



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

# IJRSET

International Journal of Innovative Research in  
**SCIENCE | ENGINEERING | TECHNOLOGY**

# INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 13, Special Issue 1, April 2024

**ISSN** INTERNATIONAL  
STANDARD  
SERIAL  
NUMBER  
INDIA

Impact Factor: 8.423

 9940 572 462

 6381 907 438

 [ijirset@gmail.com](mailto:ijirset@gmail.com)

 [www.ijirset.com](http://www.ijirset.com)

# Wearable Reader for Visually Impaired People with Haptic Feedback Using Yolo Technology

Mr. Anbarasan.M<sup>1</sup>, Sivachandar.S<sup>2</sup>, Sivanandhan.M<sup>3</sup>, Vigneshwaran.S<sup>4</sup>, Suman.K<sup>5</sup>

Assistant Professor<sup>1</sup>, Department of Electronics and Communication Engineering, Adhiyamaan College of Engineering, Krishnagiri, Tamil Nadu, India.

U.G Scholars, Department of Electronics and Communication Engineering, Adhiyamaan College of Engineering, Krishnagiri, Tamil Nadu, India.<sup>2, 3, 4, 5</sup>

**ABSTRACT:** People with visual disabilities regularly stand up to considerable troubles in association with their environment, a issue that is regularly exacerbated by the fetched and availability of existing assistive advances. This ponderpresents a model for a cost-effective and available assistive gadget that utilizes profound learning methods for protest acknowledgment. The proposed framework utilizes the YOLOV3 show, a profound learning calculation prepared on a comprehensive dataset including different regular objects, counting US dollar groups. In conjunction with two exchange learning-based cascade models, the framework offers discovery over 86 protest categories. Upon question distinguishing proof, the title of the thing is changed over into a Braille-readable arrange utilizing the Python Braille library. Comprehensive tests and examinations were embraced to evaluate the adequacy of the proposed framework. The comes about authenticate the system's adequacy in accomplishing its planning reason, illustrating its potential to altogether help outwardly disabled people in recognizing and collaboration with objects in their environment. With a preparing and Braille code era time of 188.5 ms per outline, the show accomplished review, exactness, and mAP scores of 0.81, 0.92, and 0.96, individually. The integration of profound learning innovation with high-performance stage sheets has encouraged the advancement of a promising arrangement to the challenges confronted by outwardly disabled people in natural interaction. Generally, the proposed model speaks to an open and cost-effective assistive gadget, possibly revolutionizing the way in which outwardly disabled people associated with their environment.

**KEYWORDS:** object detection, yolo-v3, text to speech

## I. INTRODUCTION

Millions of individuals live in this world with incapacities of understanding the environment due to visual disability. In spite of the fact that they can create elective approaches to bargain with every day schedules, they endure from certain route challenges as well as social ponderousness. For case, it is exceptionally troublesome for them to discover a specific room in a new environment. And daze and outwardly impeded individuals discover it troublesome to know whether a individual is talking to them or somebody else amid a discussion. This venture points at investigating the plausibility of utilizing the hearing sense to get it visual objects. The sense of locate and hearing sense share a striking similitude: both visual protest and sound can be spatially localized. It is not regularly realized by numerous individuals that we are competent at recognizing the spatial area of a sound source fair by hearing it with two ears. The point of the work is to direct the dazzle individuals through the yield of processor to explore them. The technique of this work incorporates Question Extraction, Highlight Extraction, ProtestComparison.

## II. RELATED WORKS

This think about investigates the utilize of profound learning strategies, such as YOLO (You As it were See Once), for real-time protest location to help outwardly disabled people. It examines the usage of haptic input instruments to pass on question acknowledgment comes about to clients. This survey paper studies different wearable advances outlined to help outwardly disabled people, centering on protest location and route frameworks. It talks about the adequacy of haptic criticism in improving client encounter and independence<sup>3</sup>. This investigate presents a framework that utilizes YOLO innovation implanted inside wearable gadgets to distinguish and recognize objects in the environment. It assesses the system's execution in giving exact and convenient input to clients through haptic prompts. <sup>4</sup>. This comprehensive audit paper examines the plan and execution of haptic input frameworks in different assistive innovations, counting wearable gadgets for the outwardly disabled. It investigates diverse haptic criticism modalities and their viability in passing on data to clients.

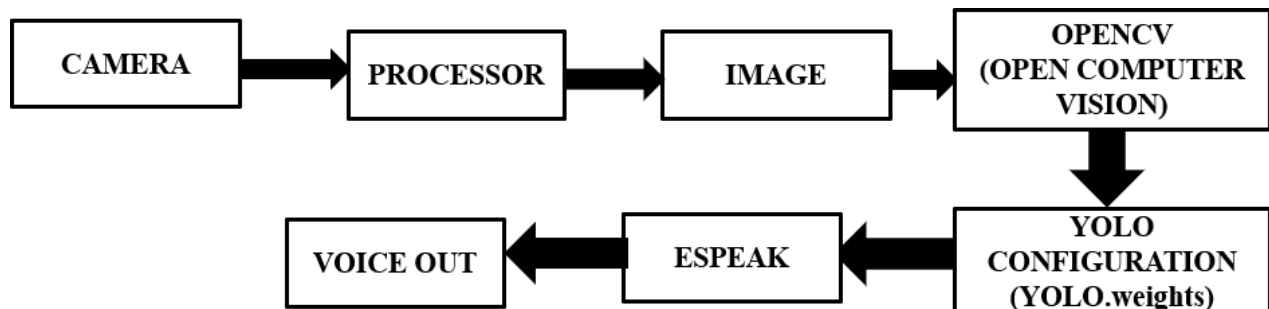
## III. EXISTING METHOD

In this existing framework dazzle individuals utilizing ultrasonic sensor. ultrasonic sensor settled in daze individuals adhere, if any question recognizes by ultrasonic in front of daze individuals, buzzer will be on. OpenCV based protest location executed. But it may not discover protest precisely. Protest acknowledgment done with tangle lab program. But it's arecreation yield.

## IV. PROPOSED SYSTEM

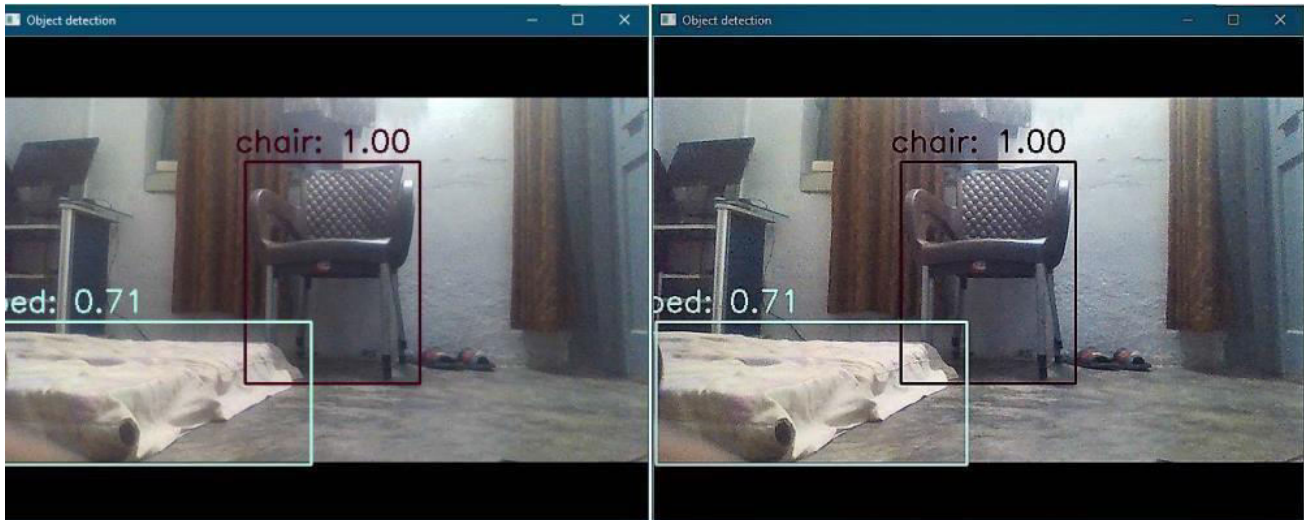
In this proposed framework we will discover objects in genuine time utilizing AI, OPENCV, YOLO (You as it were live once). After securing of picture, it has to be pre-processed and compressed. Different day by day utilize objects' pictures are utilized to prepare the demonstrate. It is prepared by performing include extraction on the picture to get the required design in the picture. Taken after by highlight combination and measurement diminishment to compress the picture for solid and genuine time execution. At that point this YOLO dataset is utilized to prepare the classifier. Comparing the execution of different classifier, we select the ideal one, and hence the protest acknowledgment show is accomplished. Presently any test picture may be given to this demonstrate which will be classified into one of the classes the demonstrate has been prepared into.

## V. BLOCK DIAGRAM



The camera takes a picture, and sends it to the processor along with the estimated data. The pictures taken by the camera and recognized can be checked by the processor for identifying objects around individuals as shown in block diagram.

## VI. EXPERIMENTAL RESULTS



There is no blurriness or haziness in the image, and has a clear view. In light of these facts, these are some of the bonus points of our system which will help the system to detect the obstructions in a better way, and will give a worthwhile assistance to the visually impaired user.

## VII. FUTURE SCOPE

Future Scope for Wearable Peruser for Outwardly Disabled Individuals with Haptic Criticism Utilizing YOLO Innovation: Join machine learning progressions to progress question acknowledgment precision and extend the run of objects distinguished, counting complex shapes, surfaces, and colors. Improve the device's capability to give real-time input on the user's environment, counting scene depictions, content extraction from signs, and facial acknowledgment for social intuitive. Coordinated with GPS and mapping advances to give route help, counting directing clients through new situations, recognizing deterrents, and finding adjacent focuses of intrigued. Permit clients to customize haptic input designs based on their inclinations and particular needs, such as escalated levels, vibration designs, and term, to progress client involvement and consolation.

## VIII. CONCLUSION

The venture begun with the inspiration and the thought to illuminate the issues of outwardly disabled individuals. Numerous strategies were found to execute protest location and the utilization of OpenCV Library and YOLO was the best choice. We display a visual substitution framework for dazzle individuals based on question acknowledgment in outlines. This framework employments Yolo arrangement, weights and highlights coordinating for protest recognizable proof. We commit the test portion to test the application in arrange to distinguish a few objects in a few outlines with diverse conditions. This venture presents a novel route gadget for the outwardly impeded bunches to offer assistance them reach the goal securely and productively. When it identified it caution the outwardly disabled individuals through the buzzer.

## REFERENCES

- [1]. Mahendru, Mansi, and Sanjay Kumar Dubey. "Real Time Object Detection with Audio Feedback using Yolo vs. Yolo\_v3." 2021 11th International Conference on Cloud Computing, Data Science & Engineering (Confluence). IEEE, 2021.
- [2]. Samhita, M. S., et al. "A critical investigation on blind guiding device using CNN algorithm based on motion stereo tomography images." Materials Today: Proceedings (2021).
- [3]. Ashiq, Fahad, et al. "CNN-based object recognition and tracking system to assist visually impaired people." IEEE Access 10 (2022): 14819-14834.
- [4]. Zheng, S., Wu, Y., Jiang, S., Lu, C., & Gupta, G. (2021, July). Deblur-yolo: Real-time object detection with efficient blind motion deblurring. In 2021 International Joint Conference on Neural Networks (IJCNN) (pp. 1-8). IEEE.
- [5]. Konaite, Matshehla, et al. "Smart Hat for the blind with Real-Time Object Detection using Raspberry Pi and TensorFlow Lite." Proceedings of the International Conference on Artificial Intelligence and its Applications. 2021.

## BIOGRAPHY



Mr. Anbarasan. M, Assistant Professor, Electronics and Communication Engineering Department, Adhiyamaan college of Engineering, Hosur.



Sivachandar S, Electronics and Communication Engineering Department, Adhiyamaan college of Engineering, Hosur



Sivanandhan M, Electronics and Communication Engineering Department, Adhiyamaan college of Engineering, Hosur.



Vigneshwaran S, Electronics and Communication Engineering Department, Adhiyamaan college of Engineering, Hosur.



Suman K, Electronics and Communication Engineering Department, Adhiyamaan college of Engineering, Hosur.



INTERNATIONAL  
STANDARD  
SERIAL  
NUMBER  
INDIA



# INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

 9940 572 462  6381 907 438  [ijirset@gmail.com](mailto:ijirset@gmail.com)



[www.ijirset.com](http://www.ijirset.com)

Scan to save the contact details