Digital Mobility Assistant for Disabled Transit Users

Build a working prototype system that would help generate a travel plan for a disabled person using available mobility options that include transit and paratransit.

WHAT IS THE NEED?

Spatial mismatch is the mismatch between where low-income households reside and suitable job opportunities. Disabled people who can and want to work are dramatically affected by the spatial mismatch. Generally, people of lower income have to compromise on choosing where to work or find an appropriate and sustainable means of transportation.

For most of them, public transit and occasionally paratransit, is the only way to get to and from work. The main pain points of the disabled travelers include the inability to get a door-to-door ride; long waiting and travel times; risk of ending up stranded away from home due to changing services or lack of afterhours service; safety concern because of COVID-19 that caused rising crime and riots.

One way to help is to provide an application that would serve as a personalized digital companion to disabled travelers providing information about mobility options in trip planning, given travelers’ circumstances.

WHAT ARE WE DOING?

At University of California, Berkeley Partners for Advanced Transportation Technology (PATH), the researchers will focus on working with the disabled community of Contra Costa County through the center for Independent Living Resources of Solano and Contra Costa Counties (ILRSCC). They will build a knowledge graph (KG) of disabled travelers with their needs, restrictions, preferences, and points of interest (POIs); and mobility services including transit, paratransit and private companies such as Uber WAV with their schedules, coverage areas, cost, etc.
As the KG grows, new relationships between existing entities may be discovered. A knowledge update engine will be a distinguishing feature of the system. A review-like function will be the core feature of the KG built on the semi-automatic collection of feedback, reviews and surveys. This will update user preferences. The information contained in the KG will be accessible through an Application Programming Interface (API) by a functional prototype user interface (UI).

WHAT IS OUR GOAL?

The goal of this research is to build a working prototype system that would help generate a travel plan for a disabled person using available mobility options that include transit and paratransit but is not limited to those. The target community consists of the customers of ILRSCC.

In addition to the prototype, the research team will produce a concept design for the product that will describe how travelers and mobility services are added to the system and a path to deployment.

WHAT IS THE BENEFIT?

The proposed solution will enable personalization of trip planning for disabled populations. It can be readily extended to other geographic regions. It can also be extended to other traveler groups and, in general, it promotes the idea of making public transportation more accessible, more convenient, and friendlier.

This project will help Caltrans to understand how conventional transportation solutions can be adapted for vulnerable users – elderly and disabled. It would give transit providers an opportunity to test a user-centric approach to their ridership and learn more about their customers, even though it concerns a specific customer group.

WHAT IS THE PROGRESS TO DATE?

Project will start on March 1, 2022