Autonomous Vehicles and Persons with Disabilities:

Ensuring Stakeholder Voices are Heard Before, During, and After Design and Deployment

MI DDI

Michigan Developmental Disabilities Institute

Community Service

Education

Research

Dissemination

WAYNE STATE UNIVERSITY

Michael Bray, M.A., Ed.S.

Project Director

mikebray@wayne.edu

Project Funding

- **Project Title:** Increasing Accessible Transportation for Individuals with Intellectual/Developmental Disabilities through Autonomous Vehicles

  - Funded by Grant #2020071 from the Michigan Developmental Disabilities Council

  - Awarded pursuant to P.L. 106-402, as amended, the Developmental Disabilities Assistance and Bill of Rights Act, through the Michigan Department of Health and human Services, the Council's designated state administering agency.

Project Goals

- **Goal #1:** evaluate the potential positive and negative impact of autonomous, self-driving vehicles use by individuals with disabilities and their families

- **Goal #2:** determine how this technology should be delivered to increase inclusion

- **Goal #3:** develop recommendations for policy makers, transportation authorities, and manufacturers to ensure voices of disability community are heard

Methodology

- Project goals achieved through a mix of:

    - Participatory Action Research (PAR)

    - Qualitative data gathering and analysis

    - Delphi Panel research

- This approach serves the individuals who will be directly affected by the introduction of self-driving technology

Focus Groups

- ## Completed 8 Focus Groups

  - Kingsford, Escanaba, Detroit, Midland, Muskegon, Grand Rapids, Westland, and Flint

  - Held mainly at Arcs

  - 55% live in urban area, 45% live in rural area

  - 62% Female, 38% Male

  - 71% White, 17% Black/African-American, 5% Arab-American, 2% Native American, 5% multiple racial identities

  - 2% Hispanic
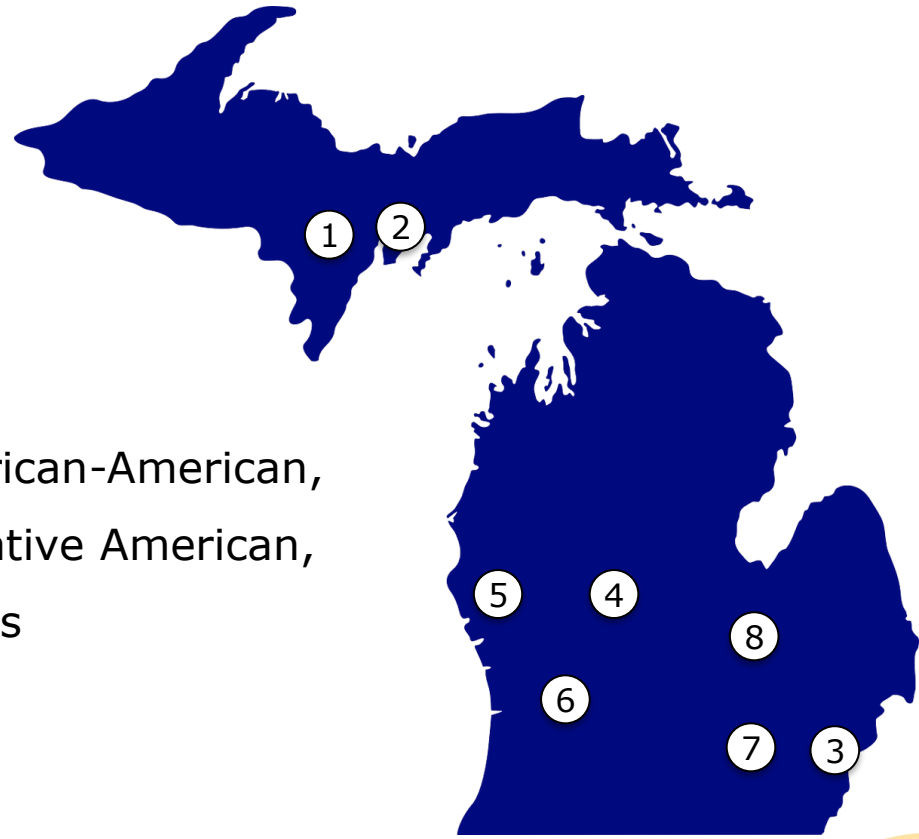
What did the Focus Groups tell us?

- Participants were asked:

  - About the current transportation they were using

  - Experiences, needs, how transportation could be better

  - Hopes and fears for autonomous transportation

  - How to make AVs accessible

  - Other ideas, comments

- Emerging themes:

  - Current transportation options include family members, direct support professionals, providers, private and public door-to-door services, public buses/shuttles.

  - Significant **barriers** related to scheduling and availability of transportation.

    - Affects employment, health, relationships, community inclusion

What did the Focus Groups tell us?

- More emerging themes:

  - People are excited for autonomous options

  - But they are concerned about how these vehicles would be offered to the public

  - Would there be more paratransit AVs options?

What did the Focus Groups tell us?

- More emerging themes:

    - **Independence!!**

    - Must be safe to use

    - Worry about affordability and maintenance of personal cars

    - How would AVs affect people's connections to their communities?

    - MUST be **accessible for all users!**
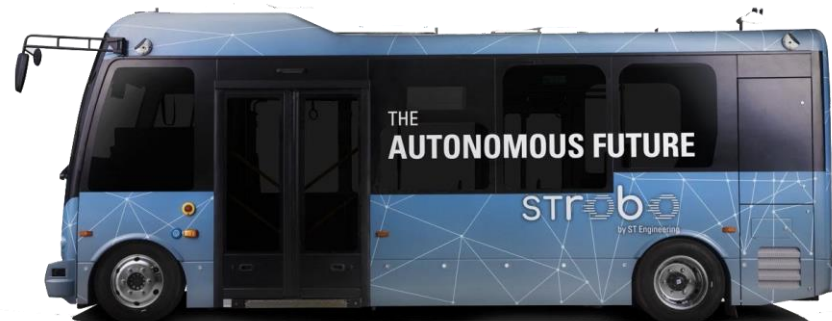
- Panel of experts assembled

  - 10 people from different fields and experiences

  - Engineering, computer science, self-advocates, family members, law and policy, public transportation, autonomous vehicle development, social service and disability advocacy

- What did the Delphi Panel do:

  - Completed an online survey

  - The survey was based on information gathered from focus groups

- Survey looked for agreement on what is most important:
  - What should be the top items considered by automakers, policy makers, and public transportation authorities?

- Ensure that:

  - The needs of individuals with disabilities and family members are front and center

  - Individuals are included in the planning, design, and testing of products and policies

- Delphi Panel completed online survey.

  - Total of 70 items

- A second survey was sent.

  - Sent because not all items reached consensus after first survey

Delphi Panel Survey Results

Survey items arranged under 5 categories:

1. Current transportation barriers

2. Potential positive impact of AVs

3. Potential negative impact of AVs

4. Accessibility needs for public AVs (buses, shuttles)

5. Accessibility needs for personal AVs (privately own cars, ride-share cars)

Delphi Panel Survey Results

- Group consensus defined as 8 out of 10 panel members (80%) choosing an item to be either a "High Priority" or "A Top Priority"
  - Also applied to items considered "Low" or "No Priority"
- Items also needed to be low in variance
  - Meaning that the group was mainly in agreement

White Paper Report

- Description of the project outcomes were written into a "White Paper".

  - Paper is hosted on a web page: https://ddi.wayne.edu/av

- The goals of the paper are to:

  - Increase awareness of the ongoing transportation needs of individuals with disabilities in Michigan.

  - Highlight the importance of including persons with lived experiences in the design and development of AVs.

White Paper Report

- The White Paper is being sent out statewide:

  - https://ddi.wayne.edu/av

  - Scan the QR code below with your phone's camera or QR Code Scanner App:

White Paper Report

- Ten (10) recommendations were developed.

- All recommendations based on project outcomes.

- Call for action to ensure that the needs of individuals with disabilities are considered at all steps of the AV development and deployment processes.

  - Recommendations are presented on the following slides.
  - They are not arranged in any order of importance.

- **Recommendation #1:**

  - Focus transportation advocacy efforts on current scheduling practices and related policies affecting how individuals with disabilities can effectively and realistically use existing public transportation options in their communities (busses, shuttles, door-to-door services, paratransit).

- **Recommendation #2:**

  - Harness mobility research and collaborative work being done by universities, organizations, and companies throughout Michigan to address the transportation needs of individuals with disabilities in both rural and urban settings.

- **Recommendation #3:**

  - Engage individuals with disabilities, service providers, employment specialists, advocates, state legislators, and other key stakeholders to brainstorm solutions to the growing need for Direct Support Professionals (DSP) to provide essential care, including transportation, for individuals with disabilities.

- **Recommendation #4:**

  - Connect individuals with disabilities with AV designers, developers, and manufacturers to facilitate idea sharing and training opportunities throughout the research, development, and testing phases of this emerging technology.

- **Recommendation #5:**

  - Facilitate opportunities for individuals with disabilities to directly use and/or engage with existing autonomous transportation while providing a platform for them to give feedback and ask questions.

- **Recommendation #6:**

  - Create an ongoing dialogue between persons with disabilities and local, county, and state transportation authorities to ensure the voices of individuals are heard as AV technology is integrated into the current transportation landscape.

- **Recommendation #7:**

    - Create awareness and advocacy focused on ensuring that there is financial equity regarding the cost to own and/or use autonomous vehicles as they become more available to the public.

- **Recommendation #8:**

  - Review how funding sources such as transportation vouchers and Social Security benefits can be applied to diverse transportation options such as ride sharing programs (Uber, Lyft) and how this will work with AVs.

- **Recommendation #9:**

  - Work with autonomous vehicle manufacturers and transportation authorities to create a priority for them and others to make publicly operating AV bus and shuttle services available to individuals who would be most immediately impacted by their use (individuals with disabilities, aging adults, transportation disadvantaged).

- **Recommendation #10:**

  - Through information sharing and advocacy efforts, create awareness of the potential positive impact that AVs could have on the independence, community connectedness, and overall quality of life of individuals with disabilities and their families.

Questions?

Questions or comments?

Thank you!

To contact Michael:

mikebray@wayne.edu

AV Project Web page:

https://ddi.wayne.edu/av

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