AbleLink
Smart Living Technologies

**FORD MOBILITY CITY:ONE
MICHIGAN CENTRAL STATION CHALLENGE**

Enhancing Independent Transportation for Individuals with Cognitive Disabilities and Others with Special Needs with the WayFinder Ecosystem

FINAL PROJECT REPORT SUMMARY
ABLELINK SMART LIVING TECHNOLOGIES, LLC

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PROJECT SUMMARY

Millions of individuals worldwide with cognitive and other disabilities face significant transportation barriers, causing them to remain dependent upon others to take them where they want to go. They may use paratransit services that are expensive, less integrated, and often come with restrictions; or in the worst case, they may simply end up staying home. These roadblocks to independent transportation can contribute to significantly reduced quality of life, increased isolation, and reduced access to healthcare, education, employment, and community participation.

In May 2020, AbleLink Smart Living Technologies began an implementation field study in Detroit, MI, sponsored by the Ford Mobility City:One challenge. The challenge brief invited participants to address areas of improvement in mobility access and affordability for people with disabilities. In partnership with local agency PEAC (Programs to Educate All Cyclists), AbleLink conducted a field study to evaluate whether a technology intervention - the WayFinder Ecosystem - might enable individuals with cognitive disabilities who depended on paratransit or agency services for transportation to transition to safely and independently using the public fixed route transportation system. This would provide enormous benefits to the

individual by opening up access to independent transportation, as well as reducing the load on agencies and caregivers and benefiting the public transportation service by reducing the number of people reliant on expensive and highly subsidized paratransit services.

WAYFINDER DESCRIPTION

WayFinder is a commercially available research-based mobility support application that was developed specifically to enable individuals with cognitive disabilities to independently navigate fixed route transit systems. The WayFinder app itself runs on a mobile device, and is nested within an entire ecosystem of supporting programs.
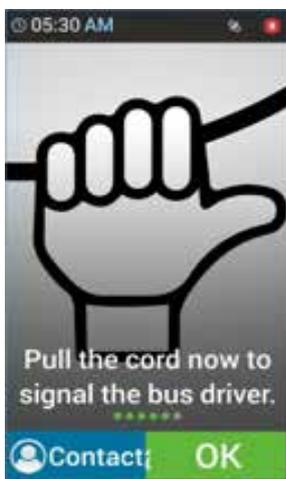
The WayFinder app consists of pre-built routes based on a transit agency's route data and personalized for an individual. When a route is launched, a series of GPS-based prompts guide the user through the trip from start to finish. Using tactile, audio, visual and text-based prompts, the WayFinder app provides a similar level of the support that an individual would receive if a caregiver or travel trainer were right there, such as giving a reminder at the bus stop, "Be sure to have your bus pass ready" or later, "Your stop is coming up. It is time to pull the cord to signal the bus to stop."

Designed throughout specifically for the needs of users with cognitive disabilities, with each component backed by research and testing, the WayFinder app is designed to give end users confidence, guidance, and peace of mind as they independently navigate their trips. WayFinder is fully customizable to the specific abilities and desires of each user, and includes a cognitively accessible option to communicate with a caregiver at all times. The WayFinder Ecosystem is a group of technologies that support and enhance use of the WayFinder App itself.
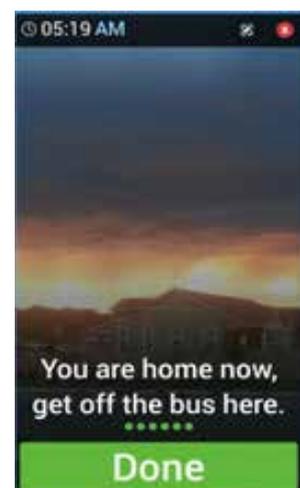
THE WAYFINDER ECOSYSTEM

IN ADDITION TO THE WAYFINDER APP, THE "SMART" ECOSYSTEM INCLUDES A NUMBER OF OTHER TOOLS FOR TRAVEL SUPPORT. SMART REFERS TO SPECIALIZED MEDIA FOR ASSISTING ROUTE TRAVEL.

TRAVEL READINESS ASSESSMENTS

Cognitively accessible travel skills assessment system for users with cognitive disabilities to independently complete an online assessment of their public transit experience and skills.

TRANSPORTATION SKILLS TRAINING

Based on AbleLink's Visual Impact technology, self-directed training modules are available to address deficits in transportation skills. The Michigan project included modules from AbleLink's general transportation skills library, as well as new training modules created to address scenarios specific to DDOT.

SMART VIRTUALIZATION TOOLS

Utilizing AbleLink's SMART technology, virtualization tools provide a format to obtain video of a complete travel route which is overlaid with a simulation of the WayFinder app. This allows the user (or caregivers) to virtually experience a trip and the associated waypoint prompts prior to engaging in the actual trip.

SMART ROUTE LIBRARY

A SMART Route Library is a collection of pre-built routes. For this project, AbleLink built a public SMART Route Library for DDOT based on all DDOT transit routes, and a private SMART Route Library for PEAC. Routes can be downloaded from the library and then personalized for specific individuals. New routes can be shared to a library as well.

SMART ROUTE BUILDER

Routes can be built and personalized within the mobile WayFinder app itself, or via the SMART Route Builder, a map-enabled web-based application for building and personalizing routes.

SMART TRAVEL MANAGER

The SMART Travel Manager is a web-based application for providing remote support and monitoring during travel activities. If desired by the traveler, the secure Travel Manager application can be used by family or other authorized caregivers to watch a trip unfold in real time (or review it after the fact) to provide peace of mind.

PROJECT DESCRIPTION

AbleLink and PEAC staff worked closely together through the early weeks of the project to recruit 15 volunteers with cognitive disabilities. The average age of the group was 25, and included 13 individuals with moderate intellectual disability and two participants with autism.

PEAC and AbleLink worked together to set up the WayFinder Ecosystem and carry out the pre-trip assessments and trainings, build a public route library for DDOT, a private route library for PEAC, and customize a number of these routes for individual participants.

In addition to webinar-style training conducted by AbleLink, PEAC staff engaged in on-the-ground training of its staff via hands-on field practice involving route identification, creation, editing, and practice runs for fixed bus routes, as well as biking and walking routes. The amount of work done by PEAC staff during this part of the project was particularly admirable given the impact of the COVID-19 virus on both PEAC and DDOT operations. Despite these setbacks, as of Sept. 14, 2020, seven individuals with cognitive disabilities had already been trained on how to ride a DDOT bus route while using WayFinder—which was significantly ahead of schedule at the time. Per PEAC staff, none of these seven individuals had ridden a DDOT bus independently before.

PEAC staff continued the training pace during the following months of project implementation. A number of the study participants had some experience with bus travel before, but none of them had ridden the DDOT bus independently prior to this pilot project. After the field testing was concluded, the study participants were given a self-directed survey to assess their experience and satisfaction with WayFinder.

During the initial WayFinder training period a total of 93 training and orientation trips were completed by the 15 individuals with cognitive disabilities who volunteered for this project. Training trips were primarily centered around functional destination outcomes (e.g., medical, entertainment) to help provide real-world motivation and a degree of satisfaction at obtaining a functional goal upon reaching their destination. Participants subsequently used WayFinder to independently take a total of 207 fixed route trips during the project implementation period, for an average of 13.8 trips per participant.

PROJECT OUTCOMES

Goal #	Goal	KPI or Key Learning	Outcome
1.1	Implement a Pilot Project: transition 12-15 individuals with cognitive disabilities served in the Detroit metro area from MetroLift paratransit services or other dependent modes of transportation to DDOT's fixed route bus service	For pilot project participants, achieve 80% or higher success rate of conversion from the *inability* to independently take a transit route to the *ability* to independently take a transit route	**80% (12 out of 15) of the study participants successfully learned to ride one or more DDOT bus routes independently with WayFinder during the project period.**
1.2	Conduct analysis of the results of 1.1 to determine potential cost savings to DDOT for transferring individuals from paratransit to fixed route at various implementation scales	Identification of potential cost savings for this technology implementation	**Analysis of potential cost savings at various scales of implementation conducted and presented as part of complete final report.**
1.3	Conduct a survey of study participants to determine feedback relevant for assessing the impact of the pilot project on use of the DDOT system for accessing work, education, health, and recreation to improve quality of life	Identification of the impact of greater access to community resources for individuals with cognitive disabilities and their families	**Survey developed and taken by each of the 15 study participants, with extremely positive results**

All three project outcomes were achieved successfully. Of significance**, 80% of the study participants were able to learn to ride one or more DDOT bus routes independently** with use of the WayFinder app**.** In addition, PEAC staff reported that two additional individuals were making good progress and are expected to achieve the goal of independent bus travel with additional training time after the Pilot Project period comes to a close.

Study results showed statistically significant improvement in key transportation skills, including community social skills, street crossing skills, and vehicle identification skills as a result of the WayFinder-based travel training they received in the Michigan Central Station Pilot Project.

Use of various components of the WayFinder Ecosystem, such as the trip virtualization capability, and the real-time travel manager, provided peace of mind for caregivers as well, many of whom had previously not allowed their son or daughter to even try to use the public bus system due to safety concerns. Use of WayFinder provided benefits all around: peace of mind to caregivers, time saved for agency staff, reduction of demand for expensive paratransit services for the city, and most of all increased independence in transportation for the users themselves.

PARTICIPANT REACTIONS

"WAYFINDER HELPED ME FEEL PROTECTED AND I HAD MY FRIEND'S VOICE WITH ME"

87% Felt confident that with WayFinder they could use DDOT fixed route buses more and paratransit less

100% Felt more confident when riding the bus with WayFinder

100% Indicated they liked using WayFinder to get around

100% Would recommend WayFinder to a friend

"WayFinder helps me find landmarks to pull the cord."

"I like it because I don't get lost."

"I like when Maddie [a PEAC staff member whose voice is recorded in the app] tells me the bus number."

"(It) helps me find me some work."

"(It's) like somebody helps me travel."

Study Participants using WayFinder to ride the bus and show off their purchases. Photos used with permission.

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CONCLUSION

Independent access to fixed route services can go a long way toward alleviating the lifelong isolation so often felt by people with cognitive disabilities who are dependent on others to access their community resources and receive the associated quality of life benefits. This project was successful in meeting Ford Mobility's City:One Michigan Central Station Challenge goal to improve access and reduce social anxiety through the use of the innovative training, travel support, and virtualization technologies which are part of the WayFinder Ecosystem. For more information, or to request the full project report, contact AbleLink Smart Living Technologies at info@ablelinktech.com.

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