COVID protocol violations detection

Vasu Jain
2019125
vasu19125@iiitd.ac.in

Rasagya Shokeen
2019088
rasagya19088@iiitd.ac.in

Sejal
2019102
sejal19102@iiitd.ac.in

1. Problem Statement

for the input, we would be using a live stream or a pre-recorded video of a public space wherein several individuals would interact. This would generate an output video or live video in which each and every person would be shown detected using a rectangular boundary and those violating the social distancing threshold would be surrounded by red colored rectangle. also there will be lines showing the line of measuring the distance between them. If someone is found not wearing a face mask, they would be surrounded by a blue-colored circle(this would also be shown in the live video)

2. Challenges

in the video input of a large mass, it was challenging to detect the face masks of individuals because a beard or simple cloth covering may also look like a face mask. Also, the visuals' noise can disturb the calculation and processing in the video input. These are some of the many challenges we might face during this project.

3. Motivation

Covid 19 has disrupted usual lifestyles for the past two years now; tracking its spread has been one of the biggest challenges humankind faces. A deep learning-based system to detect covid protocol violations would be of immense value in such a scenario, especially in a densely populated country like India.

4. Contributions

conventional deep learning methods relied on two different sets of inputs: first, a closeup of the individual face in either a video or stationary photo for the face mask detection. Second, zoomed out of public space to detect the violation of social distancing. The solution that we propose integrates the above two domains and uses deep learning to detect both these covid violations in a single input video.

5. Project Summary

We propose a system to detect the violations of covid protocols such as social distancing and not wearing a face mask in public places. To implement this, we would be using the YOLO(you only look once) library, which will be used for object detection; in our case, the object will be the people in public places, and we will be processing the distances between various people and those found at smaller distances than a particular set threshold will be given an alerting message in the form of visuals. For the latter, we will be processing the input video(live stream/video) to detect if there is a mask on the faces of the people in the video.

6. Survey

existing solutions bifurcate between 2 different covid protocol violations, namely social distancing and covering of face using a mask. That is, they require two different sets of inputs. And generate two different outputs. We propose an integrated system which would show us both the verdicts, that is, if social distancing, as well as violation of not wearing a face mask, has been followed or not.