Facial Attendance Recognition System

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Abstract- Institutions of higher learning are now worried about students' attendance patterns. Attendance is a significant problem in schools and colleges even in a pandemic condition. Calling out the roll call or having students sign a piece of paper are the two main traditional ways to record attendance. Both of these required more effort and time. Consequently, a computer-based student attendance management system is needed, which will let the faculty keep track of attendance automatically. Using "TKINTER" and "PYTHON". We have created an automated attendance system in this project.

I. INTRODUCTION

We are developing an AI based attendance proctored monitoring system in which we are using "COMPUTER-VISION" and "MACHINE LEARNING" as a part of AI technology. In this project we are planning to record attendance of students with face recognition by the use of sensors. Important data of faculties/students will be stored with their detailed information like 'PRN NO', 'STUDENT ID' and 'IMAGEDATA' on the server database. We will train the machine learning model with testing and training dataset of all the images of the students/faculties, this will help the machine to detect the faces of the people accordingly and mark their attendance with proper timing details which will be directly get stored in the server database which is connected with the machine. The system can monitor the feed for suspicious activity. It will simplify and streamline the staff management procedure at our workplace, or anyother. Currently, offering safe non- contact access to employees is a crucial safety precaution. This attendance system is strong, accurate, and secure. Because it is non-intrusive, face recognition has more potential. Although various automated techniques for tracking attendance have been suggested, these systems suffer from poor system modelling. This research suggests a smart attendance monitoring system that employs facial recognition to track students' and faculty members' attendance in a workplace in order to increase the effectiveness of automated systems. By logging the attendance data at predetermined intervals, a time integrated model is offered to track students' attendance during the lecture session. The initial phase of facial recognition is face detection.

II. PROBLEM STATEMENT

Attendance is a critical component of daily classroom evaluation. The teacher normally checks it at the beginning and end of class; however, it is possible that a teacher will miss someone or that certain pupils will answer many times. A face recognition-based attendance system solves the problem of recognizing faces for the purpose of collecting attendance by utilizing face recognition technology based on high-definition monitor footage and other information technology. The idea behind face recognition is to provide a computer system the ability to find and recognize human faces in photos or videos quickly and precisely. Numerous algorithms and strategies have been developed to improve facial recognition performance. Deep learning has recently received a lot of attention for computer vision applications. The human brain is capable of immediately and instantly detecting.

III. LITERATURE REVIEW

Facial recognition-based class attendance management system: The traditional method of taking attendance results in proxy attendance through acquaintances, which reduces efficacy. Thus, biometrics are our first choice, but they are unreliable, so we switch to face recognition technology, which is effective and time-saving. It functions in four different ways: image capture, face detection, face comparison, and updating database entries for attendance. System

for Managing Attendance: This research study addresses complete class attendance in the expanding virtual world using facial recognition, which takes a human subject's image and verifies it against the database alreadyin place. The results are then entered into MySQL/CSV with a 99% accuracy rate. Automated Attendance System with Face Recognition: A person's face is an outward representation of theirindividuality. As a result, we developed a face recognition-based automatic student attendance system. Numerous aspects of daily life can benefit from this technology, especially security and surveillance systems. Facial recognition technologyis used by airport security systems to identify criminals. Face Recognition Based Attendance System: In today's dynamic world, automatic face recognition technology has advanced tremendously. A handy option to regularly monitor student attendance iswith Smart Attendance with Real- Time Face Recognition. A facial recognition-based attendance system uses high-definition monitor footageand other information technologies to identify a student's face for the purpose of taking attendance. In my face recognition project, a computer systemwill be able to quickly and accurately find and identify human faces in photos or videos taken by a security camera. Face recognition techniques are used in a real-time smart attendance system. In order to evaluate performance quality in today's academic system, automation is essential. Traditional organizational procedures like calling names or signing documents take time and are unsafe. Computer vision may be used to automate the human attendance process as technology advances. To automate attendance without utilizing paper and pen, computer vision must be used to recognize student facial features. Attendance can be checked atany time and from any location by teachers, students, and parents. Utilizing deep learning image processing, attendance may bepredicted more easily, saving time andmoney. To deal with a Covid scenario,the device has a temperature check andhand sanitization system.

IV. METHODOLOGY

Construction

In this paper, we use a structure madeup of two cameras. To identify and record the photos of pupils entering the class, one camera is simply positioned over the entrance. In order to identify and record

photos of active students, a second camera is positioned on the other sideof the entrance.
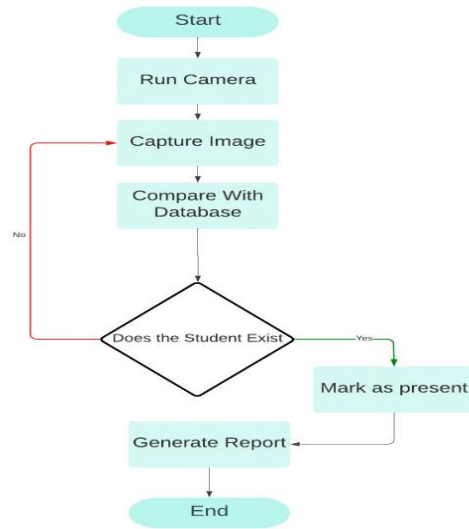
Face detection

This tool is server-based due to the processor's focused use in the face location calculation. Detecting a face is an example of an item discovery project, and in this instance, the face is the subject of interest. However, a number of factors, like picture colors, position, scale, turn, facial posture, light, and so on, can affect the face recognition computations. The process of identifying faces from still images of several faces can be brokendown into a few steps. Numerous face identification algorithms can successfully identify a face in apicture. Most pupils look into the camera in the framework that was introduced.

Face Recognition

Perceiving a face aims to set that particular face apart from a list of faces in a database. Each student at our college is photographed upon enrollment, and the photographs are stored in a database.

Automatic Attendance Marking

The device will automatically mark attendance for the appropriate person whose face was captured by the webcam on the computer when the face detection process is complete by comparing the recorded face with the face stored in the database. Theattendance won't be marked if the facerecorded does not match successfully identify a face in apicture. Most pupils look into the camera in the framework that was introduced.

V. CONCLUSION

Our project eliminates any possibility of a proxy and keeps accurate attendance records for pupils. The overall project is in charge of monitoring student attendance. On the basis of in and out timings captured by the cameras, the attendance is determined. The time table has already been transferred to the database, and the attendance has been divided into the time table as indicated by the in and out timings. Every system always has its limitations. Having a set number of students limits one's options for an interclass attendance scheme. This means that the attendance system for one class cannot be applied to another class's attendance system. To do this, code must be modified. The Project was a fantastic learning experience for us because we discovered the fundamental vision algorithms and many programming paradigms. We discovered how a challenge may be broken down into manageable pieces and effectively completed.

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