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SOCIAL DISTANCE CHECKER

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AIM OF THE PROJECT

The Outbreak of COVID-19 has affected almost everyone across the globe. During this pandemic, people are advised not to be in close contact with others to reduce the spread of the disease, but due to the negligence of many, we continue to face the repercussions of this pandemic

As the name suggests, social distancing implies that **people should physically distance themselves from one another**, reducing the spread of contagious diseases like COVID. So, in order to monitor if people are maintaining social distance or not, we are working on the project named, **Social distance checker.**

This Social Distance Checker can be used in public places like streets and malls and also in offices in factories, which can then sound an alarm if the distance between two people is less than the prescribed limit.

PROGRESS OF THE PROJECT- METHOD USED

- Single shot object detection (SSD) using MobileNet and OpenCV using which we will detect people from a video which is either recorded or playing live by any normal security camera.

- Once the person is detected, we form a boundary box around them, which can either be static or dynamic depending on whether the person in the video is moving (or) not

- The centroid of all boundary boxes in a given frame is calculated and then the distance between them is calculated using the method discussed in the later slides.
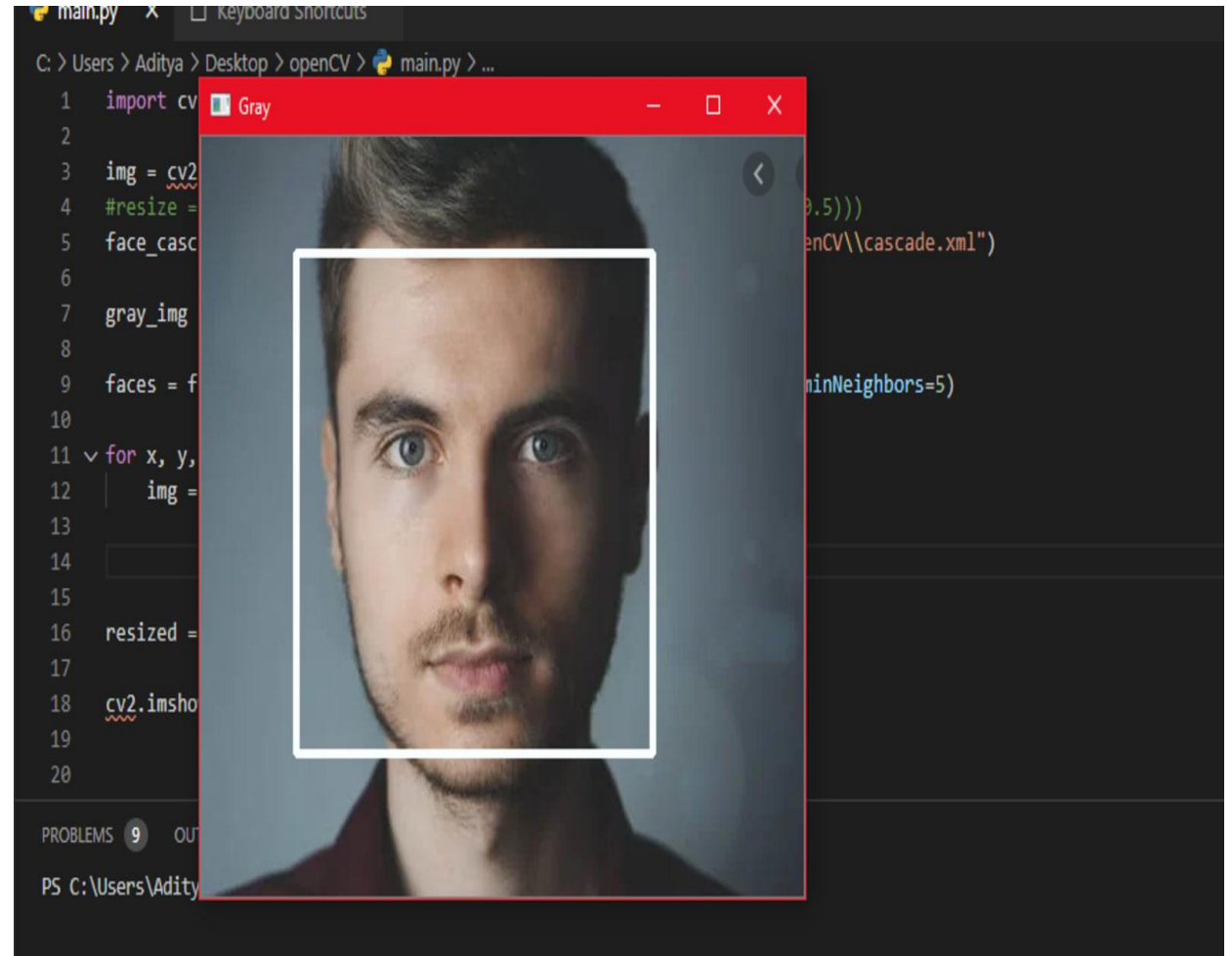
Once the distance is calculated, we id these boxes either as being "safe" or "not safe" based on the predecided social distance limit, consequently the color green and red is provided to these boxes.

PROGRESS OF THE PROJECT- DISTANCE CALCULATION

- Now the distance is calculated by finding the centroid of each bounding box in a frame and then finding the distance between centroid of every   possible two boxes ,we will finding distance by the formula—

-    d=square root(($x1$-$x2$)^2+($y1$-$y2$)^2)

- Now if the distance will be less than some threshold value then the color of the bounding box of that person will change to red showing that ,this person is violating social distancing rule.

ERRORS FACED

- From starting ,till end we have faced many errors ,which learnt us more new things also ,some of them are—

- First error was ,in learning open cv, we downloaded some files to use it properly but after downloading them they were not working properly and it takes about more than a week to solve them ,so we try new method

- Next we tried yolo for better object detection but again downloading darknet was a tough nut to crack,and again it took more than a week time but after failed in that also we try to ue tenserflow

- And running that also was tough and found many error and took much time to rectify but after resolving them all ,finally we completed our project successfully

FUTURE ADD ONS AND IMPROVEMENTS

- Now as errors learnt us many new ways to compelete this project but unfortunately due to time constraint we have only worked on several of them so we will do the project with other also in the future like yolo ,better neural network ,whole project on tenserflow ,and this can be done the we can integerate it with cctv to use it practically in daily life and many more