



Walchand College Of Engineering, Sangli.

(An Autonomous Institute)

**Department
Of
Computer Science and Engineering**

Mini-Project Synopsis
on

Project Title

by

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2020-21

1) Problem Statement -

Face mask detection for COVID19 pandemic.

2) Abstract -

In the new world of coronavirus, multidisciplinary efforts have been organized to slow the spread of the pandemic. In particular, developments for monitoring social distancing or identifying face masks have made the headlines.

In this project, we will first reliably detect a face. Then we will deep dive into identifying whether each person is wearing a mask or not. If the person is wearing the mask we will check whether he/she is wearing it completely or partially. On the other hand, if the person is not wearing the mask, we will recognize the person and then send an email to administrator (stating “xyz person is not wearing mask” or “xyz person is wearing mask partially”) and one email to the violator warning him or her and ask to wear the mask properly.

3) Objective -

- Detect the face of a person from a real-time video stream.
- Detect face masks in real-time video streams.
- Partially occluded mask can be identified.
- Send an alert message to admin and violators.

4) Market Potentials - (real customers)

We are planning to implement this project for the college campus, i.e. for our own college, Walchand College of Engineering, Sangli. WCE has many cameras installed already in the areas of campus, such as main gate, library, quadrangle entrances, classes, laboratories, canteen, mess, hostel entrances, etc. So, we don't need any new hardware for our project.

Through the use of these cameras, first we can detect faces from the videos. Then determine whether the student or staff member is wearing the mask or not. According to the result, our system will generate an email and send it to administrator and the violator.

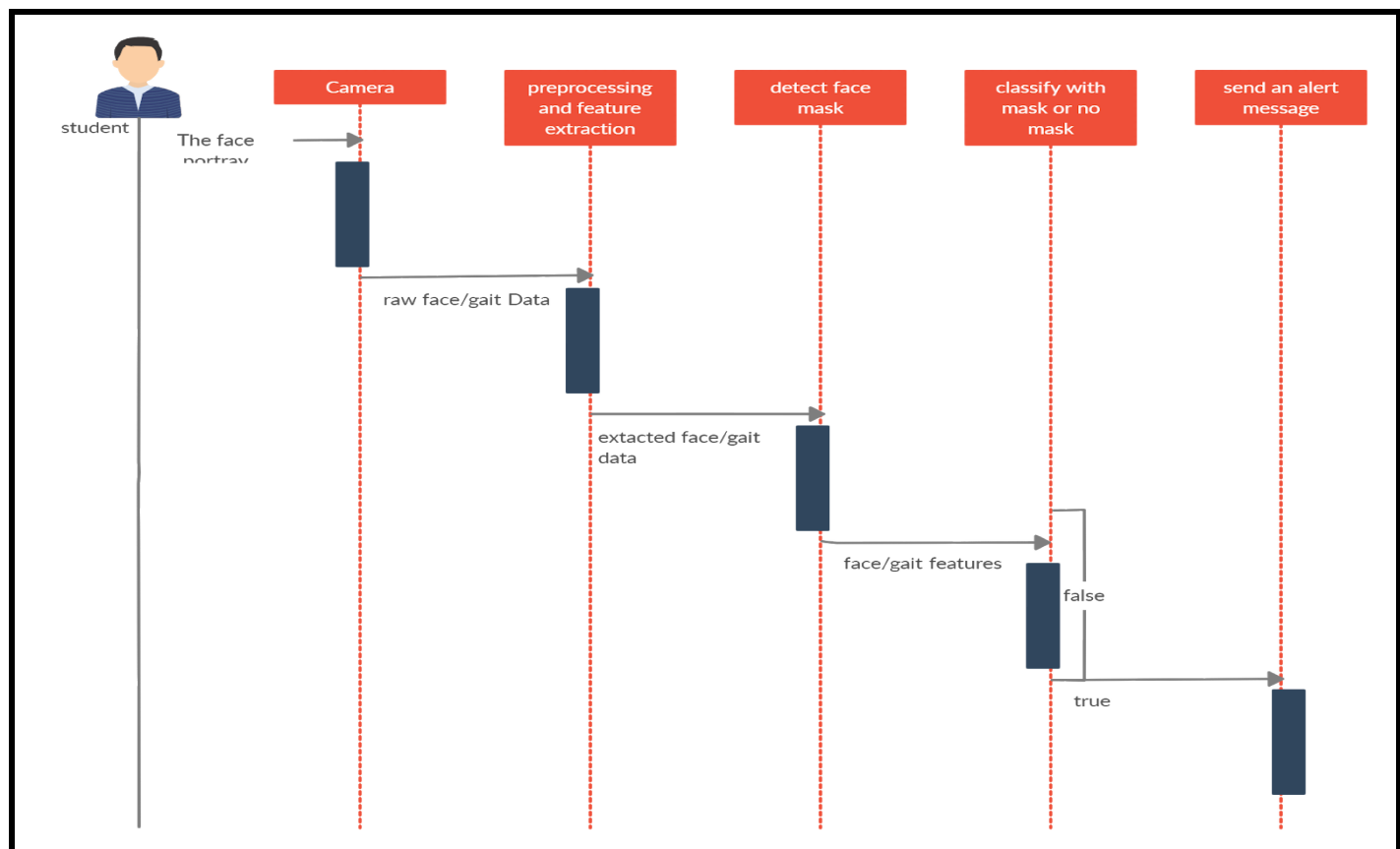
At the end of the day, administrator will be having in hand the data of people who were not wearing the mask and their total count. So that the administrator can take further actions on them

accordingly.

4) Outcomes -

Through this project we can determine how many percent of students and faculty members are wearing masks and following the rules of safety and necessary actions would be taken by the administrator against who is disobeying the rules.

5) UML Diagram-



6) Project Plan -

Face mask detection includes 2 phases -

1. **TRAINING:** Loading our face mask detection dataset from disk, training a model (using Keras/TensorFlow) on this dataset, and then serializing the face mask detector to disk.

2. **DEPLOYMENT:** Once the face mask detector is trained, we can then move on to loading the mask detector, performing face detection, and then classifying each face as with_mask or without_mask and then sending an alert message to the administrator and violator.

7) Test cases -

There are 2 test cases -

a] If a person is wearing a mask (label=1)

b] If a person is not wearing a mask (label=0)

but if a person is wearing a mask partially i.e. not covering his nose or mouth then it will be considered under label=0

