

SOCIAL DISTANCING AND FACE MASK DETECTOR

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PROBLEM

Due to Covid-19, approximately 7 million people lost their lives in the world, and we must pay attention to both social distance and the use of masks to protect against this disease. For this reason, it is very important to detect and take precautions for people who violate this situation in preventing the spread of the virus.

OBJECTIVE

Our main objective in this project is to detect the spread of this virus and the violations committed by tracking in real time whether people comply with social distancing and wear a face mask within the scope of this pandemic using Computer Vision and Deep Learning libraries such as Tensorflow Keras, MobileNetV2 and YOLOv4.

2. Social Distancing

There are 3 important steps for Social distance detection.

A. Real Time Pedestrian Detection We have selected YOLOV4 and used the COCO dataset to train our model using TensorFlow and MobileNetV2.

B. Calibration

The right coordinates of a quadri lateral, onto which the picture frame is warped, can be chosen to transform the image frame from viewpoint to a from top to

RESULTS

Face Mask Detection





Gender Detection





METHODOLOGY

We can examine the methods of this project, which we developed using libraries such as Tensorflow, OpenCV, YOLOv4

- 1. Face mask detection
- 2. Social distancing

1. Face Mask Detection

• We took dataset from kaggle and other websites which is included masked and unmasked photos.

 Train and test process done with using YOLO's different version with these datasets.

- bottom (bird's eye) view.
- C. Determining Social Distance Violation The brute force method involves calculating all possible pairs' Euclidean distances and identifying any that exceed the limit.

(A) Real Time Pedestrian Detection









Social Distancing





Social Distancing with Thermal Images

• After the training model we are using these model in face mask detection.We are taking input from CCTV or video.

• We are using the green and red boxes to detection of mask.Red is refer to unmasked person, green is refer to masked person.





Real Time Pedestrian Detection (C)



Euclidean Distance formula





CONTRIBUTION

Our project is a Face Mask and Social Distance Detector that uses image processing to monitor compliance in public settings and promote safety during the COVID-19 pandemic.



FUTURE WORK

We can focus to improve the measuring with thermal camera and also we will try to improving the fps on real time rendering

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