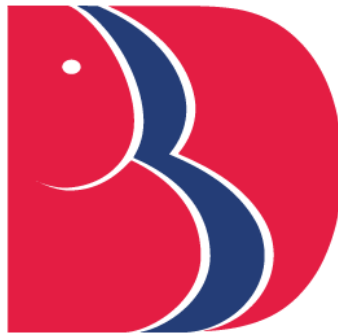


PROJECT SYNOPSIS
on
FACE MASK DETECTION SYSTEM
towards partial fulfillment of the requirement
for the award of degree of
Master of Computer Applications
from
Babu Banarasi Das University
Lucknow



Academic Session 2022 - 2023
School of Computer Applications

Submitted by: [OBJ]
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Babu Banarasi Das University

Lucknow

CERTIFICATE

This is to certify that Project Report entitled
Face Mask Detection System using Computer Vision

Being submitted by

Harendra Prajapati

towards the partial fulfillment of the requirement
for the award of the degree of

Master of Computer Applications

to

Babu Banarasi Das University Lucknow

in the Academic Year 2022-23 is a record of the student's own work carried out at BBD University Lucknow and to the best of our knowledge the work reported herein does not form a part of any other thesis or work on the basis of which degree or award was conferred on an earlier occasion to this or any other candidate.

Prabhash Ch. Pathak

HEAD (School of Computer Applications)

1-INTRODUCTION OF THE PROJECT

Face Mask Detection Platform utilizes Artificial Network to perceive if a person does/doesn't wear a mask. The year 2020 has shown mankind some mind-boggling series of events amongst which the COVID19 pandemic is the most life-changing event which has startled the world since the year began. Affecting the health and lives of masses, COVID-19 has called for strict measures to be followed in order to prevent the spread of disease. From the very basic hygiene standards to the treatments in the hospitals, people are doing all they can for their own and the society's safety; face masks are one of the personal protective equipment. People wear face masks once they step out of their homes and authorities strictly ensure that people are wearing face masks while they are in groups and public places. plication can be associated with any correct or new cameras to identify individuals with/without a mask. The year 2020 has shown mankind some mind-boggling series of events amongst which the COVID19 pandemic is the most life-changing event which has startled the world since the year began. Affecting the health and lives of masses, COVID-19 has called for strict measures to be followed in order to prevent the spread of disease. From the very basic hygiene standards to the treatments in the hospitals, people are doing all they can for their own and the society's safety; face masks are one of the personal protective equipment. People wear face masks once they step out of their homes and authorities strictly ensure that people are wearing face masks while they are in groups and public places.

2-NEED OF IDENTIFICATION

Objective:

By developing a face mask detection technique, through which we identify people weared mask or not. so, we suggest people who not weared mask to wear it to reduce the covid/ any viral disease spread.

Scope:

Airports



The Face Mask Detection System can be used at airports to detect travelers without masks. Face data of travelers can be captured in the system at the entrance. If a traveler is found to be without a face mask, their picture is sent to the airport authorities so that they could take quick action. If the person's face is already stored, like the face of an airport worker, it can send the alert to the worker's phone directly.

Hospitals



Using Face Mask Detection System, Hospitals can monitor if their staff is wearing masks during their shift or not. If any health worker is found without a mask, they will receive a notification with a reminder to wear a mask. Also, if quarantine people who are required to wear a

mask, the system can keep an eye and detect if the mask is present or not and send notification automatically or report to the authorities.

Offices



The Face Mask Detection System can be used at office premises to detect if employees are maintaining safety standards at work. It monitors employees without masks and sends them a reminder to wear a mask. The reports can be downloaded or sent an email at the end of the day to capture people who are not complying with the regulations or the requirements.

Modules

- 1. Webcam controller*
- 2. Mask dataset collection*
- 3. Mask dataset preprocessing*
- 4. Frame capture and conversion*
- 5. Face detection system*
- 6. Mask algo creation*
- 7. Mask algo training*
- 8. Mask algo visualization*
- 9. Mask prediction*
- 10. View display system*

Module Description

1. Webcam controller -This module contain all the code related to accessing the webcam using code.

2.Mask dataset collection – In this module where we will write the code for loading the mask dataset into the project so that we can read the files and images.

3.Mask dataset preprocessing- This module will remove all the unimportant files and unimportant folders and it will take only the important content that code will be stored in mask dataset preprocessing.

4.Frame capture and conversion- For detecting faces and mask we have to convert the images into grey color and we have to capture that from the webcam so this module contain that process.

5.Face detection system- This module will contain the logic and code for detecting faces in the camera.

6.Mask Algo creation- This module will contain the CNN algorithm for handling the code of creating architecture of algorithm.

7.Mask algo training- Algorithm training module will handle all the code related to training and controlling how many times we train our model for accuracy.

8.Mask algo visualization- This module will handle the output and performance of the model so that we can understand if the model is good or bad.

9.Mask prediction- Mask prediction system will predict the mask in the camera and it will display output as mask ,no mask ,and half mask

10.View display system- This module will contain code related to frontend application we will be creating.

Resources (Hardware & Software) to be used:

1. Hardware Requirements

Client Side

Processor	Dual Core or above
RAM	2 GB
Disk space	120 GB
Monitor	Standard
Others	Keyboard,mouse,Internet Connection

Developer Side

Processor	Quad Core or above (1.5 GHz or more)
RAM	4 GB or above
Disk space	500 GB
Monitor	standard
Others	Keyboard, mouse, Internet Connection

2. Software Requirements

Client Side

- € Web Browser (Google Chrome, Firefox, IE9 or above)
- € Python
- € Required libraries

Developer Side







- € Web Browser (Google Chrome, Firefox, IE9 or above)
- € Python 3.7 or above
- € Vs code(IDE)
- € SQLite manager
- € Libraries

Project Schedule Plan:

The objective of Software Planning is to provide a framework that enables the manager to make reasonable estimates of resources, cost, and schedule. These estimates are made within a limited time frame at the beginning of a software project and should be updated regularly as the project progresses. In addition, estimates should attempt to define best case and worst case scenario so that project outcomes can be bounded.

Gantt Chart

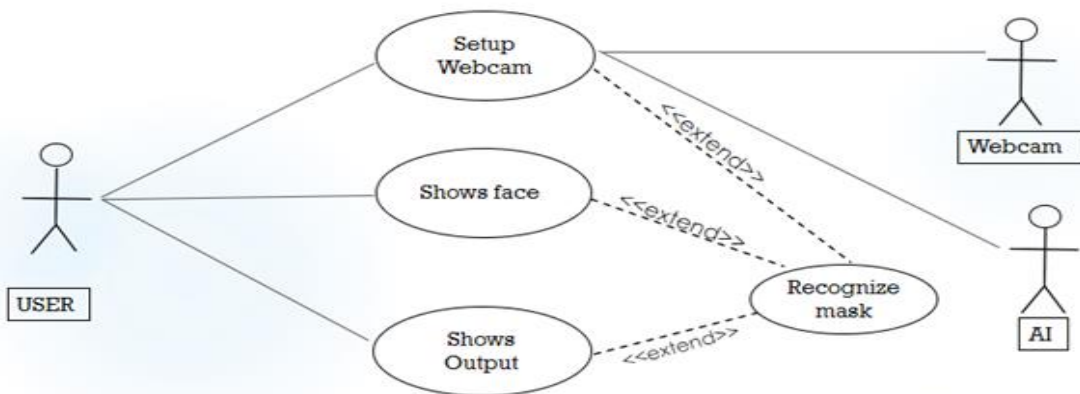
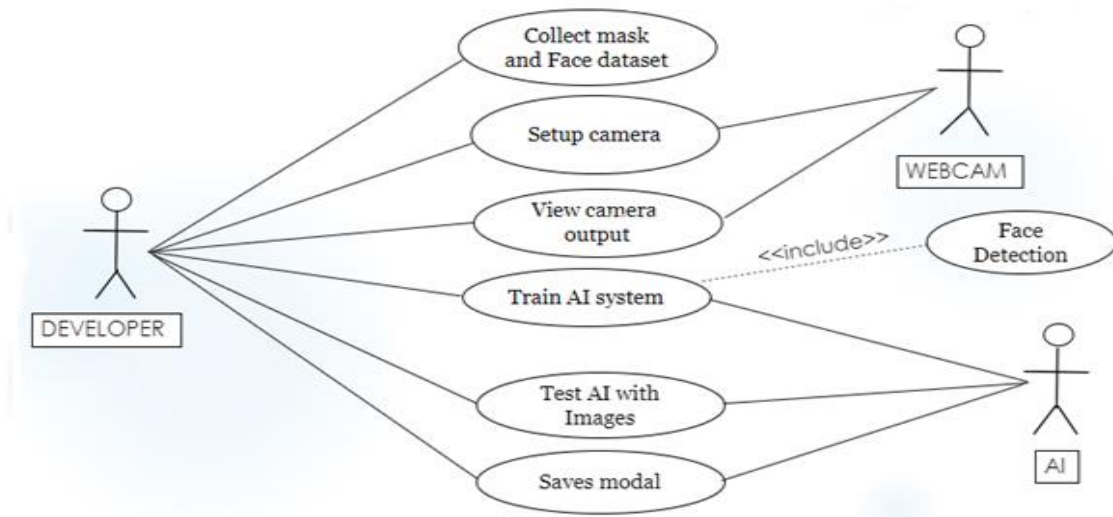
A Gantt chart is popular type of chart that illustrates a project schedule. Gantt Chart illustrates the start and finish dates of the terminal elements and summary elements of a project. Terminal element and summary comprise the work breakdown structure of the project.

Task	4Aug-28Aug	28Aug-9Sep	10Sep-12Oct	13Oct-16Nov	17Nov-22Nov	23Nov-28Nov
Develop project proposal	 27 days					
Analysis		 10 days				
Designing			 30 days			
Coding				 34days		
Unit Testing					 5 days	
Implementation						 5 days

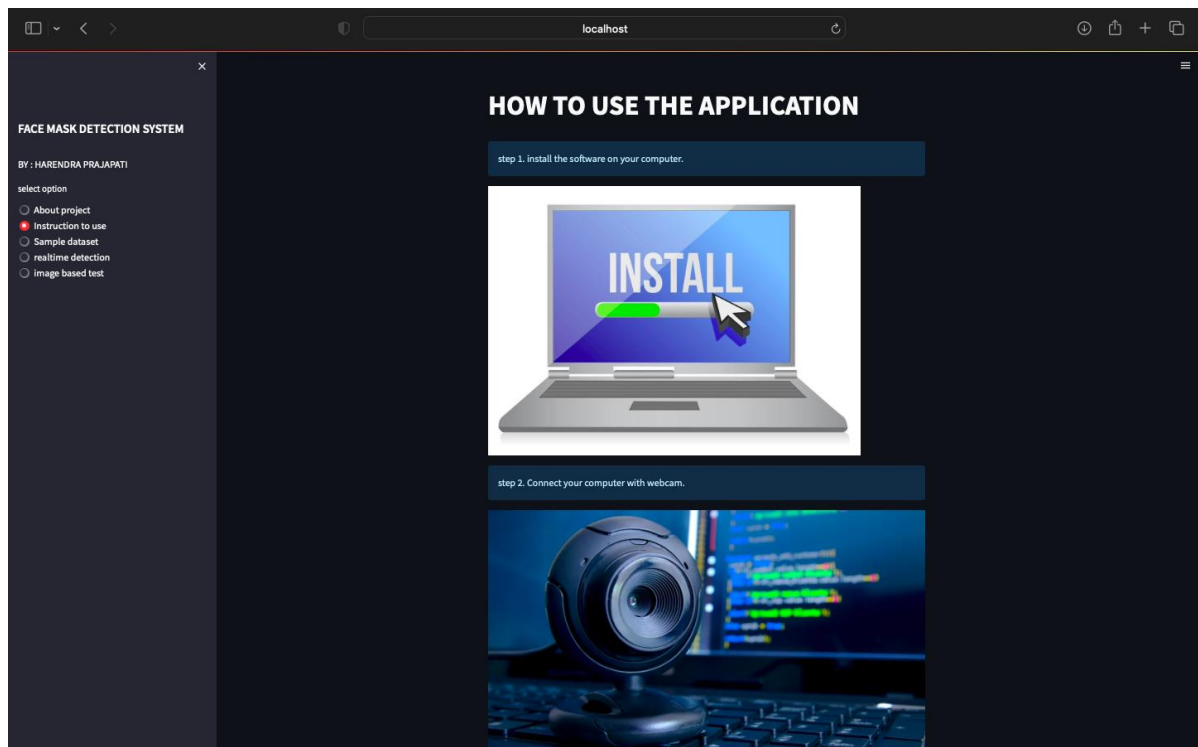
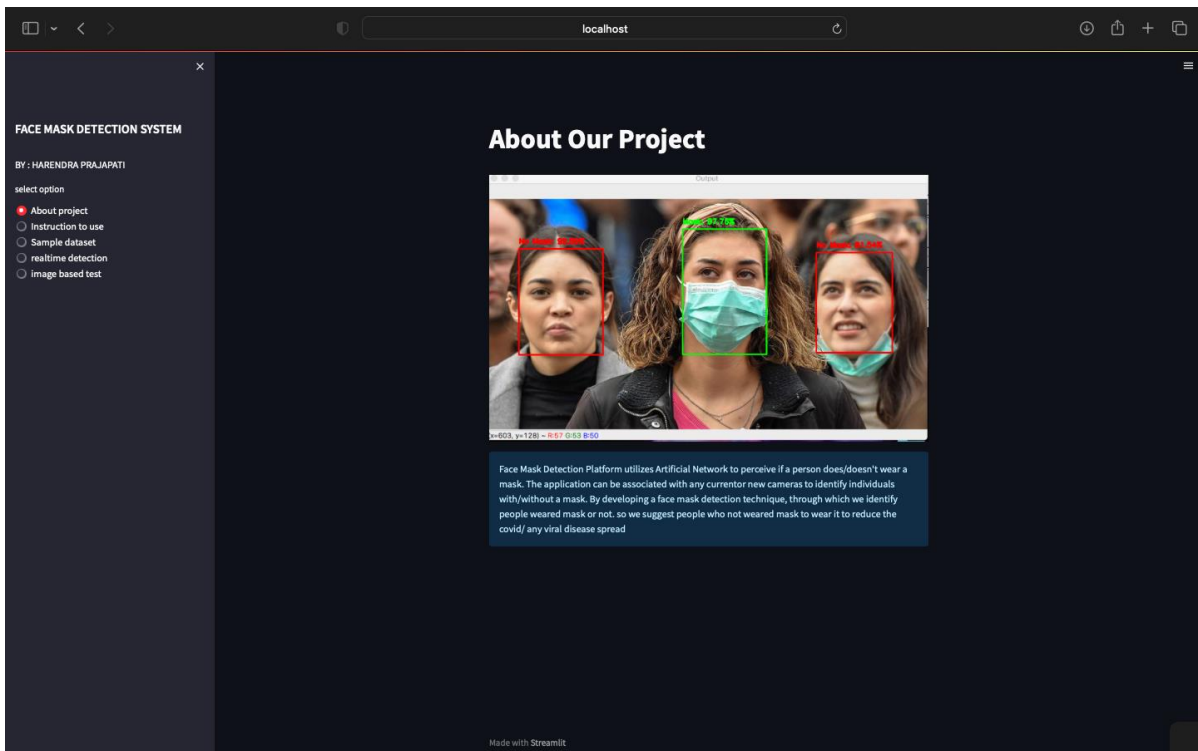
Gantt Chart

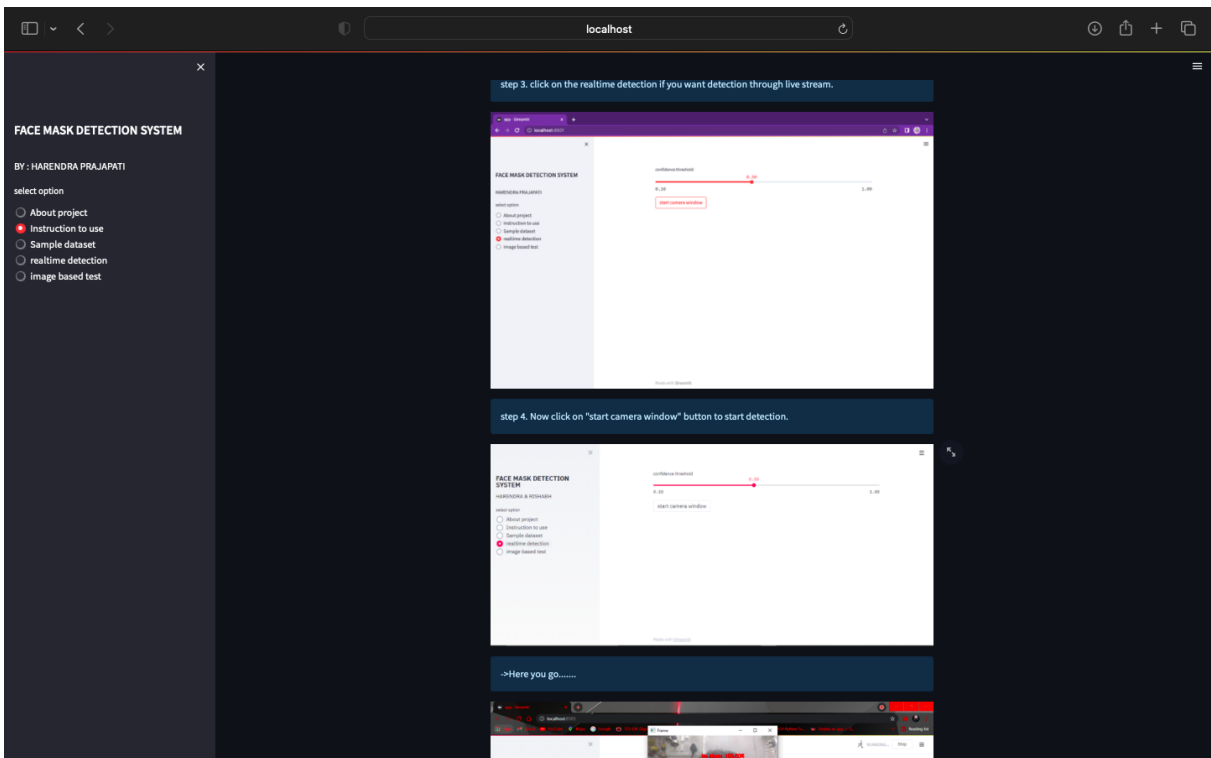
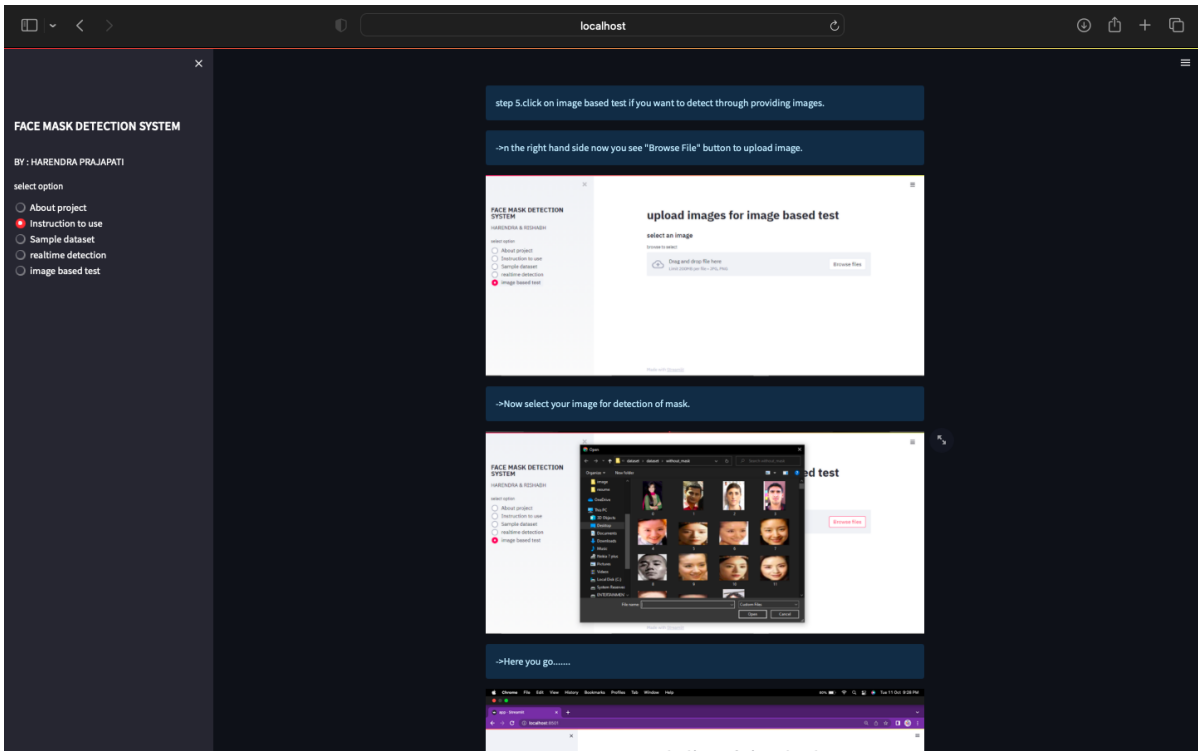
UML Diagram's

Use Case Diagram:



SCREENSHOTS OF PROJECT (till now)





9-FUTURE SCOPE

In future we can use this project to solve viral disease problems (like covid-19, swine flu or future coming viral disease problems). Generally, all people are not using masks at the public places like Airport, railway stations, bus stations, hospitals, government and private offices so we can use this software their and minimize the problem of viral disease.

The **bright scope in future** of this project is that we can **implement this software with automatic doors** in Airport, railway stations, bus stations, hospitals, government and private offices, and it will be work like this if anyone wear mask then door will be open (he/she can enter) otherwise door will not be open (he/she cannot enter) into Airport, railway stations, bus stations, hospitals, government or private offices.

10-CONCLUSION

To mitigate the spread of COVID-19 pandemic, measures must be taken. We have modeled a face mask detection system. train, validate and test the model, we used the dataset that consisted of 2000 masked faces images and 2000 unmasked faces images. These images were taken from various resources like GitHub, google search and some real images taken. The model was inferred on images and live video streams. To select a base model, we evaluated the metrics like accuracy, precision and it easier to install the model to embedded systems. This face mask detector can be deployed in many areas like shopping malls, airports and other heavy traffic places to monitor the public and to avoid the spread of the disease by checking who is following basic rules and who is not.