

Face Mask Detection using AI with automatic Invoice generator

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Abstract: - Face masks have been an integral part of everyone’s life in this pandemic, so to ensure that everyone follows these protocols and wear mask regularly in public places like malls, railway stations etc. We have created a Face mask detection system which automatically generates an invoice if the registered person isn’t wearing a mask.

Key Words: — Python, MySQL, API, Haar Cascade Classifier.

I. INTRODUCTION

Face mask recognition has been growing rapidly after corona insistent last years for its multiple uses in the areas of Law Enforcement Security purposes and other commercial uses Face appears spreading others to corona a novel approach to perform face new line detection and the performance evaluation of the proposed methods are exhibited. Further, we made a successful attempt to preserve inter and intra class variations of face mask detection using symbolic approach. We studied the different classifiers like Haar Cascade classifier. The project is developed as a prototype to monitor temperature measurement and to detect mask for the people. In order to investigate the performance, the proposed method an extensive experimentation is conducted on 50 various Image dataset. We conducted experimentation under varying of training and testing percentage for 10 random trails. From the results we could observe that, the results obtained for symbolic approach is better than the conventional approach.

II. PROPOSED SYSTEM

Face mask detection is a complex mechanism which came into recognition since COVID-19.

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So, to deal with it we used OpenCV and Haar Cascade Frontal Face model which detects various human face features because of its pre-trained model and creates a pattern which can be used for recognizing people wearing mask or not. We used a huge database of people wearing mask and people without mask. The whole process can be divided into three main parts Face mask detection, facial recognition and invoice generation. We used Python faces are made of thousands of fine lines and features that must be matched the face recognition using Python, break the task of identifying the face into thousands of small byte sized tasks, which makes it easier for face recognition. We specifically used MySQL database because Python MySQL Connector is a Python Driver that helps to integrate Python and MySQL. This Python library allows conversion between Python MySQL datatypes. This API is implemented using pure Python and does not require any third-party library.

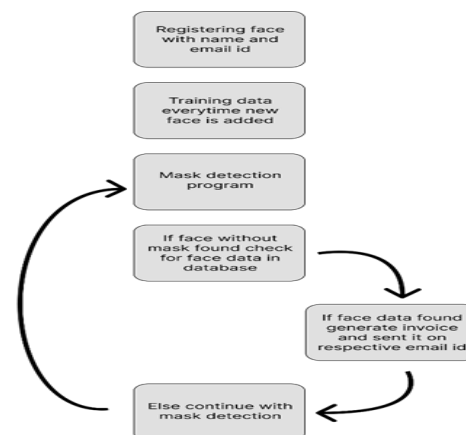


Fig.1. Work Flow

III. LITERATURE REVIEW

A. The Face Mask Detection Technology for Image Analysis in the Covid-19 Surveillance System (J. Phys.: Conf. Ser. 1916 012084):

This paper helped us to get basic overview on how face mask detection system works and identifies human faces in real time resulting to create an invoice which is directly sent to the email id of the respective person. With the advancement in security technology, cameras especially CCTV have been installed in many public and private areas to provide surveillance activities. The footage of the CCTV can be used to identify suspects on scene. So, this made us move forward to design an automated facial recognition and face mask detection system with HAAR CASCADE FRONTAL FACE and OpenCV. The whole system works on few main steps and correct logic.

- Import required modules: In this step different python modules are imported to support whole working of the code and its logic.
- Load `deploy.py`, `prototxt` and `res10_300x300_ssd_iter_140000.caffemodel` for face mask detection and Haar cascade frontal face model for facial recognition.
- Create models for both face mask detection and facial recognition according to the need of whole system.
- Train face detection model with dataset containing images with and without mask and facial recognition model with our images so to check functionality of invoice generator.
- The final step is to test the whole system with all its functionalities i.e. face mask detection, facial recognition and invoice generation.

IV. OBJECTIVE

The objective of this whole system is to make people wear masks in public places like malls, railway stations etc. To decrease the spread of COVID-19 as there is huge risk of such outbreaks in public places to the presence of masses in these areas.

Our system can even work with CCTV cameras which makes it versatile so that it can even be used by private organisations to make their staff wear mask when they enter the premises of organisation.



Fig.2. Face Mask Detection

Limitations:

A few limitations were observed in the model i.e., it would be difficult to detect someone far from the reach of camera, it cannot differentiate between partially hidden faces and masks not properly worn.

V. CONCLUSION

Most vital use of face mask detection system is to use at public places which are mostly crowded resulting in mass outbreaks of diseases like COVID-19.

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