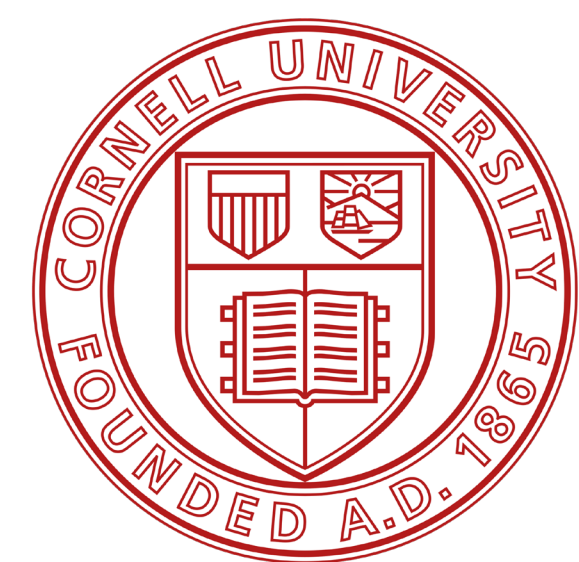
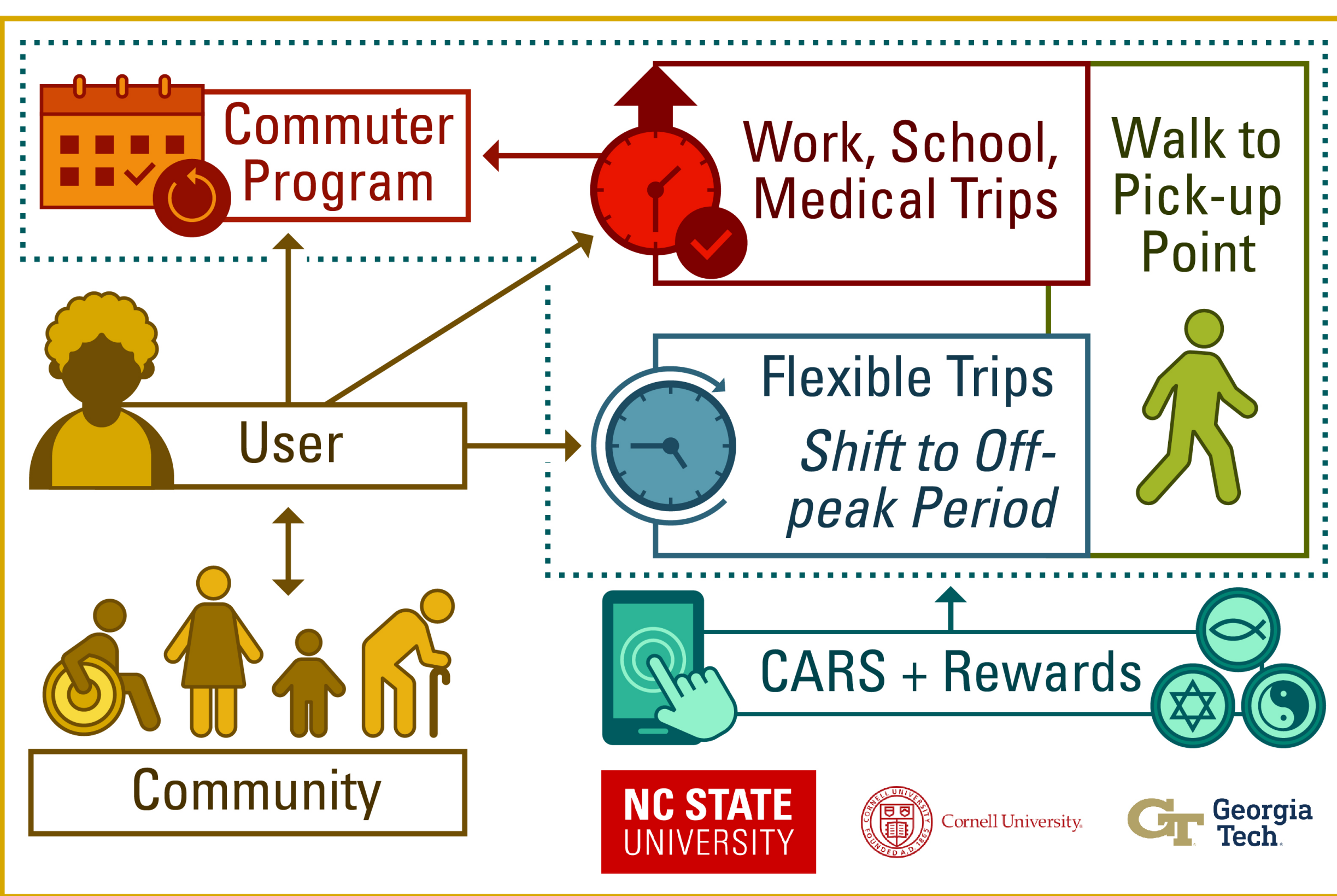


# Empathy and AI: Towards Equitable Microtransit

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SCC-IRG Track 1 #2325720



## Smart, Community-Centered, Equitable Microtransit

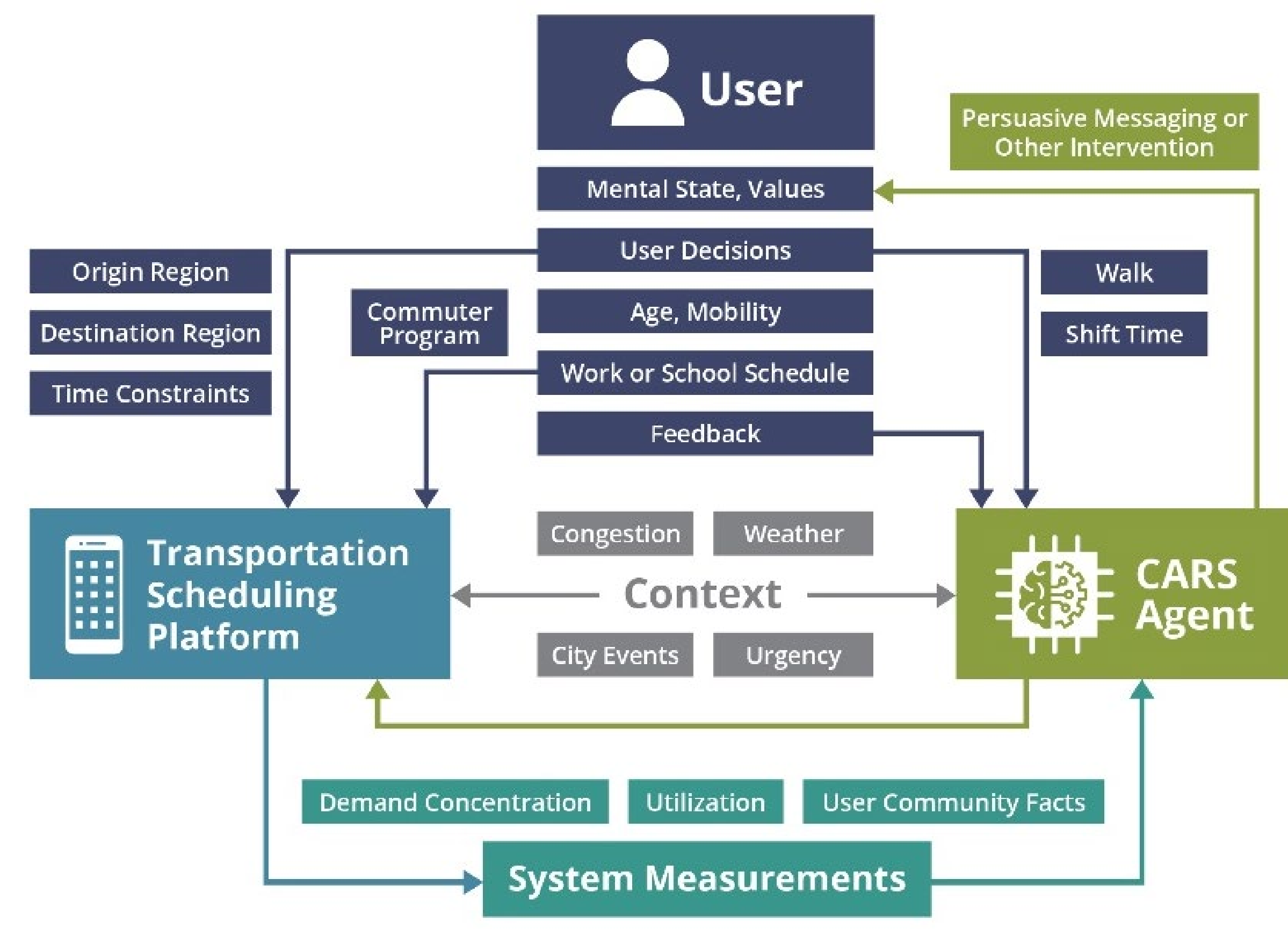


## Transferability and Broader Impacts



## Intellectual Merit

- Develop, test, and evaluate smart and community-supported solutions for distributing travel demand over time and increasing ridesharing and efficiency in public microtransit systems in an equitable manner
- Novel use of **empathy-building messaging** powered by **AI** to enable users to make choices while considering the constraints of other users and the system overall through a **cooperative adaptive ridesharing (CARS)** system
- **Integration of on-demand fleet management algorithms with AI** to allow for user schedule flexibility, preferences, and constraints
- Enable the operation of a **commuter program** on a fixed schedule with a monthly subscription



## Project Challenge

- Demand for microtransit has been rising in disadvantaged communities
- Elevated cost and lack of funding limit service supply, leading to high waiting times and trip cancellations
- Microtransit cannot rely upon pricing to manage demand. Monetary incentives would attract the most disadvantaged users and may exacerbate inequity

## Broader Impact

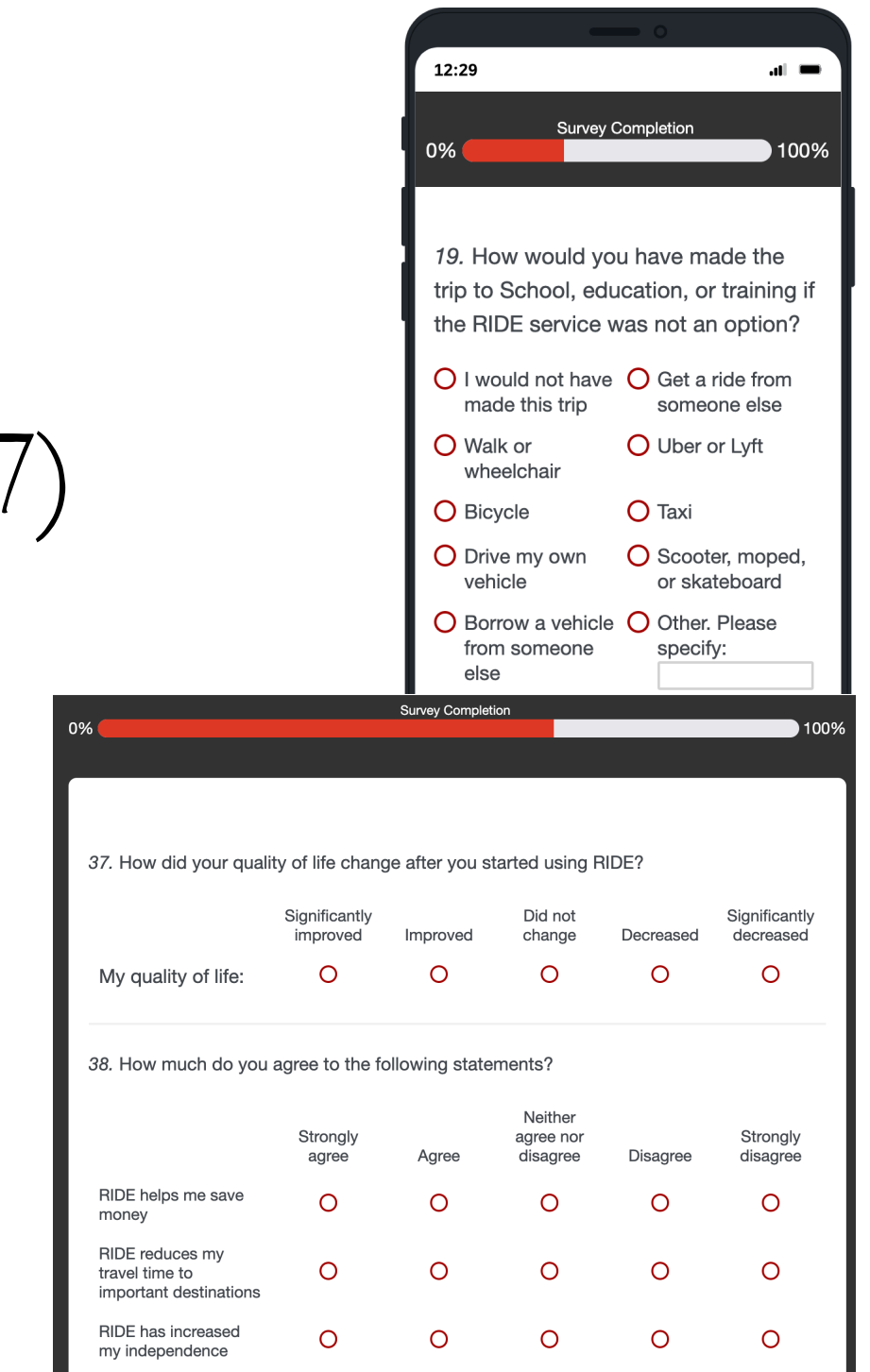
- Our research will lead to an improved public microtransit system, with fewer missed or delayed trips
- Our innovations will streamline reliable transportation for disadvantaged workers and students
- The prosocial acts will strengthen community membership



## Progress

### Understanding microtransit user preferences

- **Microtransit user surveys in Wilson, NC** (NC State eIRB #: 26737)
- Sociodemographics, frequency of use, satisfaction, challenges
- Trip purposes, flexibility of schedule, willingness to alter plans
- Willingness to walk to catch a ride, under which conditions
- Pre-scheduling vs. on-demand trip requests, stability of work/school schedule
- Analysis of survey data to inform the design of messaging strategies



### Transferability

- Survey and analysis of user preferences in **four more NC communities** located in various geographies and serving diverse populations



## Future Goals

- Focus groups to build prototype messages that make empathic suggestions.
- Design fleet optimization algorithms to accommodate **user spatial and temporal flexibility** and multiple objectives
- Develop AI agents that learn user preferences while trying to shift those preferences toward prosociality through effective **user interfaces**, persuasive messaging geared toward a **user's values**, and **social rewards**