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IoT-based Smart Solution for Blind People

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Abstract: *The development of Smart Glasses for the Blind aims to enhance the mobility and independence of visually impaired individuals through the integration of Internet of Things (IoT), artificial intelligence (AI), and embedded systems. These smart glasses utilize a combination of camera sensors, ultrasonic sensors, and voice assistance to detect obstacles, recognize objects, and provide real-time auditory feedback to users. The system processes visual data using computer vision and AI-based image recognition to identify objects, people, and text, which are then converted into speech output via text-to-speech (TTS) technology. Additionally, IoT connectivity enables cloud- based processing and navigation support through GPS and real-time location tracking, allowing users to navigate unfamiliar environments safely. The glasses are designed to be lightweight, energy-efficient, and user-friendly, ensuring seamless integration into daily life. By leveraging edge computing and AI, the device minimizes latency and enhances real-time responsiveness. The proposed solution represents a significant step toward assistive technology innovation, empowering visually impaired individuals with increased accessibility and autonomy in their surroundings.*

Keywords: Smart Glasses