

## Development of a Computer Vision System for the Blind and Visually Impaired Person

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**Abstract :** Eyes are an essential and conspicuous organ of the human body. Human eyes are outward and inward portals of the body that allows to see the outside world and provides glimpses into ones inner thoughts and feelings. Inevitable blindness and visual impairments may result from eye-related disease, trauma, or congenital or degenerative conditions that cannot be corrected by conventional means. The study emphasizes innovative tools that will serve as an aid to the blind and visually impaired (VI) individuals. The researchers fabricated a prototype that utilizes the Microsoft Kinect for Windows and Arduino microcontroller board. The prototype facilitates advanced gesture recognition, voice recognition, obstacle detection and indoor environment navigation. Open Computer Vision (OpenCV) performs image analysis, and gesture tracking to transform Kinect data to the desired output. A computer vision technology device provides greater accessibility for those with vision impairments.

**Keywords :** algorithms, blind, computer vision, embedded systems, image analysis

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