Drishya Sahayak – A Smart Blind Aid

Millions of visually impaired individuals across the globe face daily obstacles that hinder their freedom of movement, access to public spaces, and ability to live independently. Navigation, identifying objects or people, reading signs, and knowing when to stop or cross a road — tasks many take for granted — become significant challenges without sight.

Drishya Sahayak (meaning "Visual Assistant") is our innovative response to this pressing need. It is a smart, AI-powered wearable device developed to empower visually impaired individuals by restoring their mobility, safety, and confidence using cutting-edge technologies.

At the heart of the system lies a powerful **Raspberry Pi 5**, securely housed in a lightweight side bag, processing real-time video from a camera mounted on specially designed smart glasses. This camera constantly scans the surroundings, feeding visual data into object detection algorithms trained to recognize obstacles, vehicles, people, traffic signs, stairs, and more.

Through **audio feedback** delivered via discreet earphones, the user receives spoken alerts like: - “Obstacle ahead” - “Vehicle approaching from the left” - “Turn right at the junction in 10 meters” - “Bus number 23 arriving at Platform 2”

These alerts are not just generic warnings; they are contextual and time-sensitive, improving decision-making and awareness for the user.

Integrated **GPS and navigation features** provide turn-by-turn guidance, helping the user move from point A to point B confidently. Whether walking or using public transportation, Drishya Sahayak offers real-time location updates, bus/train arrival times, nearby landmarks, and alerts when nearing destinations.

The system also includes a **voice assistant** activated by a customizable wake word. This assistant allows hands-free interaction, enabling users to ask questions like “Where am I?”, “How far to the market?”, or “Call home.” It can read out text from signs, labels, or digital displays using OCR and text-to-speech, offering an added layer of independence.

In emergencies, **a dedicated safety button** placed on the bag initiates a rapid response protocol: 1. Calls a trusted emergency contact. 2. If unanswered, it

auto-dials emergency services (like 112 in India). 3. Optionally shares live GPS location and sends a help message.

Beyond technology, **Drishya Sahayak is designed with empathy**. It’s lightweight, unobtrusive, affordable, and easy to use — crafted specifically for comfort, simplicity, and accessibility. The hardware setup requires no special skills, and the software is modular and open-source, allowing for future expansion and community-driven improvements.

Why it matters: - Over 39 million people globally are blind, with 285 million visually impaired. - Only a fraction of them have access to assistive technologies. - Drishya Sahayak bridges that gap with a practical, scalable, and humane solution.

Vision for the future: We envision deploying this device at schools, mobility training centers, public transport hubs, and government accessibility programs. With partnerships and support, Drishya Sahayak can become a standard tool for visually impaired individuals to reclaim their independence and dignity.

Thank you for your time and interest. Together, we can take a meaningful step toward a more inclusive and accessible world — where no one is left behind due to lack of sight.