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Face recognition based attendance system

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ABSTRACT

In modern times, Automatic Face recognition (AFR) technologies have seen dramatic improvements in performance over the last few years. There are two reasons for this trend; the first is for saving the time in the classroom and accuracy in attendance will be maintained, and the second is availability of advanced technology it is more useful for the future generation. In simple words, it was a computer implementation for recognizing automatically whether the student is present in the classroom or not with the help of still image or video frame. We proposed an automatic attendance management system. It was completely based on face recognition and the face detection. This both detection and recognition will automatically detect the students in the classroom and mark the attendance by recognizing the person. This research includes for Face Detection of Students and system is based on CNN algorithms.

Keywords— Face Recognition, Face Detection, CNN, AFR, Deep Learning

1. INTRODUCTION

Attendance is one of the important aspects in the classroom. At the beginning and ending of the section, the teacher should check out the students presence in the class generally teachers take the attendance and note done in the register, but it may appear that miss someone and students any give attendance multiple times.so to avoid this type of problems there is a high definition monitor video. Based on this monitor system we use face recognition and other information technology aspects for marking the attendance, it is one of the practical research techniques. Firstly, we use CNN algorithm for face detection module to determine the number of students present in the class. Recent years we observe that researchers on face recognition techniques have gained drastic change in development. Compare will the biometric methods the fastest and accurate result will be progressed by the automated attendance. For this by the automated attendance that is face recognition technology identifies the facial parts of a human face e.g. eyes, mouth, nose, ears, eyebrows etc, by this part of the face can recognize the particular student. The second one is global face recognition uses complete features to identifies the student so these two approaches have implemented with different types of algorithms. In recent years CNN's (Convolution Neural Networks) have made significant breakthrough in an image classification. This face recognition systems have been attracting many researchers to this side. To this research we also use the deep learning model Deep ID developed by the research group members only. This group have achieved the rate of 99.15% on IFW database, which is higher than that of human eyes with 97.52% By this system of developing an intelligent and automatic process may require human computer interaction with this we can increase some of the efficiency by using the face recognition algorithms with the compare of neural network in this aspect (or) field.

2. RELATED WORK

CNN (Convolutional neural network): In machine learning a Convolutional Neural Networks (CNN's or ConvNet) it is a class of deep learning. Feedforward network analysing visual imagery where commonly applied. In this multilayer perceptron's designed for the sake of minimal pre-processing method, it is known as SIANN (Shift invariant or space invariance artificial neural network with different fields of neurons the entire visual fields are covered by partially overlap.

RFID (Radio Frequency identification) based on attendance system: In this RFID based system have been proposed where the students carry their ID card that card has the radio frequency waves with the help of that waves the reader will record the attendance when the card is placed on the reader .By this system any authorized person may use and enter the classroom or organization.

3. METHODOLOGY

The attendance system based on face detection and face recognition algorithm involved. Here are some of the modules as followed:
• Image or video will be recorded to known that every student is present in the image should be seen.

- Separate as per the detected images in the class attendance.
- Apply deep learning algorithm CNN for face detection model detect the students faces as output.
- Apply deep learning of face recognition algorithm for the sake of face recognition.
- In this module automatic attendance. The students seating order should be fixed, so that there will not be any contrast their faces. The device can easily identify the faces.

4. PROPOSED WORK

System design some of the interfaces, components, architecture and database to satisfy the requirements. There are some of system design applications. Proposed automated attendance system can be divided into few modules. Image capture: Camera will capture the image of the students at the beginning after capturing the image the next process is to detect the image it goes to the face detection. Face Detection: The face detection algorithm will increase the efficiency of the face recognition. There are some of the algorithms was proposed for face detection as face geometry-based performances. We observed algorithm gives the better output in different conditions to combine the multiple classifiers for better detection rate. Up to 30degrees angle the image is going to be detected Database Development: In every individual requirement biometric based system enrolment can be chosen. In this phase we consider the image capture to way person as individual features. We extract the face and store the features in the database after identifying.

Proposed Algorithm:

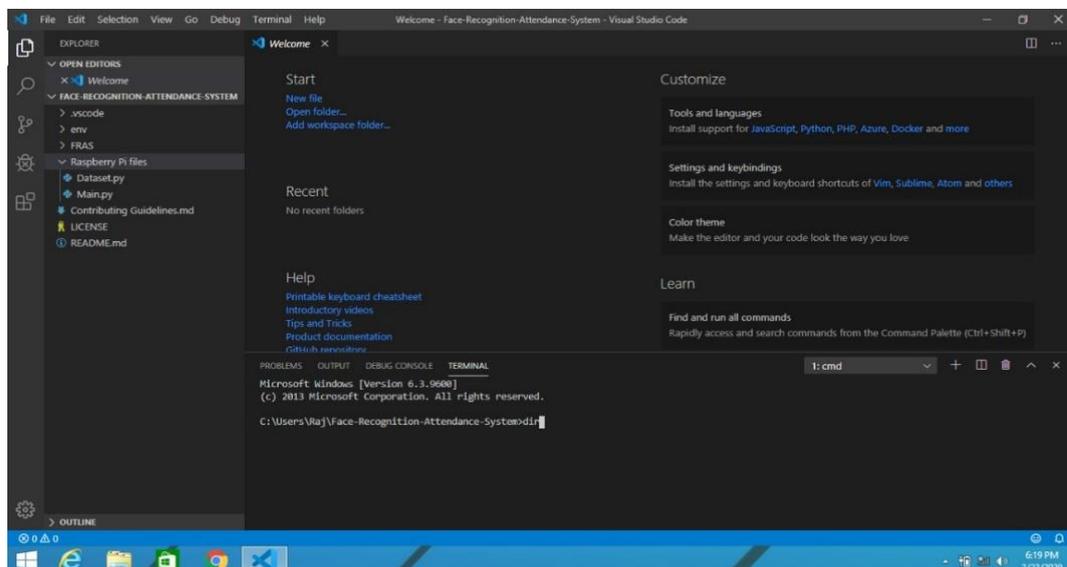
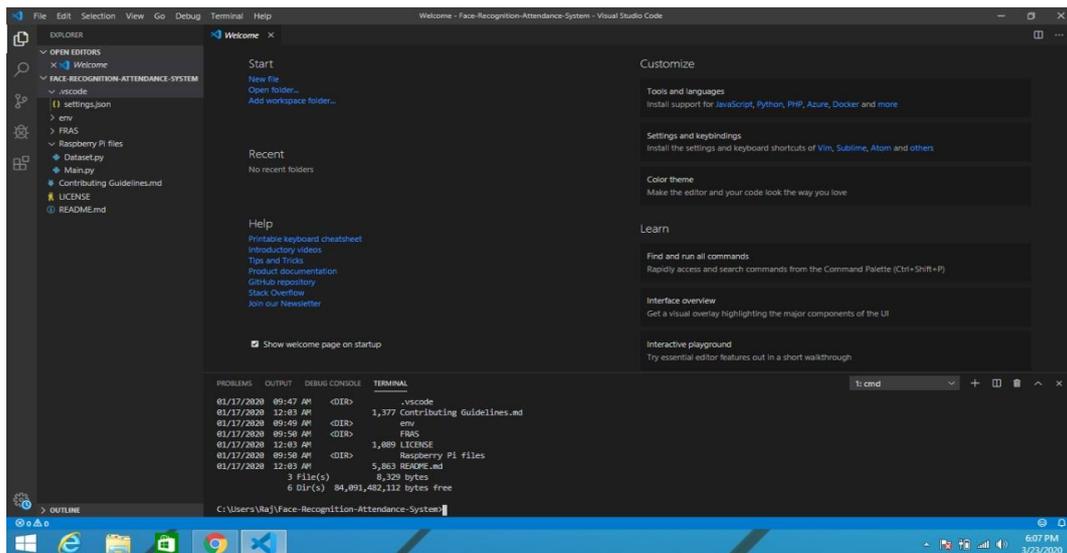
1. The person's image will be captured.
2. Apply detection algorithms for detecting the face.
3. Face recognition is going to be recognized.
4. Apply pre-processing image.
5. If enrolment selected Then store in database Else

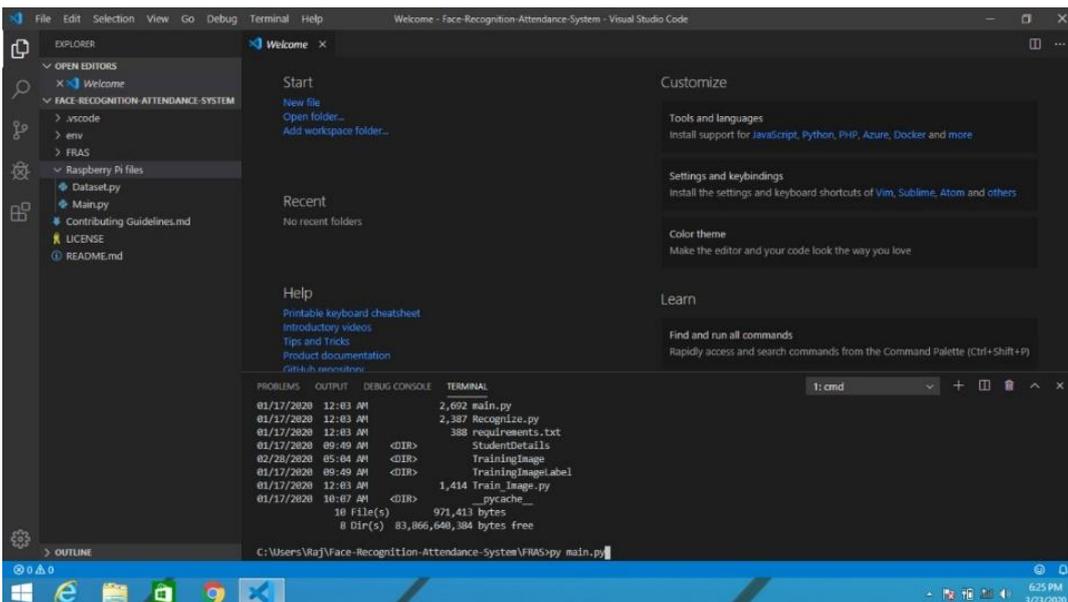
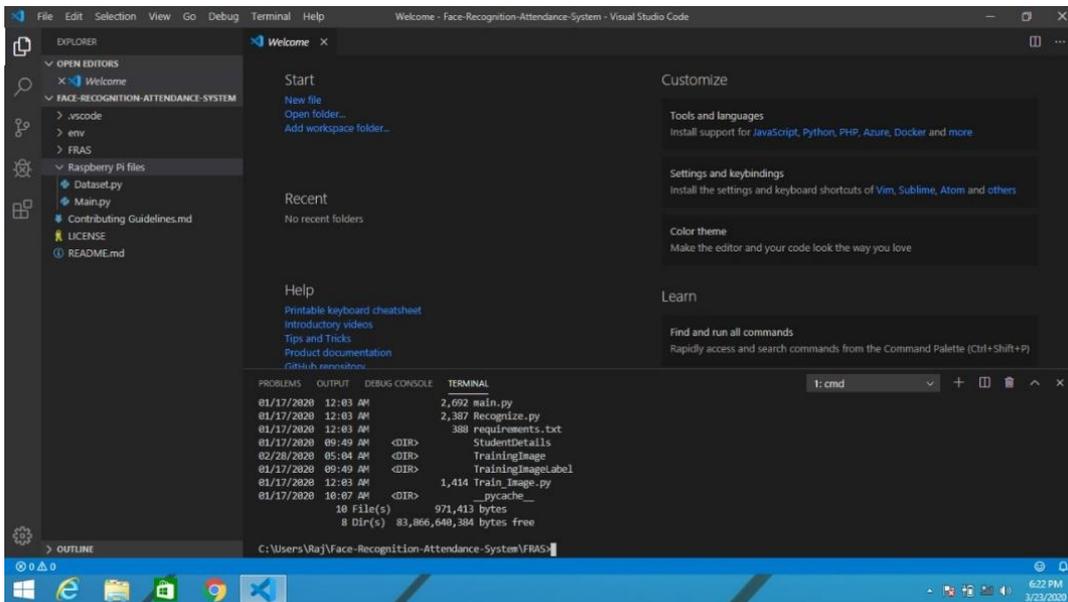
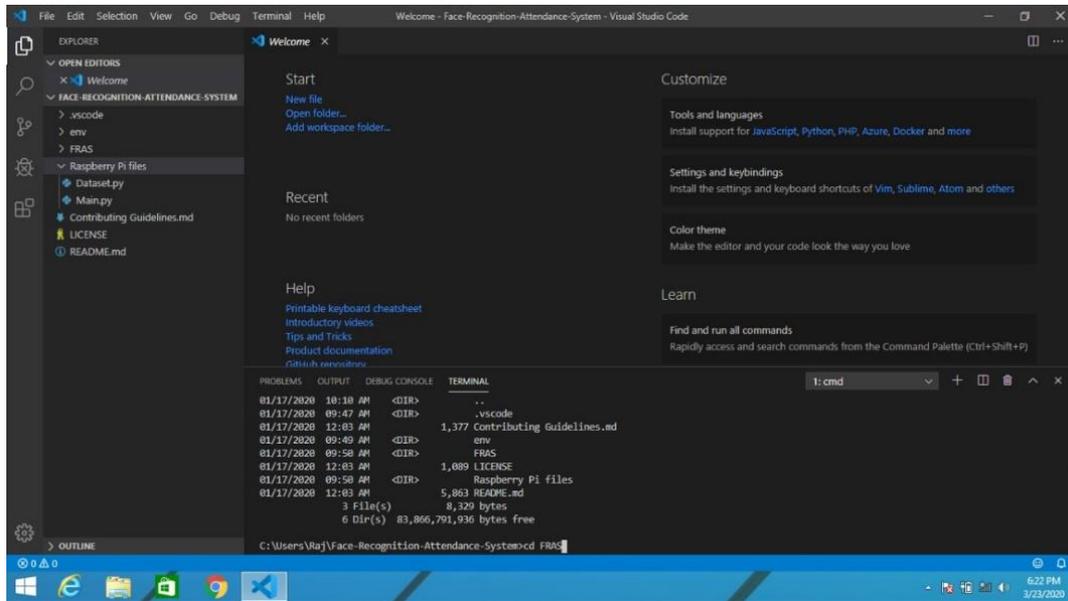
Apply feature extraction

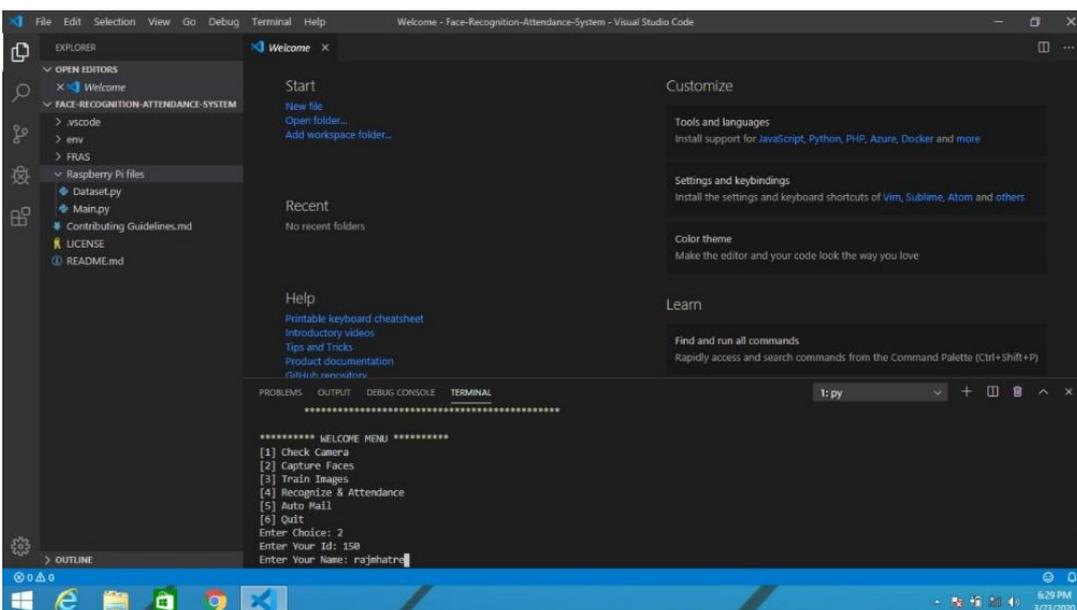
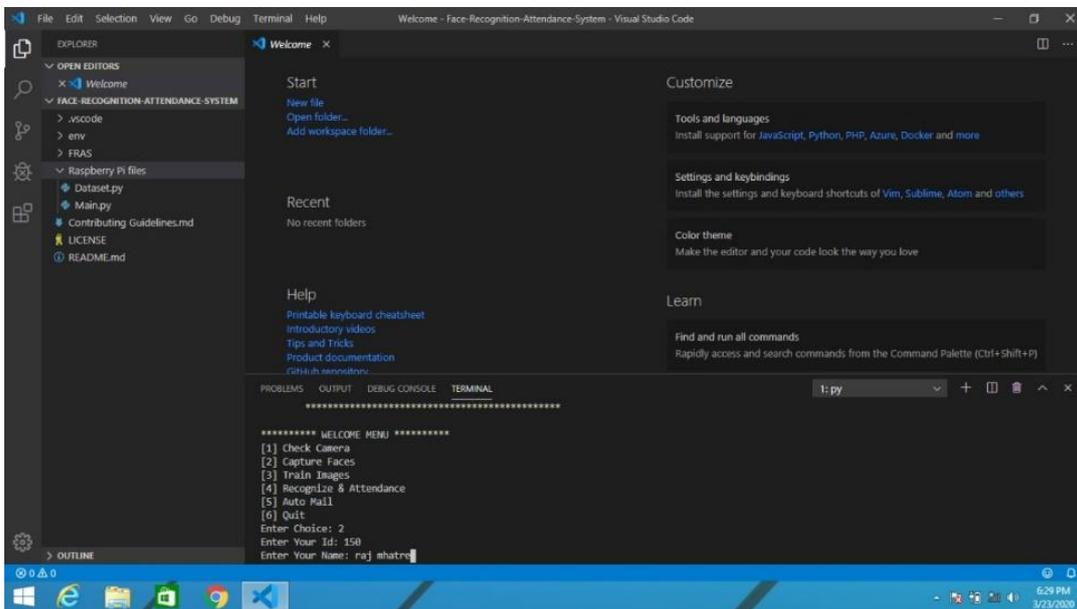
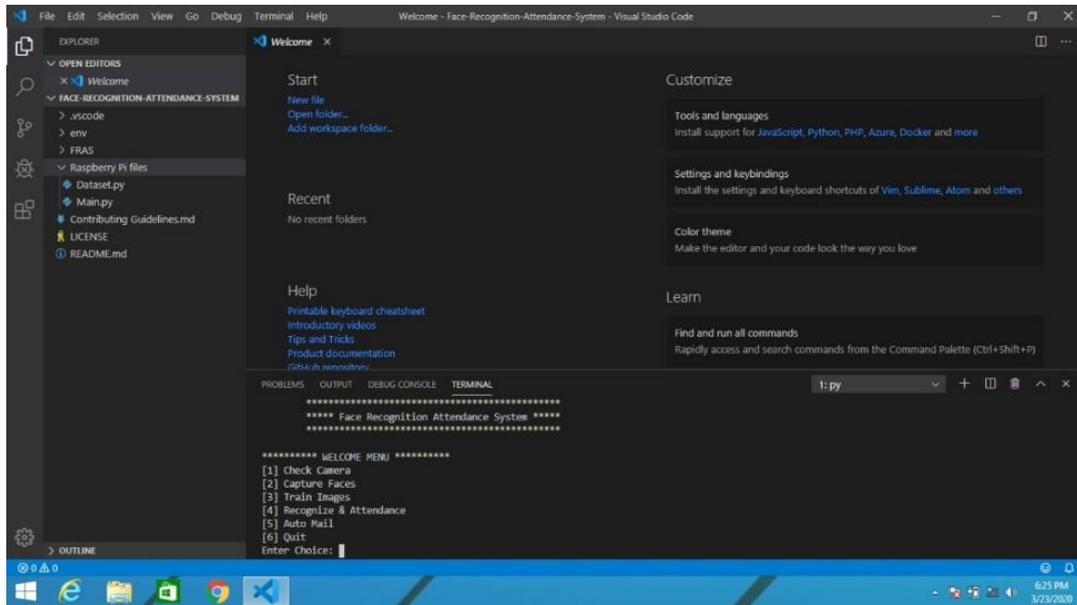
Apply for classification End if

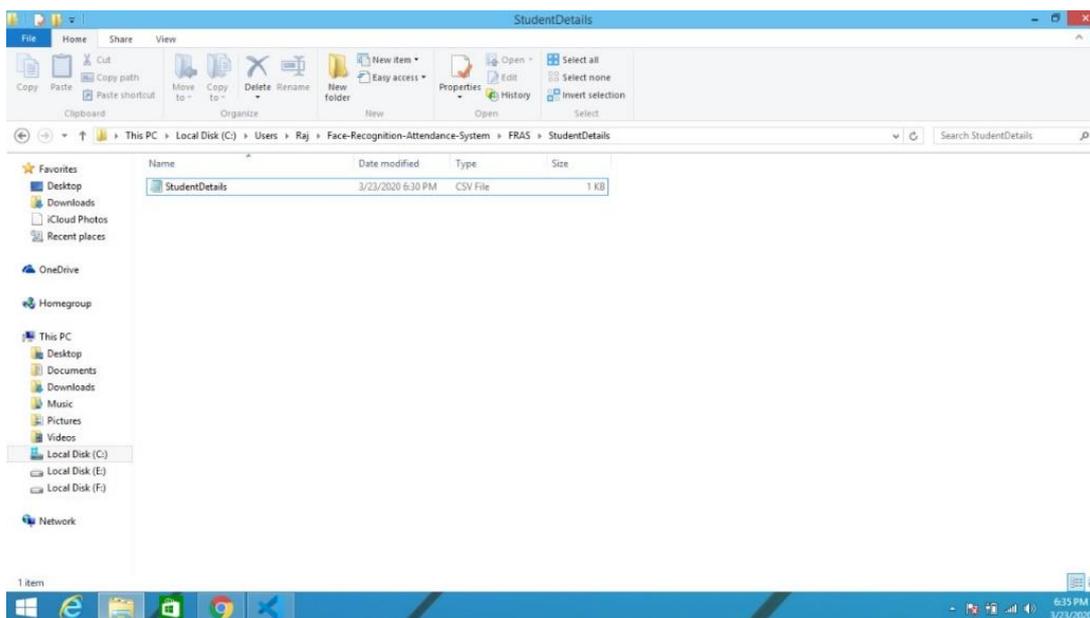
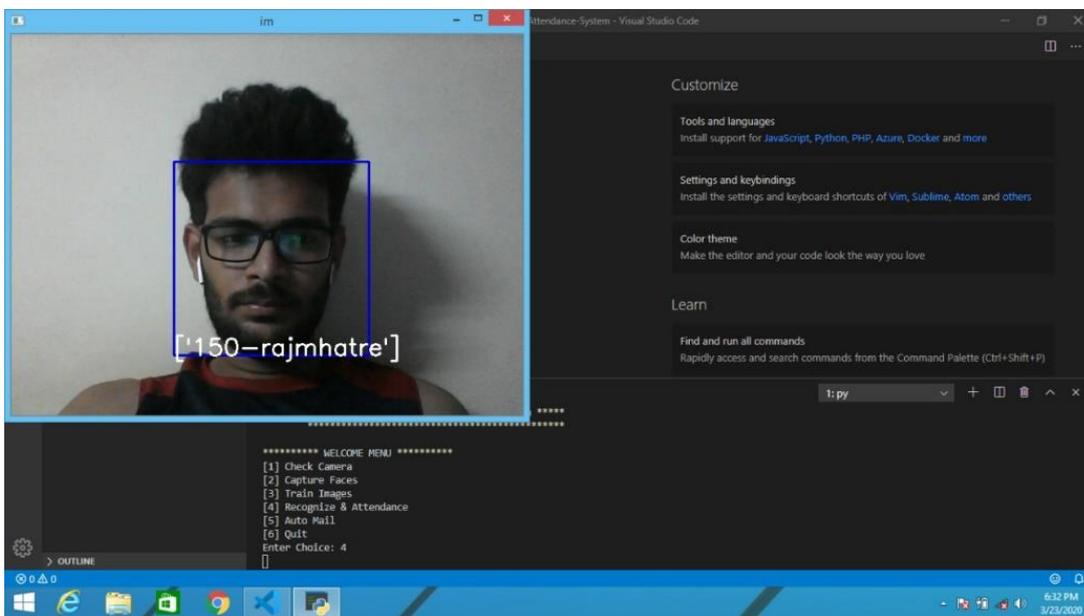
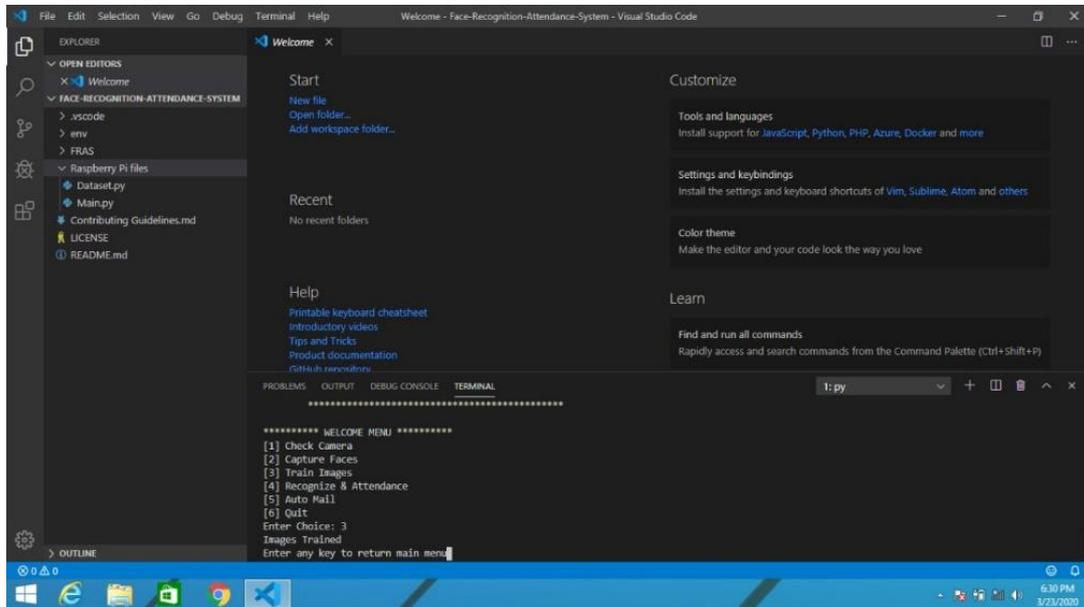
6. Post-processing.

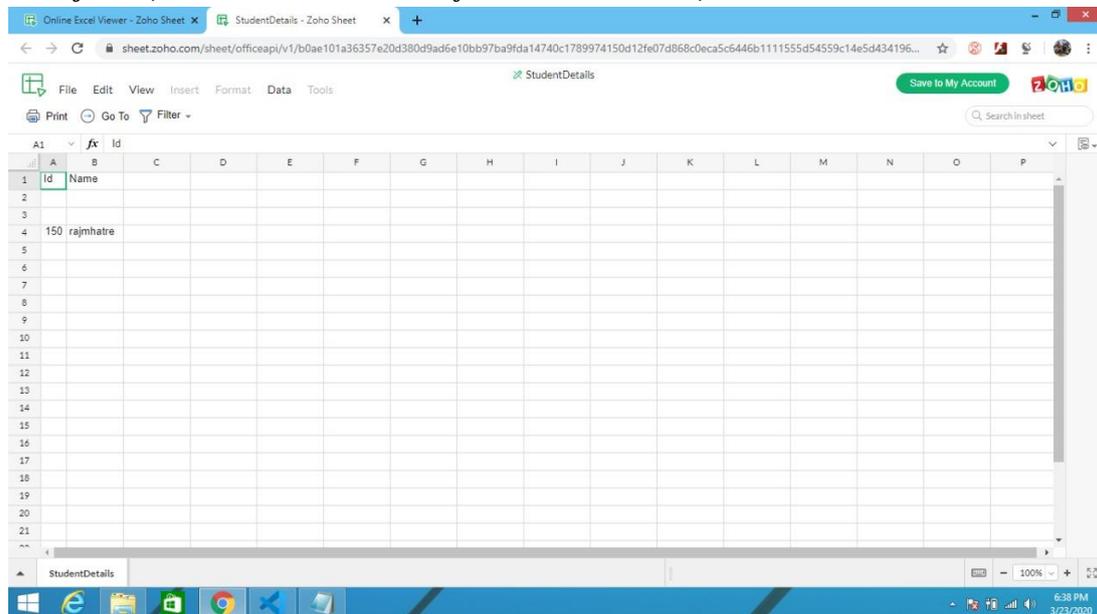
5. ATTENDANCE RESULTS











6. CONCLUSION

In the system automatic attendance have been implemented. By using the techniques proved time saving and high-security. It also identifies an unknown person too. The future extraction is to increase the rate of recognition techniques. When there is a change in a student's face, like covering the head with the beard. This system has only developed face recognizes up-to 30 degree's angle should be improved further. The class room with a poor lighting may effect image with lack of clarity system performance degrades indirectly

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