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(57) Abstract :

The present invention relates to an AI-powered accessibility assistant system for the visually impaired. The AI assistant system comprises an object detection module, a YOLOv4-based deep learning model, a text recognition module with an OCR engine, a navigation module integrated with ARKit or ARCore and Google Maps API, an on-device AI processing engine without reliance on cloud-based systems, a voice-controlled interface and real-time text-to-speech feedback, and an emergency interaction system. It is a cost-effective, real-time, smartphone-based solution that empowers people with visual impaired. Further, it offers a hands-free, fully audio-driven assistant that responds to voice commands, an emergency function for real-time location-based SOS alerts, face recognition, color and currency detection, scene description, and real-time translation. Hence, the AI-powered accessibility assistant offers the best solution and improves the independence and day-to-day living of the visually impaired individuals.

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