Technical Solutions for Visually Impaired

“Ashish Ranjan”, “Yash Pise”, “Akshat Jaiswal” and “Kamala Raj T”

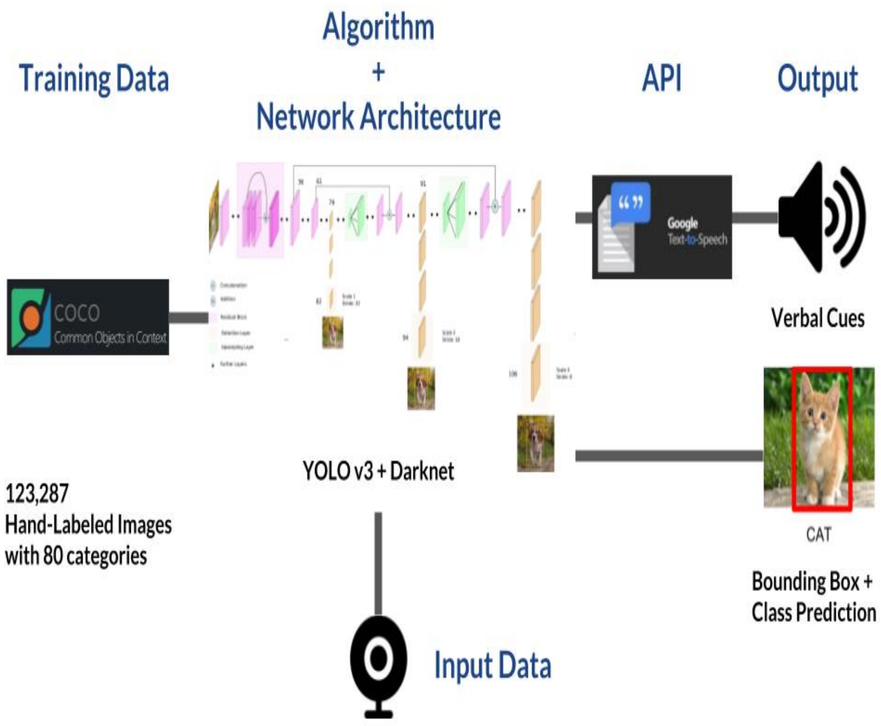
Under th guidance of

“Dr. Madhushi Verma” and “Mrs. Kanak Manjari”

Abstract

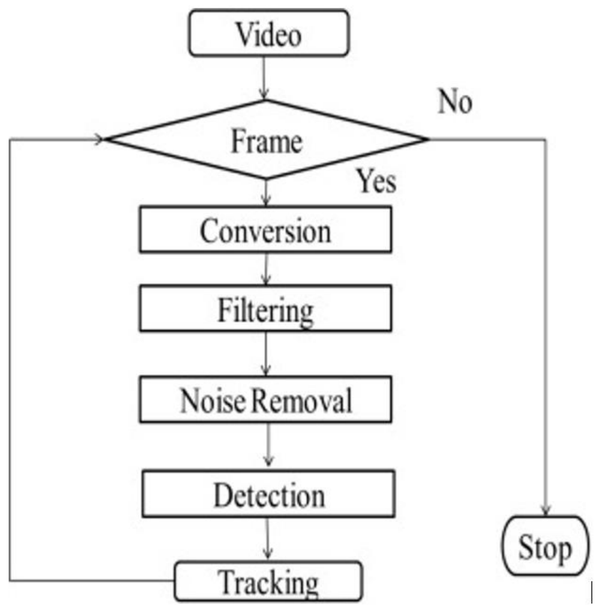
The purpose of this project is to help visually impaired people to get a life at some extent same as normal people. At the completion of this Project these people will be able to detect objects and obstacles. They can be able to access the printed texts as we are converting these texts into speech. The objects and the Obstacles will be converted into speech so they are able to detect them and work accordingly.

Introduction



Objects are detected using YOLO API .
These objects are Converted from text-to-speech using text-to-speech libraries.

Proposed Method



Real time objects are taken from camera and detected.
These detected objects are converted into speech so that visually impaired people can hear it easily.

Experimental Results and Discussion

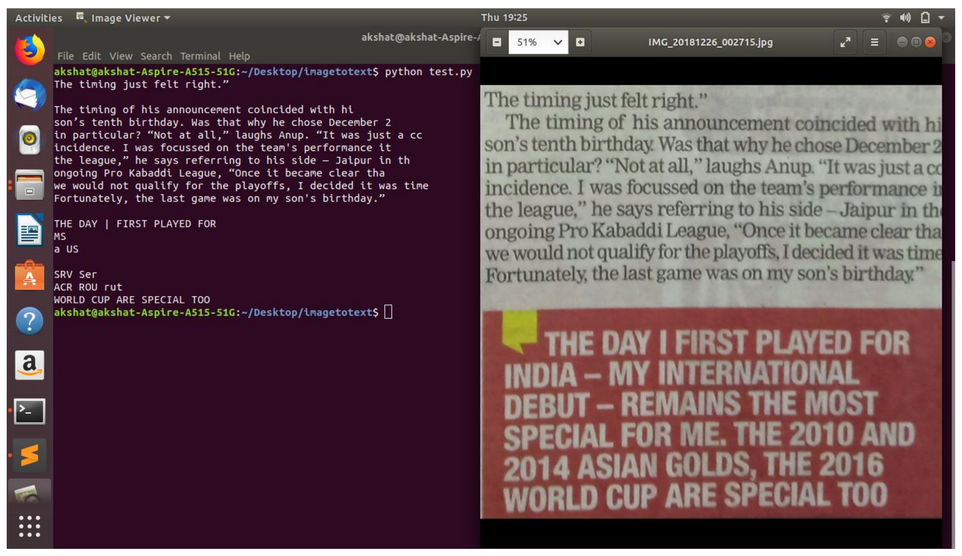
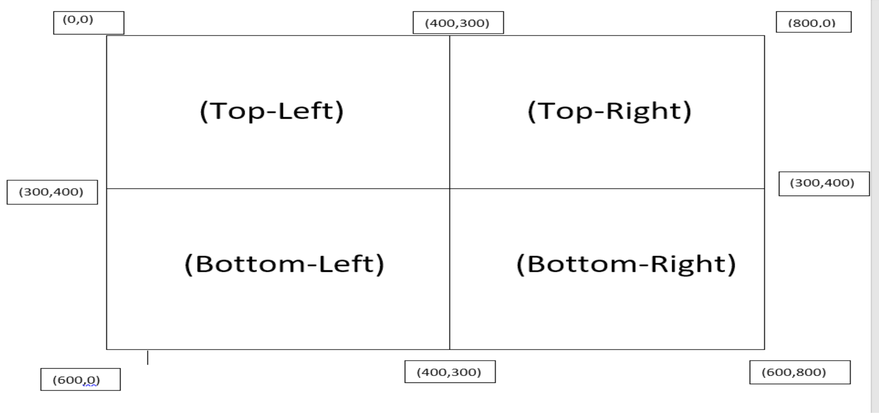
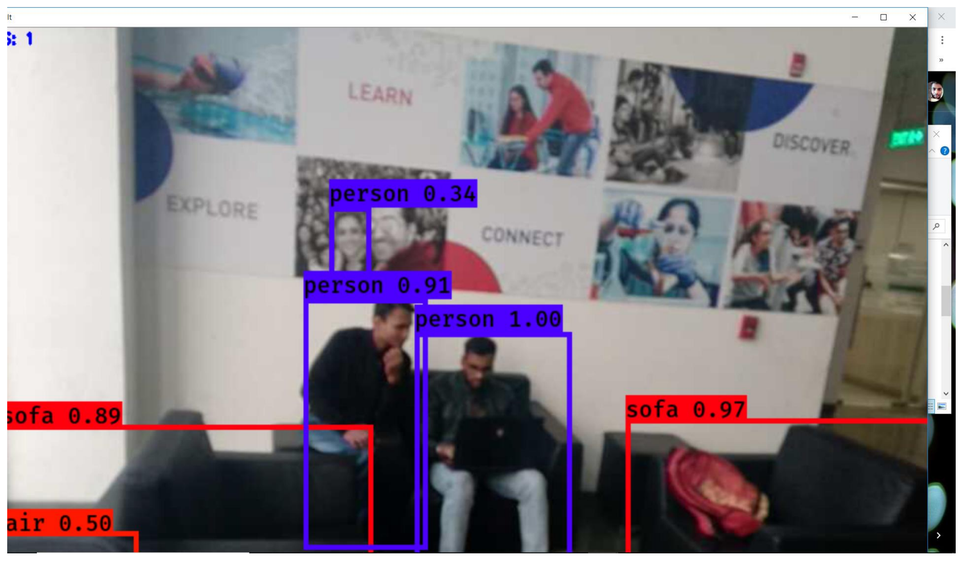


Image text is converted into speech.



The image is divided into 4 parts to get the directions of the objects.



These are the outputs of objects which are detected and translated into speech.

Conclusions

In our project we have used object detection COCO API, which uses **YOLO** algorithm, and **PYTESSERECT** for image to speech .The YOLO algorithm takes image/videos as an input and creates bounding boxes according to the trained data. This convolutional implementation of the sliding window makes yolo an excellent approach for object detection. Pytesserect is an OCR tool for python that converts image to text and gtts converts that text into speech. The purpose for using KERAS_YOLOV3 is that is gives better accuracy than other modules.

References

[1]https://medium.com/@MicroPyramid/extract-text-with-ocr-for-all-image-types-in-python-using-pytesseract-ec3c53e5fc3a
[2]https://ieeexplore.ieee.org/document/4669755
[3]https://pjreddie.com/darknet/yolo/

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