sanchit Aggarwal,
Mobile: +91-9581417330
Email: sanchit.aggarwal@research.iiiit.ac.in

b) Student: Koustav Ghosal
Mobile: +91- 8125342659
Email: koustav.ghosal@research.iiit.ac.in

c) Student: Pulkit Singhal
Mobile: +91- 9963702537
Email: singhal.pulkit7@gmail.com

d) Supervisor: Priyanka Srivastava, PhD
Mobile: +91-8106256312
Email:priyanka.srivastava@iiit.ac.in

Statement of Consent:

I have read the above information. I have asked any questions I had regarding the experimental procedure and they have been answered to my satisfaction. I consent my child/ student(s) to participate in this study.

Unique User Id: _____

Date: _____ **Age range of student(s): _____**

Name of Participant/ Guardian/ Teacher: _____

Signature of the Participant/ Guardian/ Teacher: _____

We sincerely show our gratitude for your participation.
Thank you very much for your precious time and contribution.

Have a Good Day!

Experiment Summary

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Description:

We are trying to build a system, which can be effectively used by visually challenged people for navigation. The system will be based on sound cues. While in motion (walking, running etc.), the participant will hear a sound corresponding to the direction in which she / he intends to travel. The system will also be able to assist her/ him to understand the surroundings. In order to develop such a system we need to understand the individual learning ability using various modalities and an ability to actively hold information to perform a task efficiently.
Currently, the project is at very initial stage. We are at data collection stage to measure the efficiency of the principles (or techniques) on which our system depends. We believe, the current study will enable us to understand about an effective way to train user by considering the individual differences.

To address this research question, we will be using **Vishruti**. Vishruti is a system that we have built to conduct our experiments. There are two sets of experiments that are to be conducted.

A. ***Learnability***: In this experiment we aim to train participants by employing following methods:

1) Supervised training: In this condition, the experiment will be conducted in two phases, a training phase followed by a testing phase. In training phase, participants will be presented with a sound depicting any of the four/ eight directions. The directions and sound will be introduced to the participants before the experiment. Each trail will consist of a single sound. Participants' task is to press a corresponding key to respond to a particular direction. During training phase, participants will be given explicit feedback either audio or visual with respect to the group. Once the training phase is over, they will be tested on main navigation task without feedbacks.

2) Unsupervised training: This condition is similar to the supervised learning except the explicit feedback after each response. In this condition, no explicit feedback will be provided.
In both the cases, participants learning ability will be confirmed by achieving 80% correct responses. Participants will be given the test trials after ensuring the learning.

3) No training: Unlike supervised and unsupervised learning, in this condition participants will be tested directly without any training phase. Rest of the detail (including stimuli presentation, participants' task and responses) will be similar to the above-mentioned experiments.

All the three conditions, mentioned above, will be performed on separate groups. Each group will take approximately half an hour, i.e. twenty-five minutes (25min).

Experiment Summary

B. **W*orking memory***: In this experiment we aim to understand the individual differences across participants about actively holding the information to perform a relevant task. In this condition, participants will receive multiple cues, varying from two to ten sounds, in a single trial. Participants' task is to recall the presented pattern as accurately as possible.

This experiment will take approximately 25 minutes.

In recent years many people have tried to build such systems. Each one has its advantages and disadvantages. We are trying to build a system that will have clarity, be efficient and can be learnt easily. We couldn't find any such system. Hence we believe our system will be able to assist the visually challenged people in an efficient way.

Please take a look at the instructions for more details about the experiment.