Mobile Application for Object Detection and Audio Feedback to Aid Visually Impaired Navigation

Abstract:
Visually impaired individuals often encounter challenges in navigating their surroundings due to the lack of visual information. This project presents a mobile application designed to enhance their mobility and independence by providing real-time object detection and audio feedback. Leveraging the YOLO (You Only Look Once) algorithm, a state-of-the-art object detection model, the application utilizes a mobile device's camera to identify objects in the user's environment. The system delivers precise audio feedback, such as "person in front of you" or "table to your right," describing the detected objects and their relative positions using text-to-speech technology. This hands-free solution offers an accessible and practical tool for visually impaired individuals, enabling safer and more confident navigation in various environments. The integration of object detection and auditory cues provides a robust assistive technology for addressing everyday challenges.

Keywords:
Mobile Application, Object Detection, YOLO, Visually Impaired, Audio Feedback, Text-to-Speech.