

DEVELOPMENT OF SPECTACLE FOR THE SPECIAL NEEDS WITH CAMERA



Introduction



The eyes is the most important element of the body for avoiding obstacles. The main goal of this project is the Spectacle which is to help blind people and people who have vision difficulties

Problems



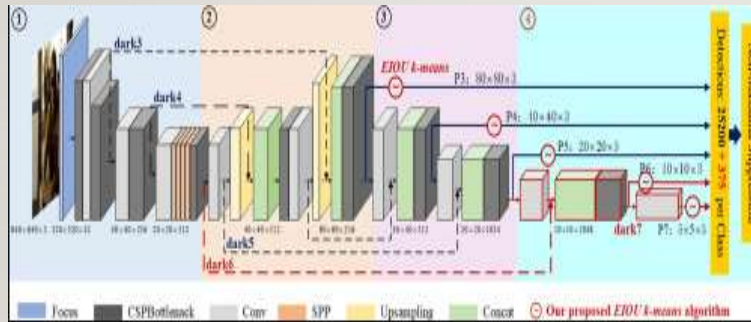
- Blind people don't know that's everything surrounding between them. Their need checking using hands, feet or a simple stick that's mean touching the object around them.
- Select the suitable algorithm for recognition and detection the surrounding object accuracy.

Main Idea

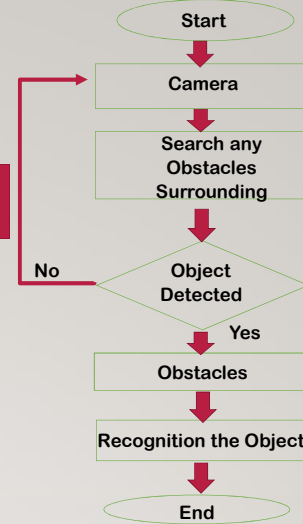
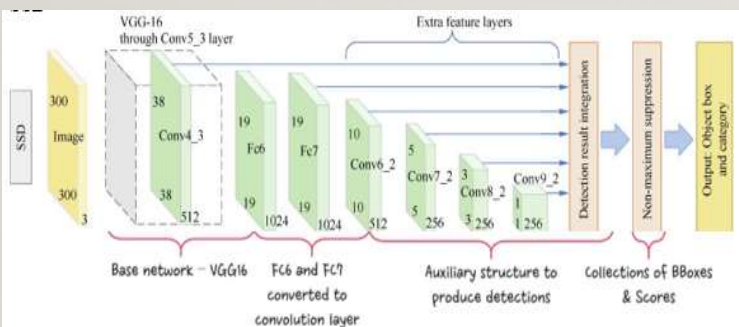


- To detect the object and recognize the real time image by using image processing technique.
- To develop a system that can warn the visually impaired if there are any obstacles detected.

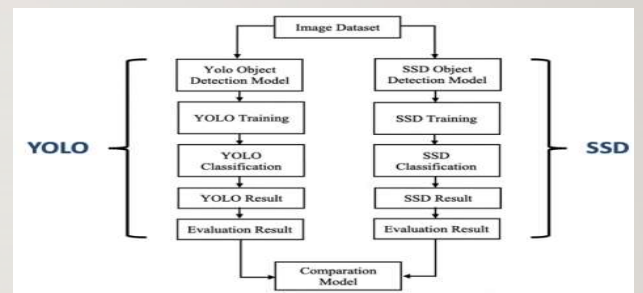
YOLO v5 (You only look once)



SSD Mobile-Net (Single Shot Detector)

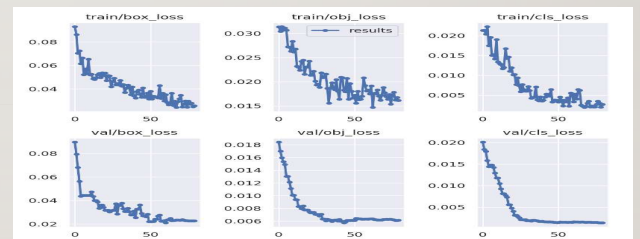


Step Of Custom Dataset Of Algorithm

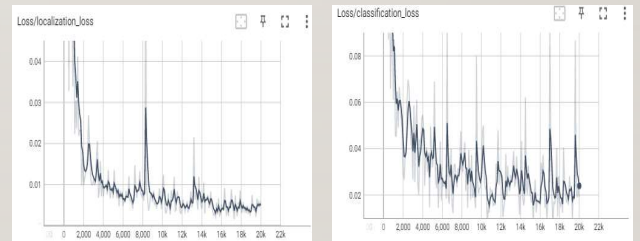


Results of Algorithm

YOLO v5



SSD



Conclusion

- In summary, we focused on the problem of how to improve the recognition rate Development of Spectacle For The Special Needs With Camera targets in adverse conditions to blind people and people who have vision difficulties.
- Each of the models were successful in the required application of object detection and recognition with the YOLOv5s being the most optimal model for real-time deployment due to its speed and accuracy combination.



	YOLO	SSD
Accuracy	78%	46%
FPS	140	59
Measure	640*640	320*320
Precision	0.945	0.69
Recall	0.843	0.57
mAP	0.923	0.921