FACE MASK DETECTION

MENTORED Ankita Wadhawan : 23891

Final Report

Face Mask Detection

Team Members:

Names :	**Reg No :**
Shaik Jamal Basha	**11804755**
Rohith Thokala	**11813646**
CH.Gopi Satya Sai Vamshi	**11806744**

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GITHUB LINK: https://github.com/Jamalrjs/Face-Mask-Detection

➡1. ABSTRACT : -

After the new Coronavirus disease (COVID-19) case spread rapidly in Wuhan-China in December 2019, World Health Organization (WHO) confirmed that this is a dangerous virus which can be spreading from humans to humans through droplets and airborne. As for the prevention, wearing a face mask is essentials while going outside or meeting to others. However, some irresponsible people refuse to wear face mask with so many excuses. Moreover, developing the face mask detector is very crucial in this case.

This paper aims to develop the face mask detector which is able to detect any kinds of face mask. In order to detect the face mask, a YOLO V4 deep learning has been chosen as the mask detection algorithm. From the experimental results, this device is able to detect the people who wear or do not wear the face mask accurately even if they are moving to various position.

➡2. INTRODUCTION : -

To screen that individuals are following this fundamental wellbeing standard, a procedure ought to be created. A face cover identifier framework can be executed to check this. Face cover discovery intends to recognize if an individual is wearing a veil. The initial step to perceive the presence of a veil on the face is to identify the face, which makes the technique separated into two sections: to recognize faces and to distinguish covers on those appearances.

Face recognition is one of the uses of article location and can be utilized in numerous territories like security, biometrics, law implementation and that's just the beginning. There are numerous identifier frameworks created around the planet and being executed. Be that as it may, all this science requires enhancement; a superior, more exact identifier, in light of the fact that the world can't bear the cost of any more expansion in crown cases. Face Detection has advanced as an extremely mainstream issue in Image handling and Computer Vision. Numerous new calculations are being concocted utilizing Convolutional structures to make

the calculation as precise as unrealistic . A model for face identification utilizing semantic division in a picture by ordering every pixel as face and non-face.

➡ 3. LITERATURE REVIEW : -

Deep learning technique has been useful for big data analysis and has its applications in computer vision, pattern and speech recognition, etc. work focuses on some commonly implemented deep learning architectures and their applications. The auto encoder, the convolutional neural network, Boltzmann machine, the deep belief networks are the networks that are presented in detail. Deep learning can be used in unsupervised learning algorithms to process the unlabelled data. A CNN model for speedy face detection has been introduced by that evaluates low resolution an input image and discards non-face sections and accurately processes the regions that are at a greater resolution for precise detection. Calibration nets are used to stimulate detection. The advantage of this model is that it is fast and achieves. A face detection system called Deep Dense Face Detector was proposed by Far fade et al. which we considered the problem of multi-view face detection.

The proposed method is least complex and it does not demand segmentation, bounding-box regression, or SVM classifiers and can recognize faces at numerous angles. A novel data augmentation approach for mask detection from speech was proposed by. That could be used for communication amongst surgeons, used in forensic fields or infectious diseases like coronavirus. Models and have trained Generative Adversarial Networks with cycle consistency to build their project that could do binary classification. In their future work, they would be focusing on multiclass problems has made executing face mask related projects an obvious task by providing three samples of masked face datasets, which comprise of Masked Face Detection Dataset, Real-world Masked Face Recognition Dataset and Simulated Masked Face Recognition Dataset. Previously, had stated in his work about a deep learning model that binarizes an image as a mask. The AUROC of the model was 97.6 %. A few limitations were observed in the model.

➡ 4. LIBRARIES : -

a) Tensorflow :

TensorFlow is a software library or framework, designed by the Google team to implement machine learning and deep learning concepts in the

easiest manner. It combines the computational algebra of optimization techniques for easy calculation of many mathematical expressions.

b) Keras :

Keras is one of the most powerful and easy to use python library, which is built on top of popular deep learning libraries like TensorFlow, Theano, etc., for creating deep learning models.

c) Numpy :

NumPy is a general-purpose array-processing package. It provides a highperformance multidimensional array object, and tools for working with these arrays.It is the fundamental package for scientific computing with Python As the whole project is based on whole complex stats ,we will use this fast calculations and provide results.

d) Pandas :

Pandas is the most popular python library that is used for data analysis. We will provide highly optimized performance with back-end source code with the use of Pandas.

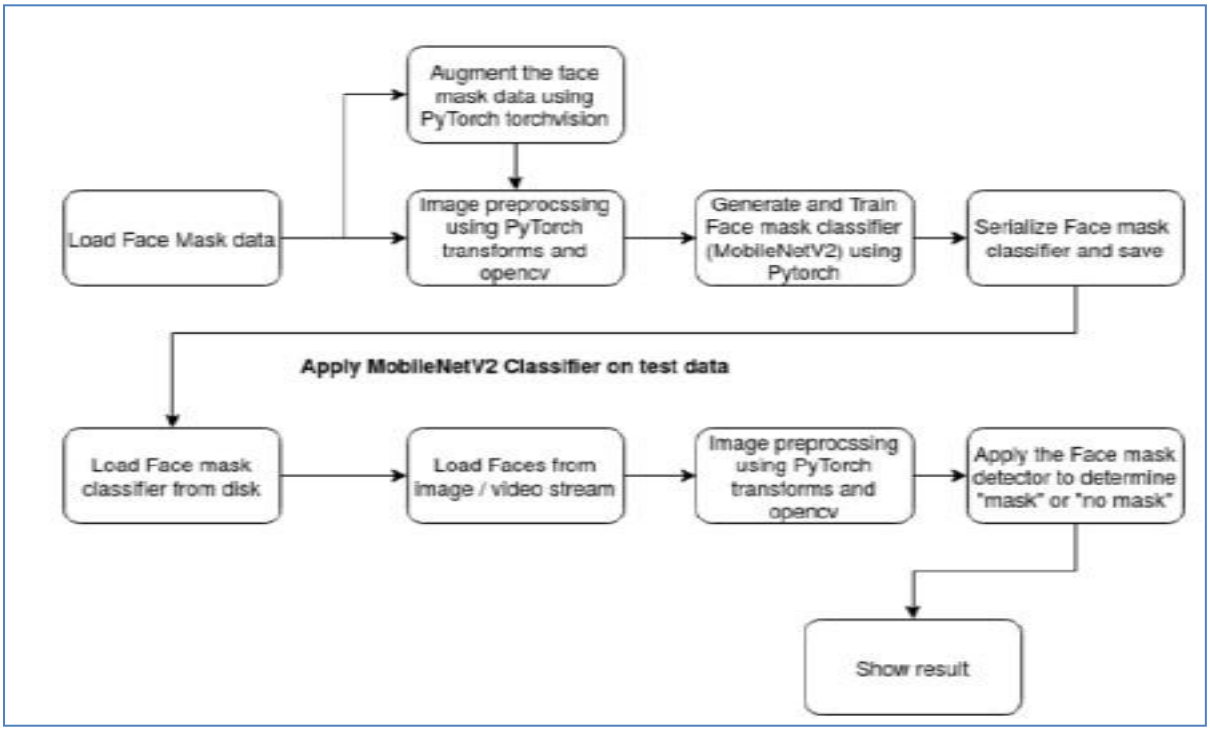
e) OpenCv :

OpenCV stands for Open-Source Computer Vision (Library). It is the most commonly used, popular, and well-documented Computer Vision library. It is open-source, which means that one does not require a license to utilize the software.

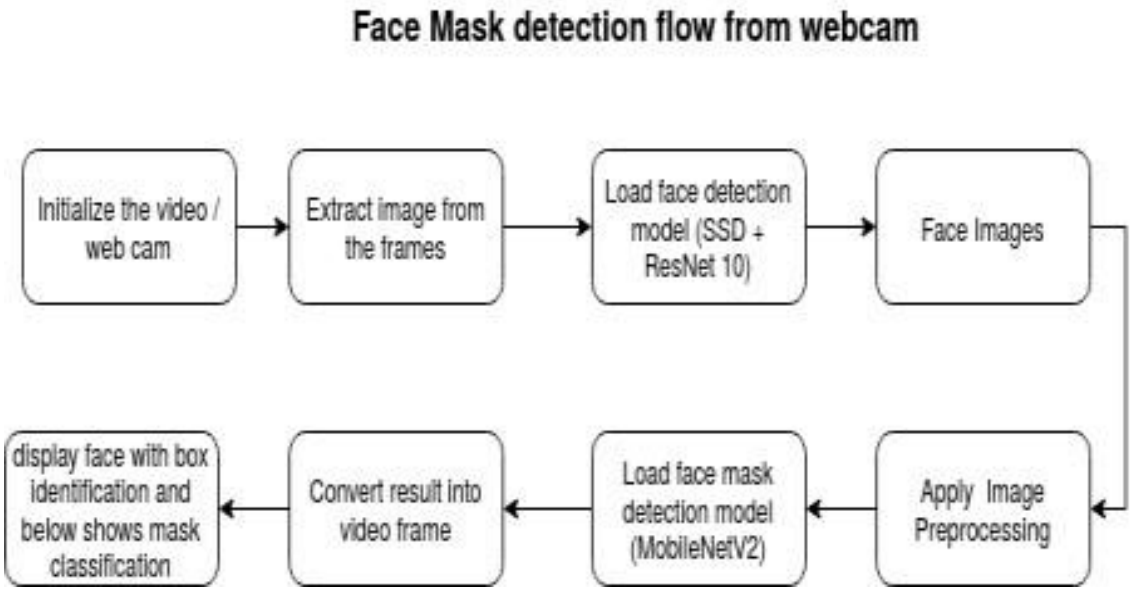
f) Matplotlib :

Matplotlib tries to make easy things easy and hard things possible. We will generate plots, histograms, scatterplots, etc.,to make our project more appealing and easier to understand.

➡ 5. WORKING LAYOUT FOR IMAGE:

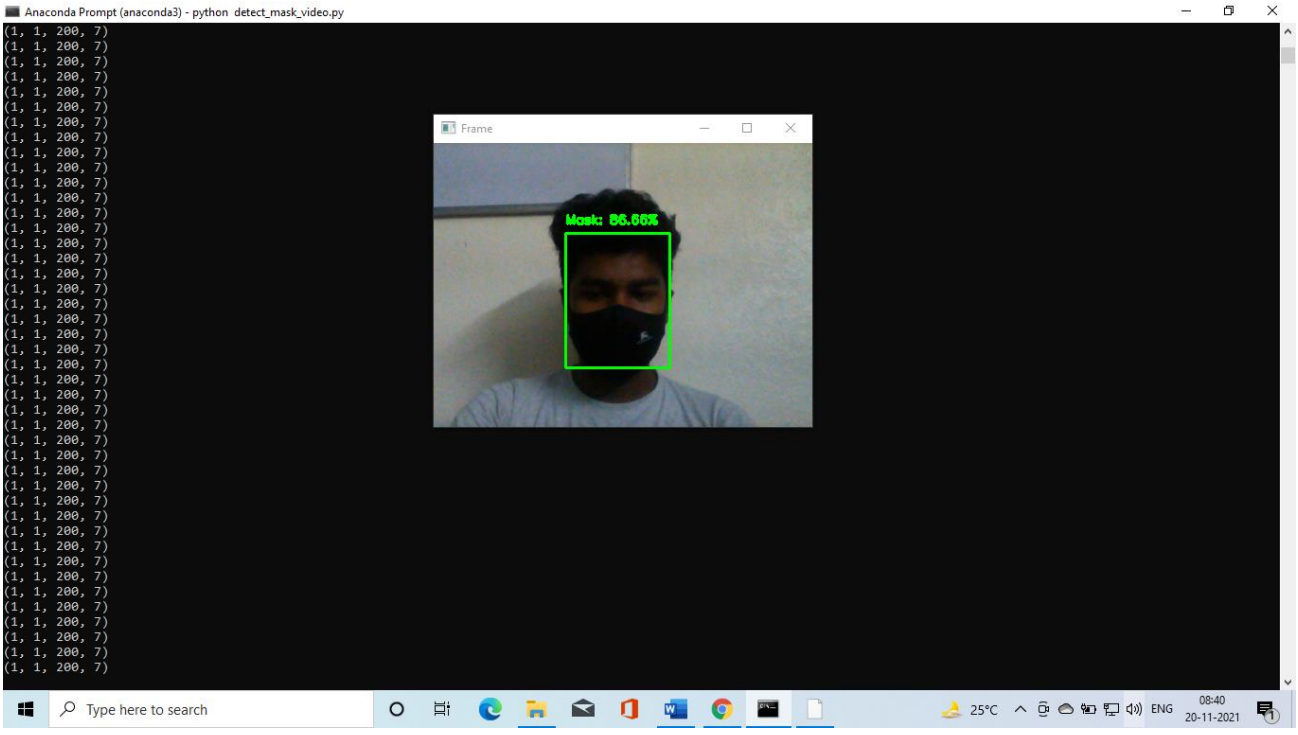


➡WORKING LAYOUT FOR WEBCAM:

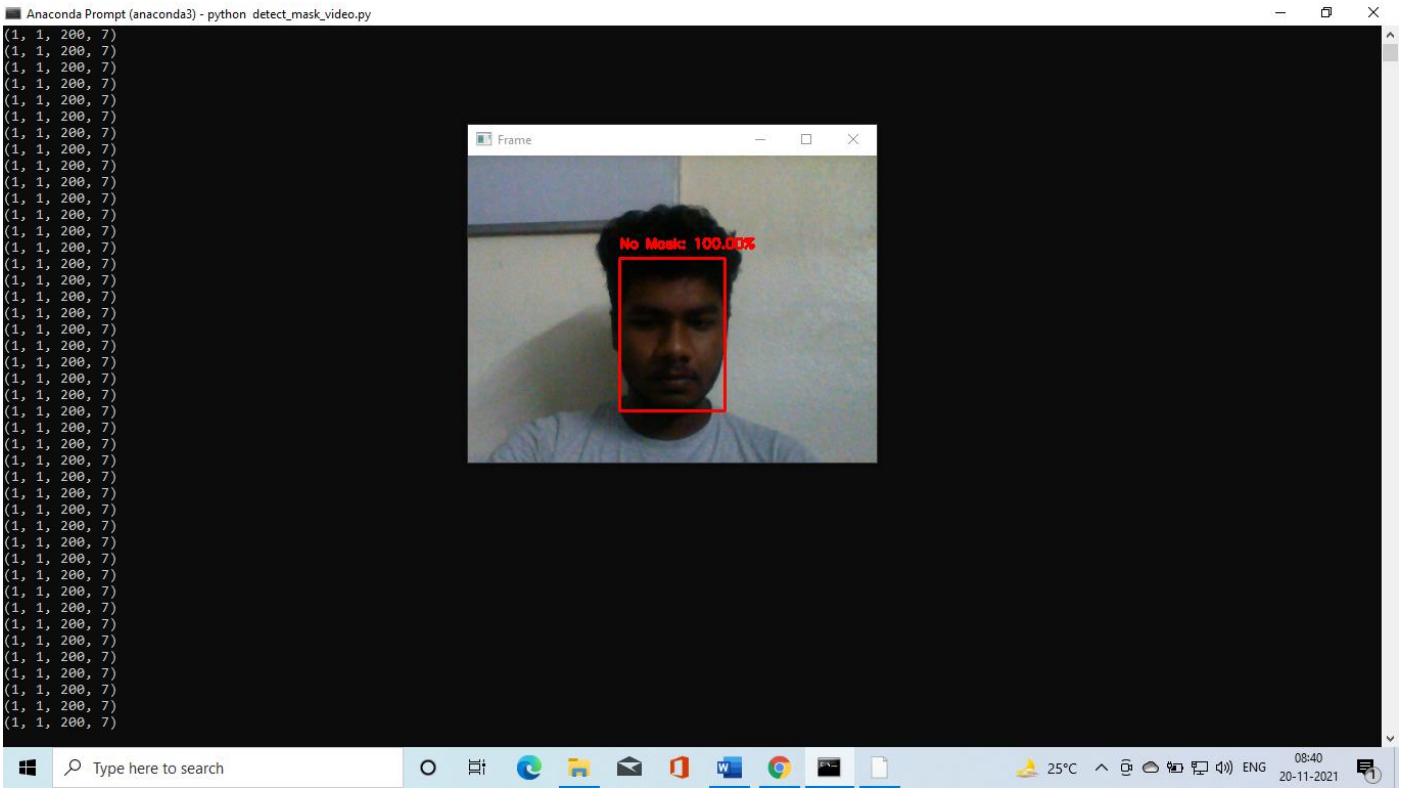


➡ 6. SCREENSHOTS:

a) WITH MASK



a) WITHOUT MASK



➡ 7. CONCLUSION :

To improve our face mask identification model further, you should accumulate genuine pictures (as opposed to falsely created pictures) of individuals wearing covers. While our counterfeit dataset functioned admirably for this situation, there's not a viable alternative for the genuine article. Furthermore, you ought to likewise accumulate pictures of countenances that may befuddle our classifier into speculation the individual is wearing a veil when indeed they are not potential models incorporate shirts folded over faces, handkerchief over the mouth, and so forth These are instances of something that could be confounded as a face cover by our face mask identifier.

➡ THE END ⬅

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