SMART™

Specialized Media for Assisting Route Travel

Enhancing Independent Transportation for Individuals with Intellectual and Developmental Disabilities

Daniel K. Davies

Founder and President

AbleLink Smart Living Technologies

Some Background

- Began Research Specifically on Using Technology for Individuals with Intellectual Disabilities in 1991
- Founded AbleLink in 1997 to Focus Exclusively on Cognitive Technology R & D
- Our Mission

  Research, Develop, and Deliver Cognitive Technology addressing the Specific Needs of Individuals with Cognitive Disabilities and Seniors Aging in Place

AbleLink
Smart Living Technologies

My Motivation

AbleLink
Smart Living Technologies

AbleLink's Cognitive Technology Research and Development

Developing Innovative Technologies for those with Cognitive Needs

- Conducted over 85 Research Projects Focused on Technology for:
  - Intellectual and Developmental Disabilities
  - Autism Spectrum
  - Traumatic Brain Injury
  - Seniors Experiencing Cognitive Decline
- Funding Organizations have included:

Ford

NIDILRR National Institute on Disability, Independent Living, and Rehabilitation Research

ies INSTITUTE OF EDUCATION SCIENCES

DARPA

NATIONAL INSTITUTES OF HEALTH

Accessible Transportation Technologies Research Initiative (ATTRI)

attri

AbleLink Smart Living Technologies

AbleLink's Cognitive Technology Research and Development

Partnering to further Research and Development Outcomes

- 40+ peer-reviewed journal articles and book chapters on technology for persons with cognitive disabilities
- 25+ cognitive support technologies
    - accessible email
    - access to the internet
    - personal scheduling
    - transition from paratransit to fixed route bus for accessing community
    - video modeling for independent task support

The Joseph P. Kennedy, Jr. Foundation

UCCS University of Colorado at Colorado Springs

Ohio State

WHD

UF University of Florida

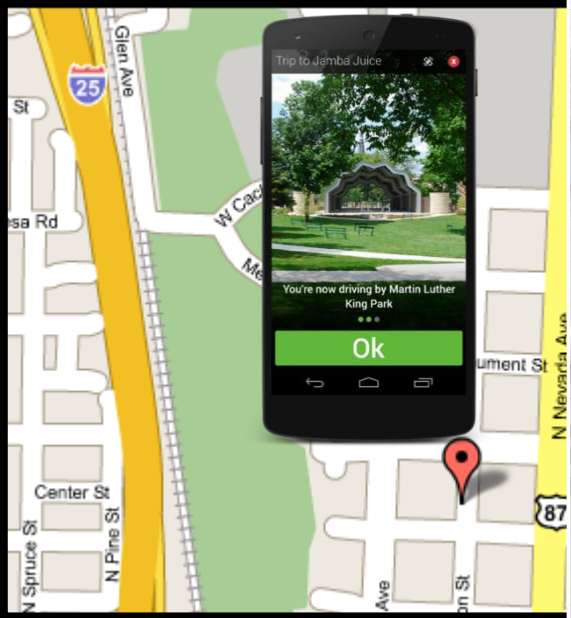
KU The University of Kansas

CU

AbleLink Smart Living Technologies

WayFinder Ecosystem

A suite of transportation support technologies, including assessment, training and day-of-travel support tools for enabling independent transportation for individuals with cognitive disabilities and others with special needs.



FORD MOBILITY city:one

TN Department of Intellectual & Developmental Disabilities

AbleLink Smart Living Technologies

WayFinder Ecosystem: Needs Based Research Foundation

Stock, S.E., Davies, D.K., Herold, R.G. and Wehmeyer, M.L. (2019). Technology to Support Transportation Needs Assessment, Training, and Pre-trip Planning by People with Intellectual Disability. Advances in Neurodevelopmental Disorders, https://doi.org/10.1007/s41252-019-00117-x published online 27 May 2019.

Stock, S.E., Davies, D.K., Hoelzel, L.A. & Mullen, R.J. (2013). Evaluation of a GPS-Based System for Supporting Independent Use of Public Transportation by Adults with Intellectual Disability, Inclusion, Vol. 1, No. 2, pp. 133-144.

Stock, S.E., Davies, D.K., Wehmeyer, M.L. and Lachapelle, Y. (2011). Emerging new practices in technology to support independent community access for people with intellectual and cognitive disabilities, NeuroRehabilitation, Vol. 28, No. 3, p. 167-308; May, 2011.

Davies, D.K., Stock, S.E., Holloway, S. and Wehmeyer, M.L. (2010). Evaluating a Cognitively Accessible GPS-Based Transportation Assistance PDA to Enable Independent Bus Travel for People with Intellectual Disability, Intellectual and Developmental Disabilities; Vol. 48, No. 6, pp 454-463.

AbleLink Smart Living Technologies

Goal of WayFinder Ecosystem: Facilitate Independent Access to the Local Community by Transitioning Individuals with Disabilities from Dependency on Paratransit and Agency-based Travel to Independent Modes of Transportation

Less Paratransit/ Agency Travel

More Fixed Route Travel

AbleLink Smart Living Technologies

The WayFinder Ecosystem Components

Ecosystem Management Technologies

- SMART Route Library
- SMART Route Builder
- SMART Travel Manager
- SMART Virtualization Creator

SMART™
Specialized Media for Assisting Route Travel

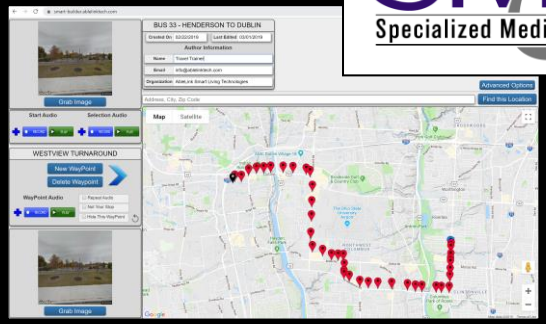
AbleLink
Smart Living Technologies

The WayFinder Ecosystem Components

Ecosystem Management Technologies

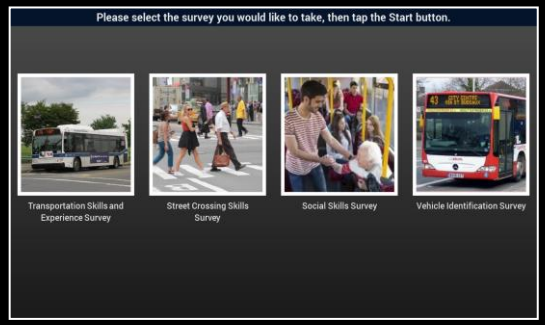
- SMART Route Library
- SMART Route Builder
- SMART Travel Manager
- SMART Virtualization Creator

SMART™
Specialized Media for Assisting Route Travel



Pre-Trip Concierge System

- SMART Virtualization Player
- ATLAS Travel Readiness Assessments
- SMART Travel Training System



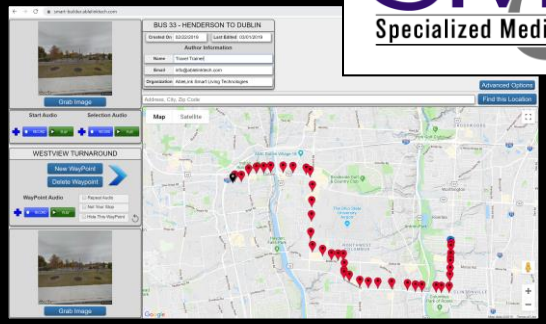
AbleLink
Smart Living Technologies

The WayFinder Ecosystem Components

Ecosystem Management Technologies

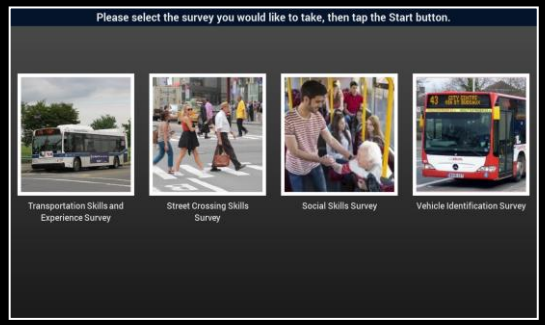
- SMART Route Library
- SMART Route Builder
- SMART Travel Manager
- SMART Virtualization Creator

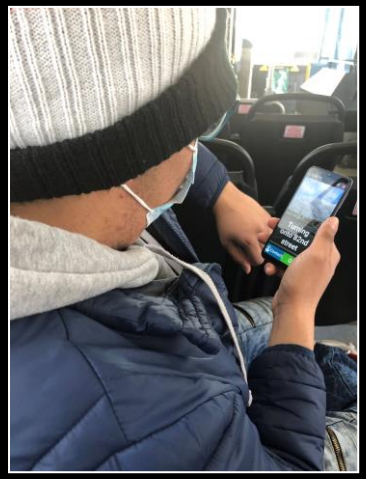
SMART™
Specialized Media for Assisting Route Travel



Pre-Trip Concierge System

- SMART Virtualization Player
- ATLAS Travel Readiness Assessments
- SMART Travel Training System





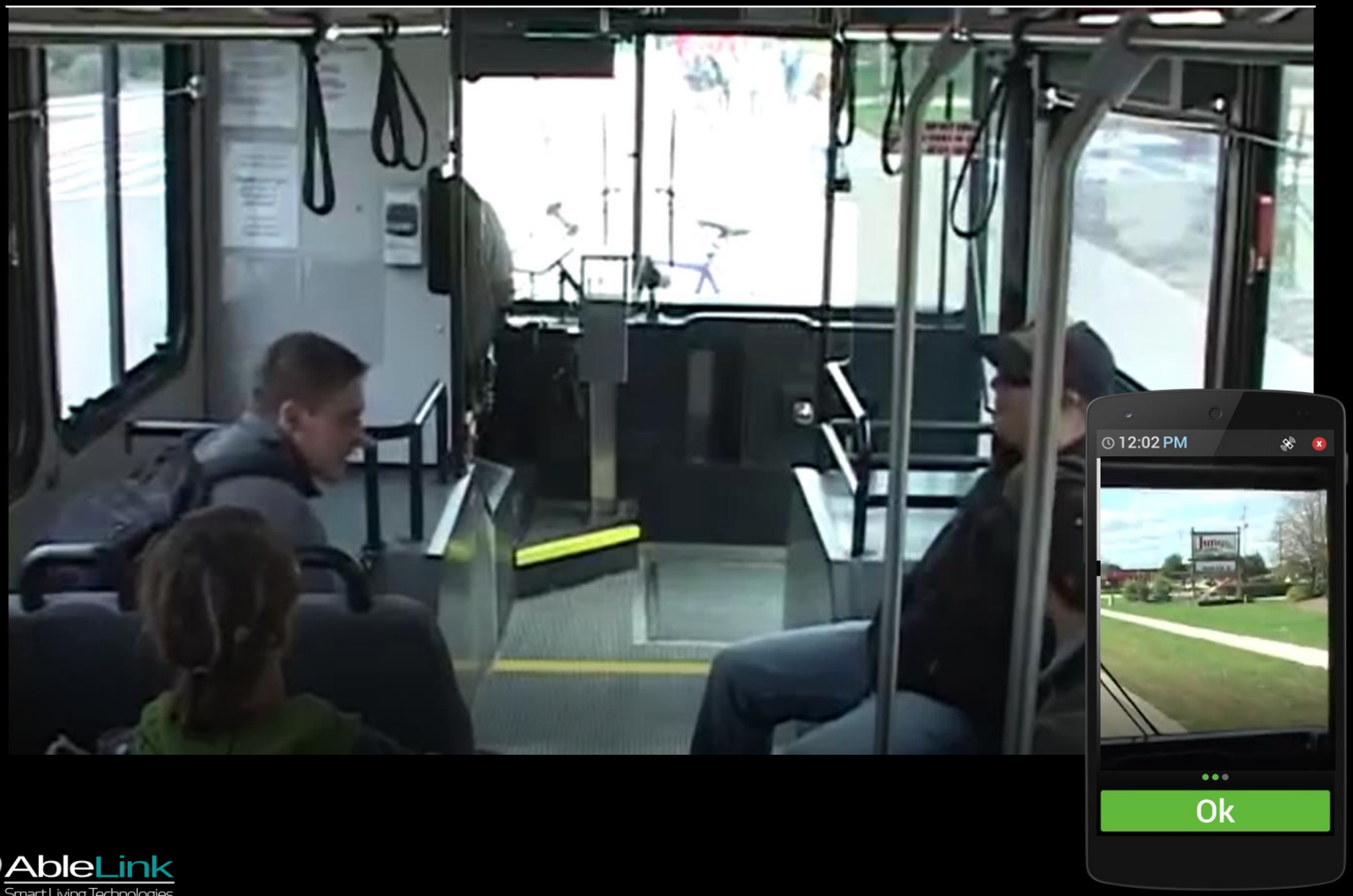
Personal Technology Services

- Smart Travel Service (WayFinder)
  - supporting community access
- Smart Living Service (complimentary apps)
  - supporting independent living

AbleLink Smart Living Technologies

Person-Centered, Location-Based Travel Instructions

Multimedia, step-by-step travel instructions with behavioral support prompts



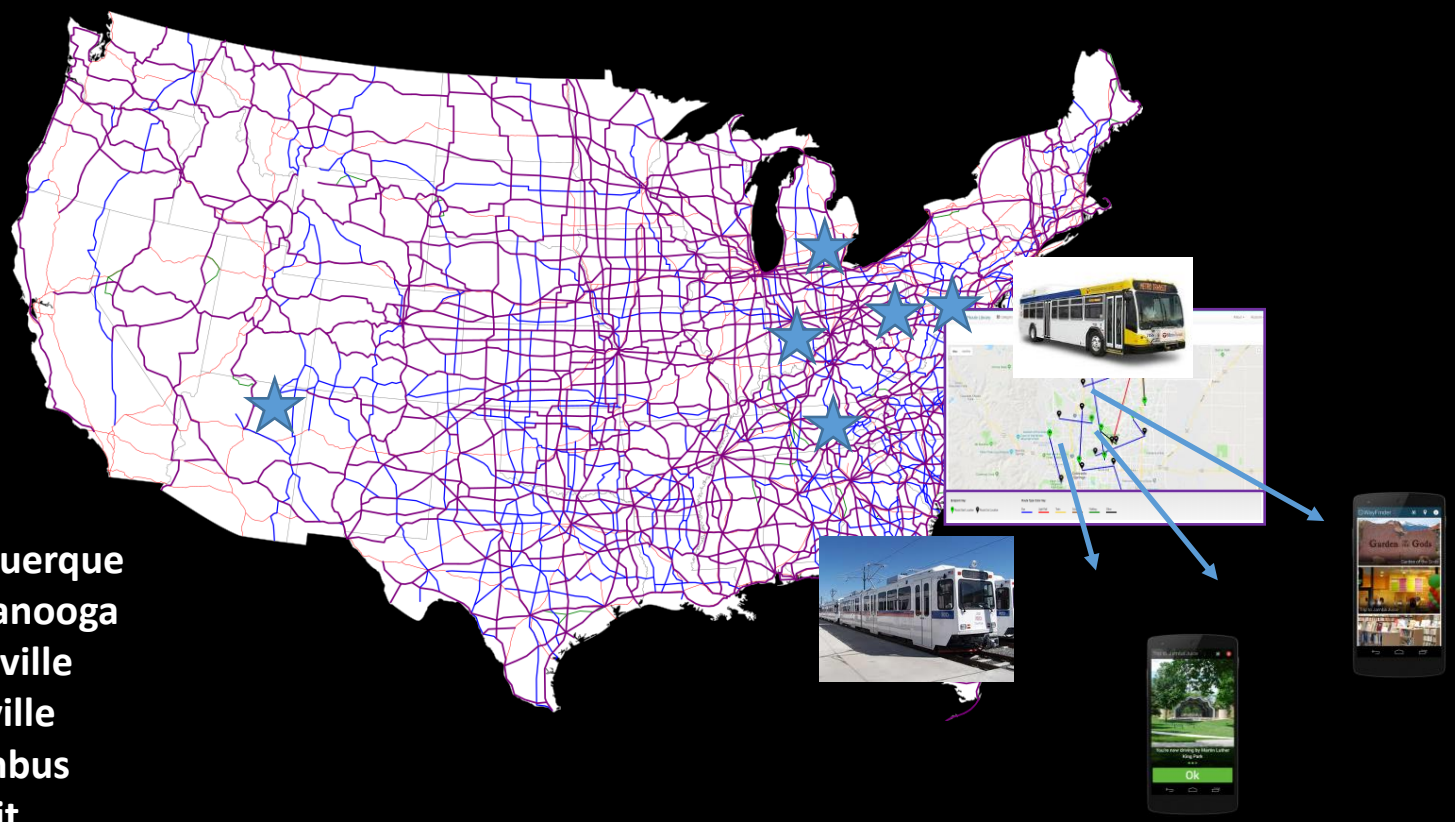
AbleLink
Smart Living Technologies

Travel Instructions and Remote Support Provided along the Way

" Your stop is next. It's time to pull the cord to tell the driver to stop"

AbleLink
Smart Living Technologies

WayFinder Implementation Projects Across US



- Albuquerque
- Chattanooga
- Clarksville
- Nashville
- Columbus
- Detroit
- Indianapolis
- Pittsburgh

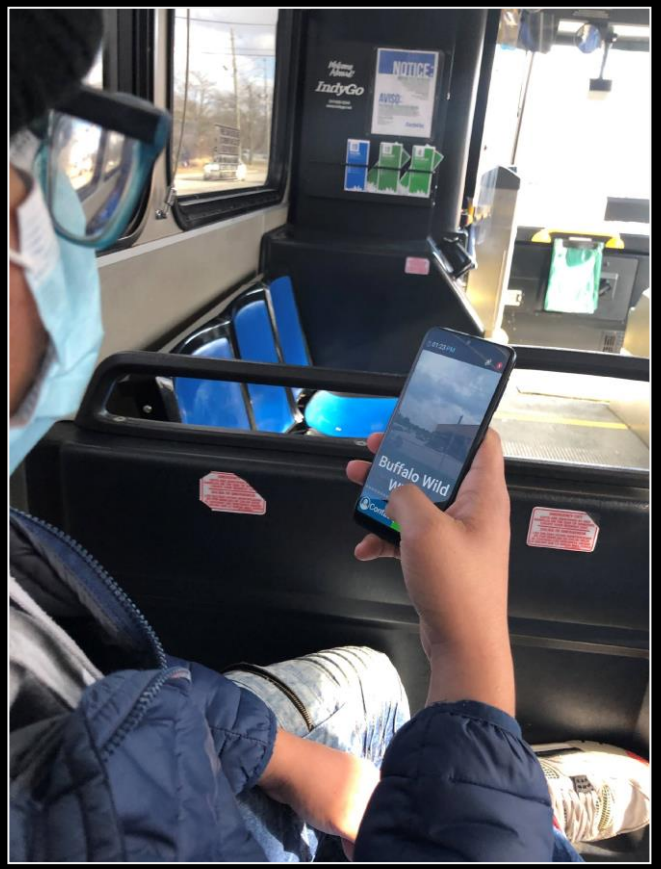
AbleLink
Smart Living Technologies

FORD MOBILITY city:one

Michigan Central Station Challenge Project

Indianapolis Challenge Project

2020/2021 (both projects)



AbleLink Smart Living Technologies

Detroit Project Results:
Transition to Independent Travel

Overall, 80% Success Rate

FORD MOBILITY city:one

- **# of Study Participants:**

  15 individuals with moderate cognitive impairment/ autism

- **# Previously Ridden DDOT Bus Alone:**

  0

- **# Learned to Ride DDOT Independently by Dec 31:**

  12/15 – 80%*

- **# of Training/ Implementation Trips:**

  93

- **# of Independent DDOT Trips:**

  207 trips, 13.8 per individual

- **Community Destinations:**

  Employment, Education, Medical, Daily Necessities, etc.

AbleLink Smart Living Technologies

Indianpolis Project Results:
Transition to Independent Travel

Overall, 90% Success Rate

FORD MOBILITY city:one

- # of Study Participants:

  21 individuals with MSD

  moderate cognitive impairment/ autism

- # Learned to Ride New IndyGo Routes Independently:

  19/21 – 90%*

- # Learned Complex Trips with at least 1 Transfer:

  16/21 – 76%

- # of Training/ Implementation Trips:

  65

- Community Destinations:

  Employment, Education, Hospital, Daily Necessities, etc.

  - Community Hospital North, Community Hospital East
  - Meijer
  - Walmart

AbleLink Smart Living Technologies

Project Results:
What did you like about WayFinder?

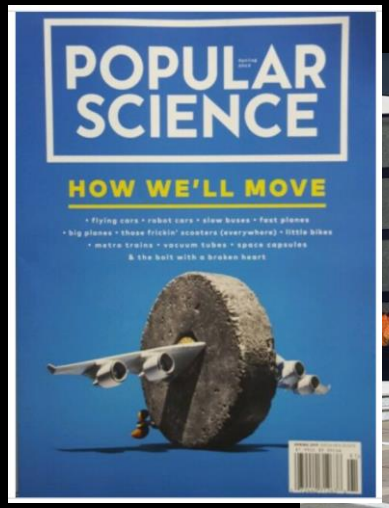
FORD MOBILITY city:one

“ This is my freedom – my independence!”

AbleLink Smart Living Technologies

WayFinder Featured in:

SMART COLUMBUS



AbleLink Smart Living Technologies

Chattanooga TN Community Integration Project

AbleLink
Smart Living Technologies

Clarksville Community Integration Project

https://videos.ablelinktech.com/AbleLink_WayFinder_Supporting_Transit_Clarksville.mp4

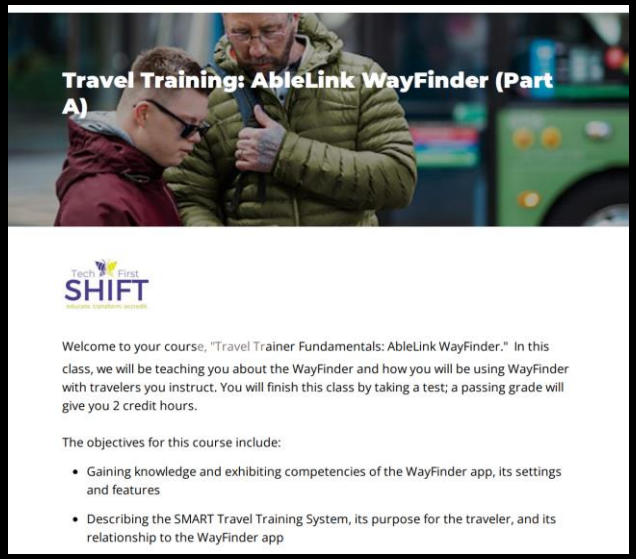
AbleLink
Smart Living Technologies

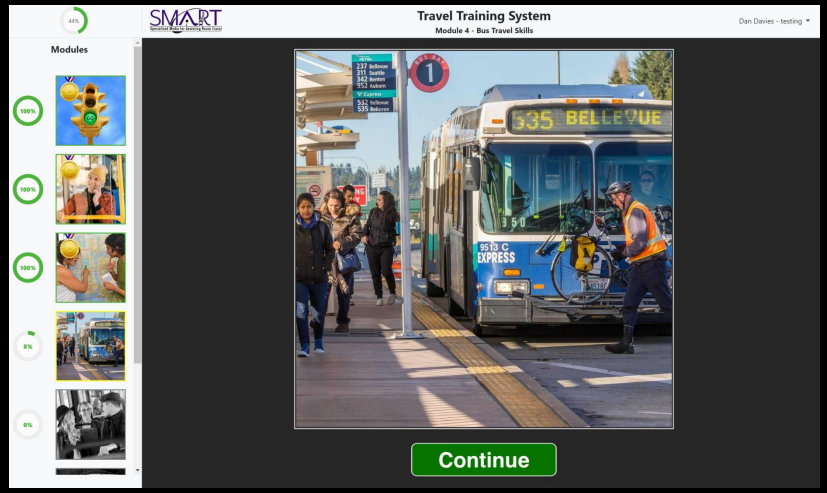
AbleLink's Role in the MAPs Project

1. Travel Training for Trainers and Travelers

Training for Travel Trainers with Online and In Community Components (SHIFT)

Training for Travelers (MAPs Participants) with Accessible Online and In Community Components (AbleLink)

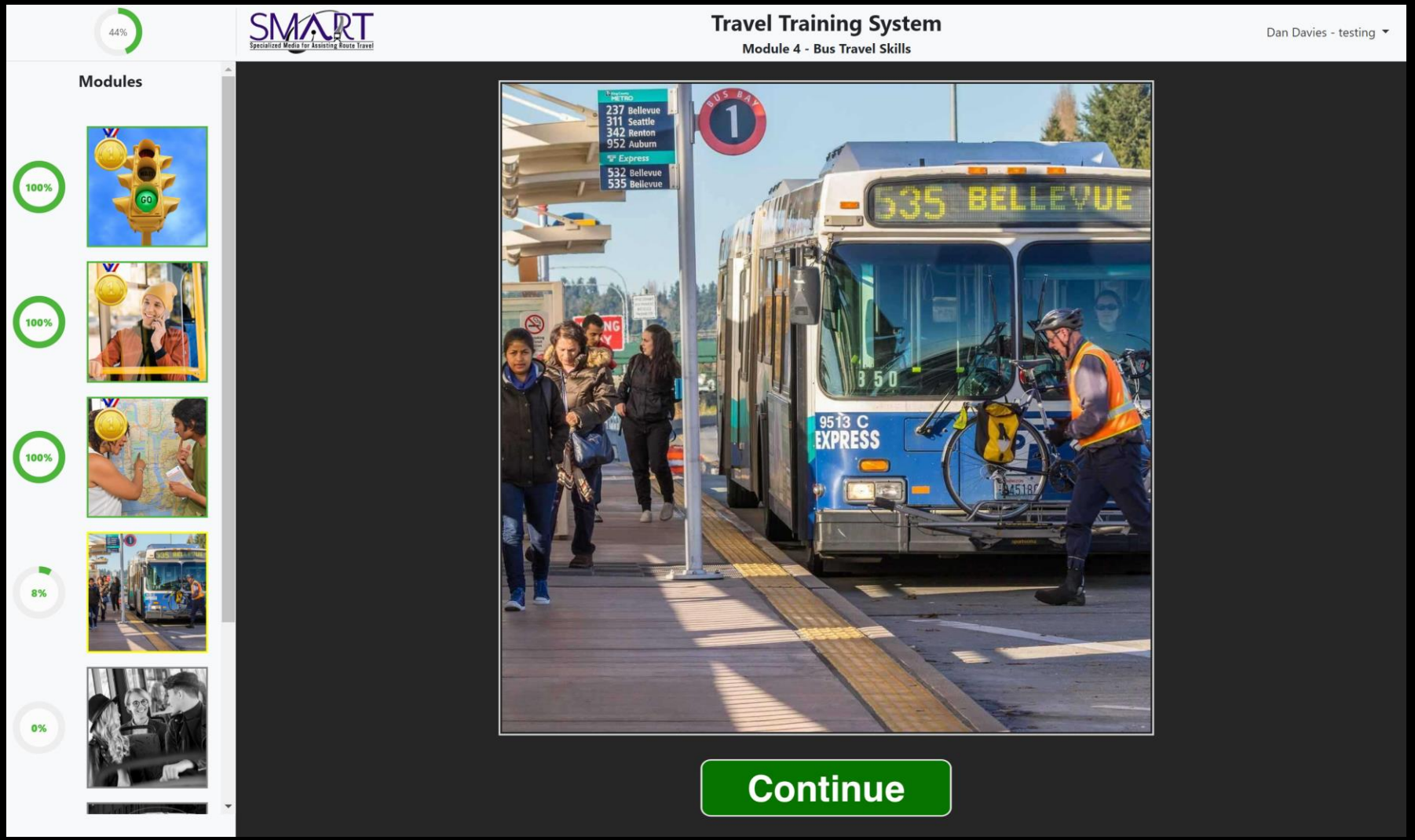




AbleLink
Smart Living Technologies

SMART Travel Training System for Travelers

Self-Paced, Cognitively Accessible Learning Management System



AbleLink Smart Living Technologies

SMART Travel Training System for Travelers

Cognitively Accessible Self-Directed Training Modules

Safety on the Bus

Transportation Signs and Signals

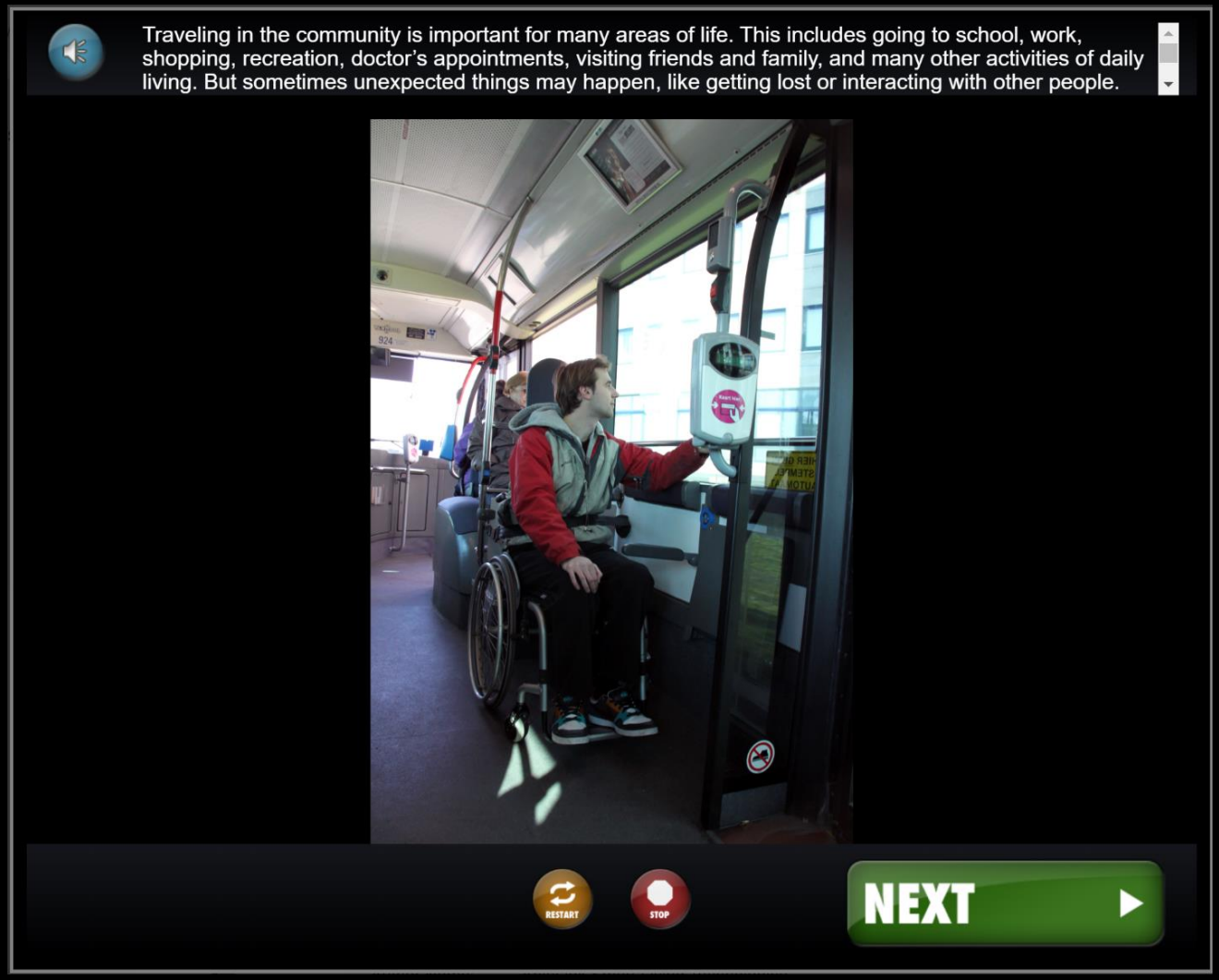
Tips for Staying Confident

Staying Healthy During Travel

Copyright © 2019 - AbleLink Smart Living Technologies, LLC

AbleLink Smart Living Technologies

SMART Travel Training System

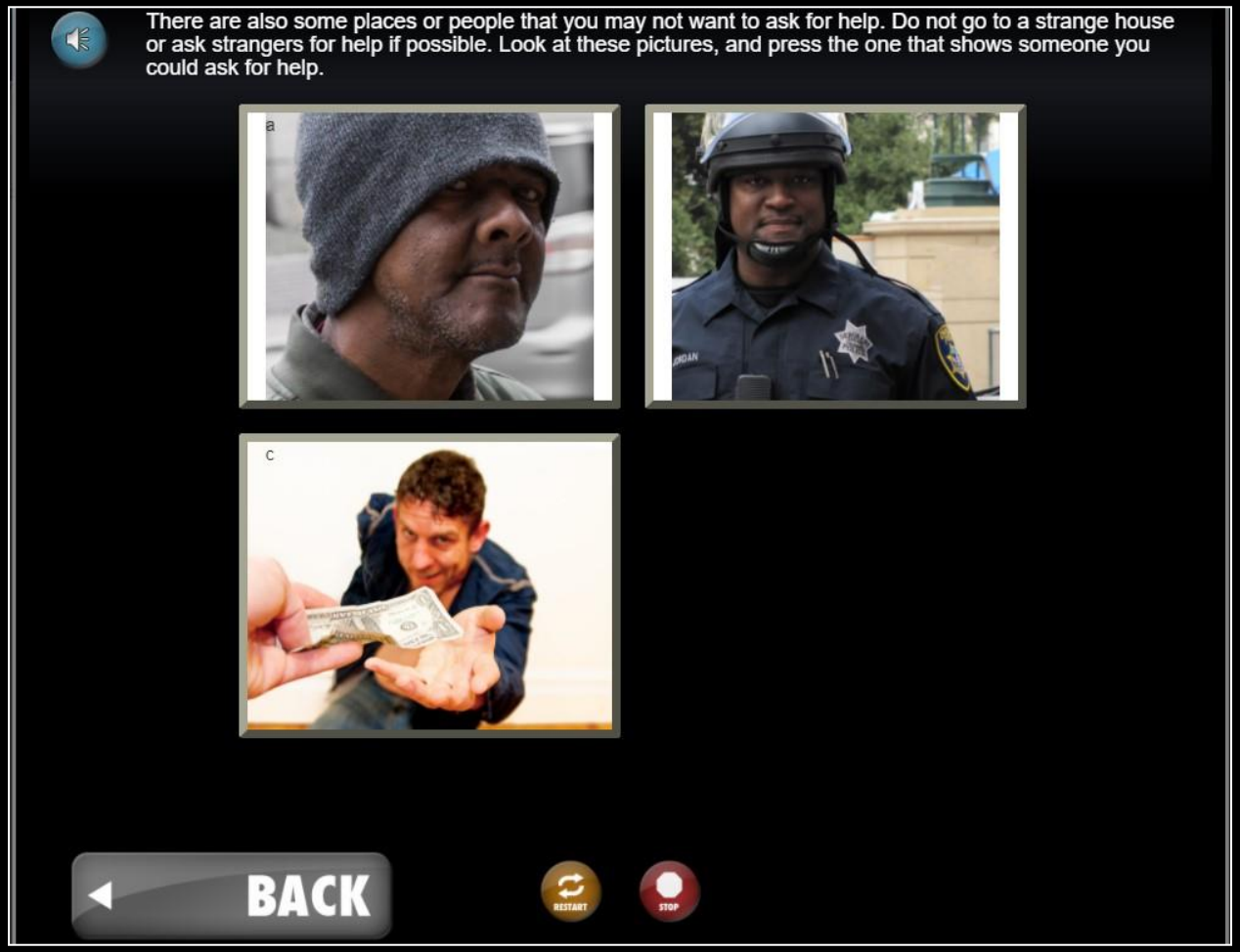


" Traveling in the community is important for many area of life. This includes…"

AbleLink Smart Living Technologies

Pre-Trip Concierge System

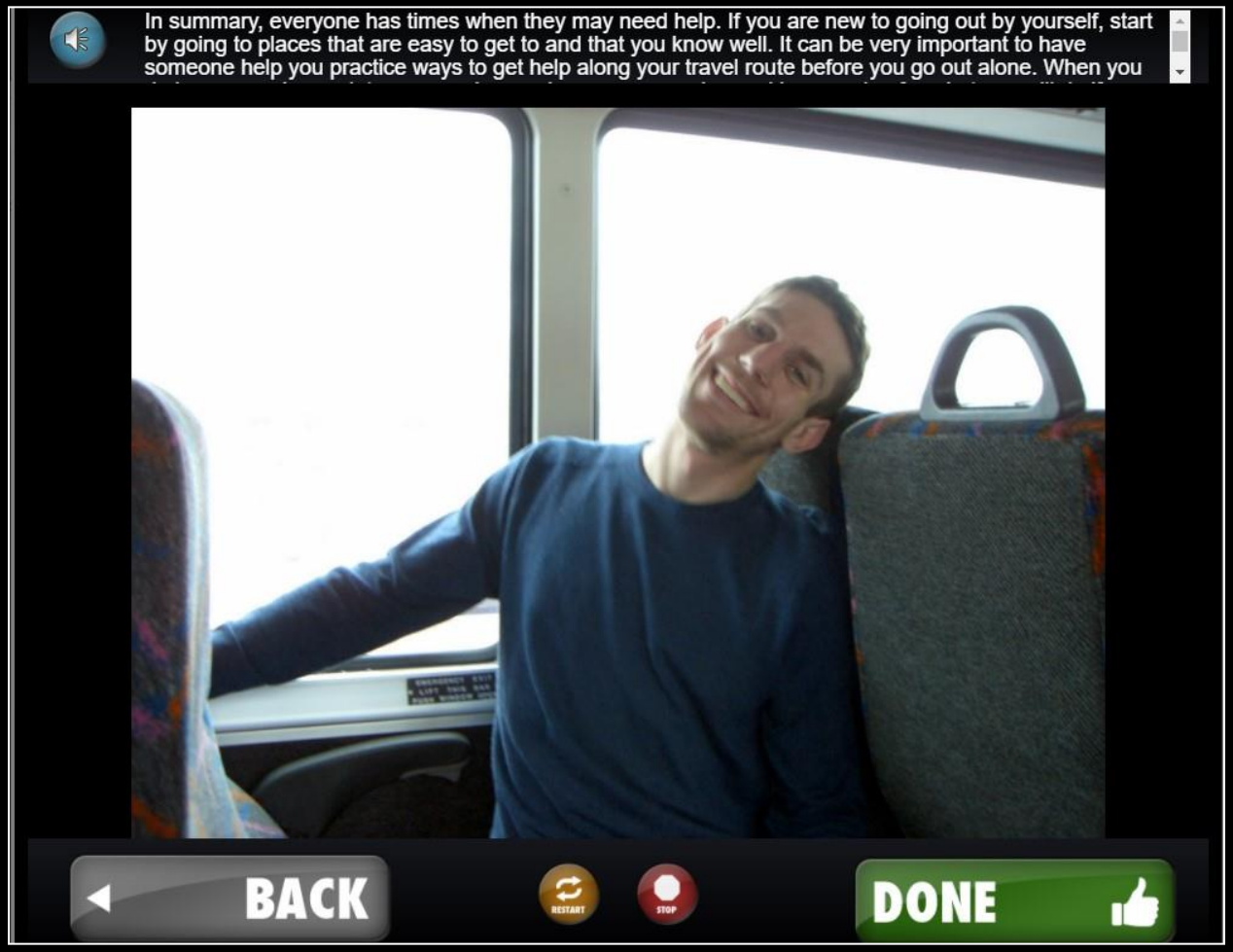
SMART Travel Training System



AbleLink Smart Living Technologies

Pre-Trip Concierge System

SMART Travel Training System



AbleLink Smart Living Technologies

Pre-Trip Concierge System

AbleLink's Role in the MAPs Project

2. MAPs Phones and Accessible Smart Living Apps

Configure and deliver Samsung Smartphones with T-Mobile Service for MAPs Participants

INCLUDING:

AbleLink's Smart Living Apps for MAPs Participants (and support individuals)

- WayFinder – accessible travel support app for independent community travel
- Endeavor - accessible personal scheduling app for daily living
- Visual Impact – step-by-step self-directed prompting app for home, work and …

AbleLink Smart Living Technologies

Personal Technology Services

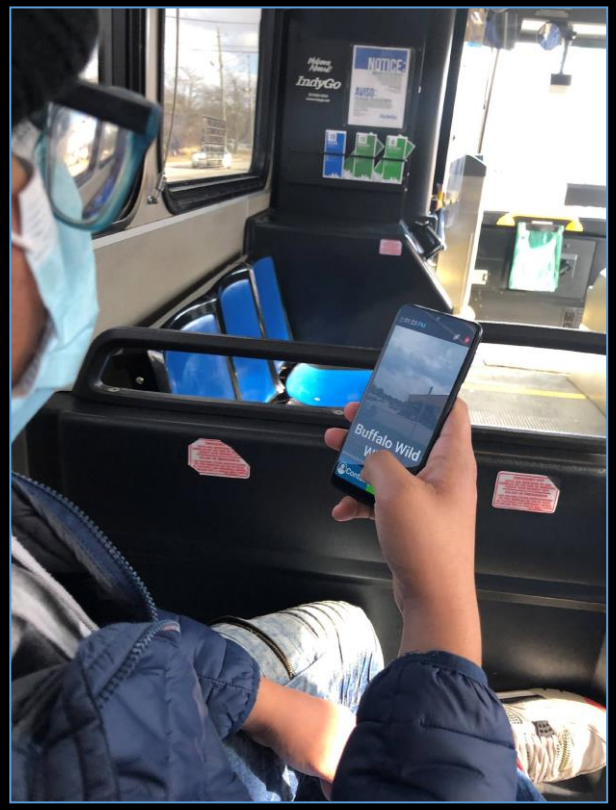
Waiver Funded Services for Supporting Independence and Community Travel

Smart Living Service Apps

Accessible Personal Schedules Launch Trips

Accessible Step-by-Step Trip Preparation Instructions

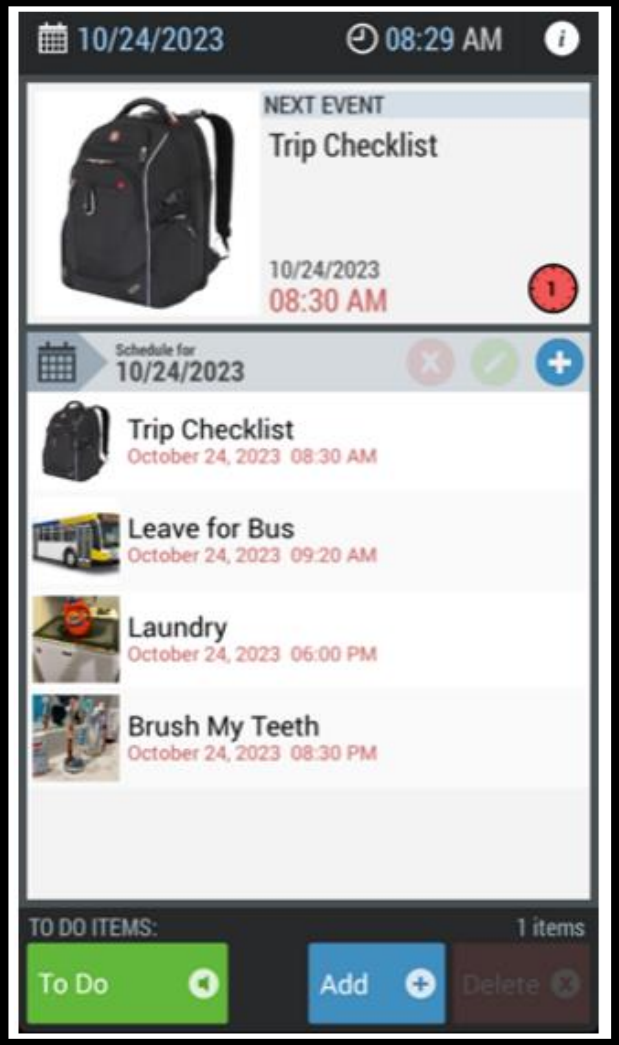
Smart Travel Service Apps



AbleLink Smart Living Technologies

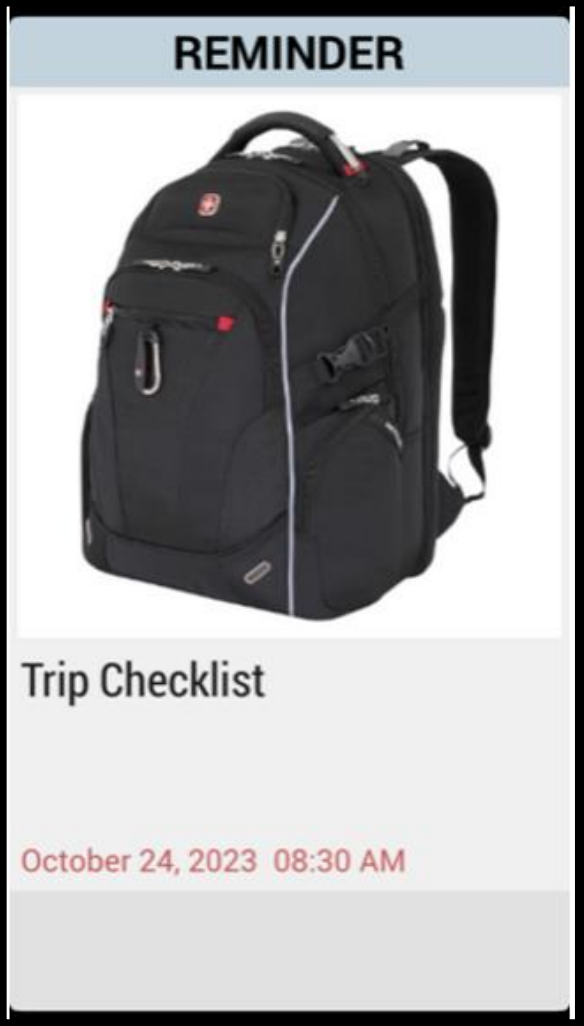
MAPs Participants have access to all three apps

The three apps work together to help achieve MAPs milestones



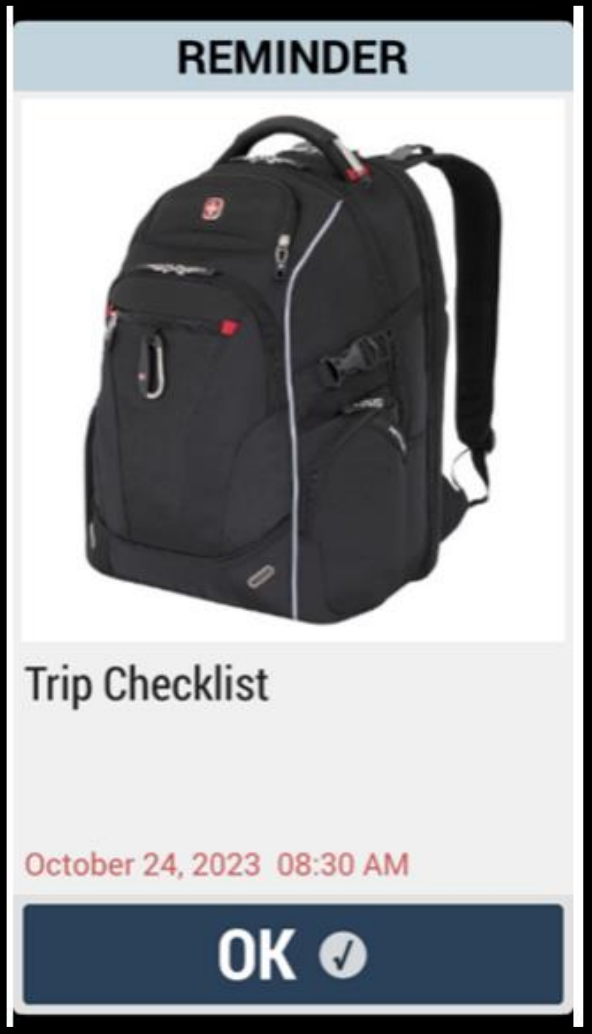
AbleLink Smart Living Technologies

Example: Reminders to Get Ready for Work



AbleLink
Smart Living Technologies

Pictures and Audio Reminders Help Users Stay on Track

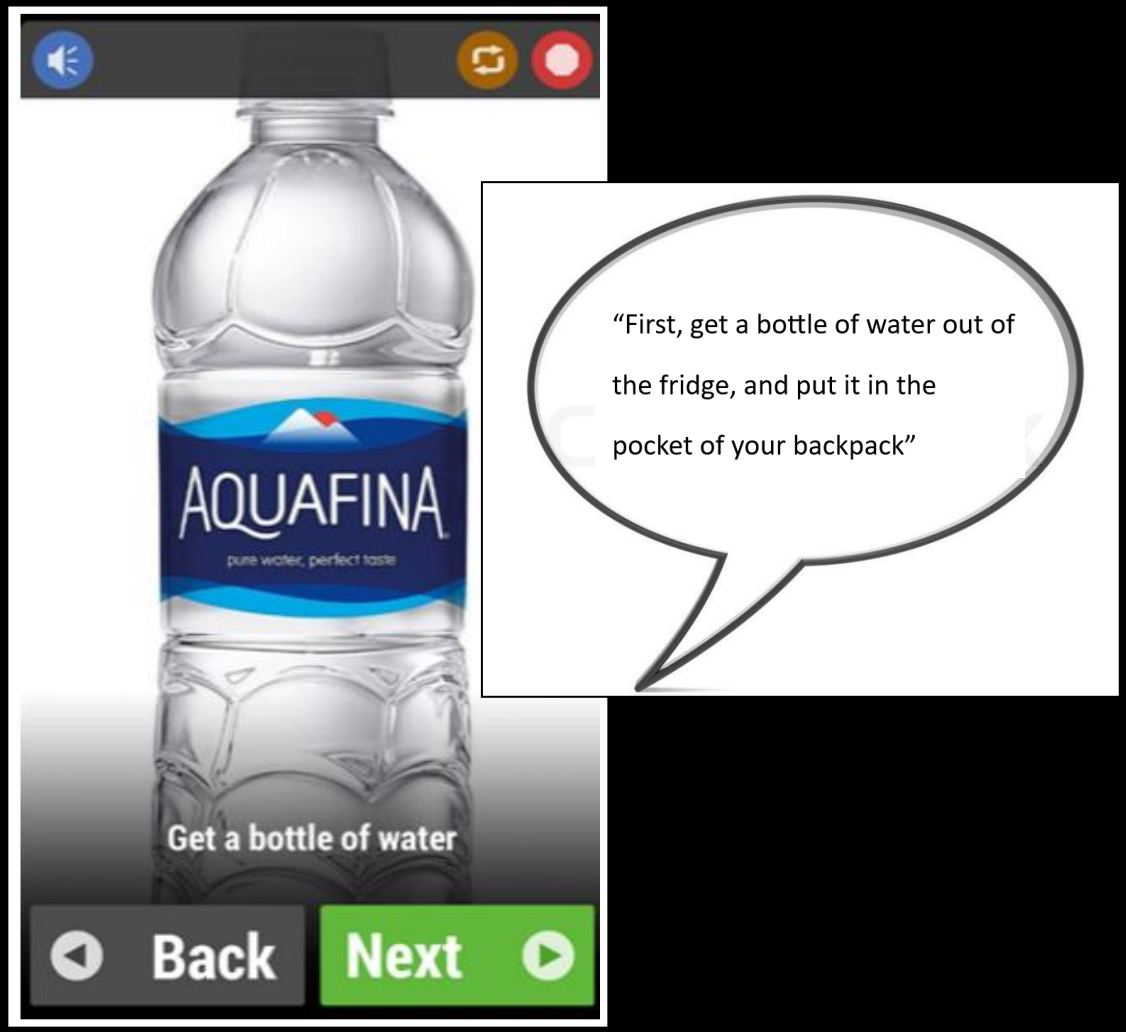


AbleLink
Smart Living Technologies

Step-by-step picture and audio instructions

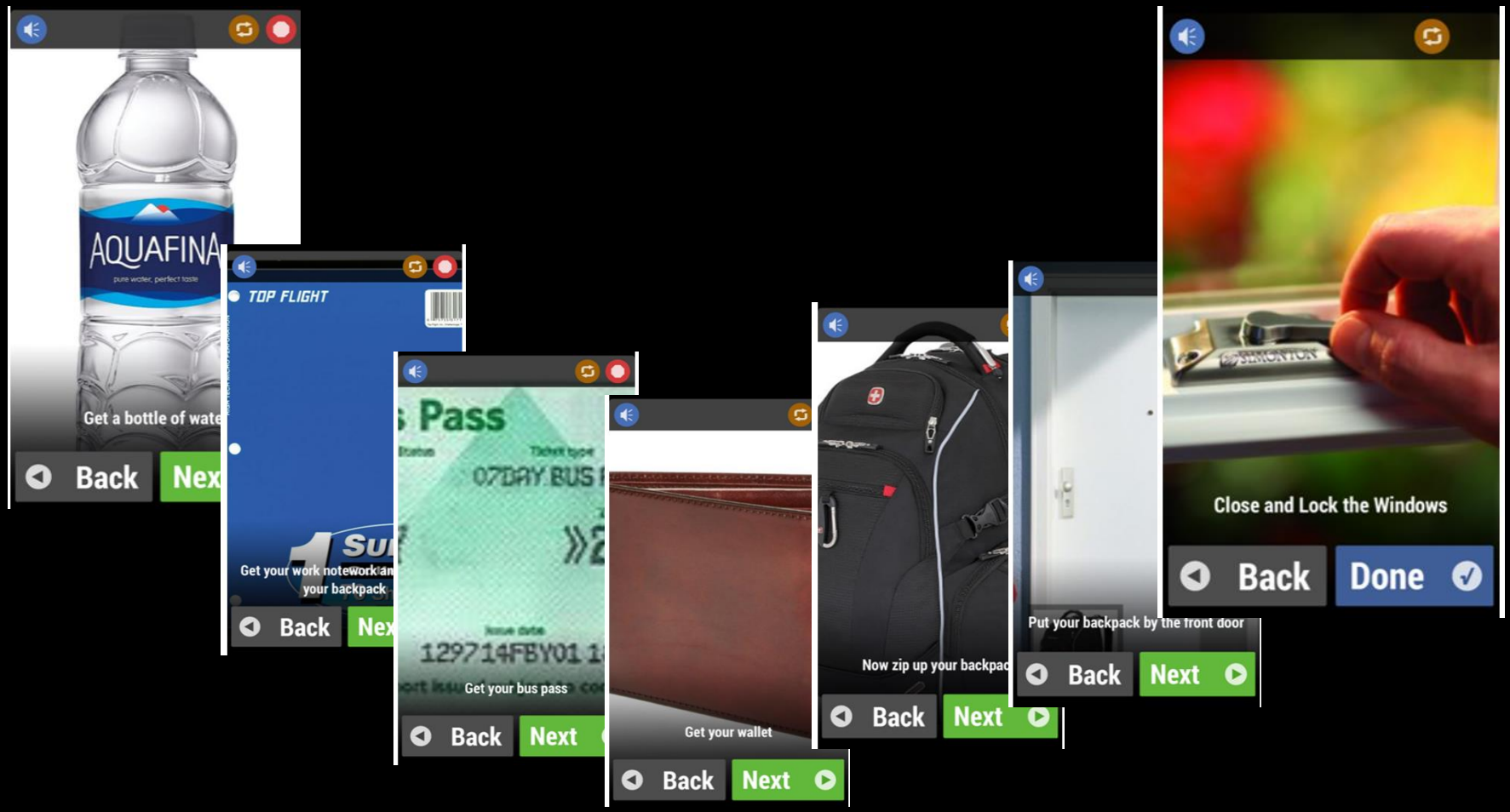
AbleLink Smart Living Technologies

Tasks are personalized based on individual needs



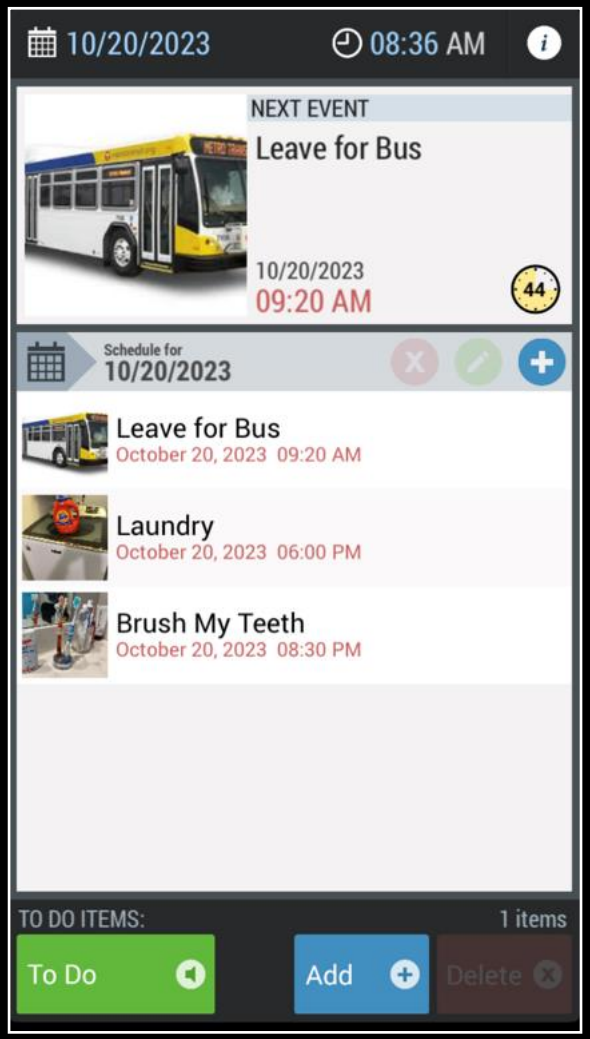
AbleLink Smart Living Technologies

Each step of the task is presented



AbleLink Smart Living Technologies

AbleLink Endeavor works seamlessly with WayFinder



AbleLink
Smart Living Technologies

Provides Time-Based Reminders to Leave for Work

AbleLink
Smart Living Technologies

Helps users catch their ride on time

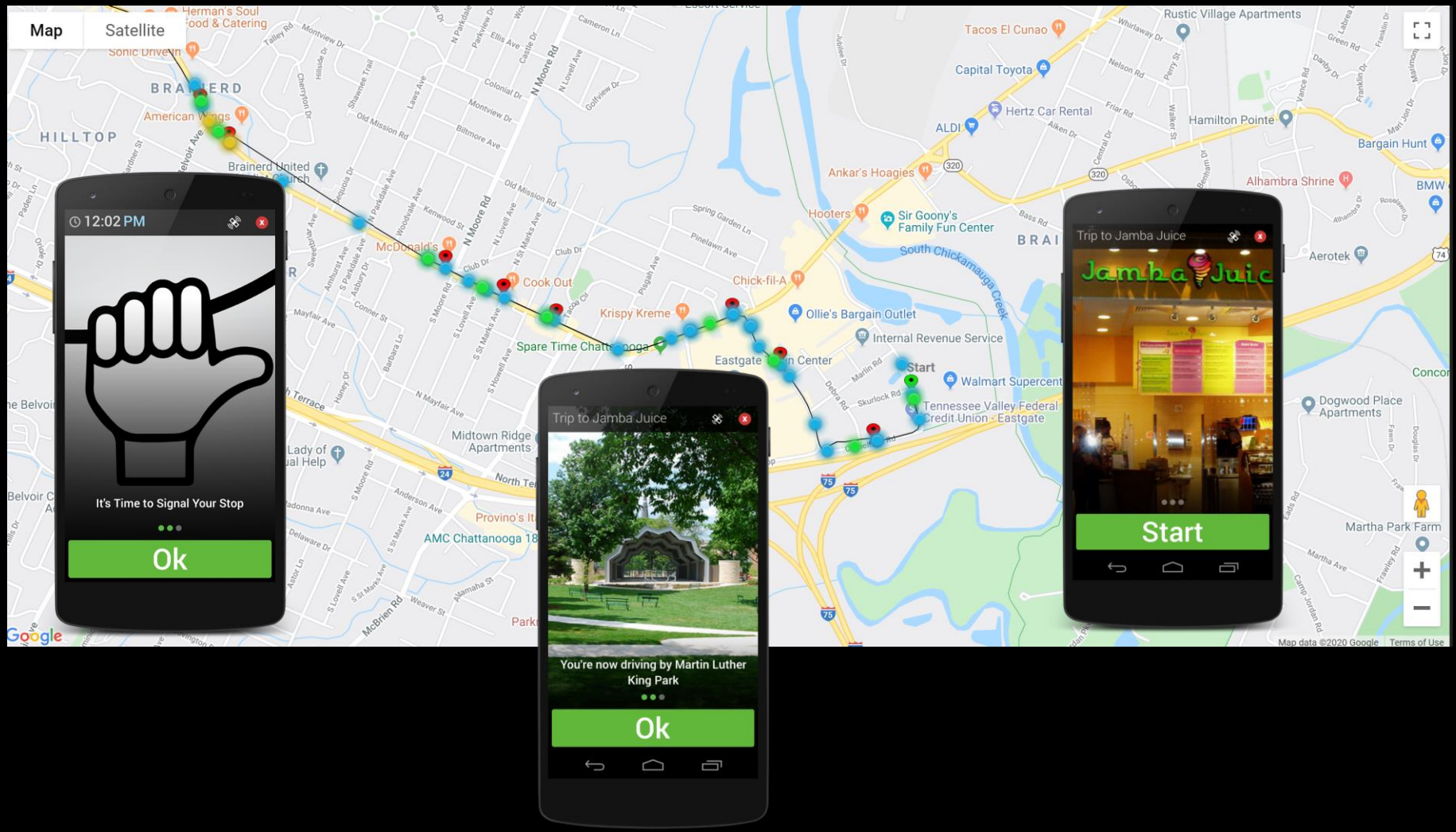
AbleLink
Smart Living Technologies

Automatically Launches WayFinder with Needed Route

AbleLink
Smart Living Technologies

Smart Travel Service - WayFinder Ecosystem

Person-Centered Picture, Audio, Text and Vibration Prompts Guide the Traveler Through each Step of the Trip

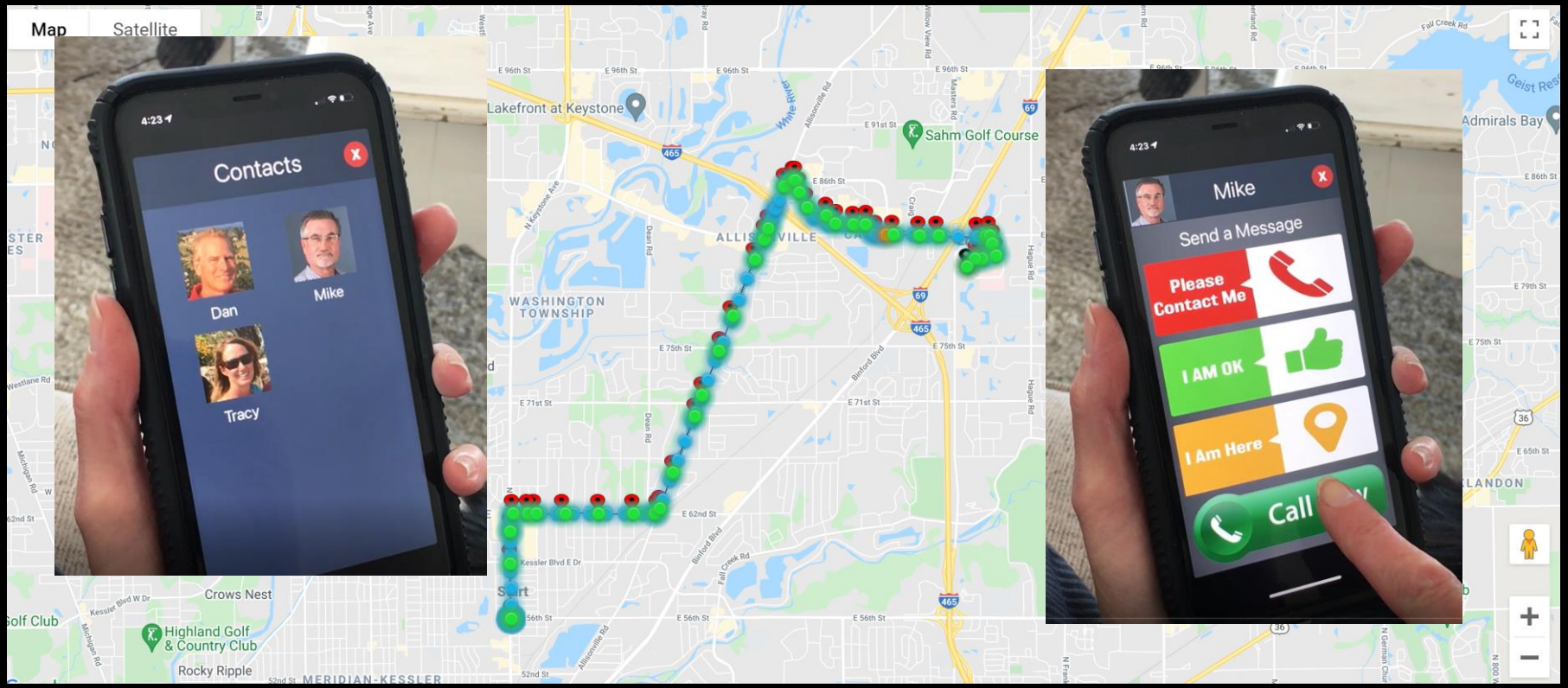


AbleLink Smart Living Technologies

Personal Technology Services

On Demand Communication and Trip Notifications

User Initiated Contacts and Automated Real-Time Location Updates
Provide Peace of Mind to Family and Caregivers



AbleLink Smart Living Technologies

Personal Technology Services

Expected Outcomes for WayFinder Ecosystem Projects

- Successful Transition to Fixed Route Bus System for Eligible/ Current Paratransit Users
- Reduction of Paratransit Wait Lists
- Improved Regulatory Compliance with Title VI of the Civil Rights Act and ADA
- Increased Opportunities for Employment and Community Engagement
- Increased Personal Self-Confidence and Social Connectedness
- Help to Overcome Attitudinal Barriers of Family and Caregivers Regarding Safety Concerns
- Greater Self-Determination Resulting from Freedom to Access the Community As Desired
- Reduced Travel Support Burden for Staff at Local Human Service Agencies

AbleLink Smart Living Technologies

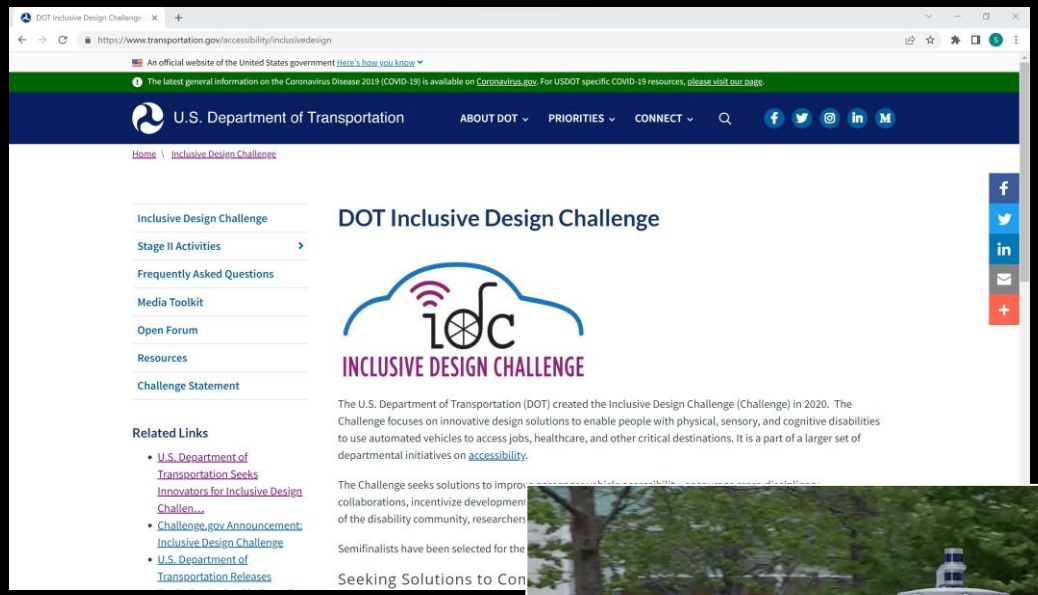
Summary: Expected Outcomes for Implementation Project

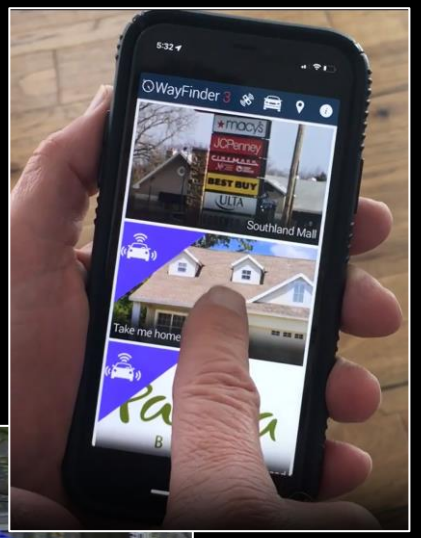
1) Improved Quality of Life and Community Engagement for Individuals often not Provided the Opportunity of Independent Travel

2) Paratransit Cost Savings for Transit Agencies and and other Travel Training Partners

AbleLink Smart Living Technologies

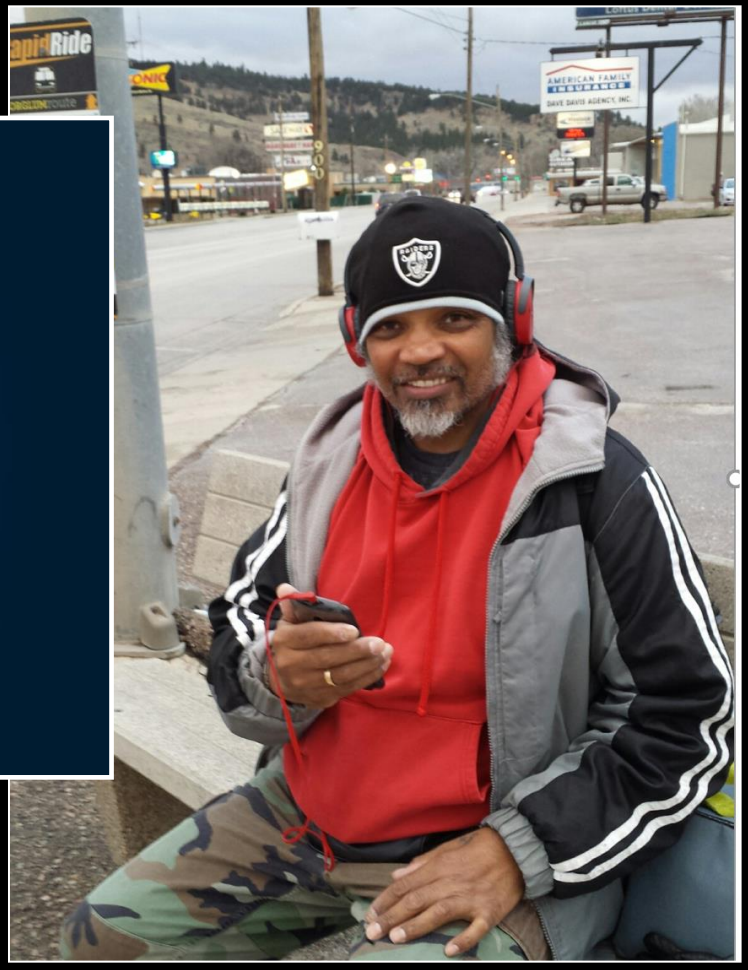
The Future of Transportation Technology Holds Great Promise for People with IDD





AbleLink Smart Living Technologies

https://videos.ablelinktech.com/WayFinder_Ride.mp4



AbleLink
Smart Living Technologies

Concern for man himself and his fate
must always constitute the chief objective
of all technological endeavors...
in order that the creations of our minds
shall be a blessing and not a curse to mankind.

Albert Einstein
Science & Happiness

Dan Davies
dan@ablelinktech.com
719.592.0347 ext 110

6745 Rangewood Dr
Colorado Springs, CO 80918
719-592-0347
http://www.ablelinktech.com

AbleLink
Smart Living Technologies