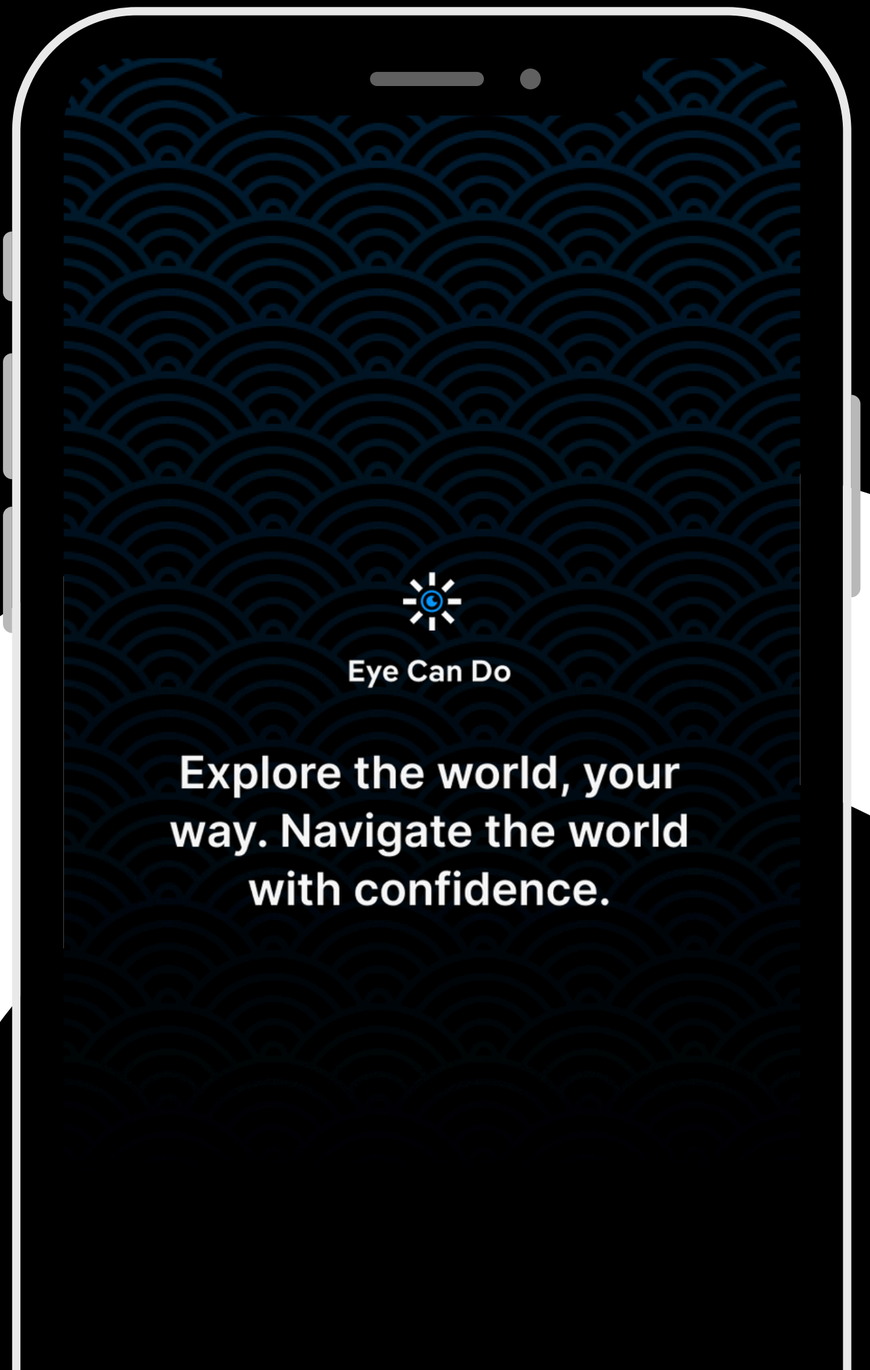
Eye Can do

Enhancing Independence through Real-Time Recognition



TEAM NAME: **PSYDUCK**

Problem Statement

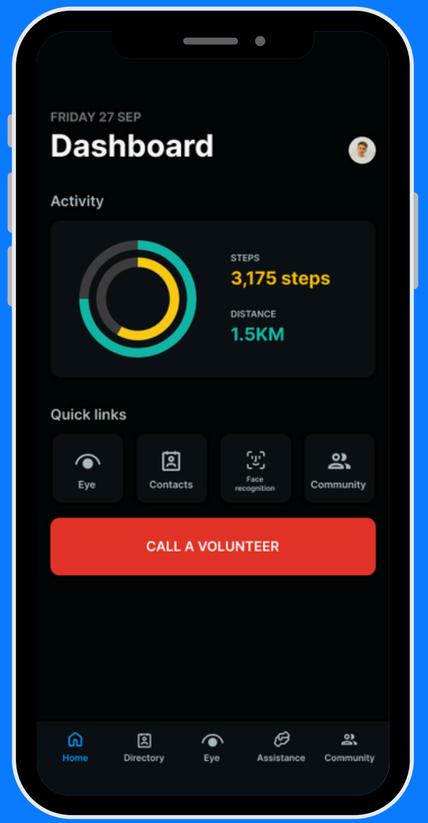
R1 – Enhancing Object Recognition for the Visually Impaired (SDG–3)

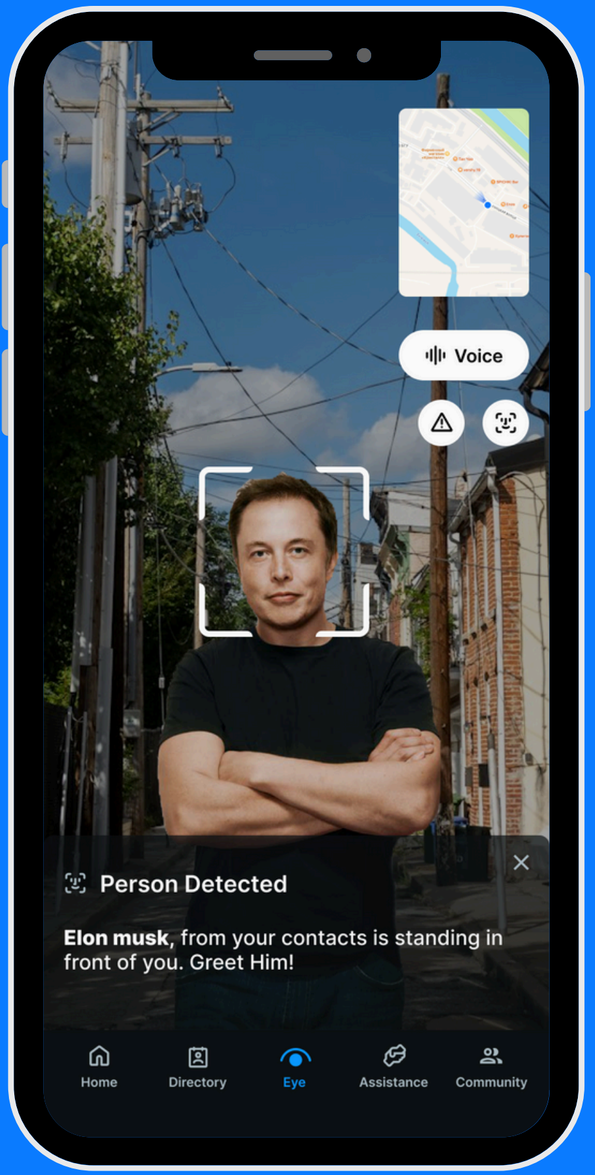
- Visually impaired individuals face challenges in recognizing objects, people, and places.
- Current tools provide limited assistance, highlighting the need for more intuitive solutions.
- Significant challenges in daily activities due to lack of effective recognition tools.
- Current solutions often lack real-time capabilities and intuitive user interfaces.
- Objective: Develop an offline mobile application for real-time object, person, and place recognition.

Our Solution

Eye Can Do is an offline all-in-one assistive platform that empowers visually impaired users with tools for independence, real-time assistance, and community connection.

Navigating the app through voice commands.





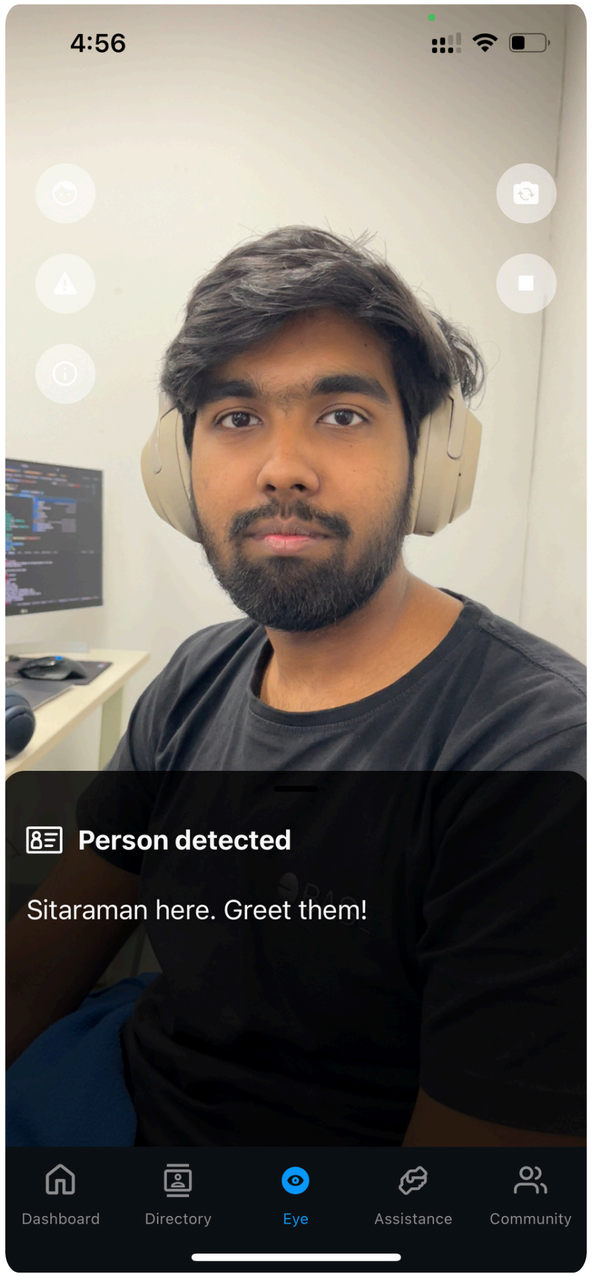
Who can use this?

01

User - The primary users are visually impaired individuals seeking to improve their independence and safety in daily activities.

02

Volunteer - Secondary users could include caregivers or family members of visually impaired individuals who want to provide additional assistance.



Indoor Mode

Face Recognition

01 Helps the user to recognize nearby people by face recognition model trained on custom dataset from scratch

02 Less Inference Time < 0.6 sec
Without any pre-training

02 Face Recognition library is used to create embeddings and K Nearest Neighbours is used for face recognition

Outdoor Mode

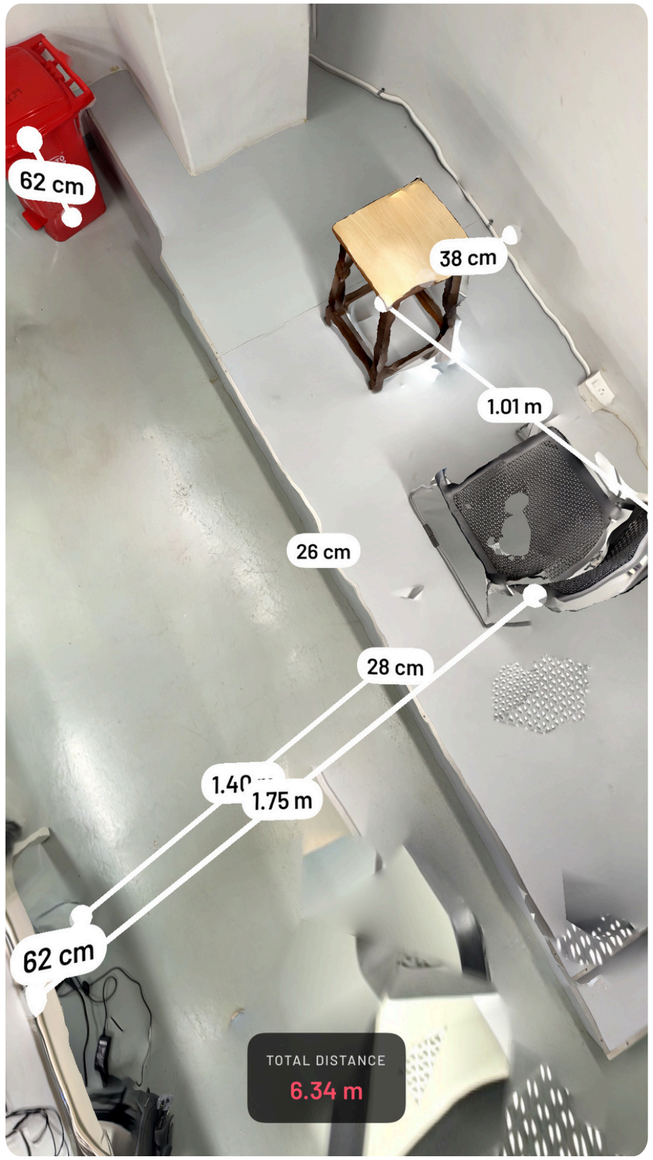
Object Recognition

01 Scene Awareness: Helps visually impaired people to understand their surroundings by identifying objects

02 App uses YOLO v3 for fast and accurate real time object recognition

03 Presentations are communication tools that can be used as demonstrations, lectures, speeches, reports, and more.

04 YOLO v3 is lightweight and suitable for seamless integration in mobile applications

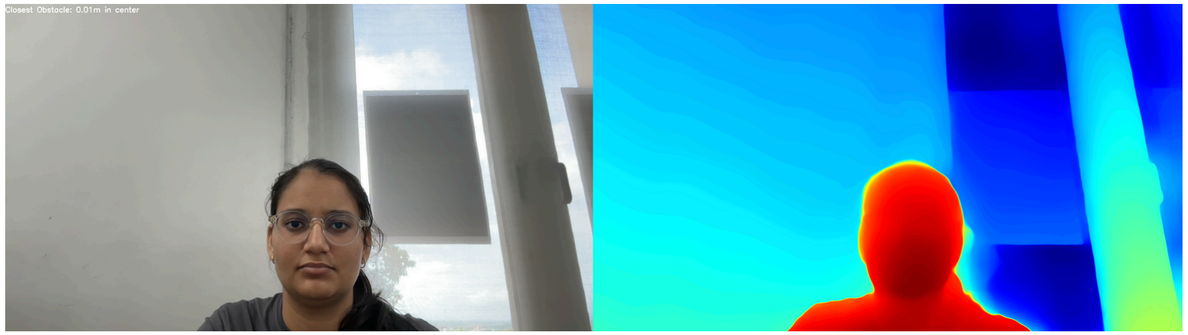


Street Mode

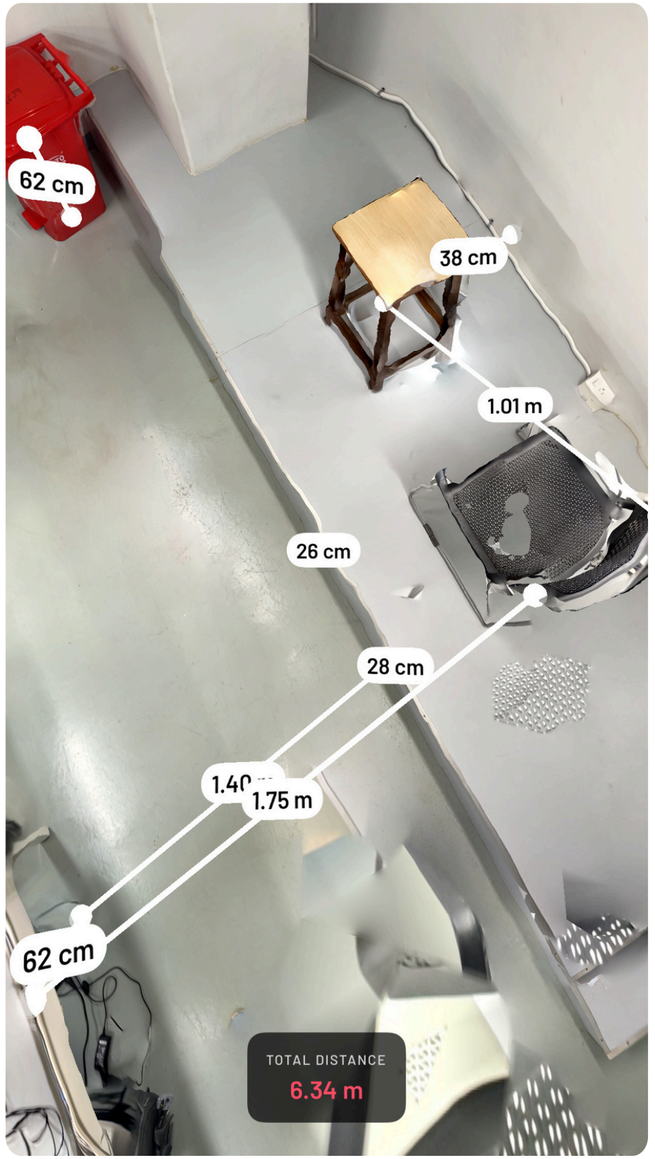
Depth Estimation

01 Helps the user to detect any obstacles on the way and gives information about the direction and distance of obstacle i.e.- left, right and center

02 Uses **Depth Anything** model for relative depth estimation



Point cloud for distance estimation



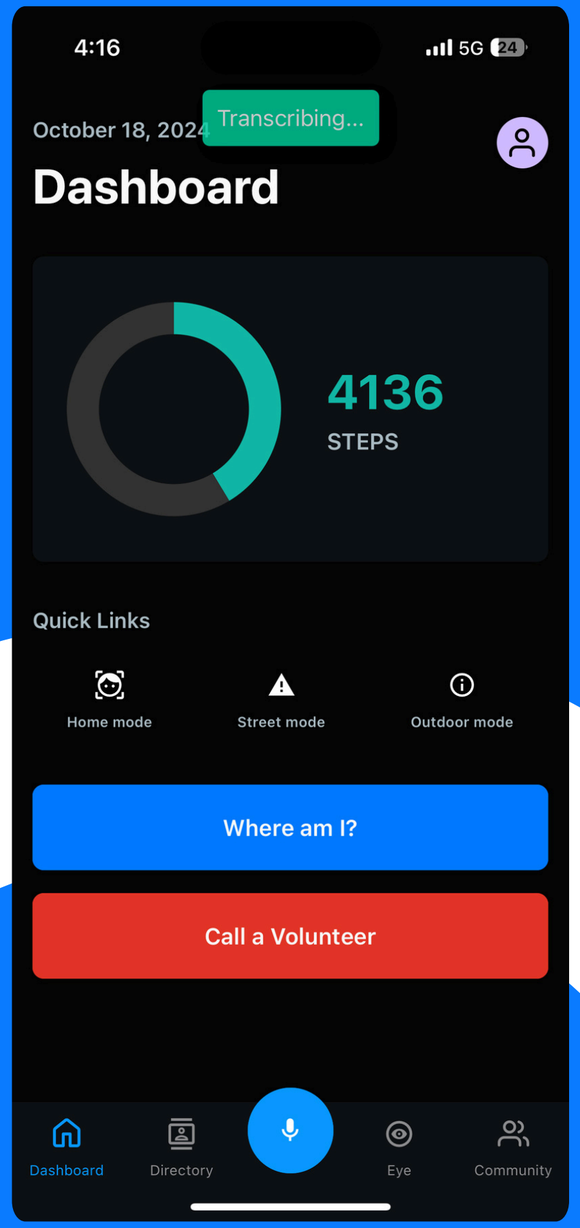
Voice Navigation

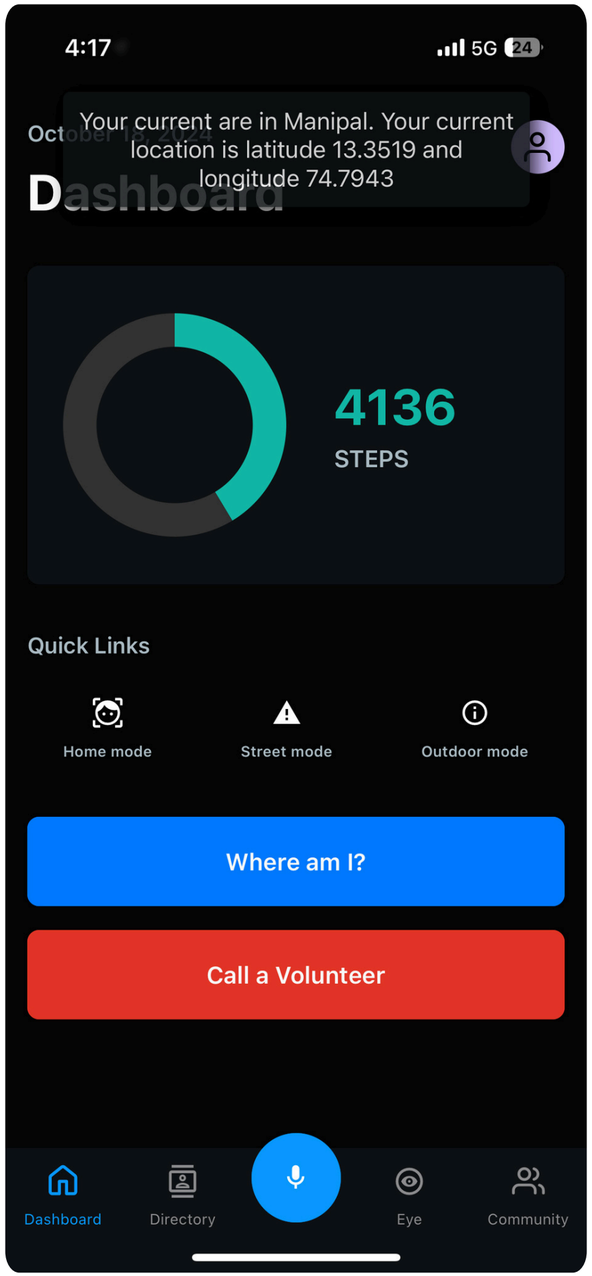
Hands-Free Accessibility

01 **Seamless App Control:** Users can fully control the app using voice commands, eliminating the need for manual input

02 Activate key features like object recognition, facial recognition, and obstacle estimation with simple voice prompts.

03 The app provides real-time feedback and confirmation of user actions via voice, ensuring smooth interaction and navigation.





Location Identification

Know Where You Are?

01 The app provides users with real-time information about their current location.

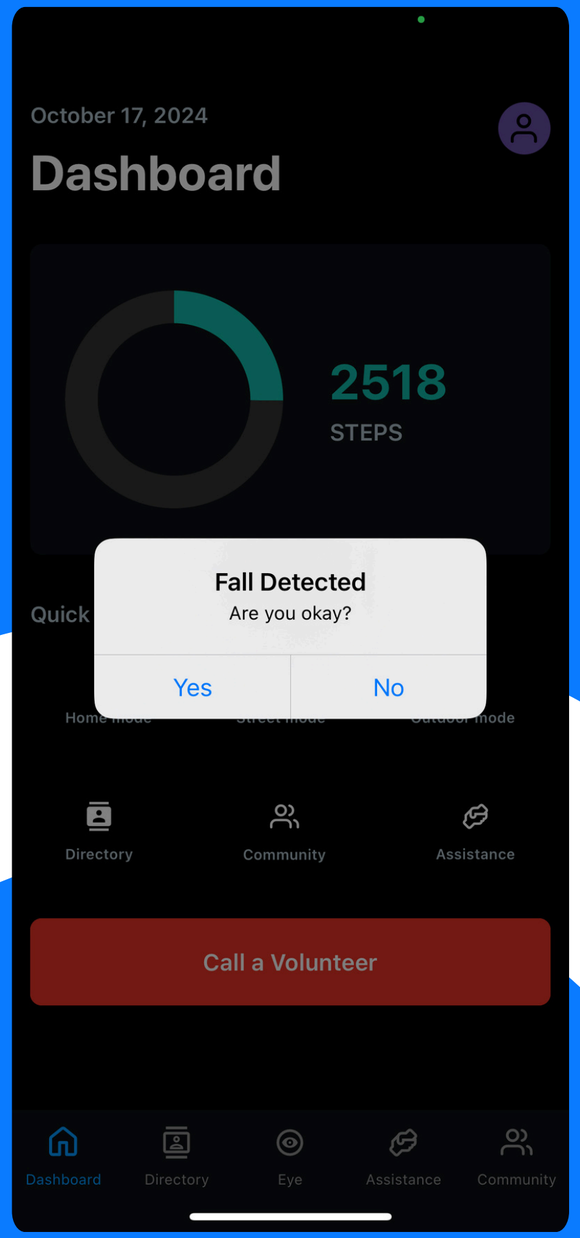
Fall Detection

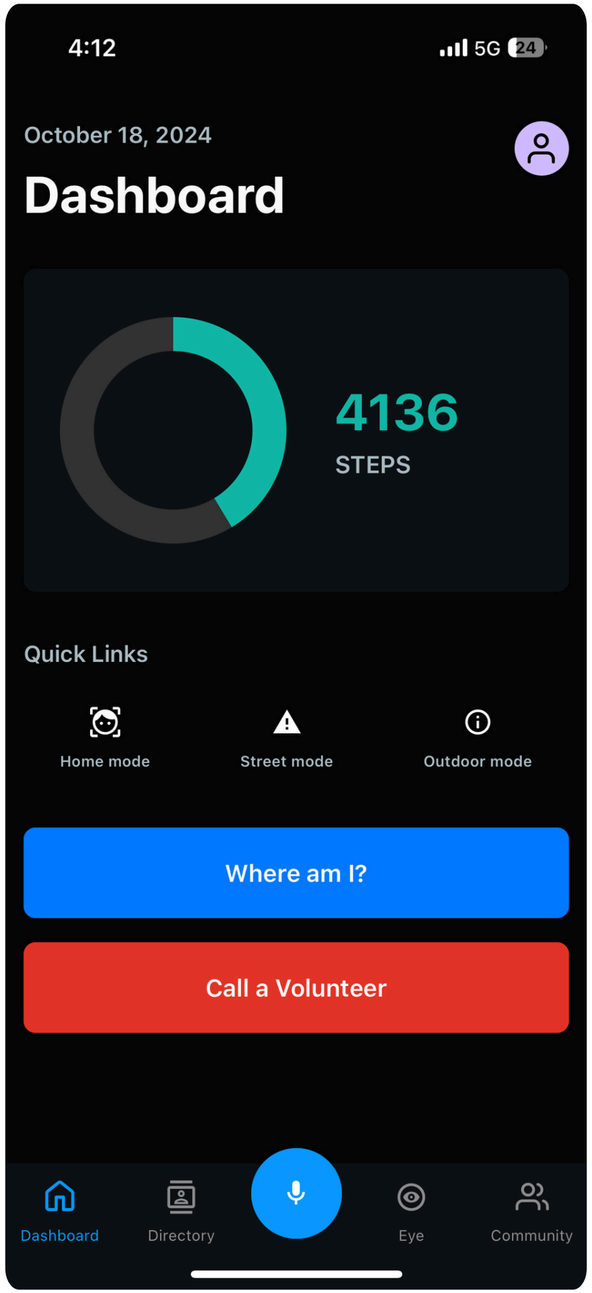
Ensuring Safety at All Times

01 Uses accelerometer data to accurately detect sudden falls and abnormal movements.

02 Automatically sends SMS notifications to emergency contacts upon detecting a fall.

03 Provides real-time safety monitoring, ensuring timely assistance for users in case of accidents.





Step Count

Why Ignore health?

01 Displays step count on the app's dashboard, providing feedback on daily activity.

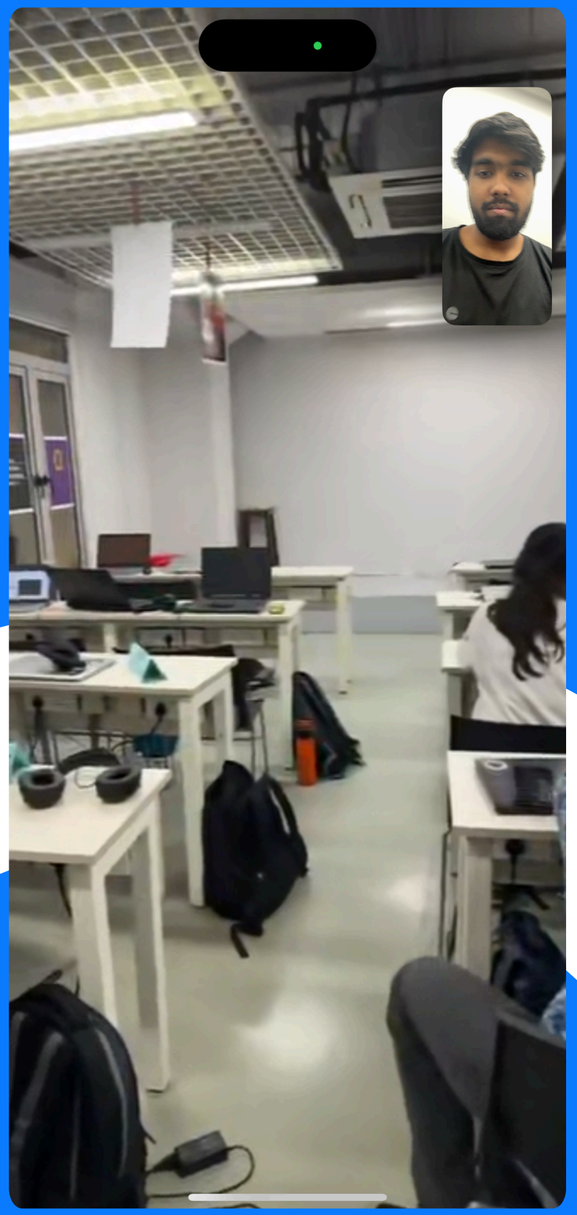
Assistive Video Calling

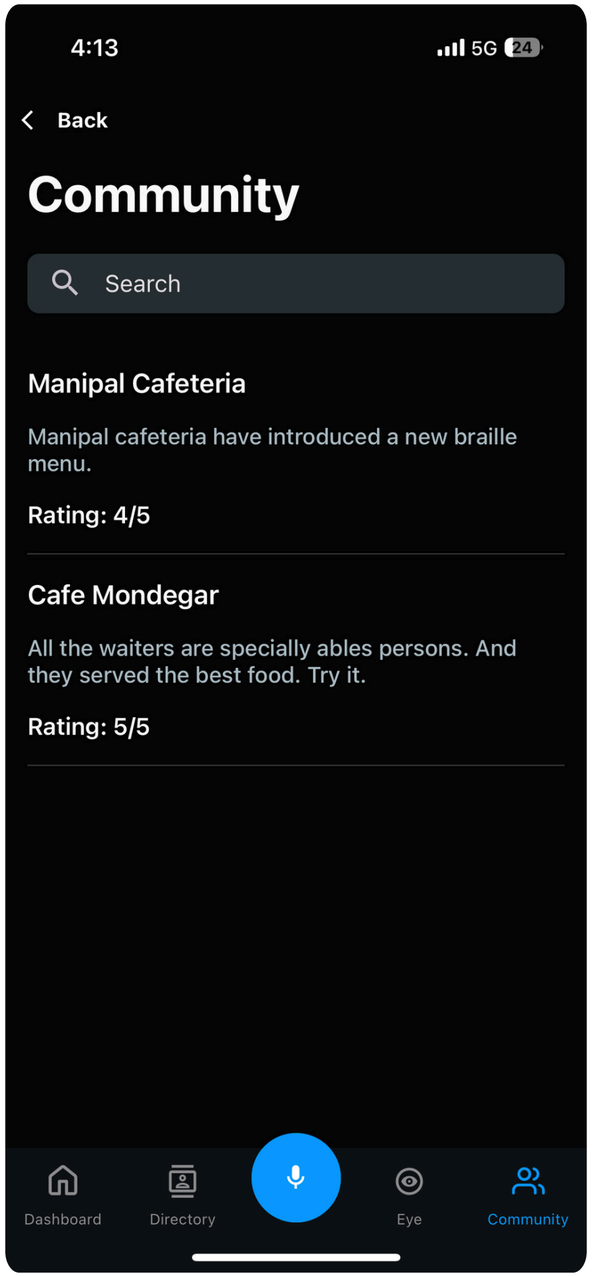
Get Instant Help!

01 Users can initiate assitive video calls to volunteers instantly in case of emergency

02 The app utilizes FaceTime for reliable, high-quality video communication with volunteers.

03 Volunteers provide instant guidance and assistance, ensuring immediate help when needed.





Community

Looking for accessible locations?

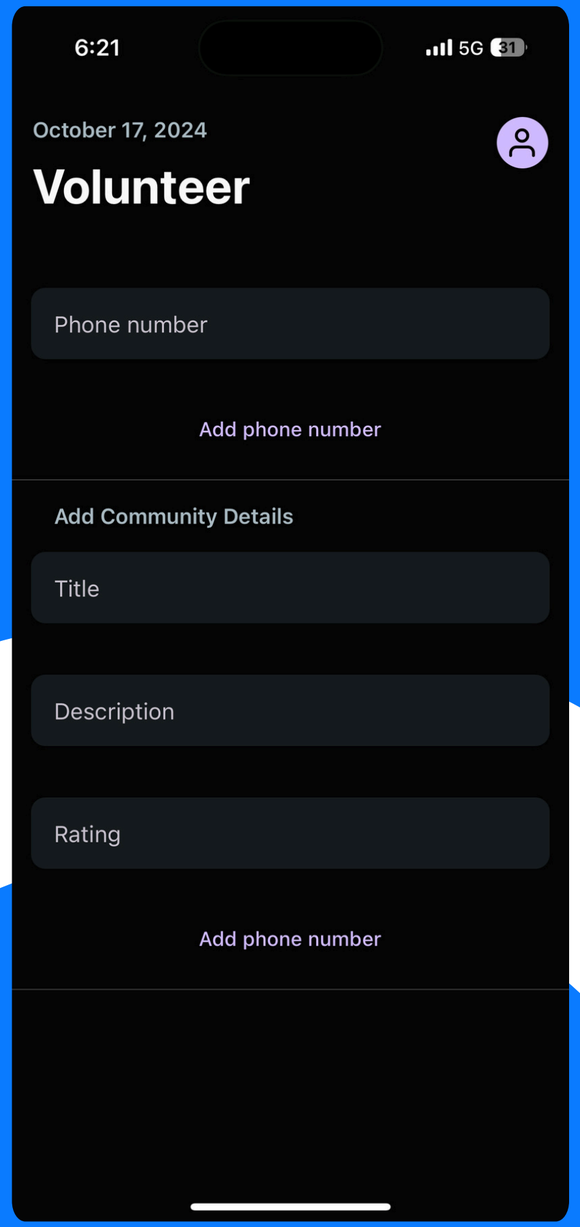
01 Provides a curated list of nearby venues and services. The user can identify and rate based on accessibily.

Any Volunteers?

Want to help others?

01 Separate profile for volunteers to offer real-time assistance to users in need.

02 Volunteers can respond to emergency calls and offer immediate support



Feature Overview

- Indoor Mode (Face Recognition)
- Outdoor Mode (Object Recognition)
- Street Mode (Depth Estimation)
- Voice navigation for increased accessibiliy
- Location Identification
- Fall Detection
- Health Updates
- Assistive Video Calling
- Community Features
- Haptic alerts

Business Model

Freemium model

Free basic app with paid premium features like advanced recognition and offline depth estimation.

Subscription Plans

Monthly/yearly plans for unlimited recognition services and priority support (B2C).

Partnerships

Collaborate with healthcare providers and NGOs to sponsor the app for their users (B2B).

Licensing

License the technology to other companies or assistive platforms for integration.

Market Analysis

Market size

2.2B People with Vision Impairment Globally: ~36M blind, ~217M with severe impairment (WHO).

Pain Points

Existing tools are slow and lack real time depth and multimodal feedback.

Assistive market growth

Expected to hit $49.3B by 2026 (CAGR 7.4%)

Target Audience

Visually impaired individuals and support organizations seeking independence with real-time recognition.

Our Team

Nikita Malik

P Aditya Mohan

S Sitaraman

Thank You