PROJECT REPORT

ON

Social Distancing Alert System

Name : Altaf Bin Sarfraz
Registered Mail Id: altafsarfraz36@gmail.com

Index

1. INTRODUCTION

1.1 Overview

COVID-19 spread is emotionally challenging for many people, changing day-to-day life in unprecedented ways. All sections of society should play a vital role to protect themselves and each other and help prevent further spread of the disease.
Social-distancing is an important way to slow down the spread of infectious diseases. People are asked to limit their interactions with each other, reducing the chances of the disease being spread with physical or close contact.

1.2 Purpose

The Purpose is to create a system that uses pre-installed cameras/ recorded videos to analyze images from public areas like shopping malls, streets to see whether the public is adhering to safety measures, like maintaining social distancing.
This project uses python combined with deep learning and computer vision to monitor social distancing. A web application is built and is hosted on the cloud which streams the video of Social distancing Violations.

Category: **Deep Learning**
Skills Required: **Python,Python Web Frame Works**

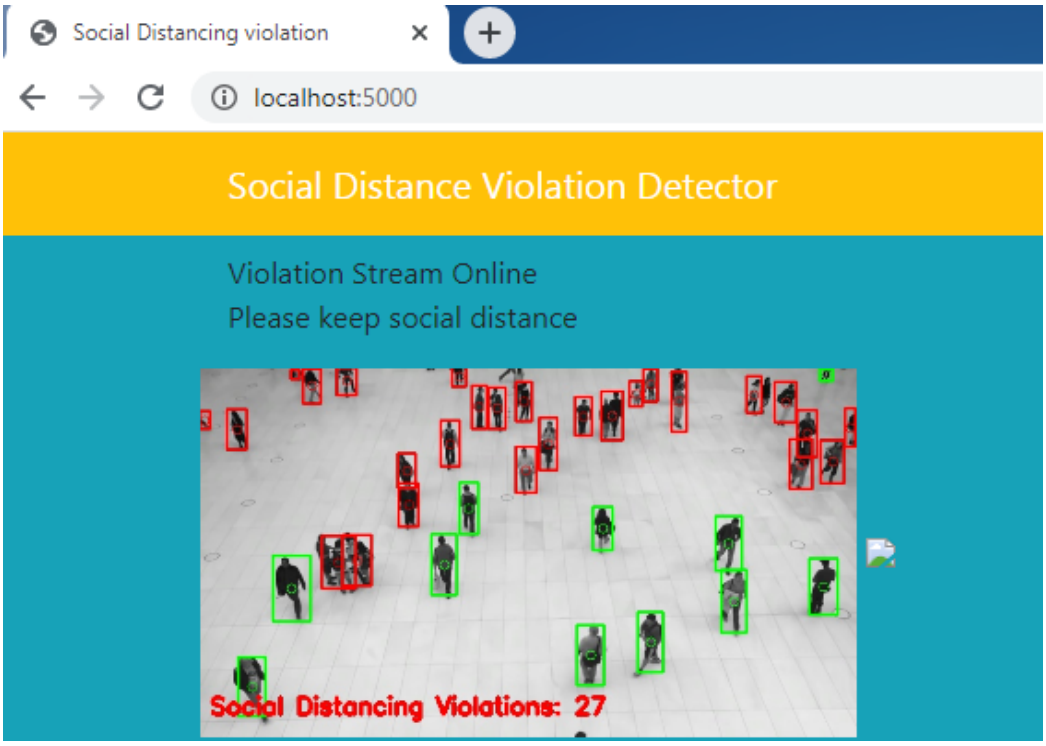
Project Flow :
1) Get the camera / Video Feed
2) Detect pedestrians in the frame using the Yolo pre-trained model
3) Localize the pedestrians in the frame
4) calculate the centroid of the pedestrians detected
5) Find the distance between Pedestrians
6) Draw rectangle bounding boxes around pedestrians who are very close
7) Count the number of bounding boxes which are very near
8) Display the count of Violations on the frame
9) Create a Flask application which streams the frames

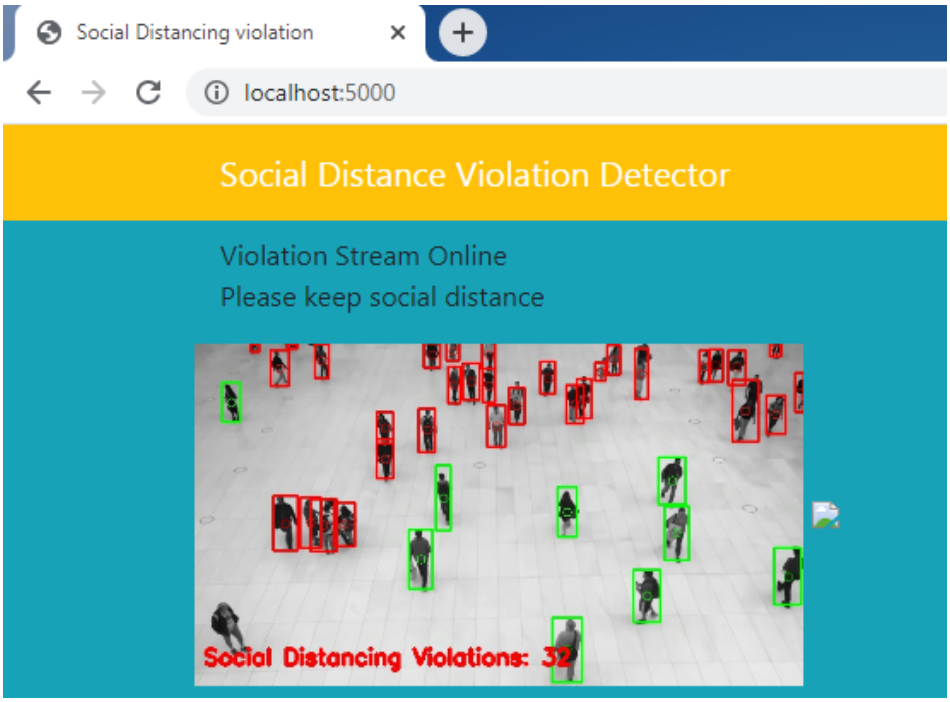
2 RESULT

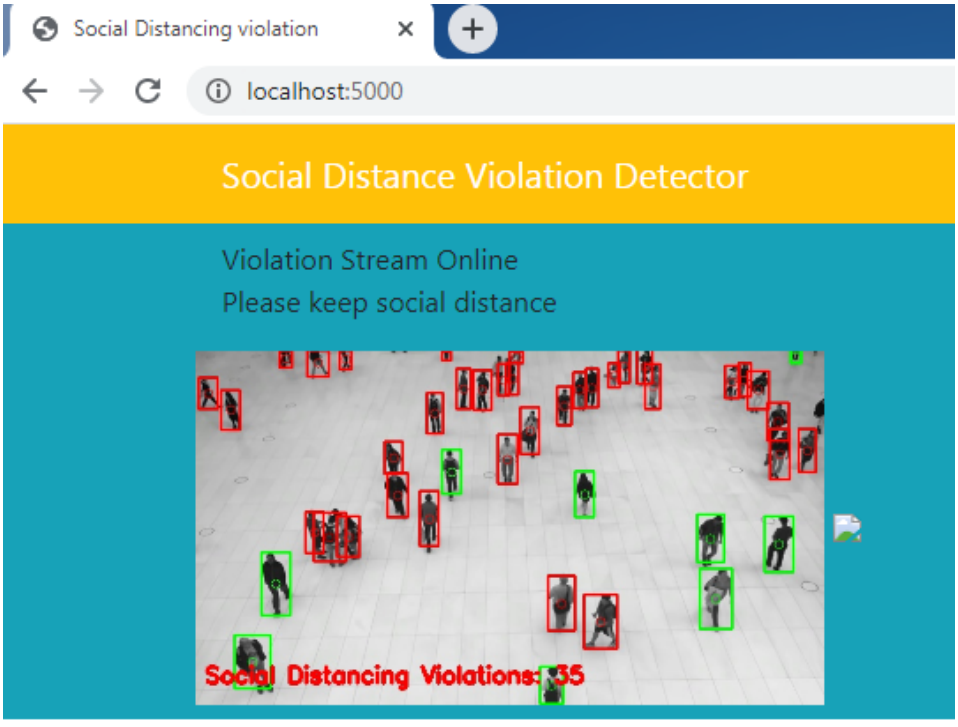
Sucessfully built a web application to create a system that uses pre-installed cameras/ recorded videos to analyze images from public areas like shopping malls, streets to see whether the public is adhering to safety measures, like maintaining social distancing.

Refer to GitHub Repository : For Complete Code Sources.

2.1 **Screenshots of Output**




Social Distancing violation
localhost:5000
Social Distance Violation Detector
Violation Stream Online
Please keep social distance
Social Distancing Violations: 32


Social Distancing violation
localhost:5000
Social Distance Violation Detector
Violation Stream Online
Please keep social distance
Social Distancing Violations: 35

3. APPLICATIONS

1) System **can be used in pre-installed cameras/ recorded videos to analyze image**s from public areas **like shopping malls, streets** to see whether the public is adhering to safety measures, like **maintaining social distancing.**
2)Can Help r**educing the chances of the disease being spread** with physical or close contact.
3)Can be **helpful for adminstration to quickly detect Places** whether social distancing is not being brought in place.
4) Reduces the **manual hardwork for Cops** in ensuring whether the public is adhering to safety measures, like maintaining social distancing.
5) Citizens can v**erify before visiting a certain place** whether **social distancing is being followed or not by live stream of videos reducing the risk of spreading of infection.**

4. CONCLUSION

Successfully implemented Social Distancing Alert System that uses pre-installed cameras/ recorded videos to analyze images from public areas like shopping malls, streets to see whether the public is adhering to safety measures, like maintaining social distancing using python combined with deep learning and computer vision strictly in a**ccordance with the Specifications provided, and adhering to the time frame allocated**.

5. FUTURE SCOPE

In Nearby future we intend to collect more data and to use more advanced techniques to make this installed in Cameras and recording devices in shopping malls, streets.A web application can be built and can be hosted on the cloud which streams the video of Social distancing Violations.
Can be successfully installed in Administration Authorities Workplace so that they can instantly detect the violation.
An Alert Bell/Ring can be connected to System through cloud services which will instantly warn the authorities when in violation is done.