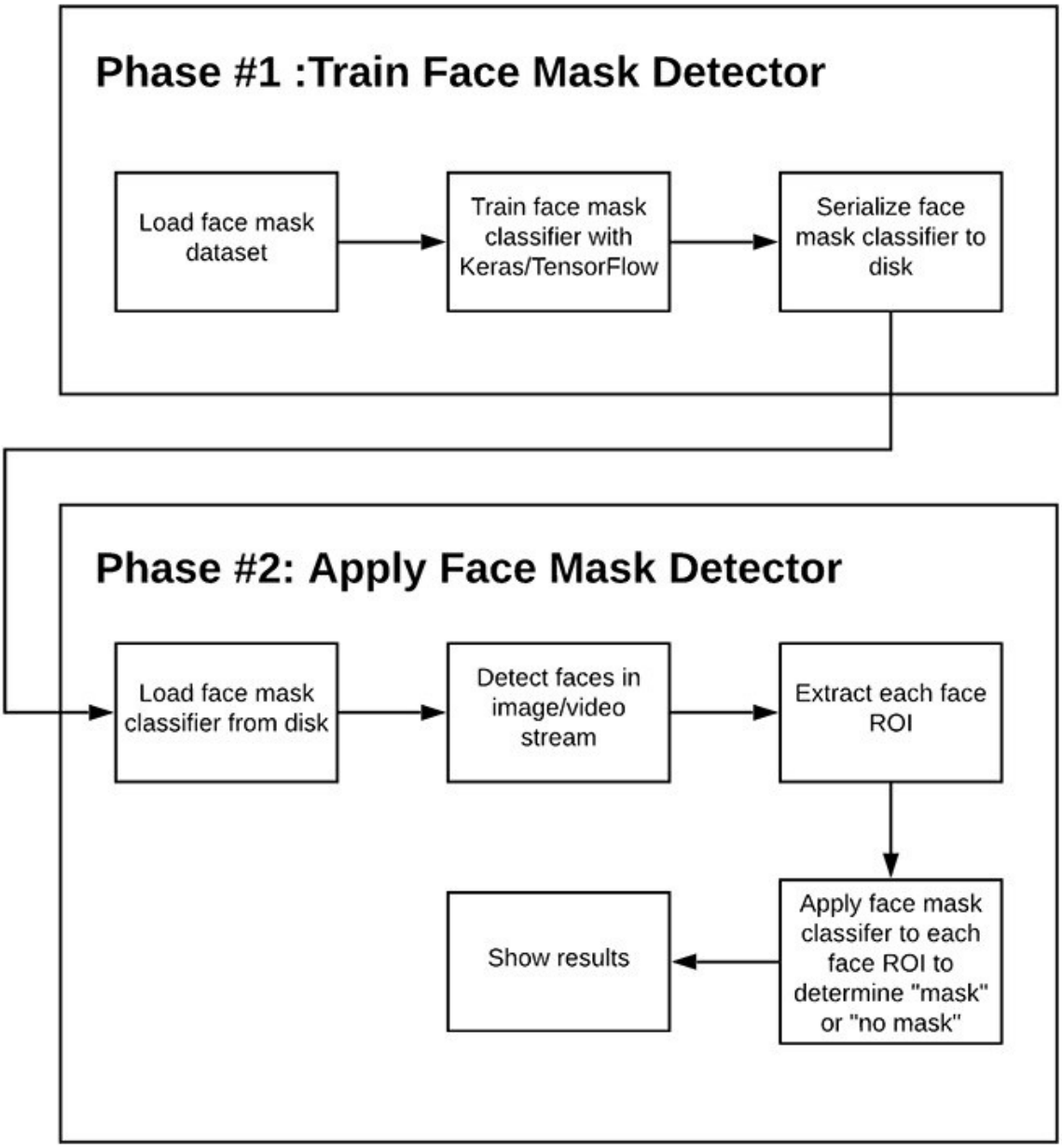
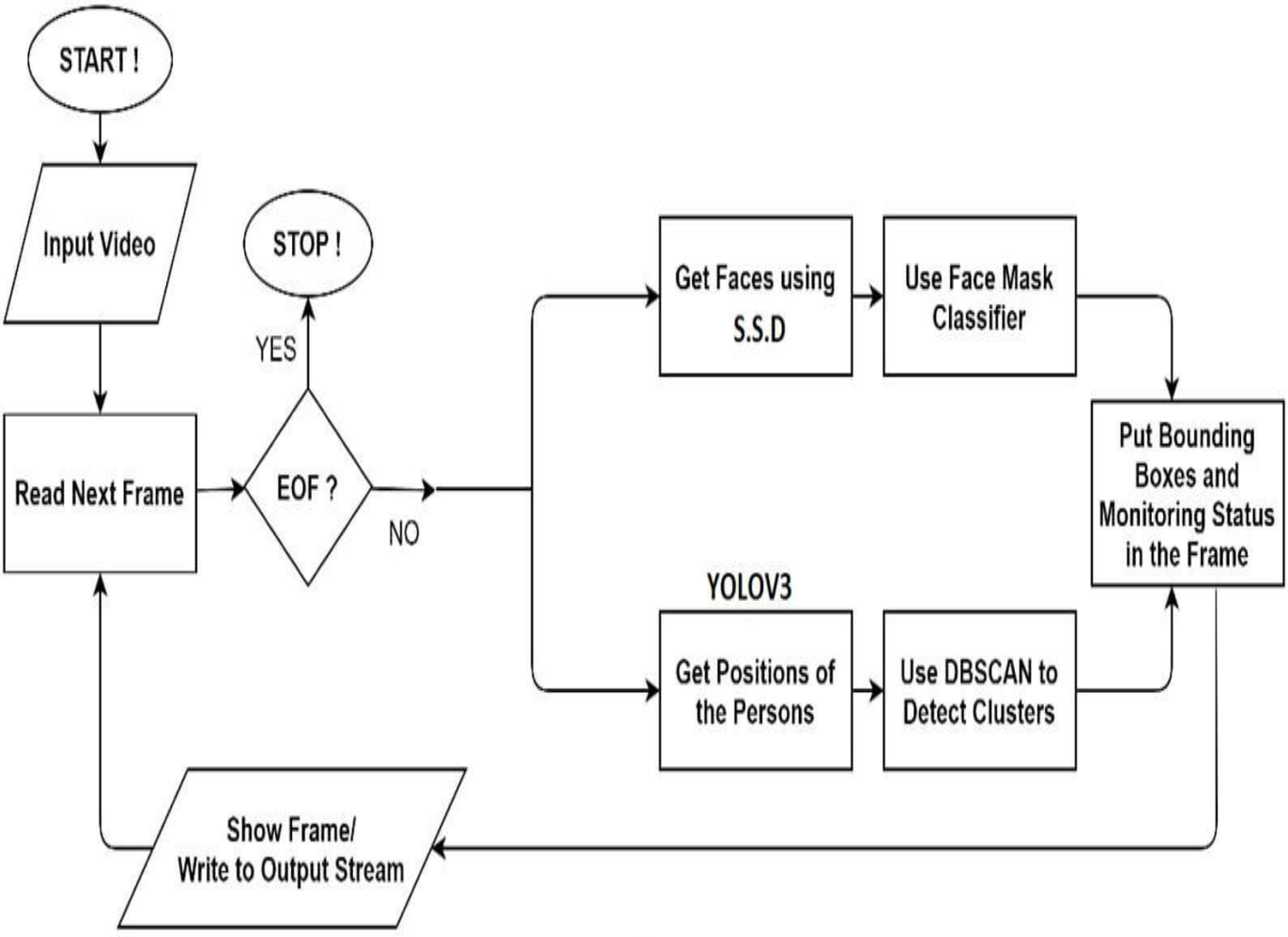
FLOW DIAGRAM OF THE PROJECT



FLOW OF THE TRAINING MODEL



SOFTWARE REQUIREMENTS

Software used in the project includes following frameworks:

- Google Colab
- Tensorflow
- Keras
- OpenCV
- Flask

Web framework required usage of basic front-end frameworks such as HTML, and CSS for styling purpose.

For usage of above mentioned ML frameworks, most of the code was written using the Python programming language.

Statistically speaking, the percentage of the programming languages used is as follows:

- Python: 59.9%
- HTML: 27.0%
- CSS: 13.1%

BASIC WORKING OF THE PROJECT

Task 1: Detecting Masks

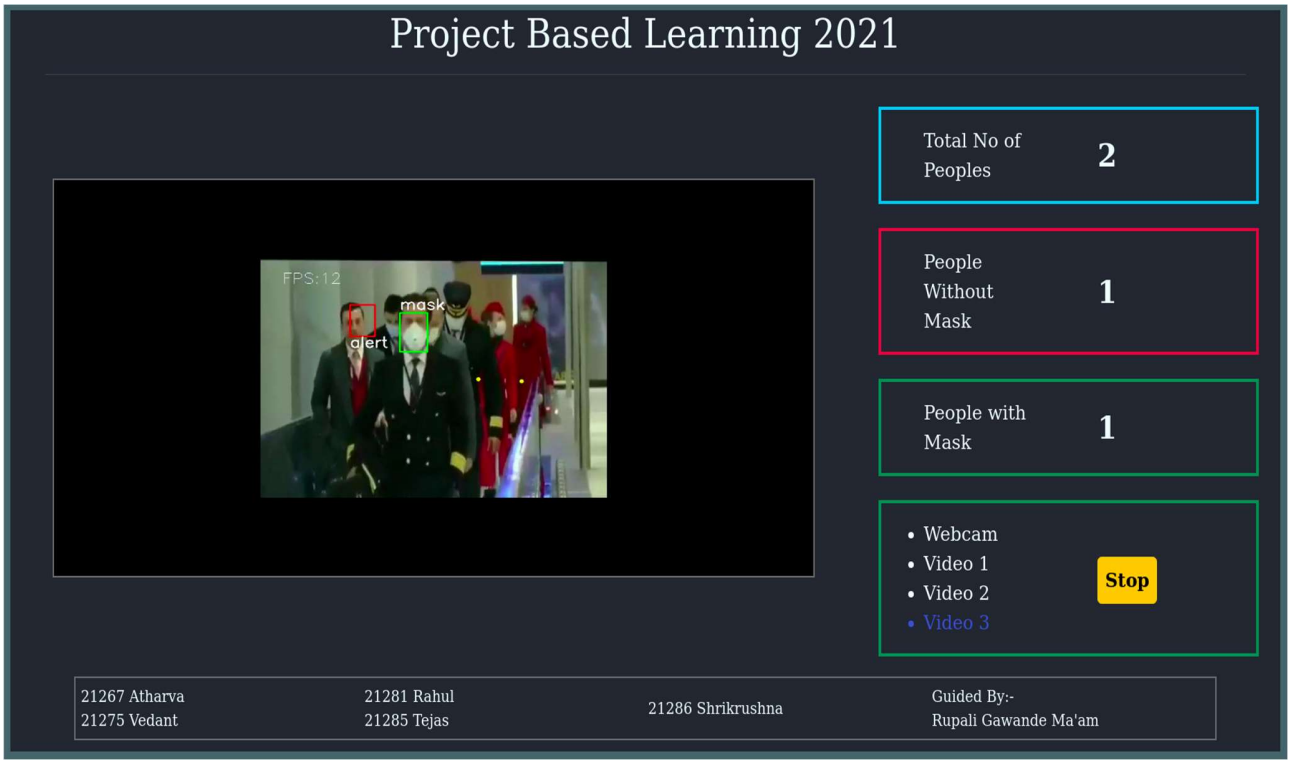
1. Detect faces using cvlib.detect_faces.
2. Apply model to classify if the face is masked or not.

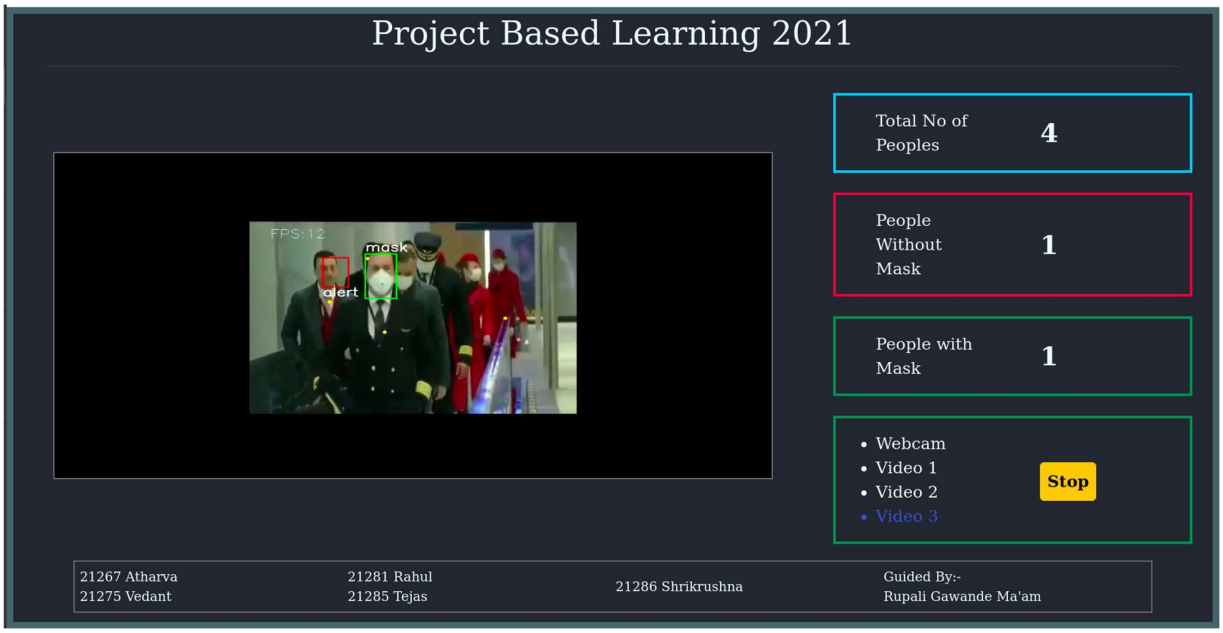
Task 2: Displaying processed frames on browser (Flask)

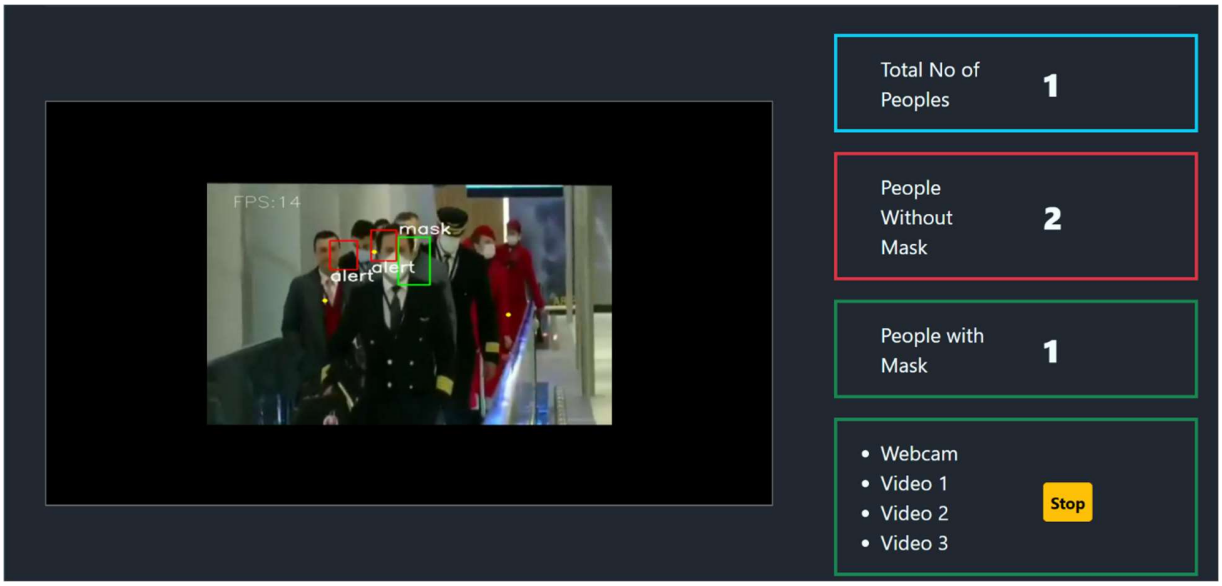
1. Using streaming to stream the final frame from the app to the browser.

Display of the user interface:

Main page-







Step by step procedure for the setup on a PC and to run this project locally:

- Clone the project onto your local Machine (From the appropriate branch).
- Create a virtual environment and install the required dependencies.

  (Refer next page of report for the terminal commands)

BASIC WORKING OF THE PROJECT

1. Install Python3-env and pip package for creating an environment.

```
sudo apt-get install python3-venv python3-pip
```

2. Create a virtual environment.

```
python3 -m venv env
```

3. Activate this virtual environment.

```
source env/bin/activate
```

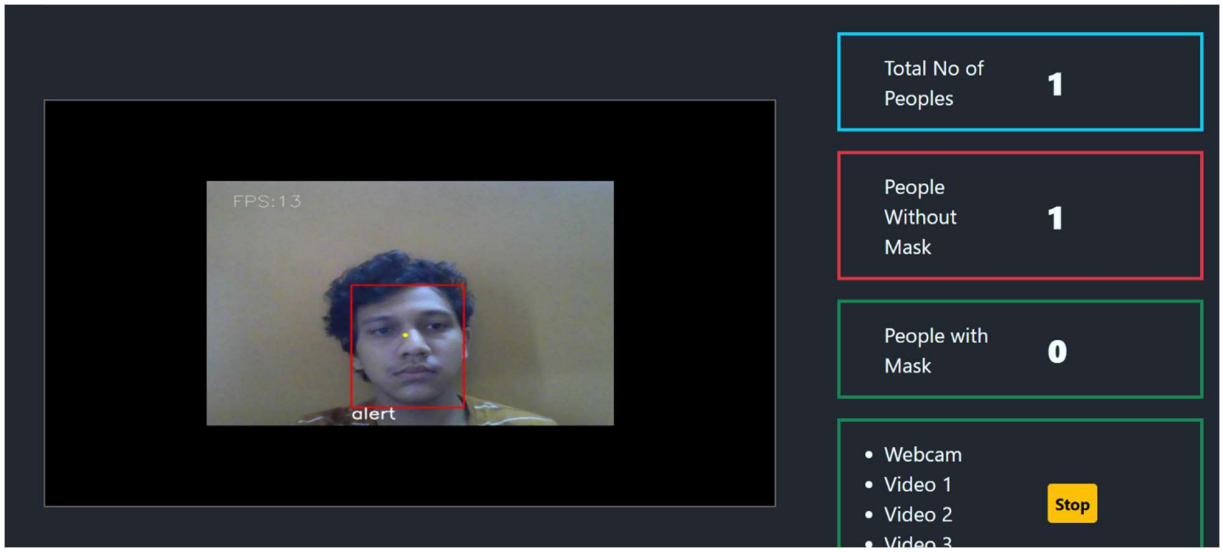
4. Installing all required packages which are present in requirement.txt:

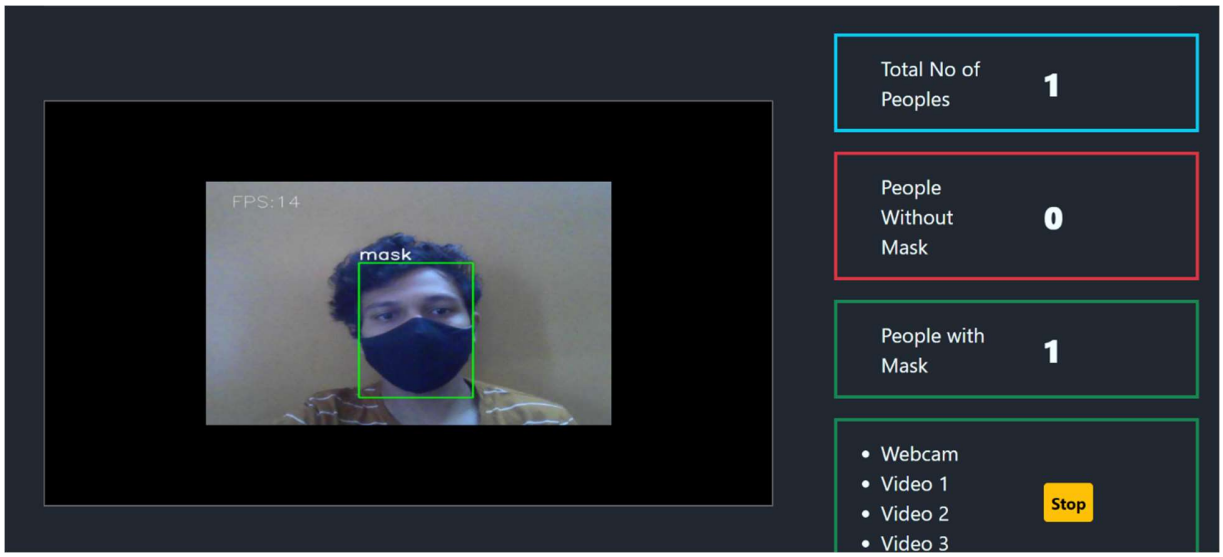
```
pip install -r requirements.txt
```

5. To run the program:

```
FLASK_APP=stream.py flask run
```

GLIMPSES OF THE PROJECT WORKING





Total No of Peoples **1**

People Without Mask **2**

People with Mask **1**

- Webcam
- Video 1
- Video 2
- Video 3

Stop