## MINI PROJECT – II

**(2022-2023)**

**“FACE MASK DETECTION”**

## SYNOPSIS



Department of Computer Engineering and Applications.

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| **Submitted By: Submitted To:** |
| **Name: Ms. Madhu (Technical Trainer)** |
| Shubhneet kumar(201500685**)** |
| Vishal Rajput (201500794**)** |
| Jigyas Chaudhary(201500397) |
| Prashant Pachauri(201500506) |

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**ABSTRACT**

This report proposes a Face Mask Detection Using OpenCV. This pandemic is causing a worldwide emergency in healthcare. This virus particularly spreads via droplets which emerge from someone infected with coronavirus and poses a risk to others. The risk of transmission is highest in public places. one of the satisfactory ways to live safe from getting inflamed is carrying a face mask in open territories as indicated with the aid of the arena fitness business enterprise (WHO) on this task, we endorse a method which employs TensorFlow and OpenCV to hit upon face mask on people. A bounding container drawn over the face of the person describes weather the man or woman is carrying a mask or no longer. If a person’s face is saved within the database, it detects the name of the person that isn't carrying face masks and an e- mail might be sent to that individual caution them that they are not sporting a mask as a way to take precautions. if name not saved in database, then we directly impose live web camera for detecting the person’s whether he/she mask wearing or not. If a person’s face is saved within the database, it detects the name of the person that isn't carrying face masks and an e-mail might be sent to that individual caution them that they are not sporting a mask as a way to take precautions. Many businesses and organization need to adapt and protect an infected person by detecting whoever does not wear masked face.

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# INTRODUCTION

The present scenario of COVID-19 demands an efficient face mask detection application. The main goal of the project is to implement this system at entrances of colleges, airports, hospitals, and offices where chances of spread of COVID-19 through contagion are relatively higher. Reports indicate that wearing face masks while at work clearly reduces the risk of transmission. It is an object detection and classification problem with two different classes (Mask and Without Mask). A hybrid model using deep and classical machine learning for detecting face mask will be presented. A dataset is used to build this face mask detector using Python, OpenCV, and TensorFlow and Keras. While entering the place everyone should scan their face and then enter ensuring they have a mask with them. If anyone is found to be without a face mask, beep alert will be generated. As all the workplaces are opening. The number of cases of COVID-19 are still getting registered throughout the country. If everyone follows the safety measures, then it can come to an end. Hence to ensure that people wear masks while coming to work we hope this module will help in detecting it.

# SOFTWARE AND HARDWARE REQUIREMENTS

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| --- | --- |
| S.no | Software & Hardware |
| 1. | PYTHON |
| 2. | OPENCV |
| 3. | TENSORFLOW |
| 4. | DATASET |
| 5. | Numpy,cv2 |

**PROJECT DESCRIPTION**

A face masks detector machine can be carried out to check this. Face masks detection method to identify whether a person is sporting a mask or now not. The face mask detection is a technique to find out whether the person is wearing a mask or not. In this project We will build a real-time system to detect whether the person on the webcam is wearing a mask or not. We will train the face mask detector model using Keras and OpenCV. We will develop the face mask detector model for detecting whether person is wearing a mask or not. We will train the model using Keras with network architecture. Training the model is the first part of this project and testing using webcam using OpenCV is the second part. The dataset we are working on consists of 1376 images with 690 images containing images of people wearing masks and 686 images with people without masks. we will test the results of face mask detector model using OpenCV. The proposed model can be integrated with computer or laptop cameras allowing it to detect people who are wearing masks and not wearing masks. The model has been put together using deep learning and classical machine learning techniques with opencv, tensor flow and keras.

**WORKING**

Generally, face mask technology is proposed to function with the help of computer vision and deep learning. In this methodology, at first, the user has to subscribe to the face mask alert app on their smartphones or other electronic gadgets. After that, they need to add their personal camera link to the app. Then the user has to allow access to receive the alerts or notifications when someone around is not wearing the mask. In addition, the users can also send messages to the admin when they found someone violating the rules of wearing masks.

As the face mask detection system is equipped with much-advanced technology such as machine learning, artificial intelligence, it has multi-functionality properties. Out of many some key features are listed below:

* **Multi-Channel Recognition**- The face mask detection system has the features of attaching multiple cameras to retrieve the AI potentiality of recognizing faces. This critical process can be instantly computed within a few minutes.
* **Sending Alert Automatically**- The system has the potential to recognize faces and send deliver SMS alerts or notifications to the users by detecting the faces who are not wearing masks.
* **No Need to Install New Hardware**- The systems can efficiently work on any existing [RTPS camera,](https://www.getscw.com/decoding/rtsp) without the installation of any new cameras. This feature saves installation and maintenance costs.

# FUTURE SCOPE

With the growing quantity of COVID cases all around the global, a machine to update human beings to check masks on the faces of humans is significantly wanted. This system satisfies that need. This machine may be employed in public places like railway stations and department shops. it is going to be of a top notch help in corporations and big establishments where there will be quite a few workers. This gadget may be of a high-quality assist there as it is easy to attain and save the information of the personnel working in that organisation and will very clean locate the folks who are now not sporting the masks and a mail will sent to that respective man or woman to take Precautions not sporting masks, if there data already stored in system.

***MENTOR’S SIGNATURE:***

### THANK YOU