

# Smart Assistive System for Visually Impaired using PI

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**Abstract:** *Visually impaired individuals face significant challenges when navigating and engaging with their surroundings independently. Our solution, "Smart Assistive System for visually Impaired using pi" employs a Raspberry Pi and camera for real-time image capture, precise object classification (with over 90% accuracy), and auditory feedback. The project addresses a pressing need for greater inclusion and accessibility for the visually impaired, offering a cost-effective and innovative solution that converts visual information into non-visual cues. The "Caption-Speak" system holds the potential to significantly enhance the independence, mobility, and overall quality of life for visually impaired individuals.*

**Keywords:** Visual Impairment , Raspberry Pi, Image Processing, Object Classification, Auditory Feedback, Accessibility, Deep Learning, User Interface, Real-time Processing

## REFERENCES

- [1]. H. Sharma, M. Tripathi, A. Kumar, and M. S. Gaur, "Embedded assistivestick for visually impaired persons," in *Proc. 9th Int. Conf. Comput., Commun. Netw. Technol. (ICCCNT)*, Jul. 2018, pp. 1–6, doi: 10.1109/ICCCNT.2018.8493707.
- [2]. S. K. Jarraya, W. S. Al-Shehri, and M. S. Ali, "Deep multilayer perceptron-based obstacle classification method from partial visual information: Application to the assistance of visually impaired people," *IEEE Access*, vol. 8, pp. 26612–26622, 2020, doi: 10.1109/ACCESS.2020.2970979.
- [3]. Getting the Model From TensorFlow Hub. [Online]. Available: <https://www.coursera.org/lecture/advanced-computer-vision-withtensorflow/getting-the-model-from-tensorflow-hub-tZDzl>.
- [4]. P. Viola and M. Jones, "Rapid object detection using a boosted cascade of simple features," in *Proc. Comput. Soc. Conf. Comput. Vis. Pattern Recognit.*, 2001, pp. 1–5.
- [5]. M. Aghagolzadeh, H. Soltanian-Zadeh, and B. N. Araabi, "Multiscale facedetection: A new approach to robust face detection," in *Proc. Int. Conf. Fuzzy Syst.*, Jul. 2006, pp. 1229–1234.
- [6]. Chawla, "Face detection & recognition using tensor flow: A review," *Int. J. Comput. Technol.*, vol. 18, pp. 7381–7388, Nov. 2018.