

SMART ATTENDANCE SYSTEM USING FACE RECOGNITION: Engineering College Prospective

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I. Abstract

Maintaining the attendance is very important in all organization for checking the performance of employees. Every organization has its own method in this regard. Some are taking attendance using old paper or file-based approach and some have adopted methods of automatic attendance using some biometric techniques. But in old paper or train- grounded styles workers have to stay for long time in making a line at time they enter the office. Our system uses the face recognition approach for the automatic attendance. Face recognition consists of two ways, in first step faces are detected using real- time camera and this detected face is compared with database for recognition and if honored also make entry in attendance database. This design is aimed to make Automatic attendance system so that no one has to stay for long time in line at time them making the attendance. This system allows you to not only track hand but also add callers to the system so they can also track throughout the worksite.

Keywords: *Face Recognize, Image Processing, Deep Learning, Python*

II. Introduction

Attendance is high important for both the schoolteacher and pupil of an educational association. So, it's veritably important to keep record of the attendance. The problem arises when we suppose about the traditional process of taking attendance in class room. Calling name or roll number of the pupil for attendance isn't only a problem of time consumption but also it needs energy. So, an automatic attendance system can break all above problems.

This design introduces an involuntary attendance marking system, devoid of any kind of hindrance with the normal tutoring procedure. The system can be also enforced during exam

sessions or in other tutoring conditioning where attendance is largely essential. This system eliminates classical pupil identification similar as calling name of the pupil, or checking separate identification cards of the pupil, which can't only intrude with the ongoing tutoring process, but also can be stressful for scholars during examination sessions.

III. LITERATURE SURVEY

There are a lot of research has been conducted so far on the various available methods for implementation on attendance through face recognition system. These methods vary in terms of the types of language used, types of input method used, and the libraries used to implement the systems. In this section we are looking for the various available solution for the attendance monitoring system. First, we talked about the Attendance System using NFC Technology with Embedded Camera on Mobile Device. In this method we are using short distance wireless communication that takes place between devices, one is called active device and other is called passive device. The two devices are basically inductor coils which responds to electromagnetic induction. Active device is used to produce an electromagnetic field of given radius and strength. Which is used to implement an attendance system.

The other Systems are Biometrics and RFID. In Biometrics we are using fingerprints to implement the attendance. And In RFID, every user must have RFID card to give the attendance. So these system introduce further privacy concerns. There is a lot of chance of proxy attendance in Attendance using RFID card. These systems are also subject to some physical damage from their users. Therefore, they need additional maintenance costs.

The idea proposed by us, is to remove physical excess to some extent and remove the risk of proxy attendance.

IV. PROBLEM STATEMENT AND OBJECTIVE

1. Problem Statement

To Attendance is very important part of classroom evaluation in schools and colleges. At the starting and ending of class, attendance is checked by the teacher, but there is a lot of chance that a teacher misses someone some students give proxy attendance. Face recognition attendance system is solving this problem by using face recognition technology based on high-definition monitor video and other information technology to recognize face.

The concept of face recognition is to give a system the ability of finding and recognizing human faces very fast and with a great accuracy. There are a lot of algorithms and techniques have been developed for improving the performance of face recognition such as trainer.yml function and LBPH algorithm in this project. Recently Deep learning has been highly explored for computer vision applications. We Humans can easily and instantly detect and recognize faces. But when it comes to a computer system it is very difficult task to do on the level of human brain. The face recognition is an integral part of biometrics. In biometrics, basic traits of human are matched to the existing data. Facial features are extracted and implemented through OpenCV and LBPH algorithm which are efficient and some modification needed. Computer system can detect face using these algorithm and function of OpenCV and deep learning.

The face recognition system involves two stages:

- Face Detection – where the face is detected by the computer system and takes the data for the processing.
- Face Recognition – where the real time face is detected by the computer with the help of dataset which is created during face detection. And attendance is given to that person.

2. Objectives

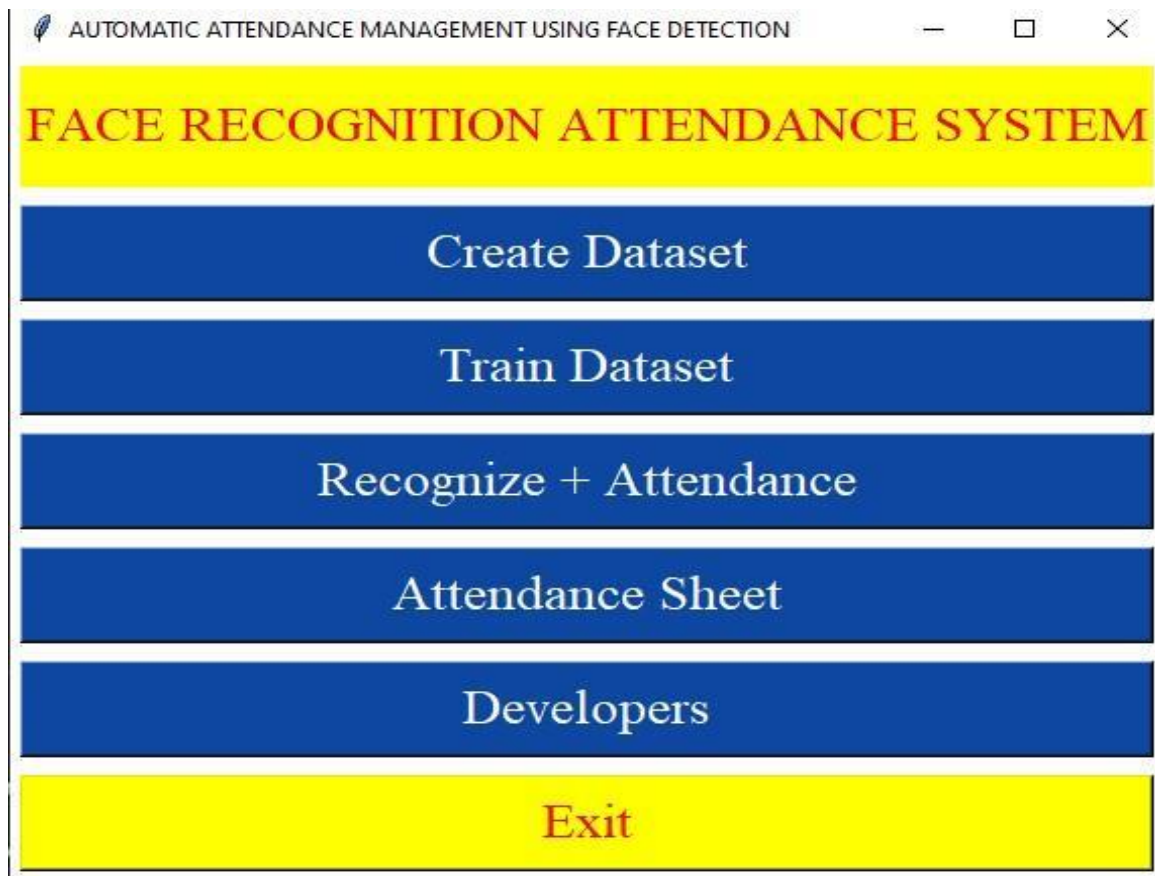
Our primary goal is to help school, colleges and educational institutes to improve and organize the process of track and manage student attendance. Additionally, we seek to:

1. Provide a valuable attendance service for both teachers and students.
2. To reduce the manual process errors done by human.
3. Increase privacy and security to reduce the chance of proxy.
4. Reduce the time taken by conventional class attendance.
5. Automating the whole attendance process so that we have digital environment.
6. Encouraging the student for the use of technology in daily lives.

V. PROPOSED SYSTEM

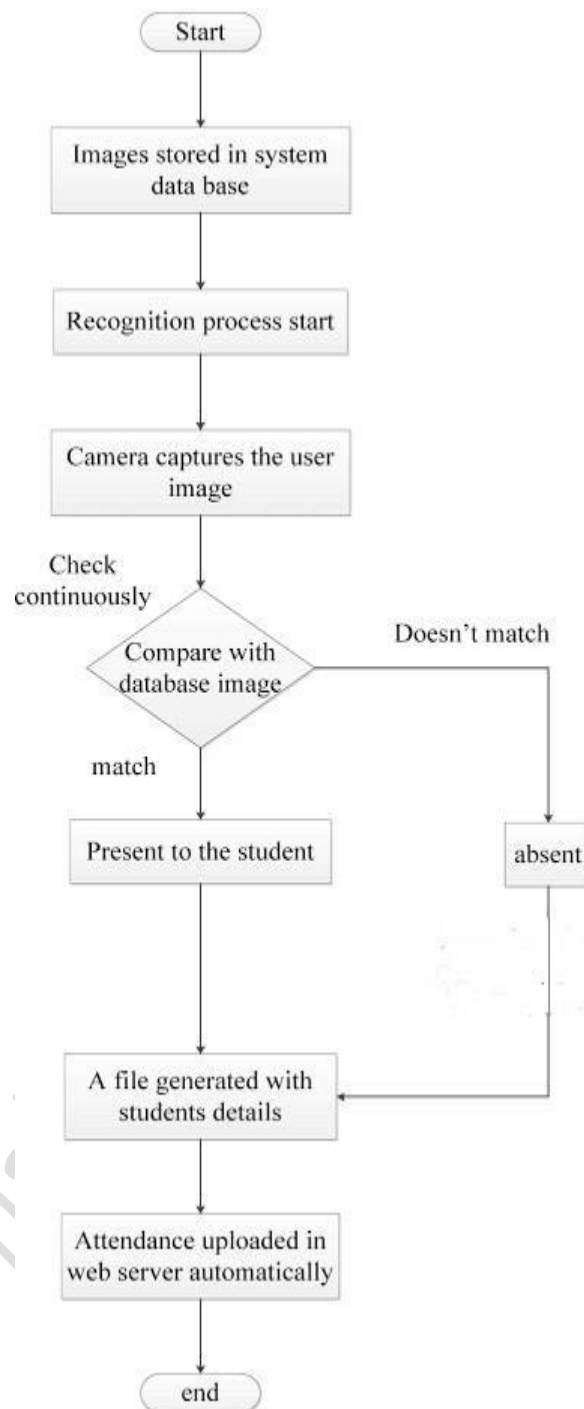
1. Face Detection: Face detection is the most important part as the image is taken from the camera, face detection algorithm is used to identify the human faces from the video with the help of haar cascade classifier.
2. Face Positioning: There are around 70 specific points in human face. The main function of this step is to detect the faces landmarks without distorting the image.
3. Face Encoding: Once the faces are detected in the given image, the next step is to extract the unique facial feature for each image,
4. Face Matching: This is last step of face recognition system. We have used deep learning which is highly accurate and capable of outputting real time face recognition. If the current image is matched with 70% then the attendance is uploaded on the database.

VI. ARCHITECTURE DIAGRAM

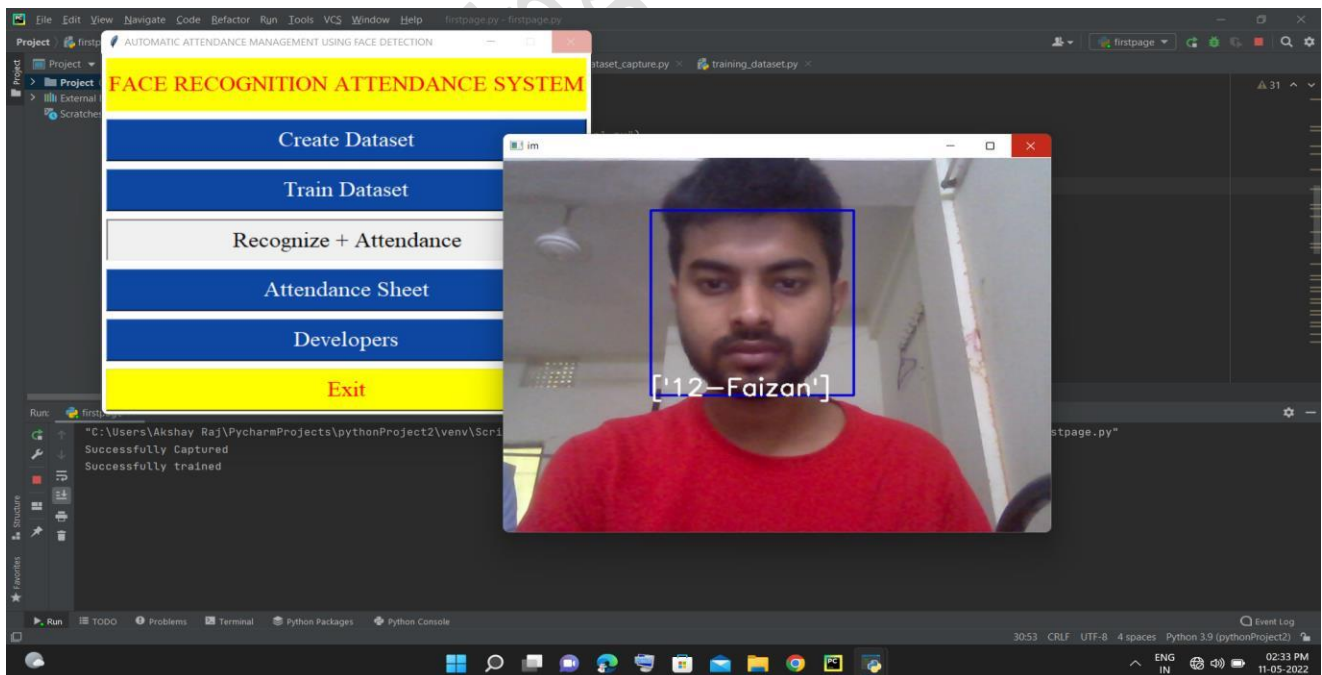
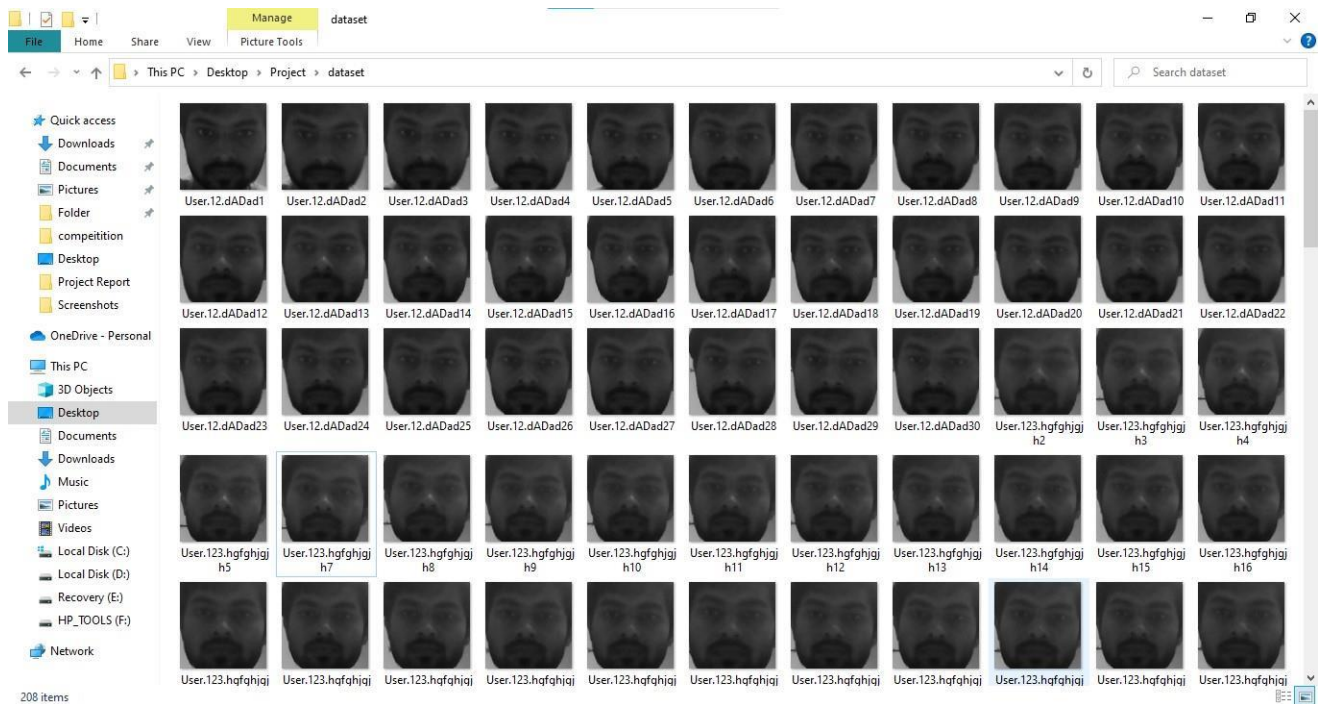


The form is titled "Student Details" in white text on a green background. It is set against a blue background. The form contains three input fields with labels: "Enter ID" (with the value "1801298191"), "Enter Name" (with the value "Md Faizan Alam"), and "Notification :". Below these fields are two buttons: "Take Images" and "Exit".

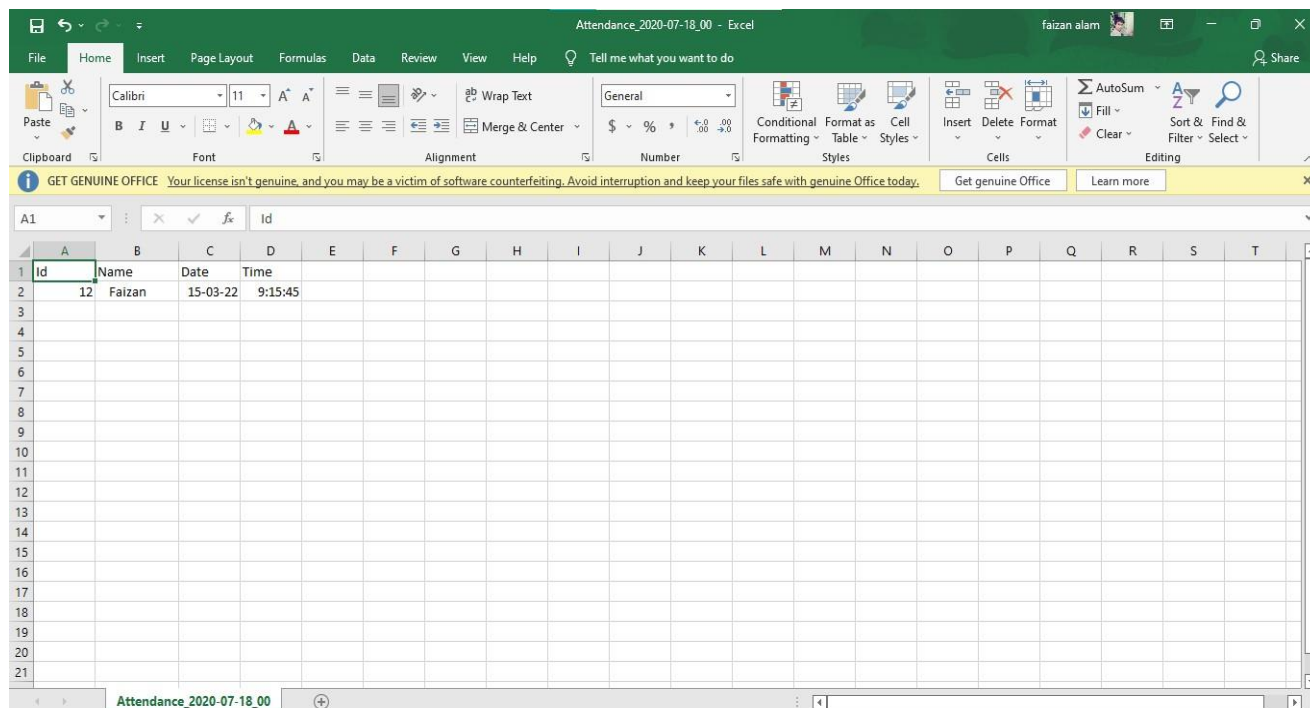
Flow Chart



VII. INPUT & OUTPUT



Real Time face recognition



Id	Name	Date	Time
12	Faizan	15-03-22	9:15:45

Results of Attendance

VIII. CONCLUSION

The project report entitled "**Attendance System Using Face Detection**" has come to its conclusion.

- Face Recognition Attendance System has been envisioned for the purpose of reducing the errors that occur in traditional attendance taking system.
- The aim is to automate and make a system that is useful to the organization such as an institute.
- The efficient and accurate method of attendance in the office environment that can replace the old manual methods.

This method is secure enough, reliable and available for use. No need for specialized hardware for installing the system in the office. It can be constructed using a camera and computer.

IX. REFERENCES

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