**GL BAJAJ GROUP OF INSTITUTIONS, MATHURA**

**Department of Computer Science and Engineering**

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**Project Summary (Session 2021-22)**

**Development of face mask detection technique using Machine Learning**

**Project Conducted By: Project Guide:**

1. Ravi Mishra (1851110077) Mr. Sanjiv Agrawal

2. Vanshika Agrawal (1851110114)

**Abstract**

COVID-19 is one of the most dangerous virus which caused pandemic in human life, not only in terms of direct casualties but also regarding socio-economic impact. The outbreak quickly spread around the world. The 1-year anniversary of the global corona virus pandemic get passed away in 2021, but still no way to tell how long the pandemic will continue. After analyzing report by WHO of covid-19, to minimize the rate of covid-19 transmission, our national government advised citizens to wear face masks. A model using deep learning and MobileNetV2 for face mask detection is presented. This method was trained and checked on the real time dataset . There are 3,833 images in the Medical Masks Dataset, including 1918 images of people wearing no mask and 1915 images of people wearing masks. We adopted OpenCV to detect faces in real time from a live stream captured with our webcam. With the aid of computer vision and deep learning, we hope to classify whether or not the person in the video stream is wearing a face mask . If the camera captures a face without mask an Email notification will be sent out to the administrator and system alarm will ring.

#### Keywords : Corona virus, Tensor flow, Mask detector , Alarm system,

**Opencv**

**Objectives and Scope**

* To develop face mask detection technique using python .
* To identify whether the person on video stream is wearing a face mask or not with the help of computer vision.
* To implement this system at Cement Industries, Chemical Plants, Hospitals where chance of spread of disease .
* To Implement alarm system and Email Notification system to notify administrator.

My aim is to classify whether the person on video stream is wearing a face mask or not with the help of computer vision and deep learning. If the camera captures a face without mask an Email notification will be sent out to the administrator and system alarm will ring.

A mask acts as a shield to keep the respiratory droplets from getting into the hands of others. When worn over the nose and mouth, studies show that masks minimize the spray of droplets.[2]Many developed and developing countries around the world have made wearing a mask mandatory while leaving the house or going to public places. Face masks are also used in a variety of industries. Every location, such as pharmaceutical companies, cement plants, chemical plants, hospitals, while cleaning, construction areas, contaminated and polluted areas, and so on, was restricted by the government. Staff must wear a face mask to protect themselves from toxic substances at work (coughing, wheezing, shortness of breath, chest tightness, or trouble breathing, for example)

**Future Scope**

In future I thought to add up some extension to this project

* 1. To count the number of objects who aren't wearing mask and notify them using email to the observer
  2. To increase the accuracy and quality so that the current model can work with high definition camera which is established there on the traffic signals and nearby to the road to observe traffic.

**Conclusion**

This report represents a deep learning model to detect if a person is wearing a face mask or not. We adopted OpenCV, keras, tensor flow, and mobilenetV2 to specify whether people were wearing face masks or not. The model is tested with photographs and real time video streams. The accuracy rate of detecting a person with a mask is 99% . This model was built using MobileNetV2 architecture. Successfully built alarm system to alert a person who didn’t wear mask and implemented Email notification system to notify respected authorities

. This system can prevent spread of covid-19. This framework may be used as an example of edge analytics. This system could be implemented at Cement Industries, Chemical Plants, Hospitals where chance of spread of disease, and at airport to detect travelers without masks.

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