Object Detection and Alert System for Visually Impaired People

Kura Pravallika 17WH1A0525, Thota Sahithi 17WH1A0539, Palepu Priyoosha 17WH1A0559 Guide: M Dyva Sugnana Rao

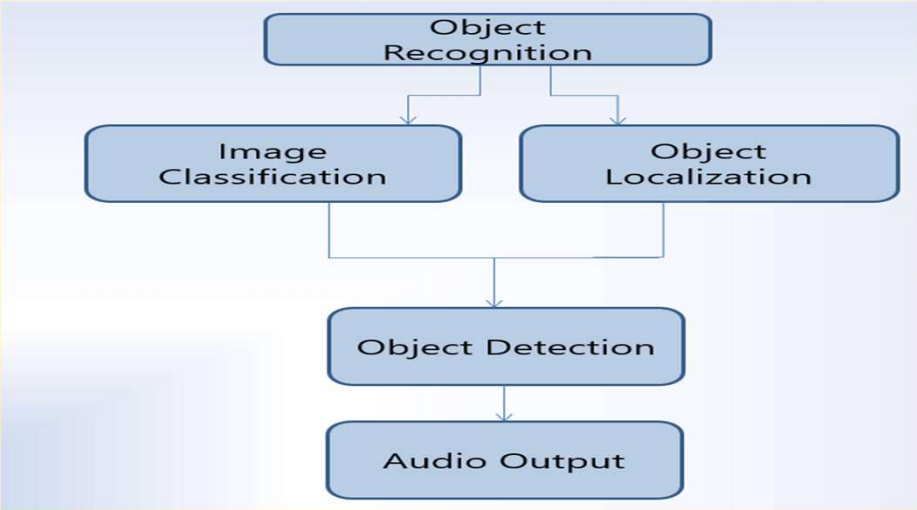
AIM

Many people suffer from partial or complete blindness in this world. The advanced technologies have proved to gain even the impossible. This project aims at helping people who are visually impaired with their navigation. The main objective revolves around implementing object detection with an alert system and embedding it into a web application that is blind-friendly.

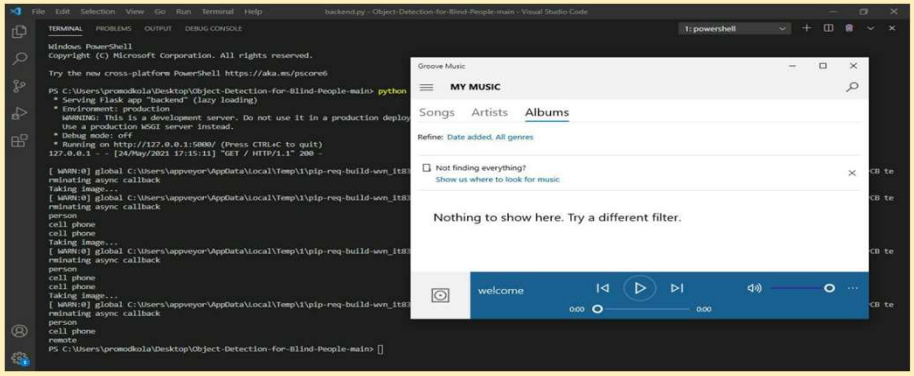
INTRODUCTION

Object recognition is an overall term to depict an assortment of related Computer vision tasks that include recognizing objects in digital photos. It locates the existence of an object by creating bounding boxes around it. A way to deal with implementing an object detection model is to initially fabricate a classifier that can classify firmly cropped pictures of an item. A finer model that handles the problem of anticipating exact boundary boxes by utilizing the convolutional sliding window mechanism is the YOLO algorithm. The purpose of this project is to implement YOLO model along with functionality of Audio Output.

ARCHITECTURE



RESULT



CONCLUSION

In this project, YOLOv3 has been applied and proposed to utilize for object identification in light of the fact that of its favourable circumstances. It was used to settle the genuine issue of navigation for the blind and visually impaired people in real time. An audio alert system was also included that will tell the user about the objects in front. This project is integrated into a web app for better usability. The visually impaired person will be able to sense and feel the environment in a better way using our app. This project can be further scaled and integrated with other accessories used by blind people such as their walking stick.

REFERENCES

[1] Joseph Redmon, Santosh Divvala, Ross Girshick, "You Only Look Once: Unified, Real-Time Object Detection",The IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2016
https://openaccess.thecvf.com/content_cvpr_2016/html/Redmon_You_Only_Look_CVPR_2016_paper.html

[2] YOLO V3
https://pjreddie.com/media/files/papers/YOLOv3.pdf