

# Project Title- **Face Mask Detector**

1. About Project- This project uses a Deep Neural Network, more specifically a Convolutional Neural Network, to differentiate between images of people with and without masks.

2. Major Libraries that will be used (some other tools will also be used)

- Numpy
- Keras
- Tensorflow
- Datetime
- openCV
- pySpark
- scipy

3. How we are going to implement-

Firstly, the CNN model will be trained using training data available online and then on test data. After that, stored weights of this CNN model will be used to classify mask or no mask, in real time, using openCV. With the webcam capturing the video, the frames will be preprocessed and fed to the model to accomplish this task.

4. Rough timeline for two weeks-

In the first week, we will be learning all about libraries that will be used and understanding how CNN technique works. Also get started with the program.

In the second week, we will complete the code and train & test it. We will also find the accuracy for training & testing data. Then using openCV, we will distinguish between people wearing a mask or not.

5. Other things we need to learn that were not part of the course-

As mentioned above, different libraries that will be used in the project and deep learning (specifically CNN).

6. Motivation for this project-

We want to explore the computer vision domain and to implement it in the real time domain, we decided to combine it with a deep learning technique to finally detect whether a person is wearing a mask or not. Having completed my DS303 minor in the last sem, I get a basic idea of deep learning techniques and have the confidence to complete a project on it.

7. References-

- <https://www.mygreatlearning.com/blog/face-recognition/>
- <https://www.youtube.com/watch?v=PmZ29Vta7Vc>
- <https://www.intechopen.com/books/recent-trends-in-artificial-neural-networks-from-training-to-prediction/object-recognition-using-convolutional-neural-networks>
- A Unified Multi-scale Deep Convolutional Neural Network for Fast Object Detection - by Zhaowei Cai, Quanfu Fan, Rogerio S. Feris, Nuno Vasconcelos