IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 1, September 2023

Smart Stick for Visually Impaired Persons

Uday Vamsi Krishna Bandaru[1], Dhruva Shankar Reddy K[2], Laya Vardhan Sai Burgula[3], Dhanush H[4] and Deepa N Reddy[5]
Department of Electronics and Communication
BMS Institute of Technology and Management, Bangalore, India
bvamsi2001@gmail.com, dhruvareddy111@gmail.com,
burgulalayavardhansai@gmail.com, dhanushh467@gmail.com

Abstract: *Millions of people worldwide have visual impairments, and integrating them into society is a crucial ongoing goal. To support their quality of life, various guidance systems have been developed, often for specific purposes. However, these solutions can significantly enhance the mobility and safety of visually impaired individuals. To address this, a vision-based platform using Python and OpenCV library functionalities has been developed to recognize real-world objects indoors and outdoors. YOLO is a novel approach to object detection that has been used in the software. The image is transformed into a scan image for further interpretation of its contents. Efforts continue to support visually impaired individuals and enable their full participation in society. The detected image is scanned and fed into Tesseract OCR for conversion to text. Additionally, By using OCR and NLP (Natural Language Processing), blind persons can read newspapers.*

Keywords: YOLO, Open-CV, Tesseract OCR, TTS, Natural Language Processing.

REFERENCES

[1]. Tiponut V, Ianchis D, Haraszy Z. Assisted movement of visually impaired in outdoor environments: work directions and new results. InProceedings of the 13th WSEAS international conference on Systems 2009 Jul 22 (pp. 386-391).

[2]. Nada AA, Fakhr MA, Seddik AF. Assistive infrared sensor based smart stick for blind people. In2015 science and information conference (SAI) 2015 Jul 28 (pp. 1149- 1154). IEEE.

[3]. Mainkar VV, Bagayatkar TU, Shetye SK, Tamhankar HR, Jadhav RG, Tendolkar RS. Raspberry Pi based intelligent reader for visually impaired persons. In2020 2nd International Conference on Innovative Mechanisms for Industry Applications (ICIMIA) 2020 Mar 5 (pp. 323-326). IEEE.

[4]. Jain BD, Thakur SM, Suresh KV. Visual assistance for blind using image processing. In2018 International Conference on Communication and Signal Processing (ICCSP) 2018 Apr 3 (pp. 0499-0503). IEEE.

[5]. Akila IS, Akshaya B, Deepthi S, Sivadharshini P. A text reader for the visually impaired using raspberry pi. In2018 Second International Conference on Computing Methodologies and Communication (ICCMC) 2018 Feb 15 (pp. 778-782). IEEE.

[6]. Ani R, Maria E, Joyce JJ, Sakkaravarthy V, Raja MA. Smart Specs: Voice assisted text reading system for visually impaired persons using TTS method. In2017 International Conference on Innovations in Green Energy and Healthcare Technologies (IGEHT) 2017 Mar 16 (pp. 1-6). IEEE.