🔍 Problem Statement

In a world designed for the sighted and able-bodied, daily mobility becomes a struggle for the blind, elderly, or non-native speakers. Boarding a bus, crossing a street, or locating a restroom turns risky, confusing, and dependent on strangers. In unfamiliar regions with language barriers, they become even more isolated.
This isn't just an inconvenience it's a systemic failure that strips individuals of independence, safety, and dignity.

💡 Solution – AI-NaviCam

NaviCam is a compact, AI-powered wearable camera that sees and speaks for its user. Designed for the visually impaired, elderly, and those facing language barriers, it delivers real-time assistance in navigating public spaces safely and independently.

🔧 What It Does

- **Identifies Buses & Landmarks:** Reads bus route numbers and announces landmarks.
- **Real-Time Voice Navigation:** Gives spoken directions based on GPS and vision.
- **Language Translation:** Translates short spoken phrases for better communication.
- **Emergency Detection:** Connects to help if the user stops, falls, or signals distress.
- **Offline Capable + App Support:** Works without internet using Edge AI; syncs with an app for caregiver support.

🛠️ Form Factor

- **Product:** Wearable device the size of a button, attached to clothing.
- **App:** Companion mobile app for caregivers—tracking, customization, SOS alerts.

🎯 Target Users

- Visually impaired individuals needing real-time guidance.
- Elderly users who feel unsafe navigating alone.

- Migrants/non-native speakers needing translation support.
- Families/caregivers who want to monitor or assist loved ones remotely.

🧩 Design & Hardware

- **Size & Shape:** 3–4 cm, circular or oval, soft matte finish.
- **Camera:** Wide-angle with low-light/night vision.
- **Audio:** Built-in mic + speaker or optional bone conduction ear clip.
- **Controls:** Tap for repeat; long-press for SOS.
- **Battery:** 8–10 hours usage, wireless/magnetic charging.
- **Processor:** On-device AI for detection, reading, and feedback.
- **Connectivity:** Bluetooth, GPS (via app), optional Wi-Fi.

📱 Caregiver App Features

- **Live Tracking:** View user's location in real-time.
- **Custom Alerts:** Fall detection, inactivity, SOS triggers.
- **Bus Route Preferences:** Subscribe to frequently used transport lines.
- **Voice Settings:** Adjust voice, language, volume, sensitivity.
- **AI Updates:** Improve recognition based on local usage patterns.

How It Works

Situation	What AI-NaviCam Does
At a Bus Stop	Scans approaching vehicles → Reads aloud: "Bus 128 to Market Stop"
On the Street	Alerts: "Left turn in 10 meters" or "Footpath ahead broken"
At a Crosswalk	Detects zebra lines, traffic flow → says "Wait", then "Cross now"
Language Barrier	Listens to other person → Translates and speaks to user
Panic or Accident	No movement + long-press → Sends GPS location to caregiver