

SMARTASSIST : REAL-TIME OBJECTDETECTION AND AUDITORY GUIDANCE FOR THEVISUALLY IMPAIRED

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ABSTRACT:

SmartAssist is an innovative AI-powered assistive tool designed to help visually impaired individuals navigate their surroundings more easily by detecting objects, describing the environment in real time, while providing instant voice feedback. Unlike existing technologies like HearSight, Envision AI, and OrCam MyEye, which are often criticized for being expensive, slow, and difficult to use, SmartAssist aims to offer faster, more accurate, and user-friendly assistance. Visually impaired individuals face daily challenges such as identifying the surrounding environment and existing assistive devices often come with drawbacks like delayed responses, limited accuracy, or uncomfortable designs. SmartAssist addresses these issues by offering a lightweight, responsive solution that makes everyday tasks easier and more accessible. It uses advanced AI and machine learning to process real-time images and convert them into meaningful information, capturing visuals, analyzing them with AI models, and providing audio feedback. The project follows a structured development approach, including understanding user needs through research and conversations with visually impaired individuals, building AI models for object detection, captions and developing intuitive software with a simple, voice-guided interface, gathering user feedback for refinement, and finalizing and deploying the product with user-friendly guides. Ultimately, SmartAssist aims to be more than just a tool; it seeks to offer a real-world companion that enhances the lives of those with visual impairments through thoughtful design and advanced AI technology.