Inexpensive Glasses for the Blind and Visually Impaired Using AI and OpenCV

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Being blind can have a significant impact on a person's quality of life since it impairs their ability to navigate the world and participate in activities many once loved. Many people experience a loss of independence and mobility as a result of their inability to move around their environment confidently and complete everyday duties without assistance. What if there was a device to help the visually impaired? This engineering project aims to create a device for the visually impaired that utilizes a Raspberry Pi and Raspberry Pi camera to assist with reading text and object detection. The device, in the form of glasses, reads text or detects objects for the user and audibly outputs the information through personal headphones. The project's goal is to enhance the independence and mobility of the visually impaired by providing them with an additional sense to supplement their visual deficiencies. The research focuses on OpenCV and Tesseract OCR, as well as the integration of the Raspberry Pi camera and Raspberry Pi into the glasses design. In the end, the device is able to consistently detect objects and audibly output it to the user, and is also able to accurately capture text and output the text to the user in the chosen language.

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