Group: Open Group

Sub-theme: I&T for Community (Community Wellness)

Project Code: O-001261

Thumb-Navi - Smart Navigation device for visual impaired people (内容只提供英文版)

User Pain Points

Visually impaired individuals experience frustration and dependency due to limited navigation aids. Existing options lack intuitive feedback and often rely on caregivers for assistance. Safety concerns persist, with 90% of visually impaired individuals experiencing obstacles during mobility. This leads to social isolation, reduced independence, and missed opportunities for personal growth and connection. Staying at home perpetuates dependency, diminishes quality of life, and can have negative impacts on physical and mental well-being. User feedback highlights the need for a solution that offers intuitive interaction, personalized settings, and enhanced safety features to improve mobility and quality of life.

Solution Benefits

Thumb-Navi enhances independence and safety for visually impaired users, promoting autonomy in daily activities while reducing reliance on caregivers. With intuitive navigation and robust safety features, it fosters smoother mobility, fostering inclusion in community engagement. Thumb-Navi alleviates caregiver burden and sets a new accessibility standard, advancing inclusivity in navigation technology for a more equitable society.

Technologies Applied

Thumb-Navi revolutionizes navigation aids for the visually impaired with its innovative thumb wheel control. This intuitive mechanism offers tactile directional feedback, enhancing user experience. Sensor fusion technology ensures real-time obstacle detection and optimal route calculation. Pairing with a mobile phone allows for data processing, providing up-to-date navigation information and personalized settings. Additionally, Thumb-Navi integrates a camera for AI recognition, identifying landmarks and obstacles in the user's path. By leveraging these advancements, Thumb-Navi offers a comprehensive solution for independent mobility, empowering visually impaired individuals to navigate their surroundings with confidence and ease.

Target Users

User Profile / Persona:
User Profile: 1) Visually Impaired Individuals 2) Elderly Population

Psychographics:
1) Independence: Highly values independence and autonomy in daily life.
2) Technology Adoption: Comfortable with technology; frequently uses smartphones and accessibility features like voice-over and screen readers.
3) Active Lifestyle: Enjoys social activities, exploring new places, and engaging with the community.
4) Safety-Conscious: Prioritizes personal safety, especially when navigating busy or unfamiliar environments.
5) Problem-Solvers: Proactively seeks out tools and technologies to overcome mobility challenges and enhance quality of life.
6) Social Engagement: Desires to participate in social, educational, and recreational activities, fostering a sense of belonging and inclusion.

User Scenario and Goals:

User Scenario:
1) point to point navigation in urban city with obstacle avoidance
2)indoor navigation with obstacle avoidance. Point to point indoor navigation in pre mapping location.

Goals:
1) Independence: navigate the city independently without relying on a caregiver or guide in both outdoor and indoor environment.

2)Safety: Ensuring safety while crossing streets and avoiding obstacles is essential. Reaching destination without anxiety or fear.

3)Social Engagement: Successfully attending the community event will enhance her social life and allow her to build connections within her community.