



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

# IJIRSET

International Journal of Innovative Research in  
**SCIENCE | ENGINEERING | TECHNOLOGY**



# INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 11, Issue 6, June 2022

**ISSN** INTERNATIONAL  
STANDARD  
SERIAL  
NUMBER  
INDIA

Impact Factor: 8.118



9940 572 462



6381 907 438



ijirset@gmail.com



www.ijirset.com

# A Review on Social Distance and Mask Detection

Preethi M, Ms.Ashwini.C

Master of Computer Applications, Dept. of Master of Computer Applications, UBDT College of Engineering,  
Davanagere, India

Dept. of Master of Computer Applications, UBDT College of Engineering, Davanagere, India

**ABSTRACT:** A novel virus has caused a world pandemic and huge life losses in the world. It is declared in the World Health Organization(WHO), this Covid-19 born in Wuhan, China in late December 2019. The Covid-19 which has affected to 209 countries, infected more than a million of peoples and claimed more than 50 thousand human lives in this worldwide. And the 90 thousand patients and making it a global public threat. . As the evidence of Covid-19 slowing down in several components of the world, maintaining “social distance and wear a mask” between indoor and outside people are more vital than ever. Python can be used to capture the people and monitoring social distancing. To avoid the spread this virus, many measures have been suggested, such as maintain the social distance and wear a mask properly to avoid the droplets from transmitting through the air. And to be proper physical distance between a group of peoples. This system will implement object detecting and facial recognition in the video footage of pedestrians. Therefore, this research paper concludes with proper facts that social distances and wearing clean face masks helps to avoid this virus. This paper aims to provide a current recommendations on the use of mouthwashes again and again against the Covid-19 and to analysis the advantages and disadvantages of most conventional antiseptic mouthwashes used in dentistry.

## I.INTRODUCTION

The Coronavirus disease 2019 epidemic has arisen as a major menace all around the world, As the number of cases is gradually increasing day by day, the government has two difficulties in controlling the pandemic situation. Coronaviruses are a wide group of viruses which causes illness that range from colds to deadly infections like the Middle East Respiratory Syndrome and Severe Acute Respiratory Syndrome.

The droplet transmission usually occurs when a person is in close with someone who has respiratory symptoms and is therefore a risk of having his/her mouth, nose or eyes exposes of potentially infective respiratory droplets. Monitoring social distance regulations and manually checking people’s wear masks is most likely to lead to scarcity of resources, and is supposed to allow errors creeping in due to human intervention. Citizens have ensures safety with strict rules by checking whether sufficient distances and clean mask usage are observed. Respiratory issues like shortness of breath or difficulty in breathing is one of them.

The up comes depicted that there were considerably lower reported cases after implementing Social Distances in two countries. Although, the final distance was considered to be two meters and was implemented earth making it a successful parameter. In order to stop the virus from spreading this virus, the world society must to be consider quarantine up to a maximum 10 days in a separate room.

### 1.1 Objectives:

The main objective of our system is that will identify whether the person in frame is wearing a face mask and also maintain distance between two people. If the person is wearing mask properly then our person. According to the data obtained by the world health organization the global pandemic of Covid-19 has severely impacted the world and has now infected more than 8 million of peoples in this worldwide.

“Our main objective here is to develop an efficient computer vision based system focused on the real time automated monitoring of people to detect face mask and social distances in the public places.

## 1.2 Scope

The scope of the Covid-19 social distance is to suggested that maintaining a distance of approximately 2 meters from another individual result in a marked reduction in transmission of most flu virus strains, including Covid-19. This means Covid-19 avoiding close proximity to other people will aid in slowing the spread of infectious diseases.

## II. LITERATURE SURVEY

A detection network with a backbone, neck and heads is implemented consisting of Resnet as the Backbone, FPN as Neck and classifiers, predictors, estimators etc. People are finding many new methods to secure themselves from the Covid-29 pandemic. The researchers working in the fields such as Internet of things, machine learning, computer vision, and Block chain are working on the various techniques that can secure and people against the spreading of this virus.

To develop an efficient computer vision based system focused on the real time automated monitoring of people to detect face mask and social distancing in the public places. Similarly, another research was conducted to study the role of the cultural dimension that was present in the practice of social distancing in the world. Most of the papers have tackled either the issues of social distancing monitoring, or face mask detection.

### 2.1 SOCIAL DISTANCING FOR COVID-19

In order to control the current situation regarding the wide spread of Covid-19, social distancing is emphasized in limited spaces. . The study, with the help of ferrets, showed that air SARS-CoV-2 could be transmitted easily via any kinds of direct contact and through the air as well. By validating their model, they came to the conclusion that maintaining social distancing can reduce the wide spread of the virus by 20% to 40% in the first 30 minutes. Social distancing and its relation to COVID-19 cases were used to analyse how effective this measure was. According to their study, it took 1 to 4 weeks ever since the declaration of social distancing measures was announced to show the signs of decreasing cases. The results varied from country to country due to their different approaches. The dataset collected from existing sources consisting of masking and unmasking faces proved to be insufficient, hence new and two data augmentation techniques were employed to add masks on unmasked faces and to add blurred images. In a research paper, they proposed a technique that was able to detect masked faces by applying four steps. Their suggested method turned out to be way simpler than the conventional methods thus making real-time detection feasible.



shutterstock.com · 1643052535

## III. SYSTEM IMPLEMENTATION

The first version of the My SD is development for Android platform. Dual shot Face Detector is utilized in this research to detect the individual faces. It is widely used where detections are in a more large-scale ranged-orientations.

The basic methodology behind this algorithm is to first, divide the video into frames and detect people and their faces in every frame.

### 3.1 Existing System

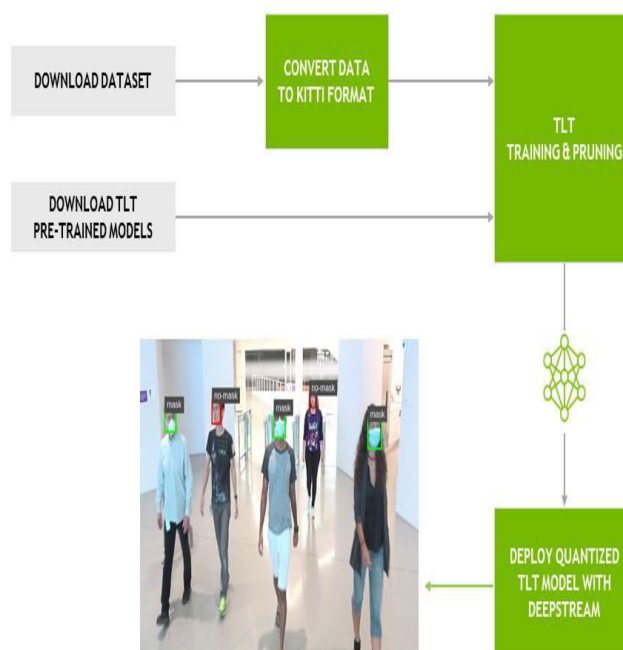
In a public health social distances, also called physical distancing is a set of non-pharmaceutical interventions or measures intended to prevent the spread of a contagious diseases by maintaining a physical distance between people and reducing the number of times people come into close contact with each other.

### 3.2. Proposed System

In this system, a model is suggested that uses the combination of Open CV library with Raspberry Pi to build an Industrial Internet of Things applications. Later on, the frames are combined which then again forms a video. It works as follows:

1. Capture a video
2. The video by dividing it into a number of frames.
3. While detecting persons, detect their faces with the help of the DSFD model to detect whether they have masks on or not.
4. While the help of bounding boxes on the person and their faces, measures the distances between them and detect masks on them.
5. Create a results board on top of the video and display the results.
6. Create an output stream and then show the results.
7. Do this for every frame till it reaches to end of file.

#### DEVELOPER RECIPE OVERVIEW: AI-BASED FACE MASK DETECTOR



## IV. METHODOLOGY

The first dataset contains a video of people walking in a busy downtown centre in Oxford, England. These are open datasets and can be used for various development and research projects in the area of object detection, facial recognition, and many such other projects. This social distance was to detect the safety between people in public



spaces. From, the detection results, only pedestrian class was used and other object classes are ignored in this applications. Hence, the bounding box best fits for each detected pedestrian can be drawn in the image, and these data of detected pedestrians will be used for the distance measurements.

#### 4.1 Person detection

The person detection in an a framework utilized the YOLO v3 object detection model to segregate humans from the background and deep sort approach to track the monitoring social distancing. The common clusters of symptoms have been identified: one is respiratory like a cough, fever, breathing problem. And a cluster of digestive symptoms with vomiting and the abdominal pain.

#### 4.2 Social distancing

To prevent the spread of Covid-19: is to maintain a safe distance from the others, even if they don't if they don't appear to be sick. Wear a mask in public, especially indoors or when physical distancing is not possible. Clean your hands often. Use soap and water, or an alcohol-based hand rub. If you have a fever, cough, and difficult breathing, seek medical attention. And the ware a proper fitted masks can help prevent the spread of the virus from the persons wearing the mask to others.. Help to your unvaccinated kids stay far between the grouped peoples

### V. DATASETS

The algorithm used for this is depicted in Fig. The algorithm begins with identifying the defining points of the outline of a face. The top part of the mask is obtained by locating the nose bridge, and the bottom, left and right parts are identified by locating the chin points of the face.

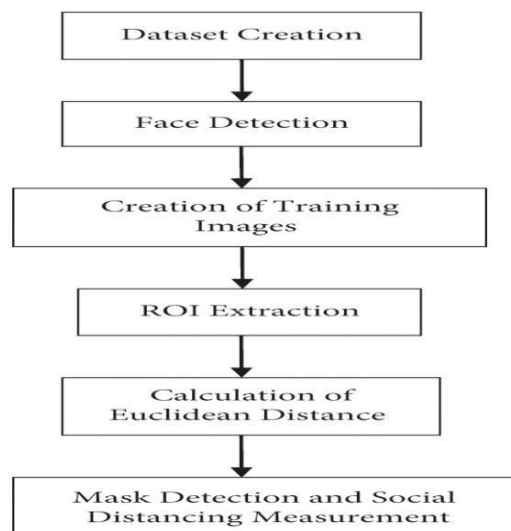
The left and right halves of the mask are prepared with the appropriate size. Using the orientation of the face, the angle of rotation for the mask is calculated.

The coordinates for superimposing the mask on the face is calculated and the mask is then placed on the face.

In response to the covid-19 pandemic, the white House and the collection of leading research groups have prepared the covid-19. In the current times, the fear and the danger of covid-19 virus still stands large.

A deep learning pipeline for mask detection and social distancing using state of art models. The automated detection of the policy violators in busy places. Keeping the track of all data efforts regarding the coronavirus is hard.

This dataset provides information related to the outbreak of covid-19 disease in the united states, including data from the each of countries.





## **VI. FUTURE SCOPE**

Although the system performance is good in terms of accuracy as well as prediction time, following improvement areas are identified. In this research, the people who have close relationship or who know each other and are walking together are detected as they violating the social distancing measure.

A simpler person detected algorithm could be developed that takes lesser prediction time with an accuracy with the current model.

## **VII. CONCLUSION**

This paper provides an efficient solution to monitor social distancing practise in public areas where it is very difficult to monitor manually. Thus, by understanding and studying about the virus, this paper can conclude two things: social distancing can reduce the spread of the coronavirus: face coverings help prevent the infections disease to transmit via the air. It also provides data augmentation techniques to deal with the lack of dataset in the community. This reduces the median number of infections by 92% and by the end of 2020, respectively. Their results strongly recommended the use of the face masks in general public to curtail the spread of coronavirus. Further, with the reopening of countries from the Covid-19 lockdowns, Government and public health agencies are recommending face mask as essential measures to keep us safe when venturing into public.

## **REFERENCES**

1. [https://www.researchgate.net/publication/356970660\\_Social\\_Distance\\_Monitoring\\_and\\_Face\\_Mask\\_Detection\\_Using\\_Deep\\_Learning](https://www.researchgate.net/publication/356970660_Social_Distance_Monitoring_and_Face_Mask_Detection_Using_Deep_Learning)
2. <https://ieeexplore.ieee.org/document/9396783>
3. [https://www.researchgate.net/publication/358279046\\_Mask\\_Detection\\_and\\_Social\\_Distance\\_Identification\\_Using\\_Internet\\_of\\_Things\\_and\\_Faster\\_R-CNN\\_Algorithm](https://www.researchgate.net/publication/358279046_Mask_Detection_and_Social_Distance_Identification_Using_Internet_of_Things_and_Faster_R-CNN_Algorithm)
4. <https://ieeexplore.ieee.org/document/9544890>
5. <https://ieeexplore.ieee.org/document/9544890>
6. <https://arxiv.org/ftp/arxiv/papers/2110/2110.03905.pdf>
7. <https://www.ijert.org/social-distancing-and-face-mask-detection-from-cctv-camera>
8. <http://norma.ncirl.ie/4419/1/ishashete.pdf>
9. <http://norma.ncirl.ie/4419/1/ishashete.pdf>
10. <https://www.hindawi.com/journals/sp/2021/8340779/>
11. <https://www.dpublication.com/wp-content/uploads/2021/03/28-418.pdf>
12. <https://www.ijert.org/social-distancing-and-face-mask-detection-with-reporting>
13. <https://www.ijert.org/social-distancing-and-face-mask-detection-from-cctv-camera>.



**INNO SPACE**  
SJIF Scientific Journal Impact Factor  
**Impact Factor: 8.118**



**ISSN** INTERNATIONAL  
STANDARD  
SERIAL  
NUMBER  
**INDIA**



# INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

 **9940 572 462**  **6381 907 438**  **ijirset@gmail.com**



**www.ijirset.com**

Scan to save the contact details