



FACE MASK DETECTOR

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ABSTRACT

Coronavirus Disease 2019 (COVID-19) broke out towards the end of 2019, and it's still wreaking havoc on millions of people's lives and companies in 2020. As the world heals from the pandemic and prepares to return to normalcy, There is a wave of dread among all people, especially those who want to continue in-person communication. Exotic face masks offer protection and help to reduce the risk of virus transmission. However, manually tracking the application of this policy is not possible. The key here is technology. We present a Deep Learning-based approach for detecting situations of misapplied face masks.

1. INTRODUCTION

Because of the worldwide COVID-19 corona virus outbreak, wearing protective clothing is mandatory, the wearing of face masks in public is becoming more popular. People who are wearing mask should protect their health from covid-19. Others hide their emotions from the world by wearing masks, while others wear their emotions on their sleeves, while others are self-conscious about their appearance. COVID-19 transmission is slowed by wearing face masks, according to scientists. The most recent epidemic virus to strike is COVID19 (commonly known as the corona virus) human health in the twentieth century. COVID-19 has been declared a global pandemic by the World Health Organization (WHO) in 2020 due to its rapid spread. Face masks are becoming more popular as a result of the COVID-19 corona virus epidemic. COVID-19 transmission is slowed by wearing face masks, according to scientists. COVID19 (known as corona virus) is the latest epidemic virus that hit the human health in the last century. In 2020, the rapid spreading of COVID-19 has forced the World Health Organization to declare COVID- 19 as a global pandemic.

2. LITERATURE REVIEW

The COVID19 virus can be propagated by contact and infected surfaces. To combat the Corona virus, a variety of essential tools are required. Face Mask is one of the most important. Initially, not everyone needed to wear a face mask, but as the day progressed scientists and doctors advised that everyone do so. Discover whether or not someone is wearing a Face Mask is a difficult skill to execute in today's culture, and it may be employed in a variety of settings such as airports, hospitals, companies, and schools .This technology could be very useful at airports in evaluating whether or not passengers are safe. The people who travelling alone should wear masks as well as at schools to guarantee that pupils are wearing a face mask for their conservation. The process of identifying whether a person is wearing mask or not is known as face mask detection. In the real life, the problem becomes a traverse of engineering of face detection, For security, multiple machine learning techniques are used to detect the face, authentication, and surveillance purposes. Face detection is a critical component of Computer Vision and Pattern Recognition.

3. IMPLEMENTATION OF KEY FUNCTIONS

1. NumPy:

- 1) NumPy is a Python package that allows you to interact with displays.
- 2) It likewise has capacities for working in space of straight polynomial math, fourier change, and lattices.
- 3) NumPy was made in 2005 by Travis Oliphant. It is an open source and we can use it independently.

2. Pandas:

Pandas is a popular open source Python toolkit for data research,data visualisation, data analysis, and machine learning activities.

3. Seaborn:

Seaborn is a Python data visualisation programme based on Matplotlib. It has a high-level interface that allows you to generate visually beautiful and informative material, as well as statistics graphics.

4. Tensorflow:

Google designed and distributed TensorFlow, a Python library for fast numerical computing. It's a base library for building Deep Learning models from the ground up.

5. Keras:

Keras is controlled by API progressed by Google because it is deeply high-stage. It is written in Python and is used to simplify the implementation of neural communities.

6. Matplotlib:

Matplotlib is a statistics visualisation and graphical charting package deal for Python and its numerical extension NumPy that runs on all platforms. Tools for visualising what we're doing are critical.

7. OpenCV:

OpenCV (Open Source Computer Vision Library) is a free software library for computer vision and machine learning. OpenCV was created to provide a common infrastructure for computer vision applications and to help commercial goods incorporate machine perception more quickly.

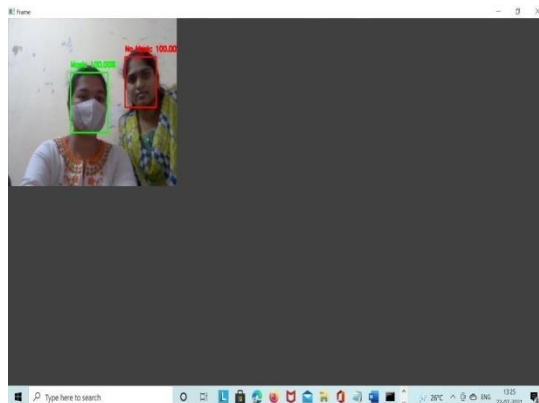
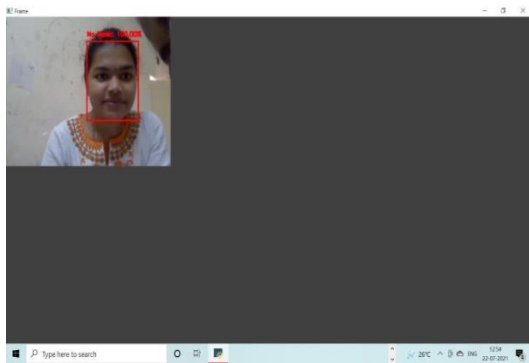
4. ARCHITECTURE

The backbone of the system is Mobile Net, which may be utilised for both high and low computation scenarios. The CNN algorithm is used in our proposed system. With and without face masks, we acquire a important number of data sets. By collecting a large number of images, we can reach more accuracy. Using mobile net v2 mask and no mask sets, we can extract the features. We'll use open cv and keras to train the model (python library). We can detect pre-processing images and live video as well. If people want to wear masks, it will let them in; if they don't, it will give us the keys; if they don't, it will give us the buzzer to wear masks to prevent virus spread.

5. CONCLUSION

This method of recognising persons using a face mask is a very good and efficient way to do it. The system will saperate people who are not wearing masks from the crowd. The greater the number of people that break COVID laws, the more variable the system becomes of the face mask detection system for the benefit of the public. If applied effectively, face mask detection technology could be used to ensure our safety and the protection of others. This strategy not only aids in achieving high precision, but it also increases the quality of the results and the speed with which they are detected . The system can be used in a variety of places, including metro stations, markets, schools, railway stations, and other grouped places, to keep an eye on the crowd and secure that no one becomes exhausted.

6. RESULT AND ANALYSIS



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