PERCEPT Indoor Navigation System for Visually Impaired: Beta Study

Research Need

The purpose of this study is to implement a pilot study and develop an app that enables Blind and Visually Impaired (BVI) users to independently navigate in indoor environments. The PERCEPT system is an indoor navigation system for BVI users, using real time localization and detailed navigation instructions that are automatically generated.

Goals/Objectives

The objective of this project is to assist MBTA with evaluating PERCEPT suitability for MBTA system-wide deployment. The project includes three goals:

1. Obtain user feedback statistics: user satisfaction obtained from collecting the participants’ feedback.
2. Collect usage statistics: number of participants, number of times the application was used, percentages of users that successfully navigated to the chosen destinations.
3. Develop the tags maintenance statistics: issues encountered with the tags (battery, vandalism, internal malfunction) and time taken to address them. Work involved in tag deployment when the environment undertakes changes due to renovations.

Methodology

Using real time localization and detailed navigation instructions that are automatically generated, PERCEPT will enable BVI users to independently navigate. During this project the research team will develop an in-app PERCEPT tutorial. BVI participants will actively be recruited throughout the entire project, to participate in this beta study.

Project Information

This project is being conducted as part of the Massachusetts Department of Transportation (MassDOT) Research Program with funding from Federal Highway Administration (FHWA) State Planning and Research (SPR) funds.

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Performing Organizations:
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November 2018

Expected Project Completion Date:
September 2019

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