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DT BASED ATTENDANCE SYSTEM USING FACE RECOGNITION

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Abstract: In the present World, the population is increasing at a steady rate and at the same time, the rate of thefts and mishappening is also increasing with the population. We cannot assure that wherever we go we are safe in that place. We live in a society where every day a new technology is introduced. In the emerging new technologies, in this project, we are going to make use of the face recognition application. Using the face recognition system we are going to implement one of the applications, which is the attendance system.

INTRODUCTION:

Face detection is a computer vision technology that helps to locate/visualize human faces in digital images. This technique is a specific use case of object detection technology that deals with detecting instances of semantic objects of a certain class (such as humans, buildings, or cars) in digital images and videos. With the advent of technology, face detection has gained a lot of importance especially in fields like photography, security, and marketing. The traditional way of attendance is slow time-consuming and inconsistent as some students often sign for their missing colleagues. It also makes it difficult to track the attendance of individual students in a large classroom setting. In our work, we propose the design and implementation of a face detection and recognition system to automatically detect students attending a lecture in the classroom and recognize their attendance by recognizing their faces

LITERATURE SURVEY

In order to overcome the inefficient traditional way of attendance system we develop an efficient technical system
Plenty of research has been conducted so far on the various available methods for the implementation of an effective attendance monitoring system. These methods vary in terms of the types of input method used, the types of data processing employed and the controllers used to implement the systems. This section looking for the various available solution with the advantages and disadvantages of each system.

Attendance System Using NFC Technology with Embedded Camera on Mobile Device:

According to the research journal "Attendance System Using NFC (Near Field Communication) Technology with Embedded Camera on Mobile Device" The attendance system is improved by using NFC technology and mobile application. According to the research paper, each student is given an NFC tag that has a unique ID during their enrolment into the college. Attendance of each class will then be taken by touching or moving these tags on the lecturer's mobile phone. The embedded camera on the phone will then capture the student"s face to send all the data to the college server to do validation and verification. The advantage of this method is where the NFC is simple to use, and the speed of connection establishment is very high. It indeed speeds up the attendance-taking process a lot. However, this system couldn't automatically spot the violation when the NFC tag is not personally tagged by the original owner. Apart from that, the convenience of the system which uses the mobile phone as the NFC reader was actually an inconvenience to the lecturer. Imagine if the lecturer had forgotten to bring their mobile phones to work, what would be the backup procedure

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for the attendance to be recorded? Moreover, most of the lecturers will not likely prefer their personal smartphones to be used in this way due to privacy matters.

Fingerprint Based Attendance System Using Microcontroller and LabView:

"Fingerprint Based Attendance System Using Microcontroller and LabView" proposed a solution of using fingerprint to mark the attendance. This system is using 2 microcontrollers to deal with the fingerprint recognition process. Firstly, the fingerprint pattern will be obtained through a fingerprint sensor, then the information will be transmitted to microcontroller 1. Next microcontroller 1 will pass the information to microcontroller 2 to do the checking with the database that resides in it. After finding a student's match, the details are sent to the PC through serial communication to be displayed. This design is good as it accelerates development while maintaining design flexibility and simplifies testing. But again, this system is attached to a PC which makes it not portable. Other than that, the database information cannot be accessed easily. Meaning that the parents who are interested in knowing their child's attendance cannot easily or conveniently access the information. Therefore, to provide accessibility of the student's information to the legitimately concerned party, the information can be uploaded to a web server for easy access. While the authentication for the appropriate access can be enforced through a login screen.

PROPOSED SYSTEM

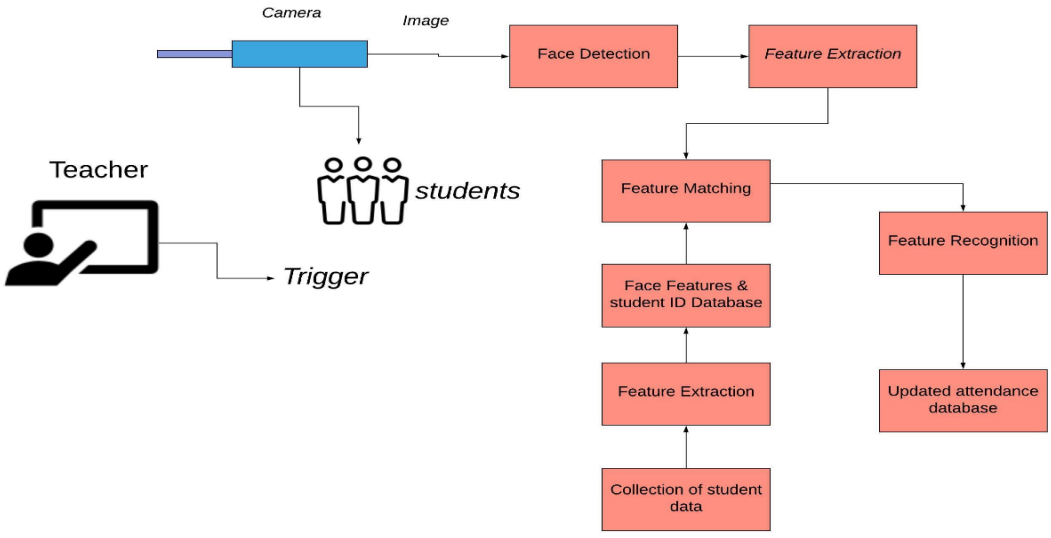
The proposed system consists of two parts Hardware and Software, The design part can be developed, the hardware part is first completed to provide a platform for the software to work. Before the software part, we need to install some libraries for the effective working of the application. We install OpenCV and NumPy through Python.

SOFTWARE DEVELOPMENT

There are two main processes in software development as shown below:

- The creation of the face database
- The process of attendance taking

BLOCK DIAGRAM:



The creation of the face database:

The face database is an important step to be done before any further process can be initiated. This is because the face database acts as a comparison factor during the recognition process. Then a csv file is created to store the data i.e, the portrait of the students and their names. So that it can compare this data with the data that is captured during the class.

The process of attendance taking:

The attendance-taking session can be started after the lecturer select the relatable date and timetable ID for the current classroom session. After receiving a button clicking action from the lecturer on the webpage a python script is initiated. In python script, the first step is to load the data which is given during the creation of the face database process. Then the system will capture the student's portrait and start recognizing their face and compare it with the previous data which is in the csv file using the face recognition process. The valid portrait is compared to the data. After identifying the

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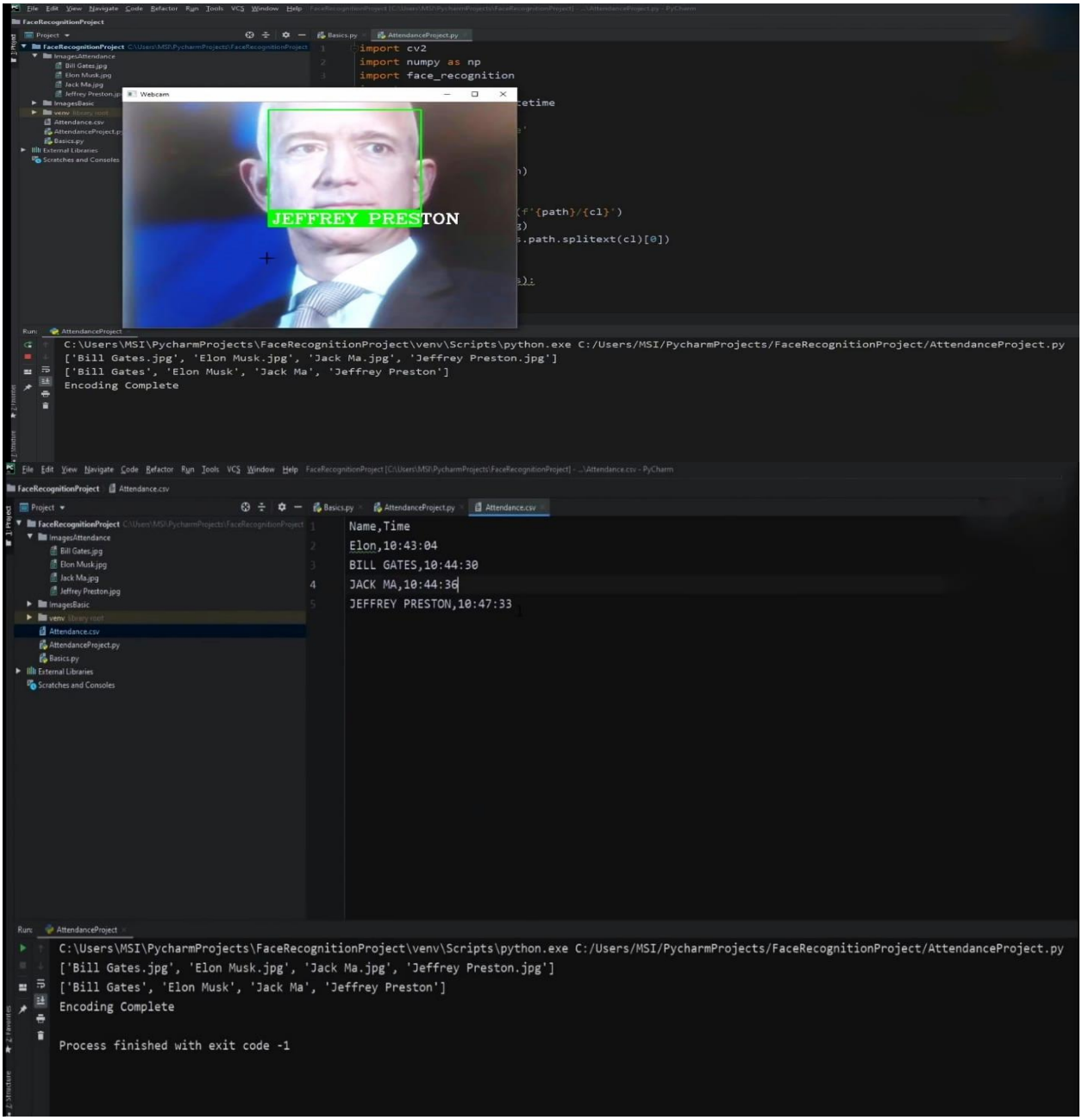
appropriate student from the capturing process, a record of the current attendance is added to the attendance table managed by the database.

Advantages:

- The software can be used for security purposes in organizations and secured zones.
- The software stores the faces that are detected and automatically mark attendance.
- The system is convenient and secure for the users.
- It saves time and efforts

TEST:

Finally, we shall display the image to see if the face has been detected correctly or not.



The above pictures shows the effectiveness and the power of face recognition.

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CONCLUSION:

Before the development of this project. There are many loopholes in the process of taking attendance using the old method which caused many troubles to most of the institutions. Therefore, the facial recognition feature embedded in the attendance monitoring system can not only ensure attendance to be taken accurately and also eliminated the flaws in the previous system. In this project, the face database is successfully built. Apart from that, the face recognizing system is also working well. At the end, the system not only resolve troubles that exist in the old model but also provide convenience to the user to access the information collected by mailing the attendance sheet to the respected faculty.

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