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Survey on Blind Assist System using ML and Image Processing

Prof. Deepu G[1], Adarsh N M[2], Bhuvan R[3], Darshan A[4], Darshan R[5]
Faculty, Department of Computer Science and Engineering[1]
Students, Department of Computer Science and Engineering [2,3,4,5]
Vidya Vikas Institute of Engineering and Technology, Mysuru, Karnataka, India

Abstract: *This paper presents a Blind Assist System (BAS) leveraging Machine Learning (ML) and Image Processing (IP) techniques to enhance the autonomy and safety of visually impaired individuals. The system utilizes a convolutional neural network (CNN) to process real-time image inputs from a wearable camera device. Through ML classification, it identifies objects, obstacles, and environmental cues. The IP module further refines data, providing depth perception and spatial awareness. Leveraging ML's adaptability, the system continuously learns and improves its recognition accuracy. Integration with auditory feedback facilitates intuitive interaction, conveying vital information to users. In evaluations, the BAS demonstrates promising results in aiding navigation and increasing users' independence. The fusion of ML and IP offers a robust solution for empowering the visually impaired in navigating complex environments*

Keywords: Blind Assist Systems, Machine Learning, Image Processing, Visual Impairment, Navigation Assistance