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Smart Stick for Blind People using Raspberry Pi

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Abstract: *The main purpose of this paper is to present a smart navigation aid designed to assist visually impaired individuals by enhancing mobility and safety. The goal of this project is to develop a smart stick using a Raspberry Pi, an efficient and versatile microcontroller platform. The smart stick is equipped with a Raspberry Pi Camera Rev 1.3, which captures real-time images of the surroundings and processes them using TensorFlow for object detection. The system detects obstacles such as walls, staircases, or furniture and provides immediate feedback to the user. A vibrator motor delivers tactile alerts, while a speaker provides audio warnings, ensuring a multi-sensory navigation experience. The smart stick is intended to be cost-effective, easy to develop, and adaptable. The proposed study results aim to improve independent navigation for visually impaired individuals, fostering confidence and safety in urban environments.*

Keywords: Raspberry PI Model 4B, Raspberry PI Camera Rev 1.3, Vibrator Motor, Speaker

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