

MOBILITY AS A SOCIAL SERVICE

Envisioning autonomous vehicles as
social service infrastructure

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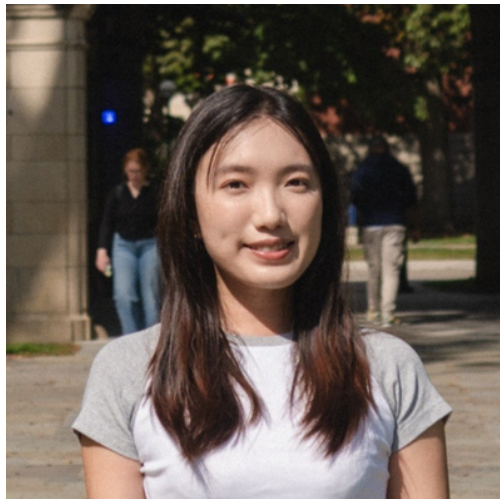
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PROBLEM SPACE

Food pantries offer essential resources, not just food assistance.
Many pantry users rely on food support but still face
hidden barriers to accessing broader social services.



Project Goal

**Explore the potential of AV implementation
in the space of food pantry**

RESEARCH

Key Questions

- Why do regular pantry visitors underutilize non-food support services?
- What challenges do pantry visitors face today, what social service needs do they have, and what do they hope for in the future?

Mix-Methods Research

1. AI Interviews (27 participants)
2. Sticker wall dot surveys (70+ Participants)
3. Insight Box focus group sessions (10 participants)

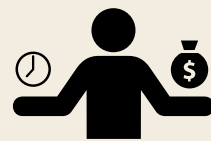
* Research was conducted at SECS, Hope food pantry, Ministries of Love

FINDINGS

12 Emerging Themes → Chosen Themes



Physical Mobility +
Age



Economic +
Time Poverty



No Transportation +
Distance

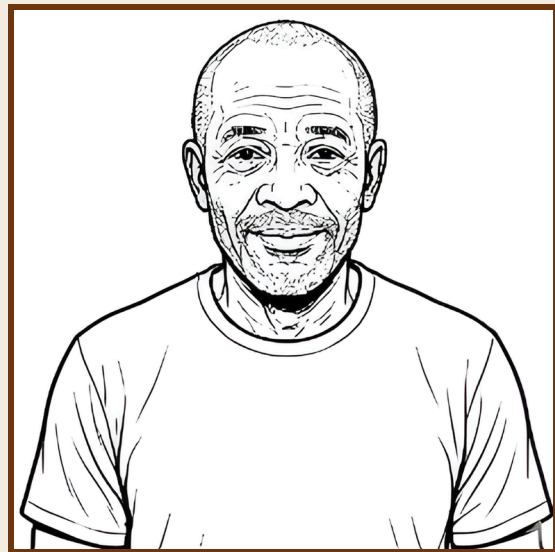


Vehicle Cost
Burden

5 Personas



Maya



Arthur



Maria



Joel



Sarah

CO-DESIGN: FROM PERSONAS TO SERVICE DIRECTIONS

Community Identified AV and Service Specific Design Directions

Not just a ride, but Co-ordination

Automate logistics
but protect human connection

Reach neighbors the system can't

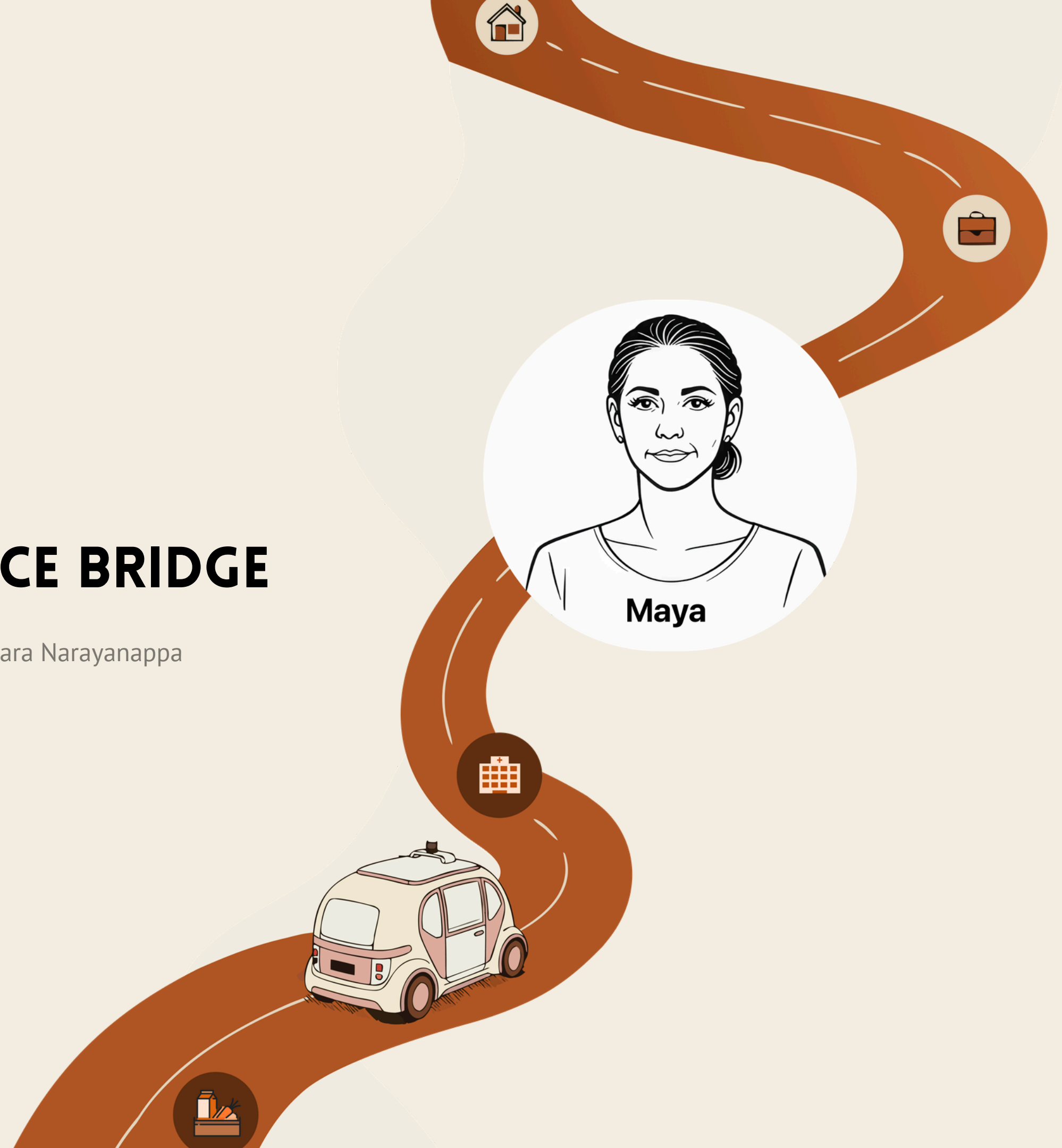
Service must adapt to the neighbor

3 Co design Workshops with **volunteers** and **community stakeholders** and **project team**, where participants mapped out the system, identified and solved challenges for chosen persona, build and evaluate AV solutions

SOLUTION 1

ON-DEMAND AV AS A SERVICE BRIDGE

Team: Aditya Naik, Amy Hsieh, Crystal Habib, Pinyun Wang, Shashidhara Narayanappa



SOLUTION 1: ON-DEMAND AV AS A SERVICE BRIDGE



Maya

A single parent to one young child and a caregiver for her aging mother, she walks to pantry every week to feed her family.

Her Challenges

Schedule alignment

Bus to pantry is not an option

Weather makes walk harder

She can only carry so much



Access to Pantry Services

Sustenance

Stability / Autonomy

Growth

Food and
Basic Needs

Housing

Transportation

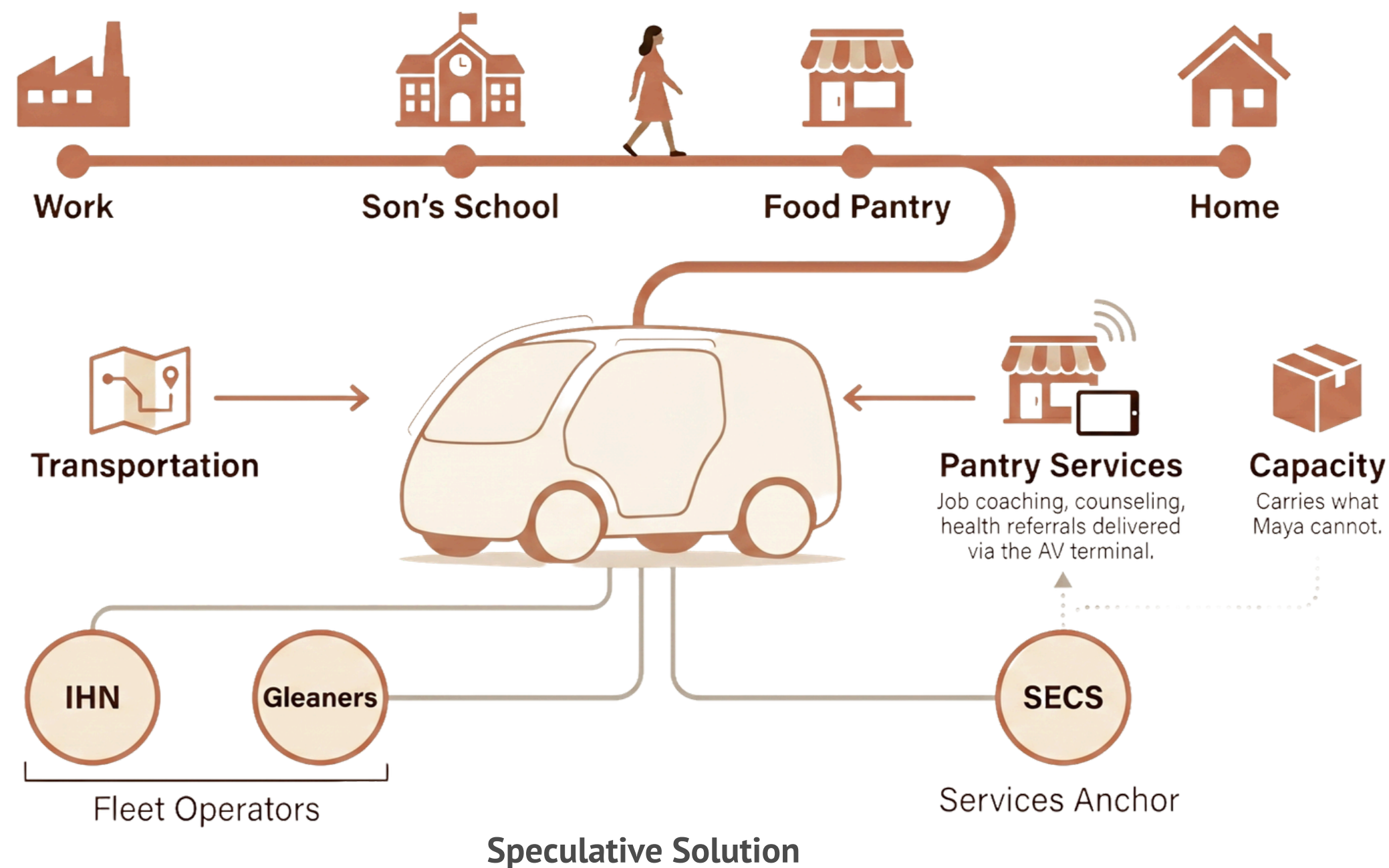
Self Care

Personal
Growth



Maya's life expectations

SOLUTION 1: ON-DEMAND AV AS A SERVICE BRIDGE



Potential Impact

For Maya

- Reduced time to pantry
- More flexible routes
- Additional carrying capacity
- Environment to access pantry services

For Pantry

- Reach More People
- Increased food distribution efficiency
- Medium to extend other services

SOLUTION 1: ON-DEMAND AV AS A SERVICE BRIDGE



Maya's Journey: Interactive Narrative



See the Full Story

<https://mobility-as-social-service.vercel.app/>

SOLUTION 2 - ARTHUR

VOLUNTEER-PAIRED AV AS A NEIGHBOR SERVICE

Team: Crystal Habib, Saanvi Naik, Mariya Chitalwala

THE REALITY OF OUR FINDINGS

Fixed-income older adults face physical, financial, and logistical barriers.

The human connection needs to be preserved

The food pantry is a vital hub for connection, resources, and community for **both** pantry users AND volunteers

THE SOLUTION

Preserve **social connection** while removing barriers through **Mobility as a Social Service (MaSS)**.

MEET ARTHUR

His is 68 years old

Relies on his neighbor for rides

Retired, 40 years of maintenance work

Living on a fixed income

Bad hips make stairs difficult

Lives alone on the 3rd floor

He feels like a burden to others



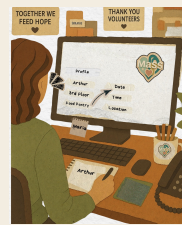
SOLUTION CONCEPT: VOLUNTEER-PAIRED AV AS A NEIGHBOR SERVICE

PANTRY → AV (WITH VOLUNTEER ONBOARD) → VOLUNTEER HANDOFF AT DOOR → FOLLOW-UP LOOP





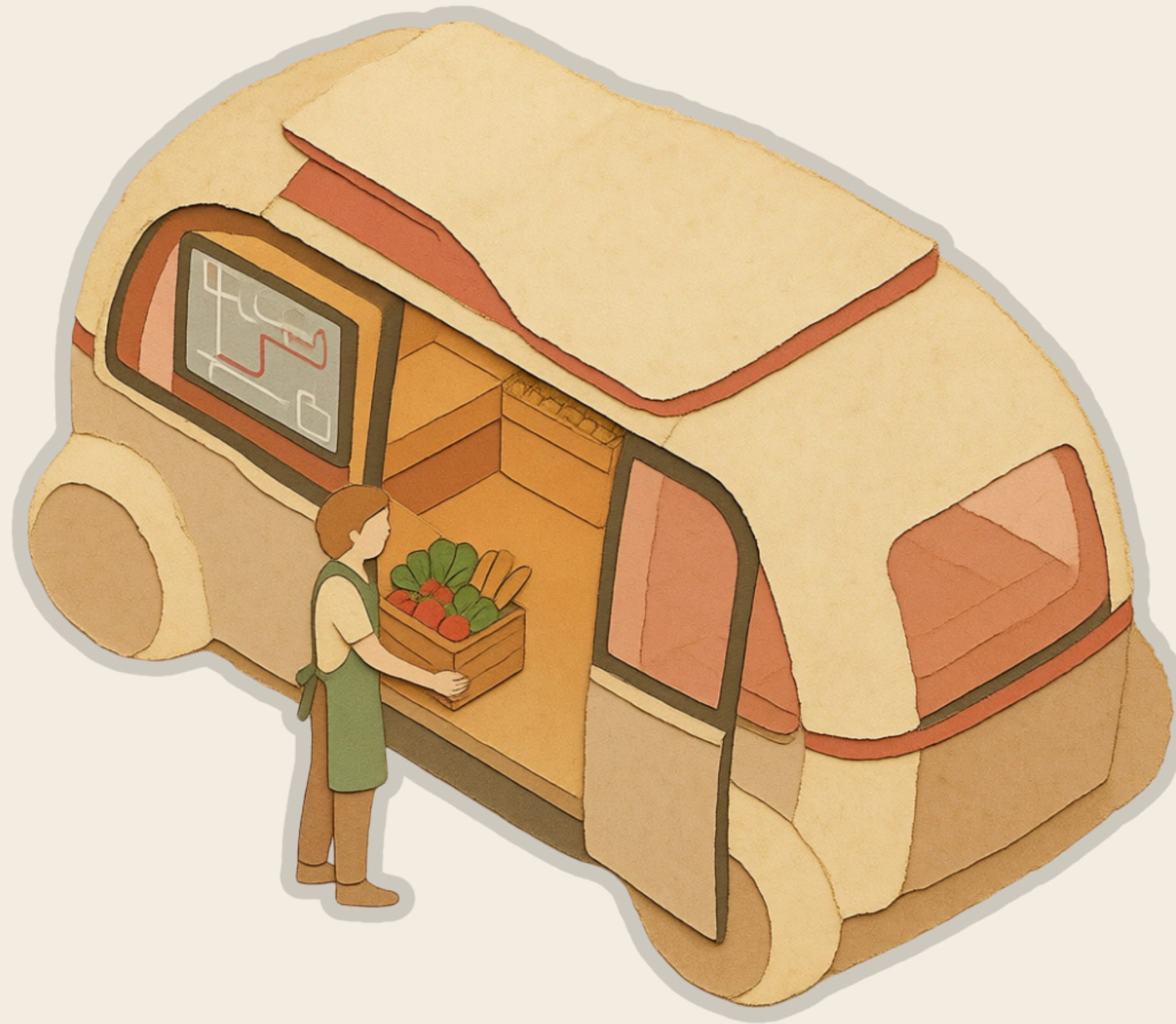
Outreach & pamphlet: checklist makes calls easier.



Intake call with Maria: stores preferences for personalized packing.



Packing at pantry: packing coordinator personalizes the box.



AV en route with volunteer onboard + notifications: volunteer monitors arrivals, reduces anxiety, and can buzz buildings.



Doorstep handoff: volunteer carries bag, stays 2–3 minutes – the essential social moment and safety check.



If no volunteer can't stay: volunteer leaves note and completes same-day follow-up call.



Next-day follow-up: captures sentiment and updates preferences.

SOLUTION **BENEFITS**

How a volunteer-paired AV solves the last mile

Supporting volunteer motivation & community value

Operational **enablers**



“They brought the food and stayed to chat. I felt seen.”

WITH AVS AND VOLUNTEERS TOGETHER WE NOT ONLY DELIVER FOOD – WE DELIVER DIGNITY.

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