

NAVICANE

PITCH DECK

JUNE 2025



ROADMAP

01

About Our Team
and Product

02

Customers
and Financials

03

Current Market
and Competition

04

Technology Demo

05

Implementation

01

About Our Team and Product

MEET OUR TEAM

Neha Nepal



CEO & Founder

Soniya Patel



CFO

Haley Spence



CMO

Desiree Garcia



COO

Kevin Lucio



COE

Nikhil Kapasi



CTO

THE INSPIRATION

1 OUT OF 9

People aged 60 and above are blind/have MSVI

1 OUT OF 3

People aged 80 and above are blind/have MSVI

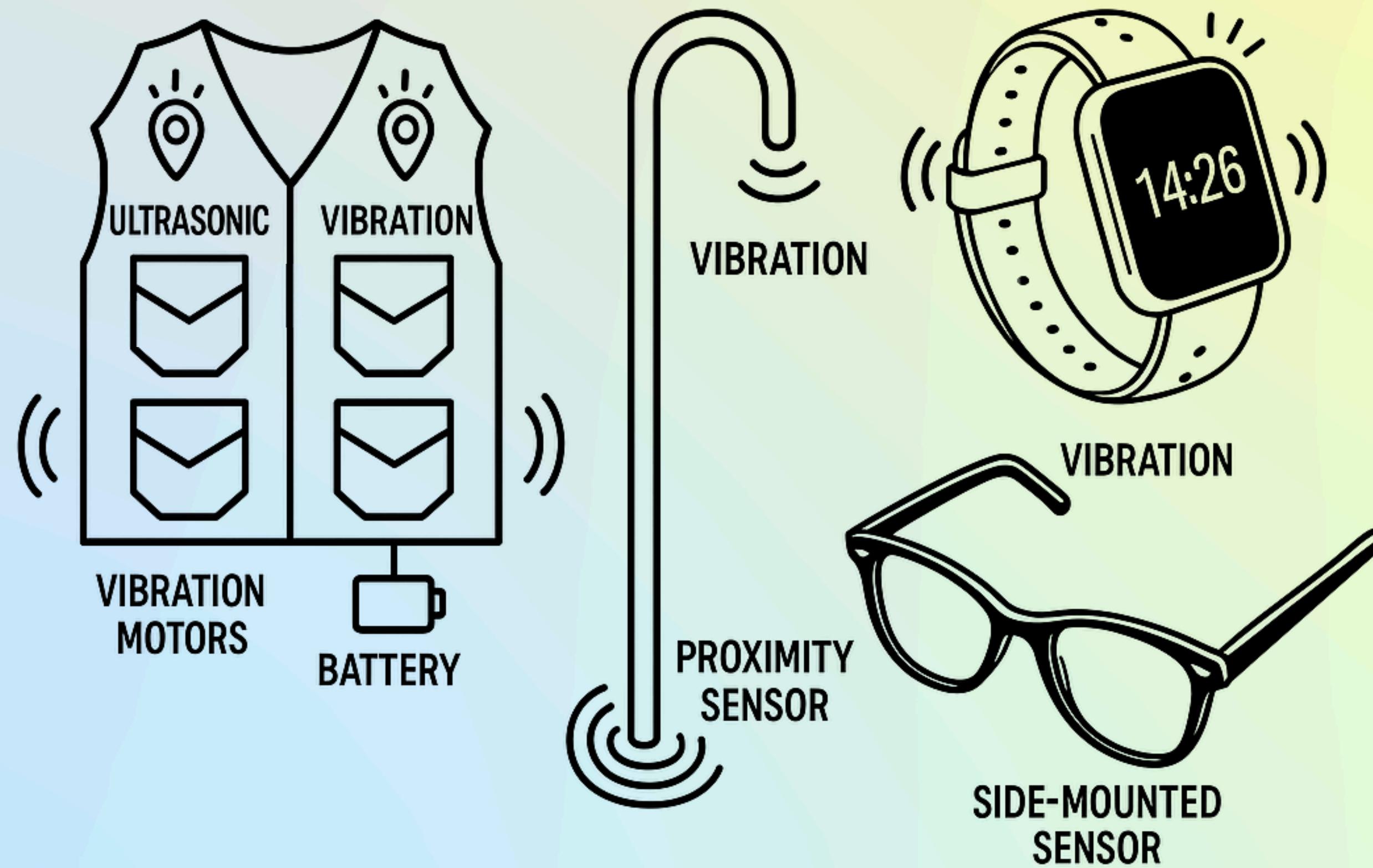
\$50,000

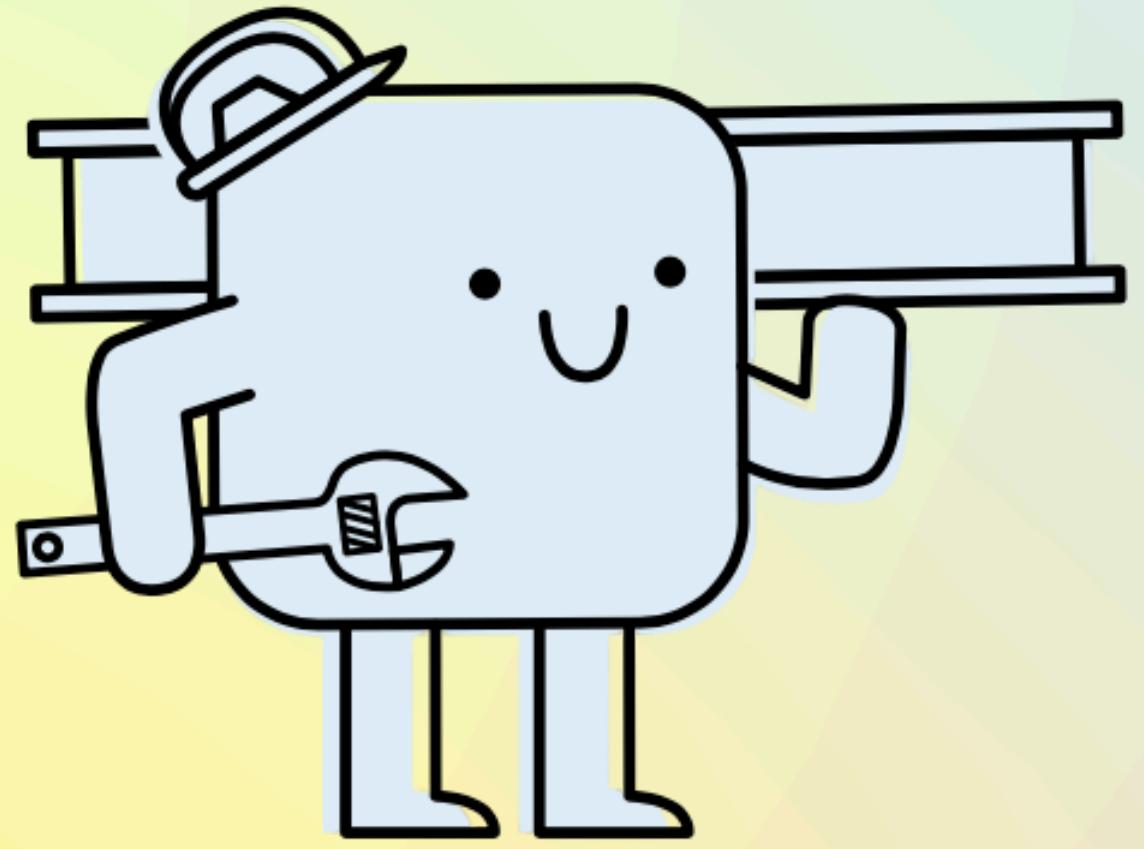
Average cost of a guide dog

4 FEET

Range of an average cane

PROTOTYPES





INTERVIEWS

Braille Institute

Gain insight on how they operate and what services they offer

UCSB Mechanical Engineers

Understand design challenges and motivations for our product

Professor Ahuja

First person perspective on navigating while blind

WHY THE CANE?

Adoption

Users are already familiar
with the product

Better Design

Easier to engineer, less
intrusive to the user

Convenience

Lighter, less expensive and
easier to maintain



WHAT WE PROVIDE

01

Intuitive Feedback

Audio and haptics keep users connected – eyes-free.

02

Safety Beyond the Ground

Multi-level obstacle detection prevents head-level accidents.

03

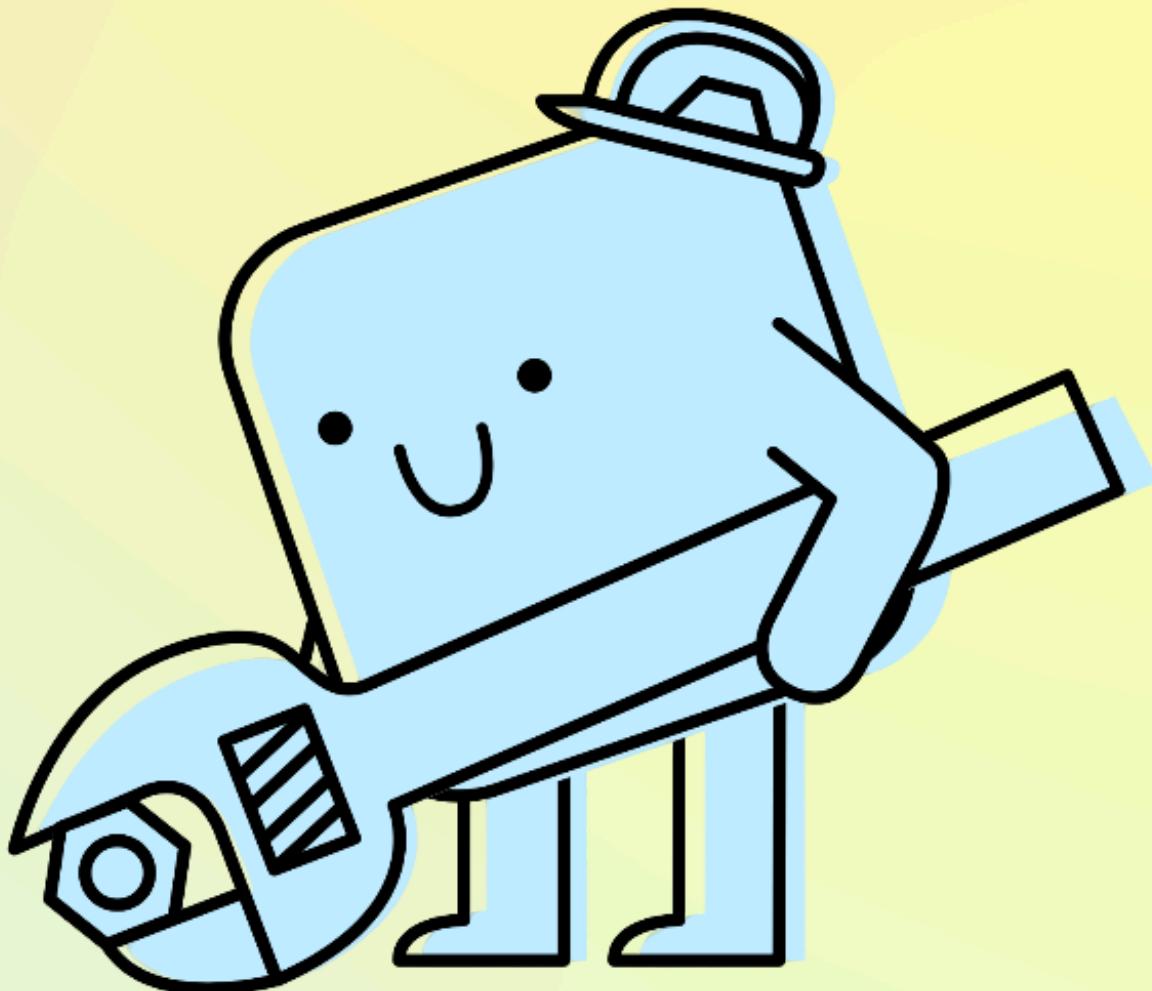
Familiar, Yet Revolutionary

Smart tech embedded in the trusted cane format.

04

Holistic Impact

Boosts independence, confidence, and participation in daily life.



WHAT'S DIFFERENT?

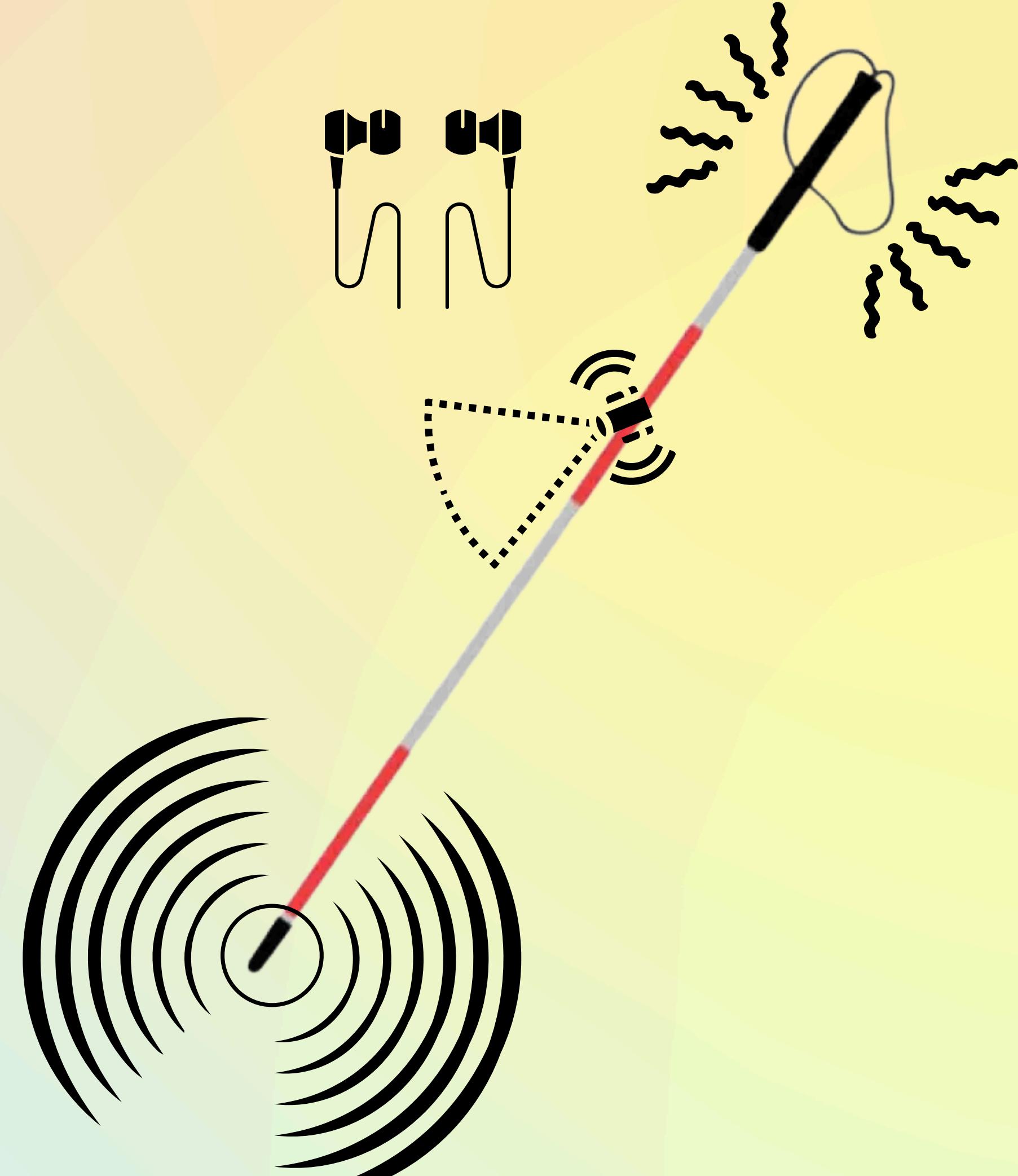
Sensor Fusion

Technology (NEW IP)

Combining data from multiple sensors to
provide non-visual feedback

Modularity

Allow the user to select how to receive non-
visual feedback

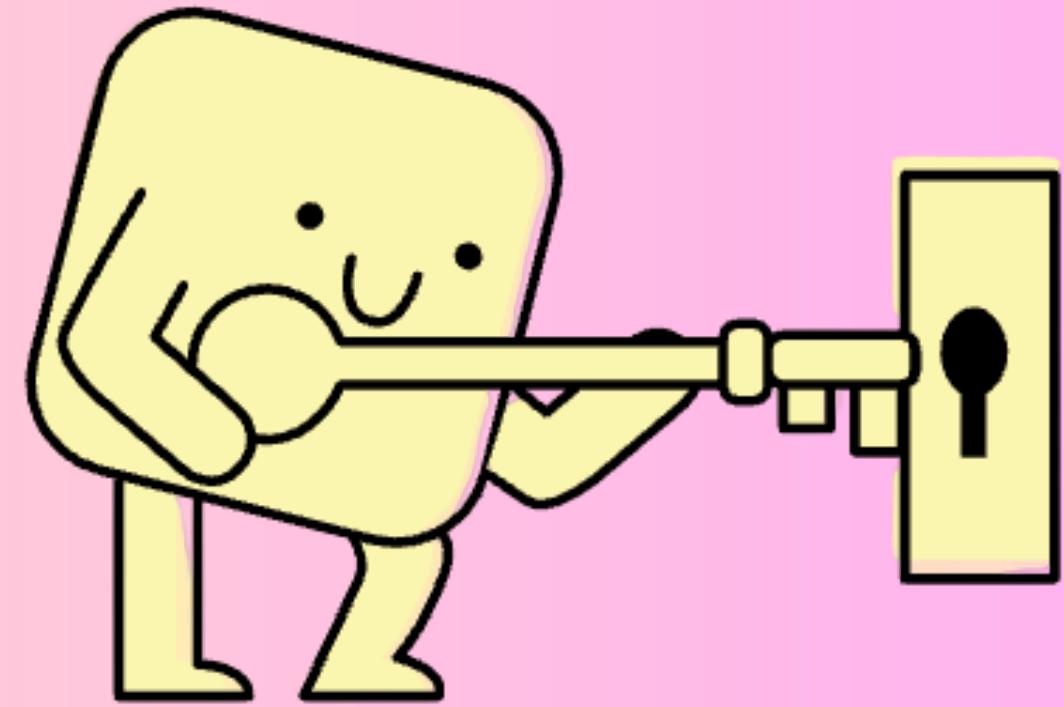


02

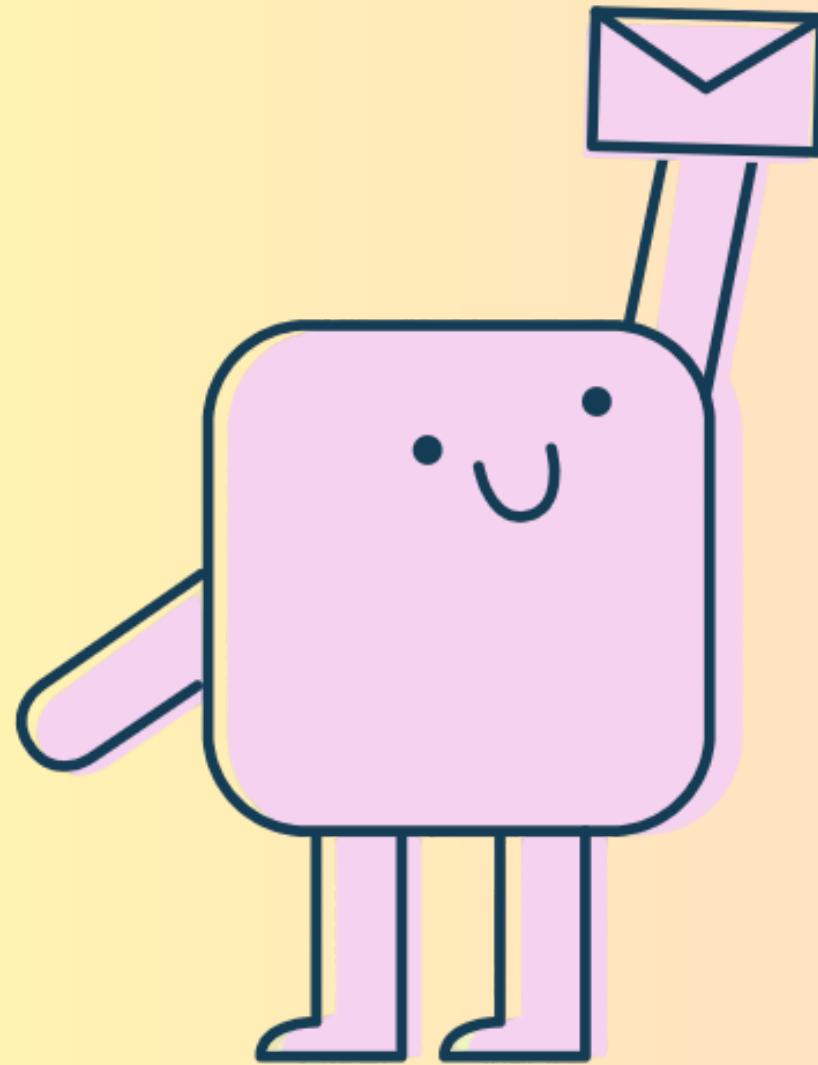
Customers and Financials

TARGET MARKET

- Visually Impaired/Blind Individuals
- Family Members/Caregivers of Visually Impaired Individuals
- Specific Organizations

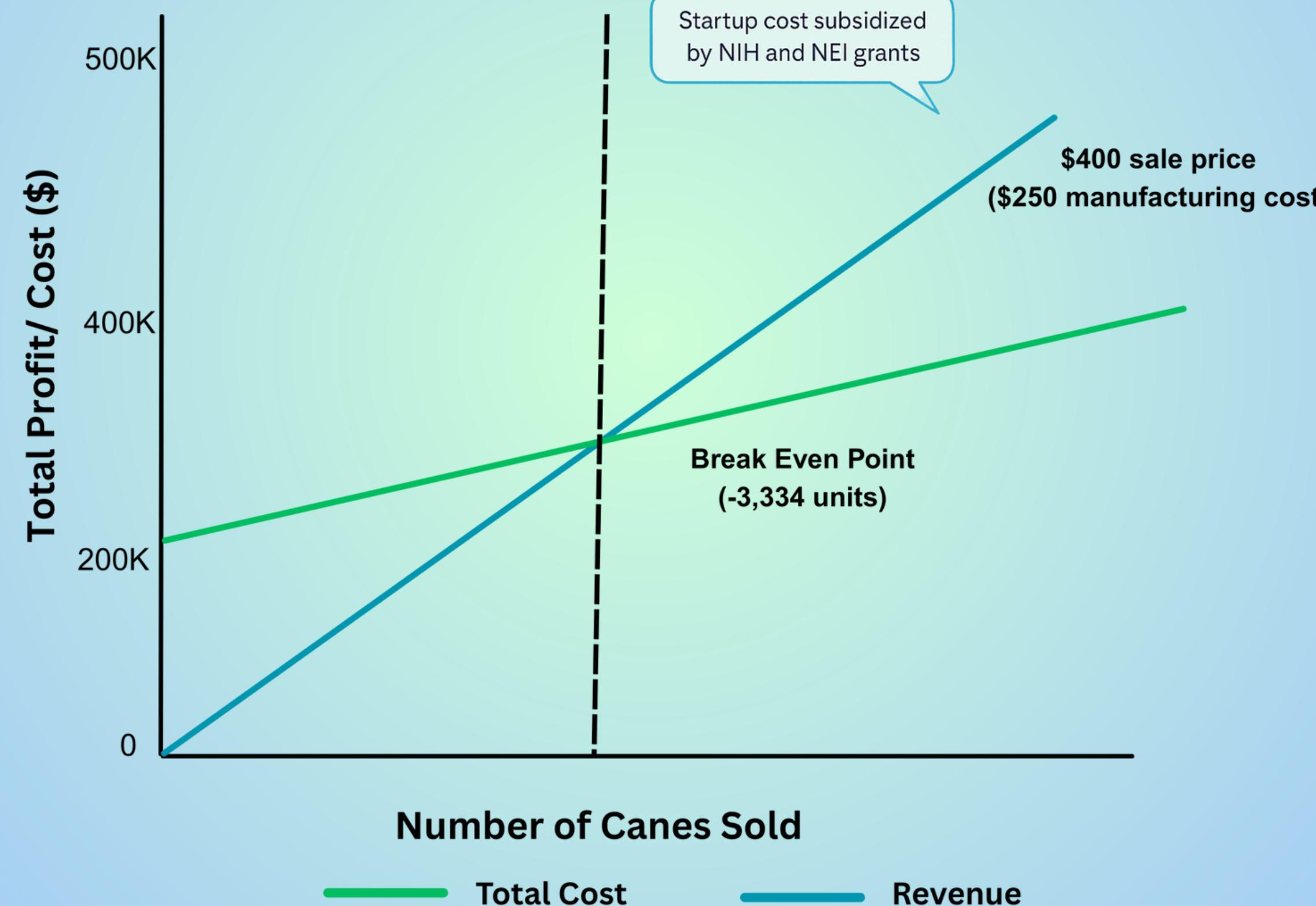


REACHING OUR CONSUMER



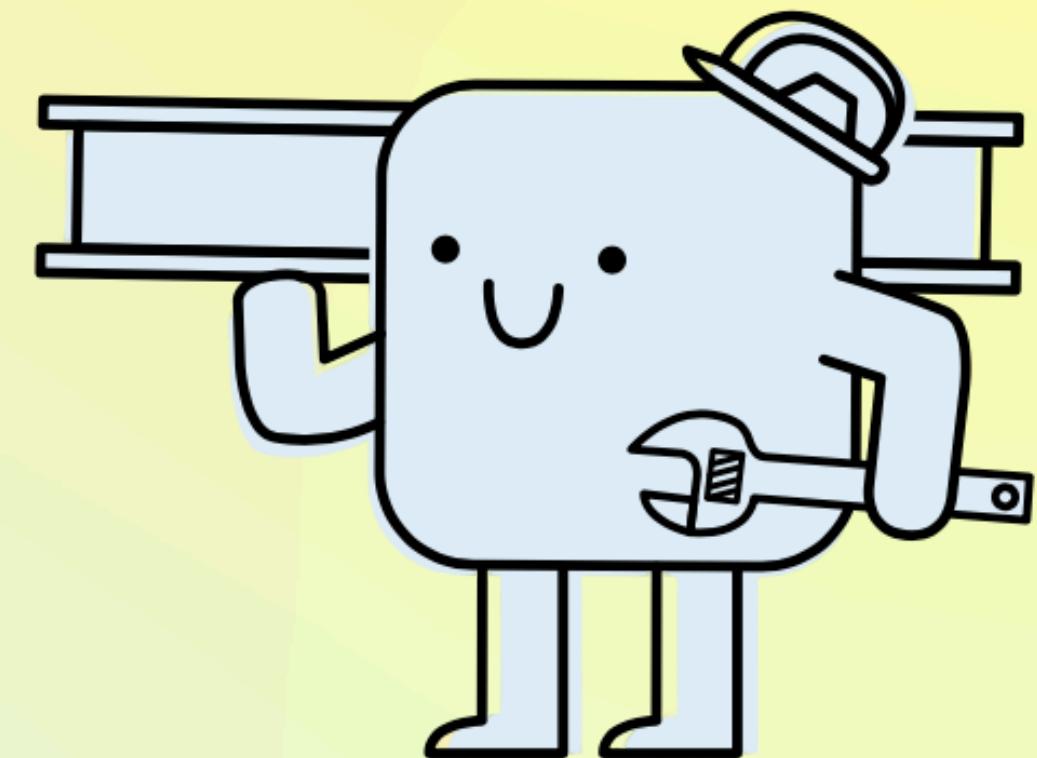
- Partner with organizations (Braille Institute of SB)
- Getting HSA/FSA approval
- ADA recommendation lists

ESTIMATED COST AND BREAK-EVEN ANALYSIS

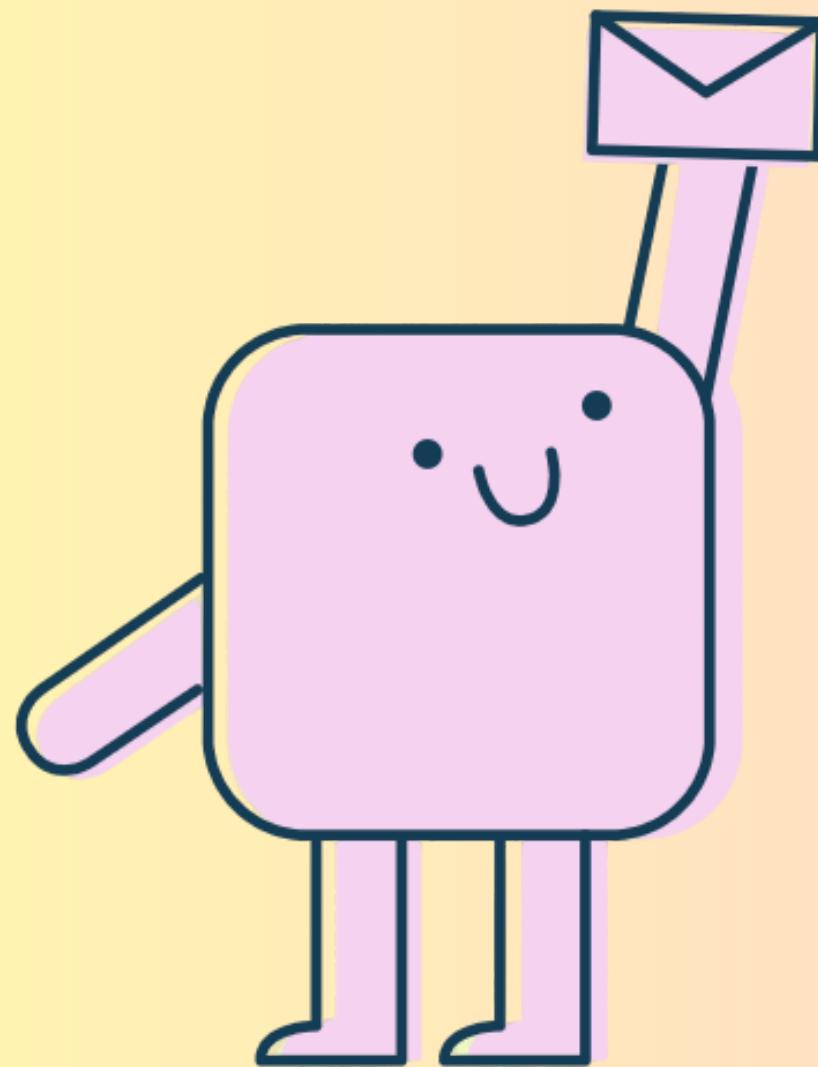


R&D

- Subsidized by grants from the National Eye Institute and NIH Small Business and Tech grants
 - Phase I: Concept Feasibility
 - ~\$300,000
 - Phase II: R&D
 - ~\$1.7 M



PRICE PER CANE TO CONSUMER



- Halving the cost of other technology-enabled canes
- Subsidized for consumers by the ADA and insurance providers

03

Current Market and Competition

COMPETITIVE ANALYSIS

WEWALK

Multimodal navigation with turn-by-turn directions
\$850-1150



STRAP ARA

Wearable mobility aid with haptic feedback
\$1700



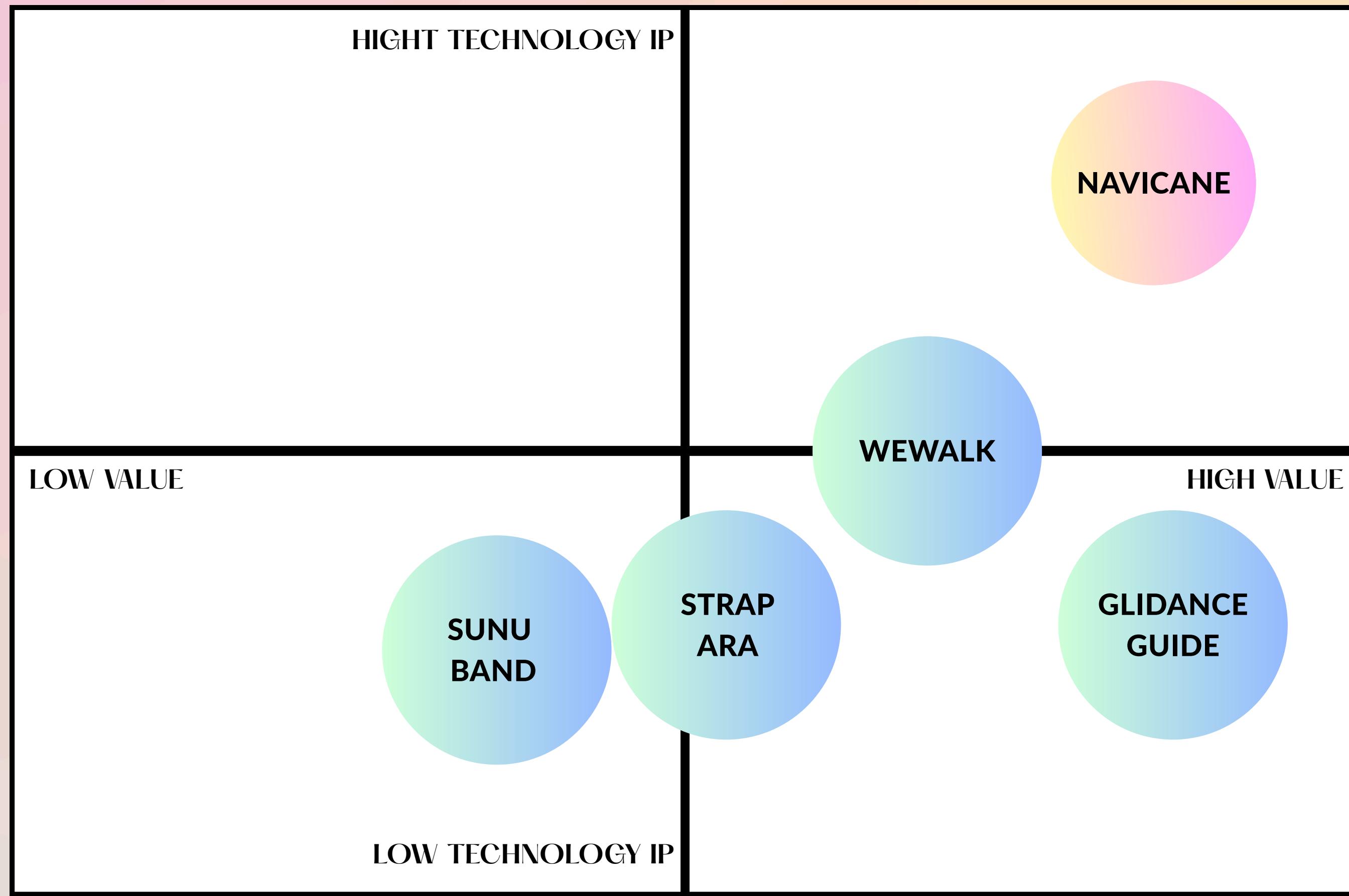
SUNU BAND

Sonar-Based Obstacle Detection with gesture based control
\$299

GLIDANCE GUIDE

Self-Guided Navigation
\$1199 (\$30 subscription)

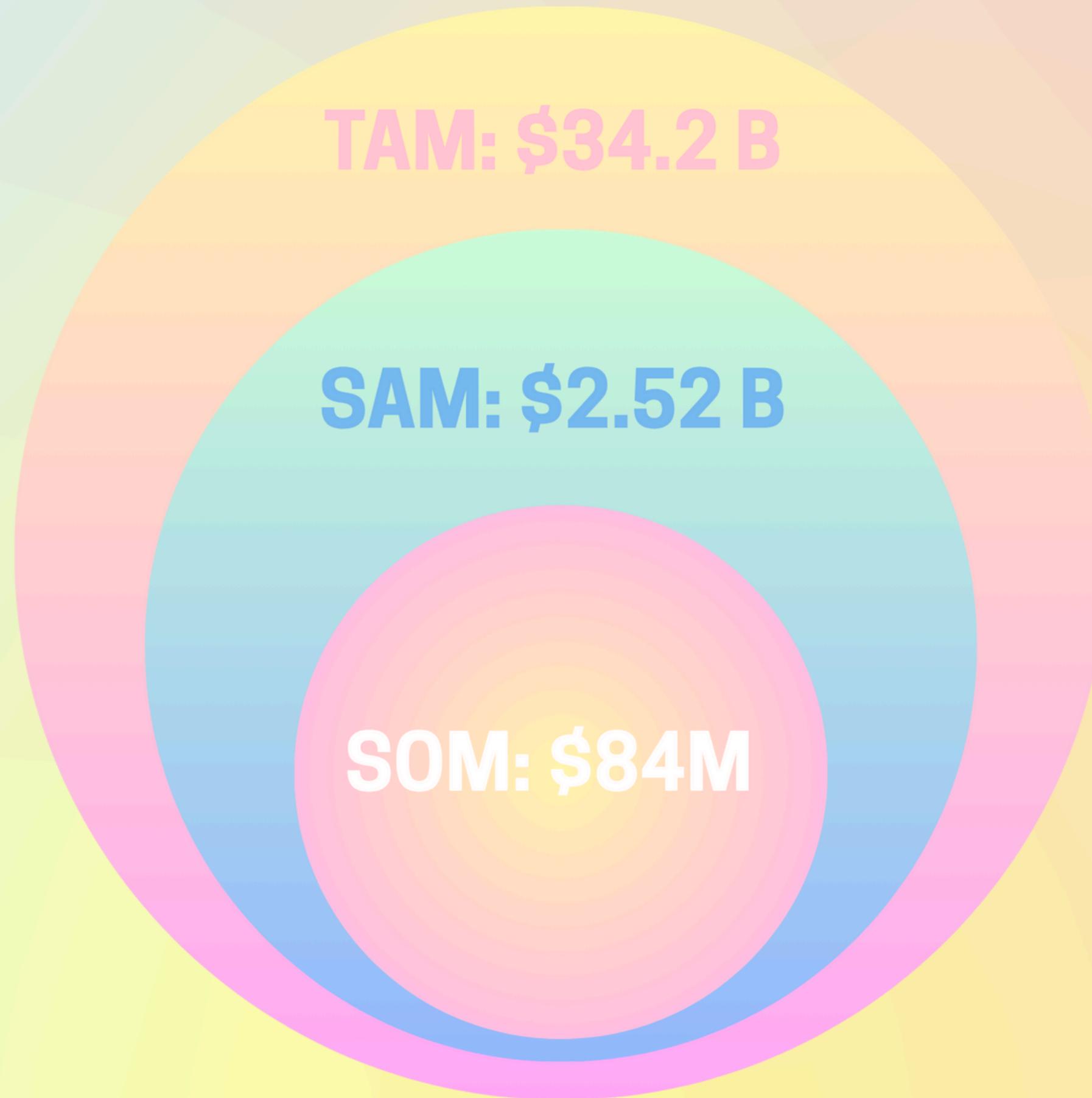
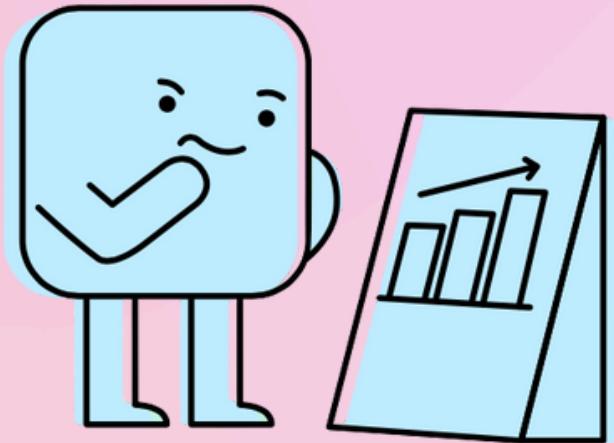
COMPETITIVE MATRIX



COMPARISON MATRIX

| Feature | NaviCane Projected | WeWALK Smart Cane 2 | Glidance Glide | Strap Ara | Sunu Band | Traditional White Cane |
|--------------------------------|--------------------|---------------------|----------------|-----------|-----------|------------------------|
| Head-Level Detect | X | X | X | X | | |
| Drop-Off Detection | X | | X | X | | |
| Outdoor Navigation | X | X | X | | X | |
| Indoor Navigation | X | | X | | | |
| Object Recognition (AI) | X | | X | | | |

MARKET CAPTURE



Growth Driven By:

- Aging population
- Accessibility laws
- Tech advancements
- Cultural shift towards inclusion
- Increased funding & innovation

04

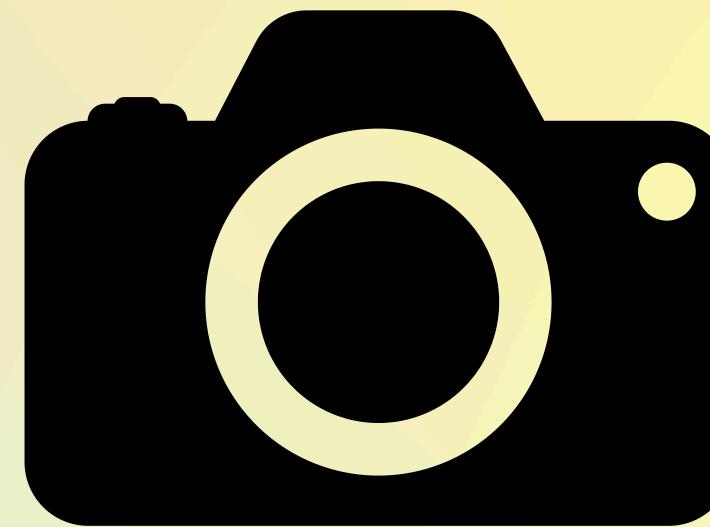
Technology Demo

SOFTWARE PROTOTYPE

IPHONE SENSOR ARRAY



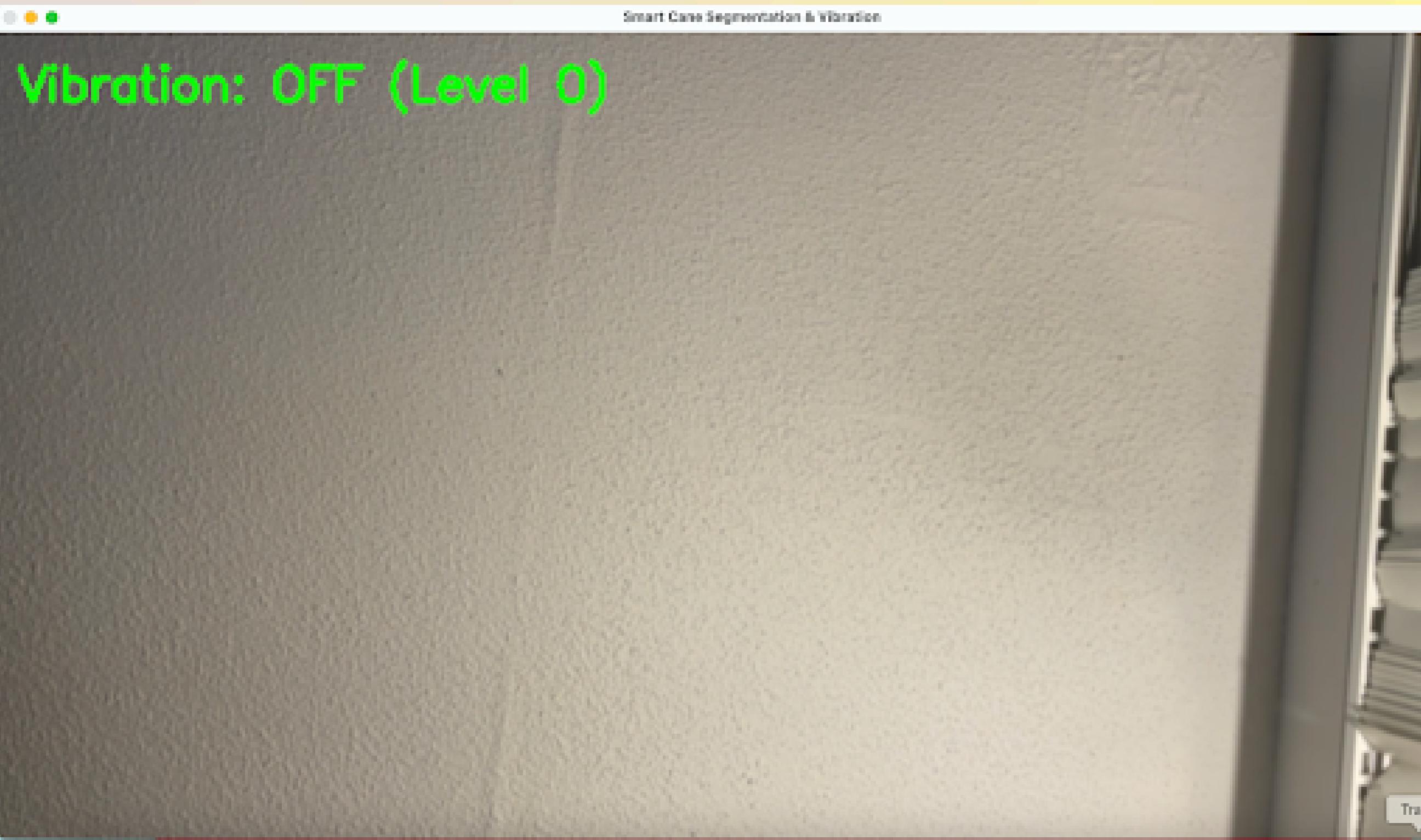
LiDAR



Camera

Camera-Lidar Fusion Demo

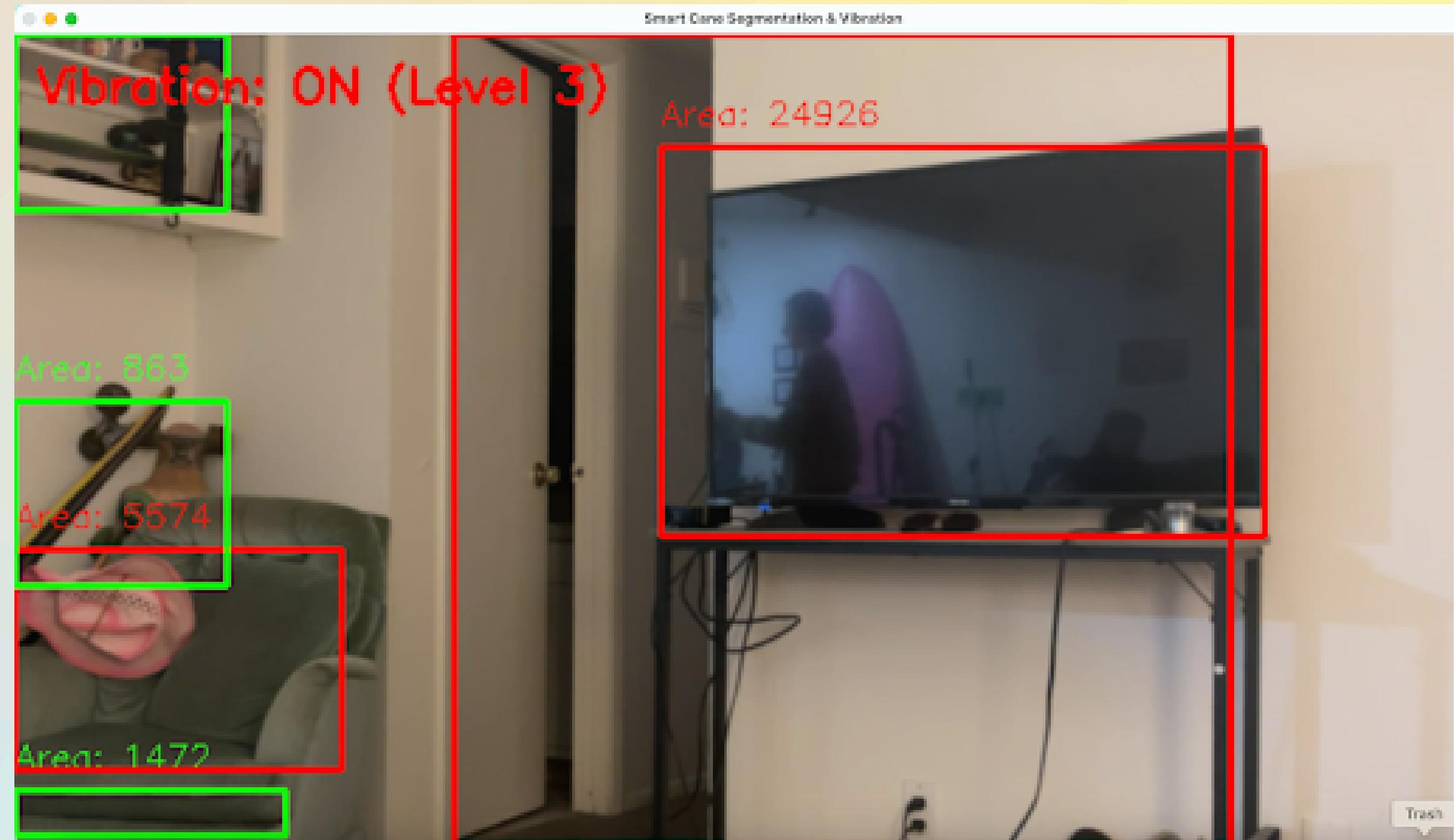
VIBRATION OFF: NO DANGER



Camera-Lidar Fusion Demo

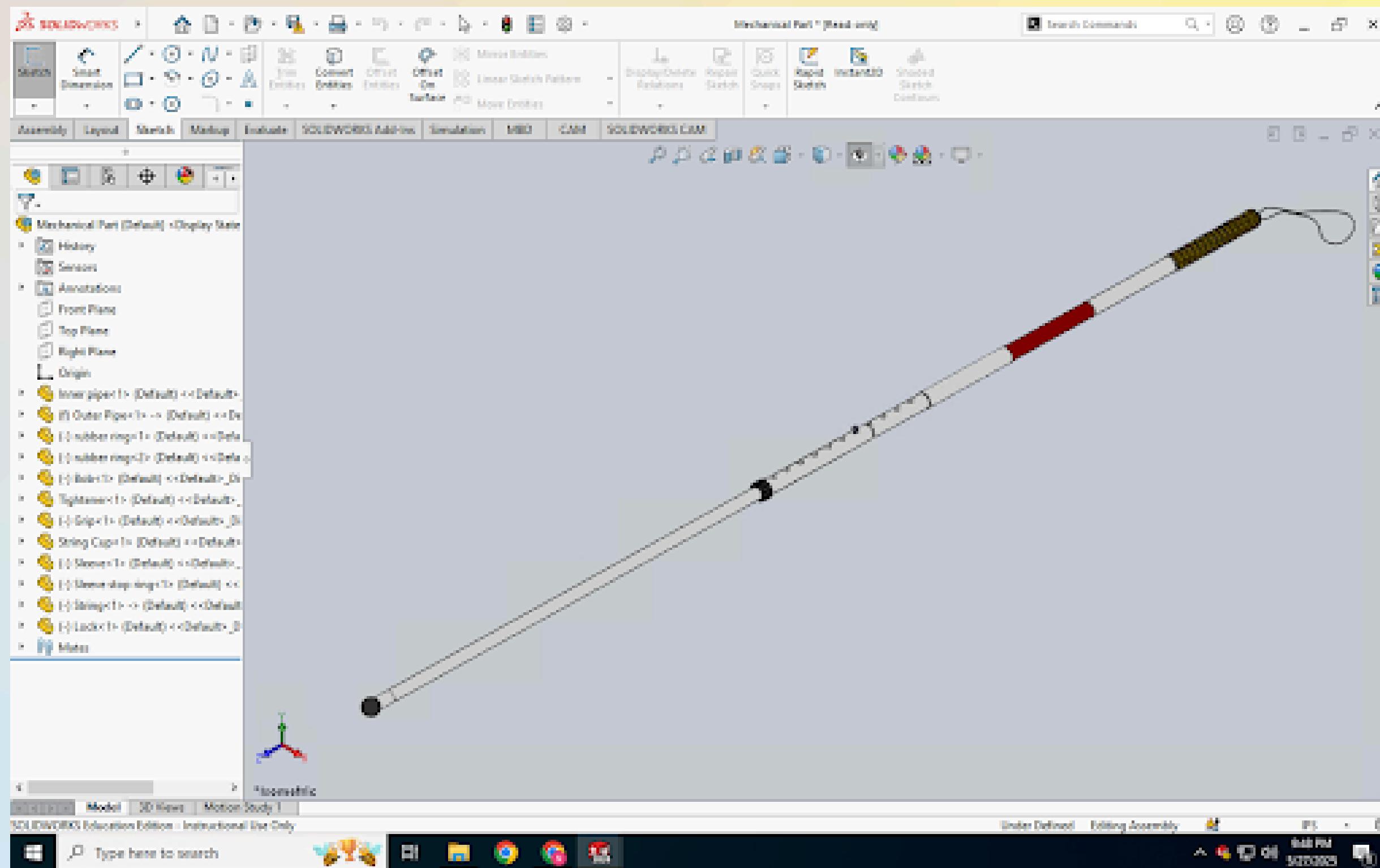
VIBRATION ON: DANGER

SAFE
DANGER



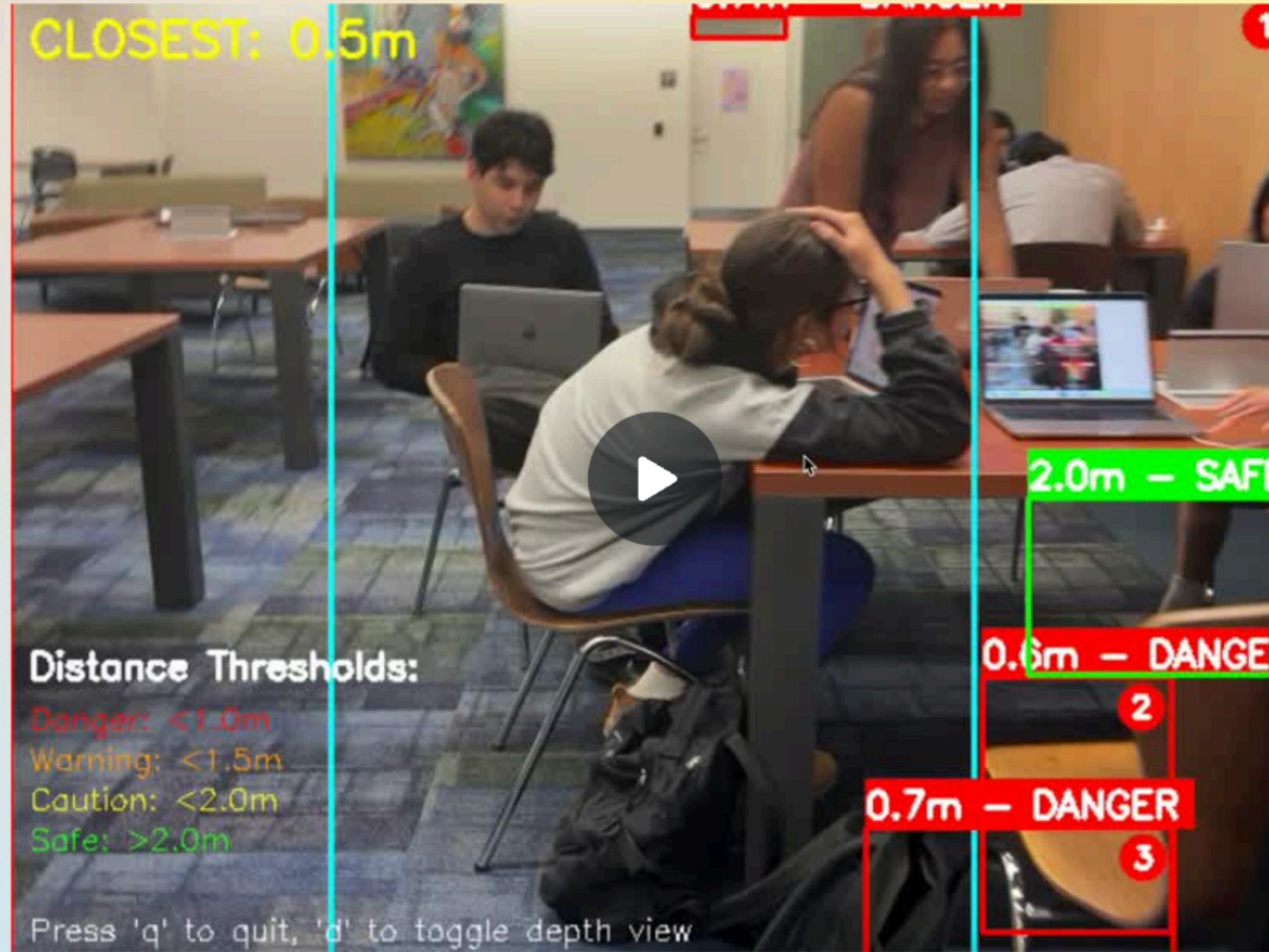
HARDWARE PROTOTYPE

CAD CANE



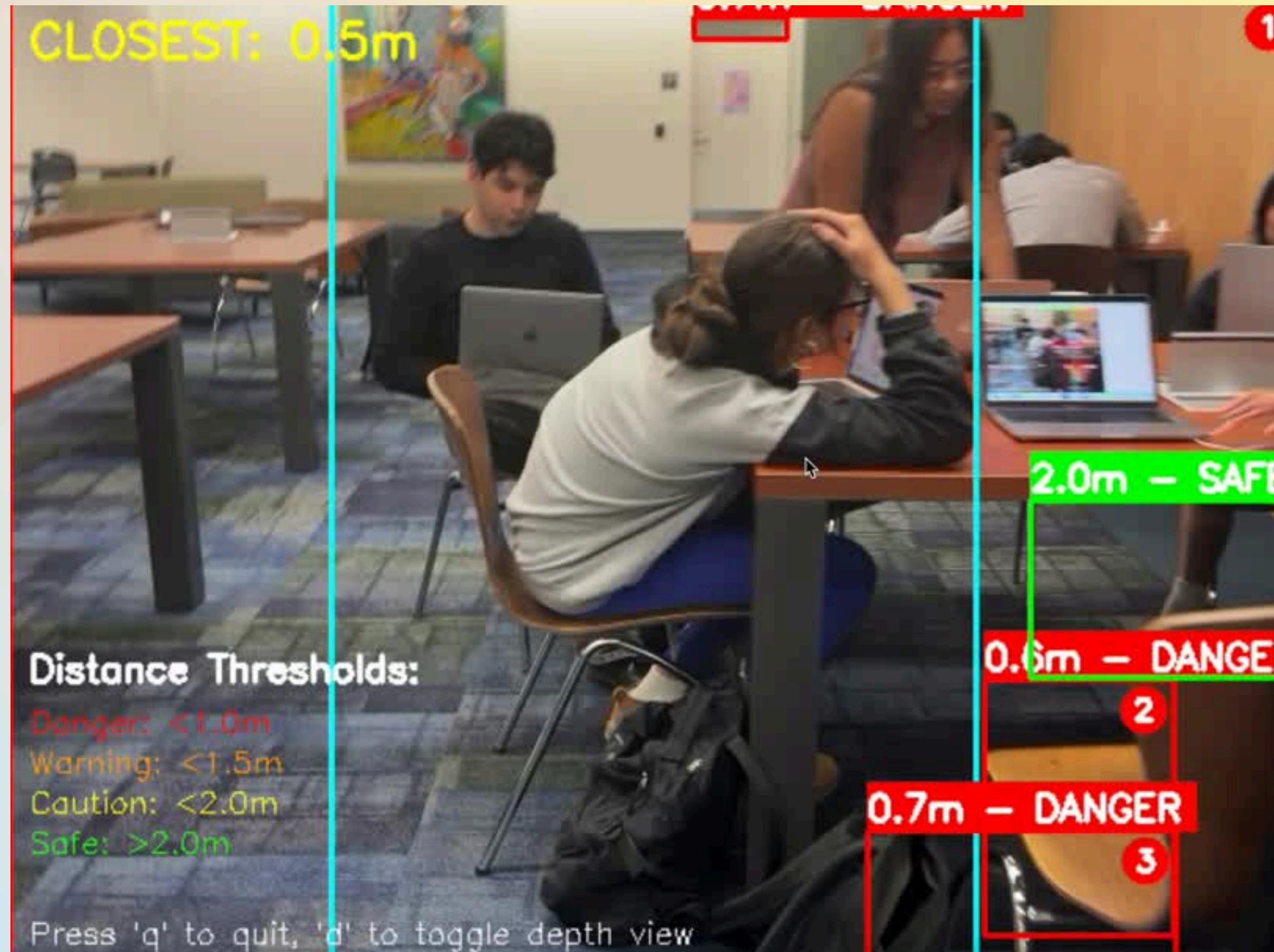
VIDEO DEMO

CAMERA BASED DISTANCE SENSING



VIDEO DEMO

CAMERA BASED DISTANCE SENSING

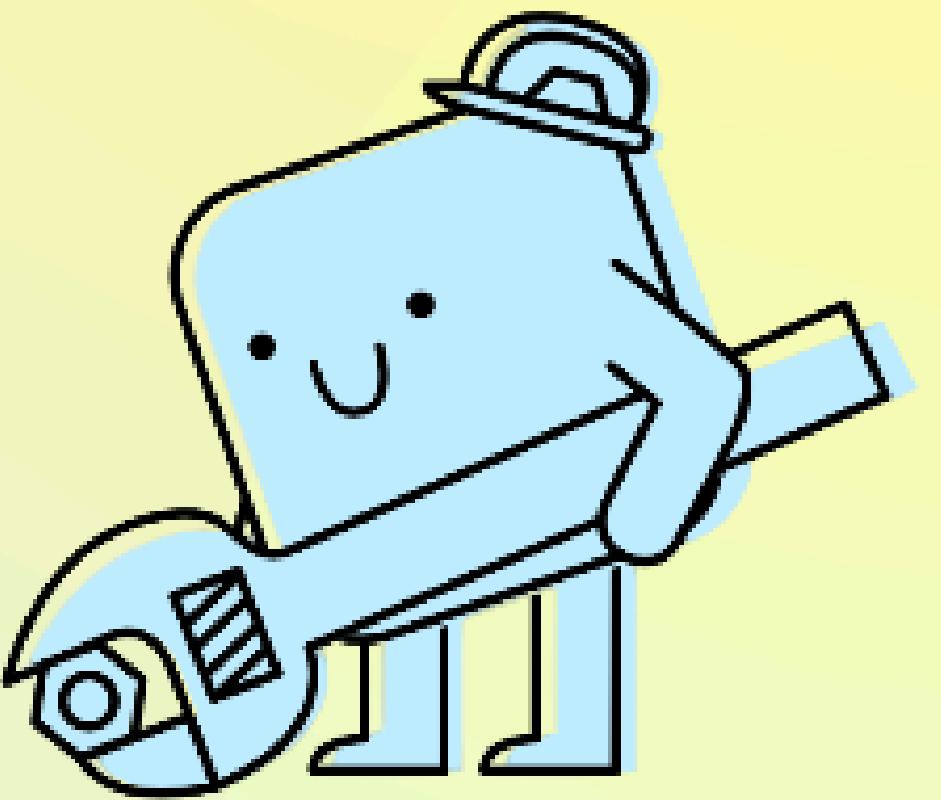


05

Implementation

DEVELOPMENT

- Build rapid prototypes for initial testing (~1 month)
- Refine through collaboration and testing with local groups (e.g., Braille Institute)
- Conduct beta testing via National Federation of the Blind before launch



MANUFACTURING

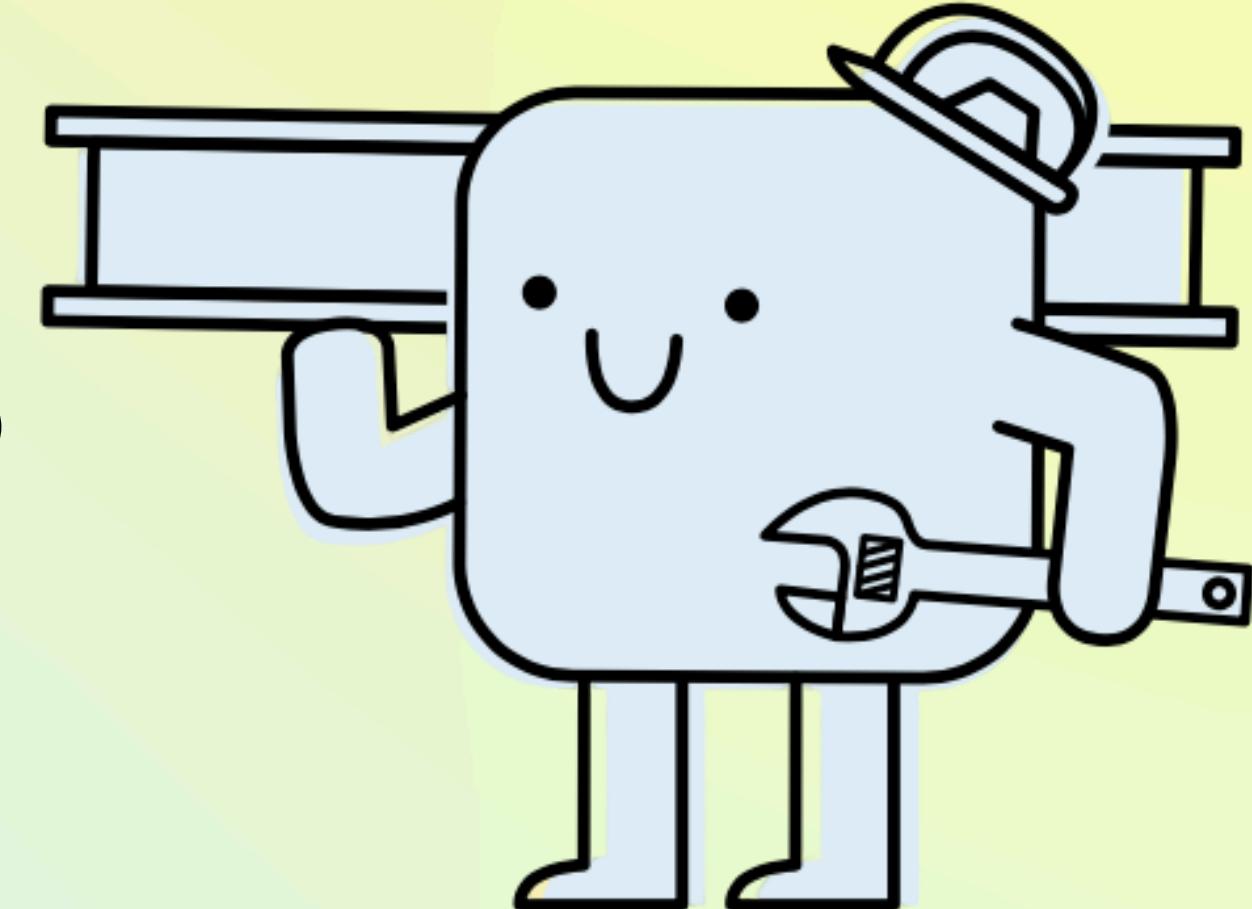
- Work with cane manufacturers to augment design
- Prioritize quality sensors over quantity
 - \$3.95 each from Adafruit; 20% off for 100+ units

PARTNERSHIPS

- Institutes that work with the blind (NFB, Braille Institute of Santa Barbara)
- Cane manufacturers

IP PROTECTION

- File provisional patents (e.g., algorithms, vSLAM integration, hardware)
- Transition provisional filings to full utility patents within 12 months
- Register “NaviCane” name and logo to protect brand identity.

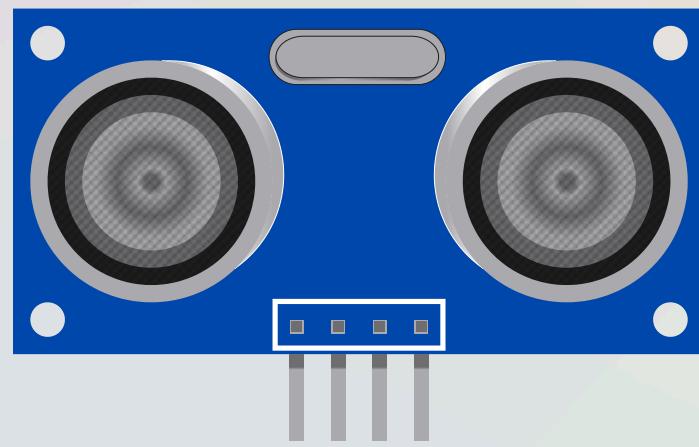


THANK YOU!

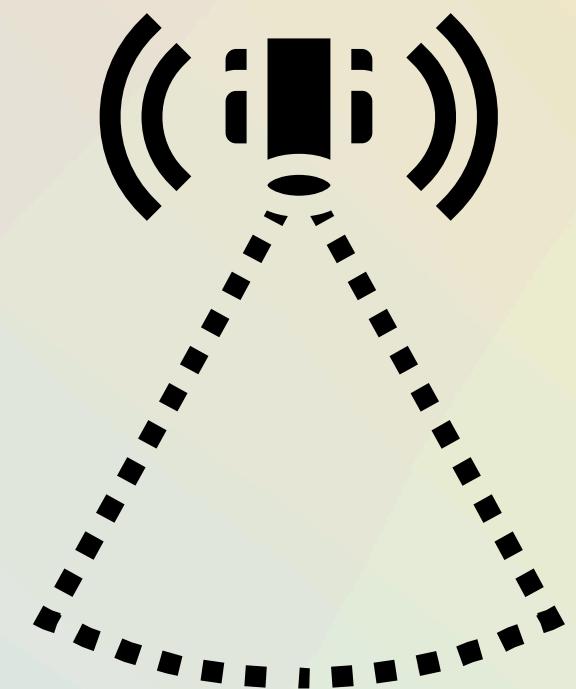
Questions?

TECH APPENDIX A

SENSOR ARRAY



Ultrasonic



LiDAR



Sound

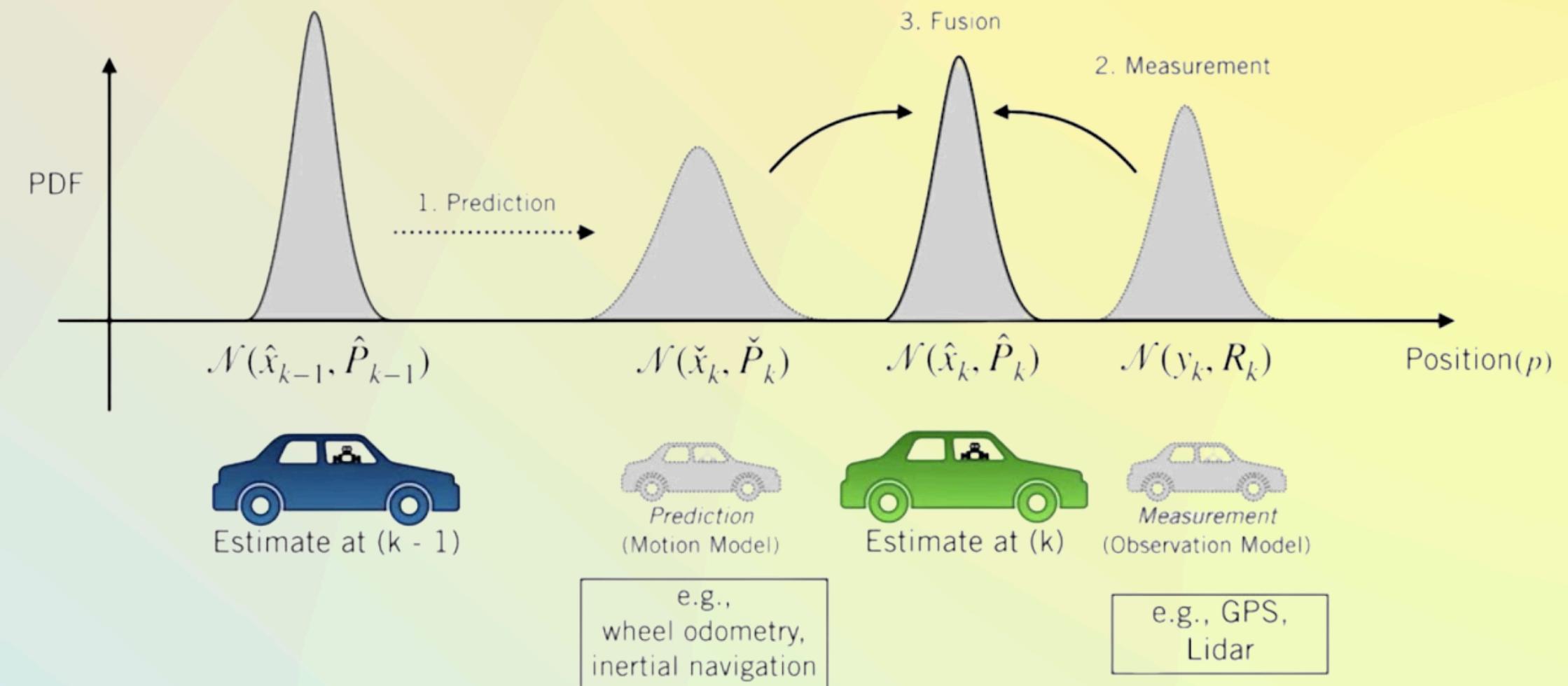
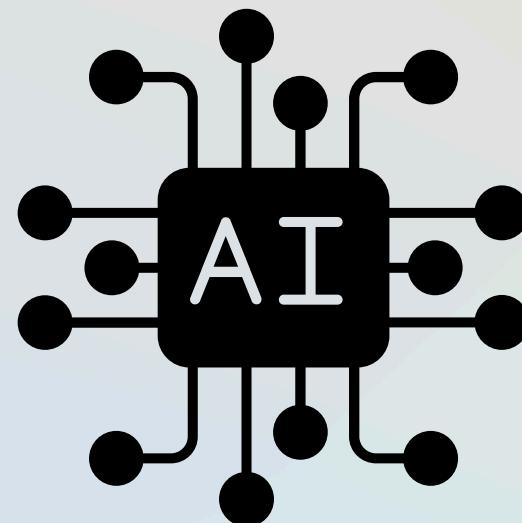


Camera

TECH APPENDIX B

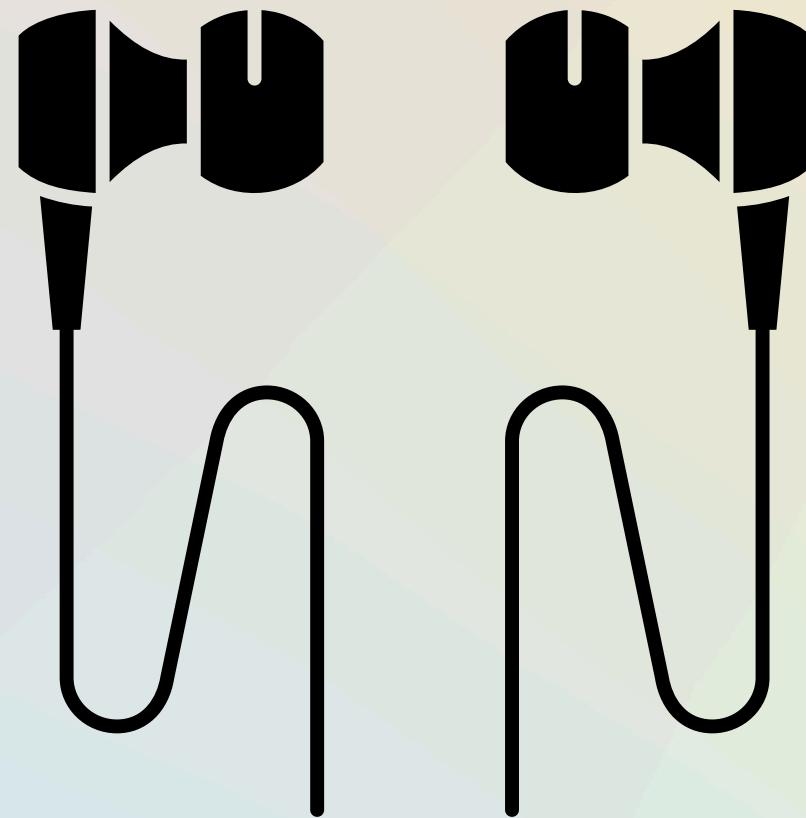
SENSOR FUSION

The Kalman Filter | Prediction and Correction

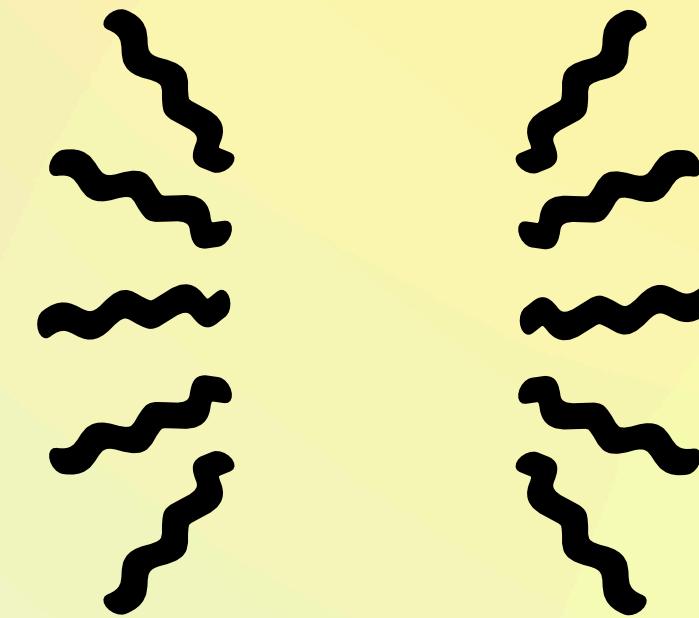


TECH APPENDIX C

NON-VISUAL FEEDBACK



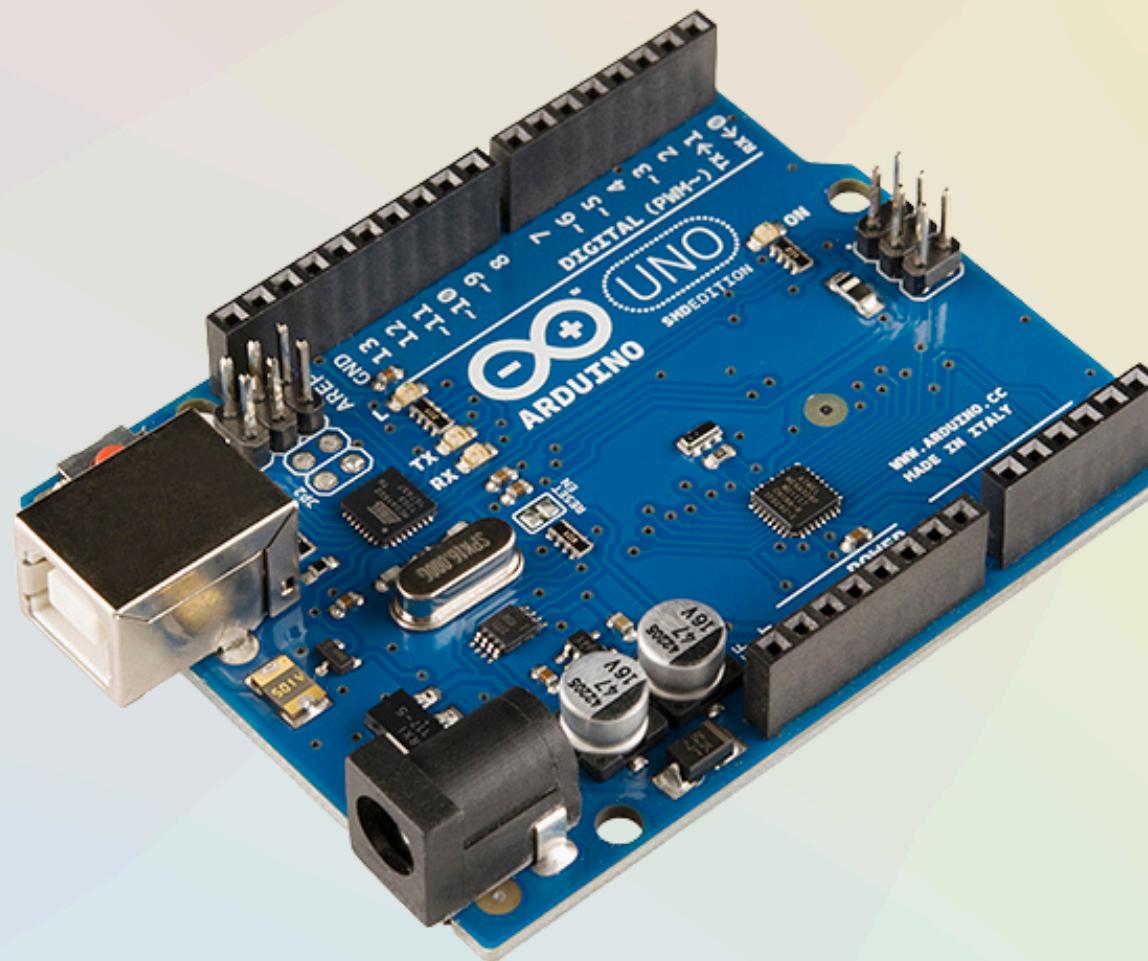
Audio



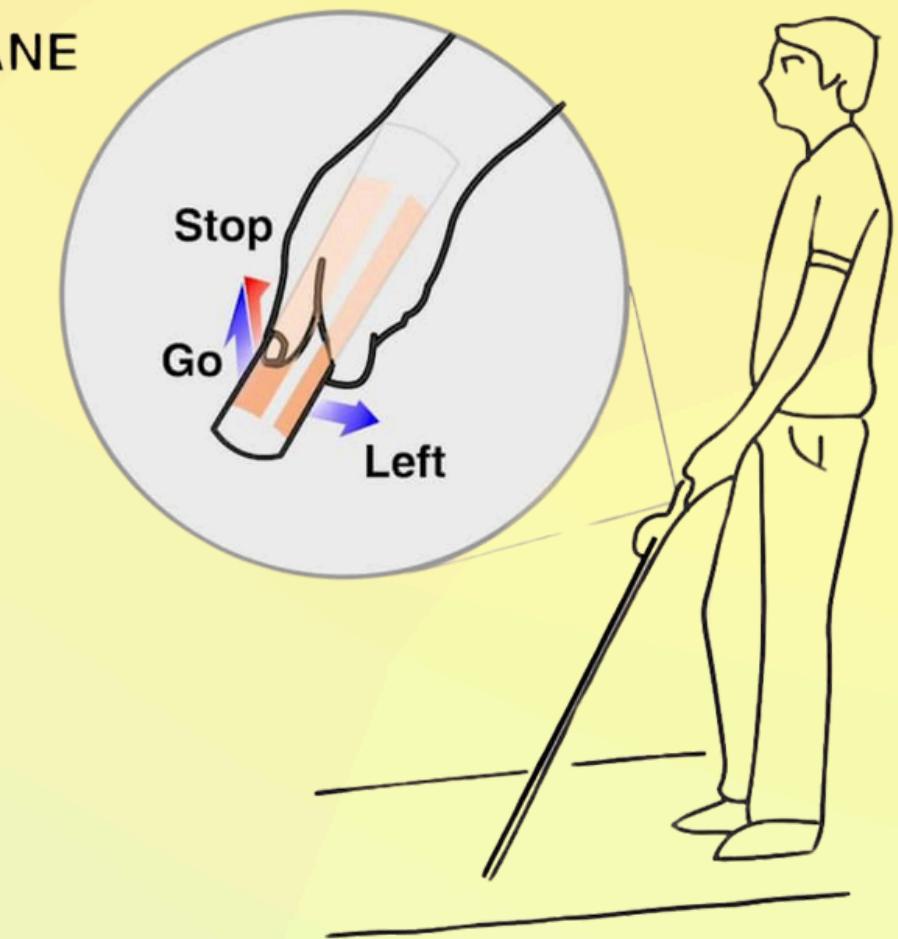
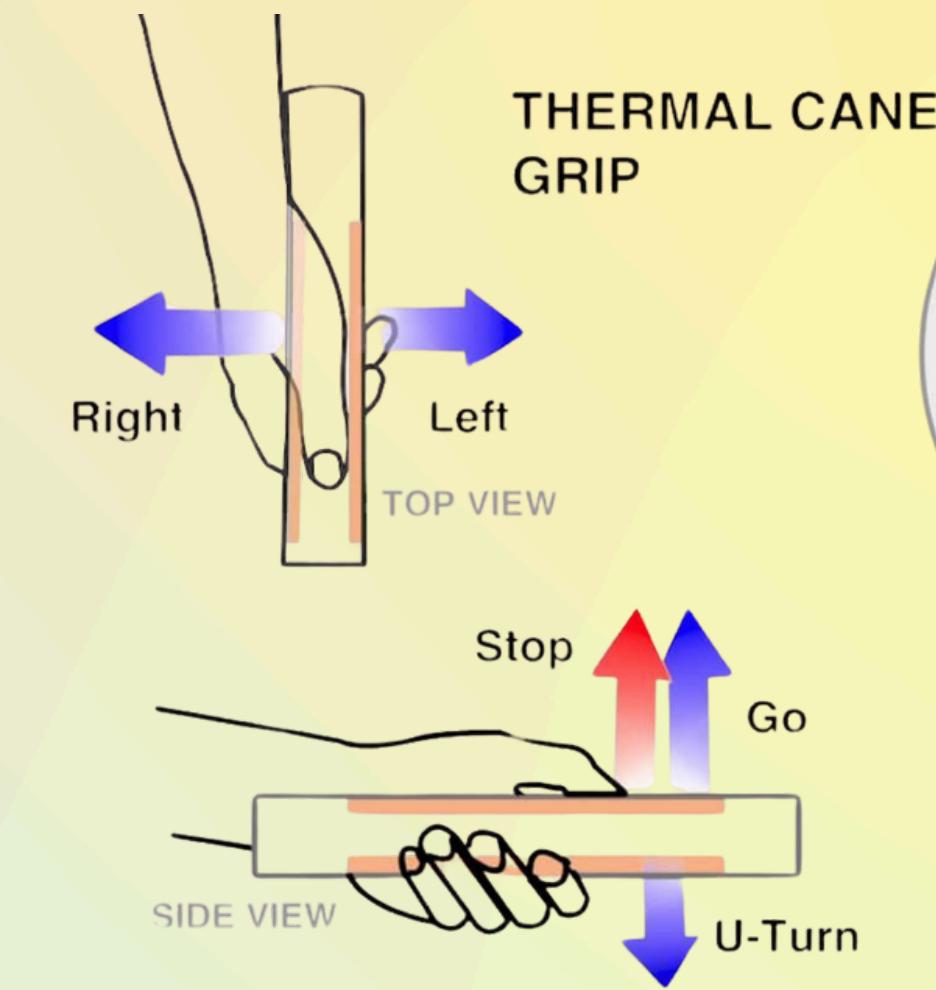
Haptic

TECH APPENDIX D

HARDWARE



Arduino



Haptic

FINANCIAL APPENDIX A

R&D BREAKDOWN

| Category | Details | Estimated Allocation |
|---------------------------------|---|----------------------|
| 1. User Research & Design | Interviews, field studies with visually impaired users, co-design | \$45,000 (9%) |
| 2. Hardware Prototyping | Sensors (LiDAR, IMU, ultrasound, camera), embedded systems, enclosures | \$95,000 (19%) |
| 3. Software Development | Sensor fusion (Kalman filtering), latency | \$135,000 (27%) |
| 4. Machine Learning / AI | Object recognition, semantic mapping, dataset curation, model compression | \$85,000 (17%) |
| 5. Integration & Feedback | Haptic/audio UX, embedded system tuning, system-level optimization | \$45,000 (9%) |
| 6. Pilot Testing & Iteration | User trials, safety validation, response latency evaluation | \$60,000 (12%) |
| 7. Compliance | ADA, FCC, CE, EN 301 549, UL standards | \$30,000 (6%) |
| 8. Overhead (Legal, Regulatory) | Liability coverage, patent search/filing, legal compliance | \$5,000 (1%) |

FINANCIAL APPENDIX B

COST PER CANE

| Component | Description | Estimated Cost |
|---|--|--------------------|
| Microcontroller / SoC | ESP32 / STM32-class for sensor fusion and Bluetooth | \$8 – \$15 |
| Ultrasonic Sensor Array | For obstacle detection at ground level | \$5 – \$10 |
| LiDAR Module | Short-range solid-state LiDAR (e.g., Benewake TFmini) | \$25 – \$40 |
| Camera Module | Low-power RGB camera for object recognition | \$10 – \$20 |
| Haptic Feedback | Eccentric rotating mass (ERM) or linear resonant actuator (LRA) | \$2 – \$5 |
| Bluetooth Audio Module | BLE 5.0 with audio support for earbud/headphone pairing | \$8 – \$15 |
| Battery + Power Mgmt. | Rechargeable lithium-ion battery + charging circuit | \$10 – \$15 |
| Enclosure & Cane Body | Durable, lightweight casing and collapsible cane construction | \$20 – \$30 |
| PCB + Assembly (Low Volume) | Custom board fabrication, SMT assembly | \$15 – \$25 |
| Misc. Hardware (connectors, screws) | Wiring, soldering, mounts, weatherproof seals | \$5 – \$10 |
| Quality Control / Flashing / Testing | Firmware flashing, hardware testing, basic QA | \$10 – \$15 |