DOOR UNLOCK USING FACE MASK DETECTION

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ABSTRACT

The system is designed to detect the faces and to determine whether the person wears a face maskor not. Using the above data, we can decide whether the concerned person can be allowed inside public places such as the market, or a hospital. This project can be used in the hospital, market, bus terminals, restaurants, and other public gatherings where the monitoring has to be done.

This project is run through connecting of hardware components and it is interlinked with software part to check whether the person wears mask or not. Face will be captured through Camera and detects whether the person is wearing a face mask or not using their facial features and the data is sent to Arduino and it sends the information for motor to open the door or not.

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Introduction

1.1   Objective and goal of the project

The principal objective of "Door Unlock by face Mask Detection" project is to give some effective innovation to prevent the spread of Corona virus. Primary objectives behind the improvement of this project are as per the following: -

- Preventing the spread of Corona virus by advancing the utilization of face masks with theassistance of advance technology to identify the face mask.
- Ensure a protected workplace
- Saves the lives of people

1.2   Problem Statement

To Design a system to determine whether the person wearing a face mask or not. Using the data, which we get from the camera we can decide whether the concerned person can be allowed inside the place or not. This project can be used in the hospital, market, bus terminals,restaurants, and other public places where the monitoring has to be done.

1.3   Motivation

The motivation of our project is to make a system that helps the people to allow the inside the house or any public places like banks, hospitals, airports etc, only if they are covered their face with the mask or else the person is not allowed which helps the people from the spread of Corona virus .

1.4   Challenges

We faced lot of challenges while doing this project the literature survey for the project which is a time taking process and understanding about the face mask detector with a smaller number of references is also a challenge.

2. Literature Survey

The COVID-19 is an unrivaled emergency prompting a colossal number of losses and security issues. To decrease the spread of Covid, individuals regularly wear covers to ensure themselves. This makes face acknowledgment a troublesome assignment since specific pieces of the face are covered up. An essential focal point of the scientists during the progressing Covid pandemic is to thought of ideas to deal with this issue through fast and proficient solutions.

As every one of the working environments are opening. The quantity of instances of Corona virus are as yet getting enrolled all through the country. On the off chance that everybody follows the wellbeing measures, at that point it can reach a conclusion. Subsequently to guarantee that individuals wear mask while coming to work we trust this module will help in recognizing it.

With the headway of innovation and time more solid techniques for human acknowledgment with a face mask can be executed. This method has different applications at public spots, schools, and so forth where individuals should be detected with the presence of a face mask and recognize them and help society.

3 Requirements Specification

3.1   Hardware Requirements

- Camera (Webcam is enough)
- Arduino Uno
- Connecting Wires
- Servo Motor and a
- Door

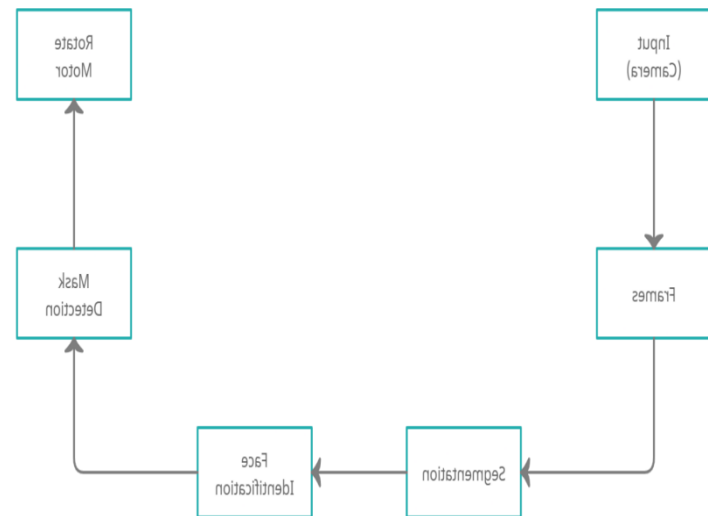## 3.2   Software Requirements

Operating Environment:

- Operating System: Windows 7 or later
- Processor: Intel i3 or higher
- Memory: 4gb or more

Dependencies:

- Python
- TensorFlow - Keras
- OpenCV

## 4   System Design

5 Implementation of System

In the project I have used OpenCV and deep learning model to do real-time face mask detection from a live stream via our webcam. I have used the dataset of images with mask and without mask to build a face mask detector with computer vision using Python, OpenCV, and Tensor Flow and Keras. Our goal is to identify whether the person

on image/video stream is wearing a face mask or not with the help of computer vision and deep learning.

This project is run and the persons Face will be captured through webcam and detects whether the person is wearing a face mask or not using their facial features and the data is sent to arduino and if the person's face is detected with the mask then the door opens(motor rotates) and the lcd displays "Your are masked entry is granted" or else the door is not opened(motor wont rotates) and the led displays "your are not masked entry is rejected"
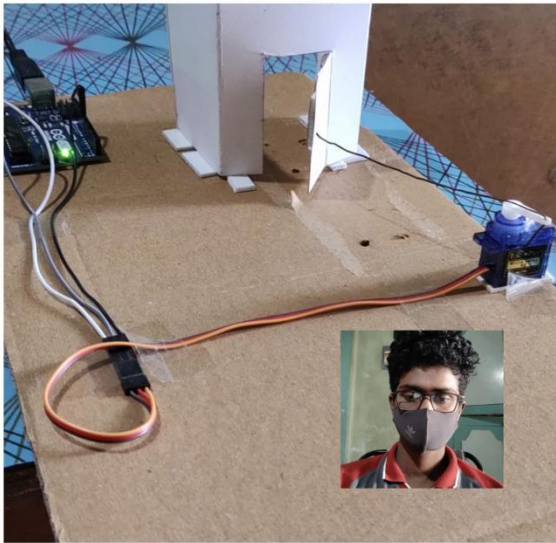
6. Results and Discussion

6.1.Without Face Mask:
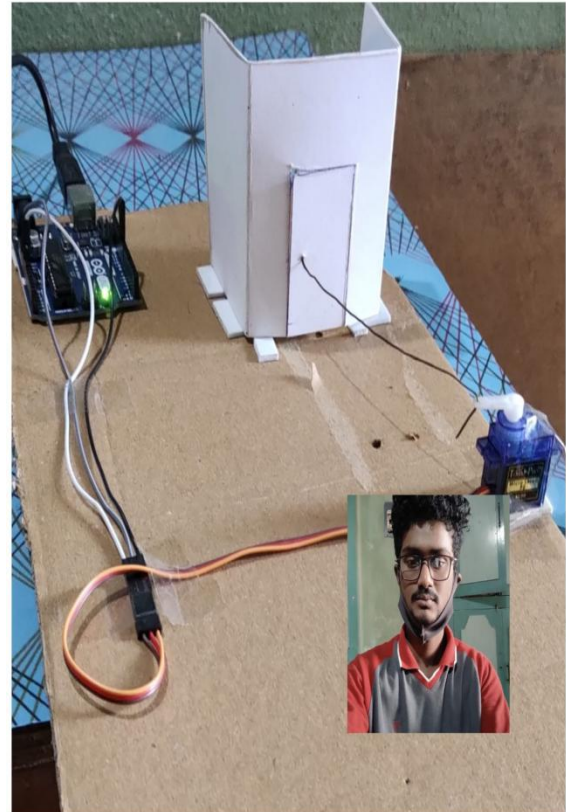
6.2.With Face Mask:
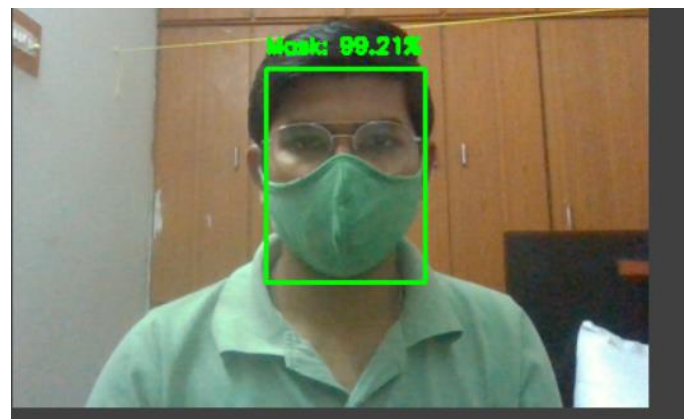
7. Conclusion and Future Work

In this work, a deep learning approach for detecting masks over faces in public places to dock the community spread of Coronavirus is presented. The proposed system efficiently handles occlusions in thick situations by making use of an ensemble of single & two- stage sensors at the pre-processing position. The ensemble approach not only helps in achieving high delicacy but also improves discovery speed vastly. Likewise, the operation of transfer literacy on pre-trained models with expansive trial over an unprejudiced dataset redounded in a largely robust and low- cost system. The identity discovery of faces, violating the mask morals further, increases the speed of the system for public benefits.

Eventually, the work opens intriguing unborn directions for experimenters. Originally, the proposed fashion can be integrated into any high- resolution videotape surveillance bias and not limited to mask discovery only. Secondly, the model can be extended to detect facial parameters with a facemask for biometric purposes.

8. REFERENCES

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