ATTENDANCE MANAGEMENT SYSTEM USING FACE RECOGNITION

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ABSTRACT

This system is proposed majorly for managing attendance which is often seen as a tedious job. The ability to compute the attendance percentage becomes a major task as manual computation produces errors, and also wastes a lot of time. For the stated reason, an efficient attendance management system using biometrics is designed. This system takes attendance electronically with the help of face recognition and the records of the attendance are stored in a database. Attendance is marked after student identification. For student identification, a biometric(face) identification-based system is used.

Keywords: Attendance, Biometric, Face Recognition, Database, Web Application, Python, Etc.

I. INTRODUCTION

This application aims at providing a user-friendly attendance management system. It has all the features required for the smooth-running of an attendance management tool which allows controlling attendance by automating timekeeping and attendance tracking using biometric (face recognition). This system can be used on a much wider scale to track the attendance**.** Biometric Identification Systems are widely used for unique identification of humans mainly for verification and identification. Biometrics is used as a form of identity to access management and control. So, use of biometrics in attendance management system is a secure approach. We are going to use face recognition as the input to identify the person marking the attendance. The user's face recognition is done and stored in database to maintain proper record. It will also keep records of the attendees.
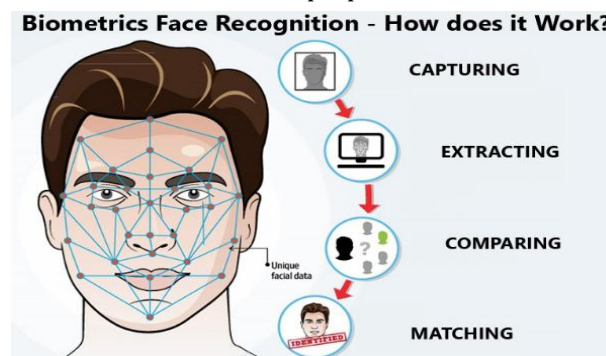

Fig 1

Aim:

1. To automate the attendance management system as itdoes not require human effort, the system does it all.

2. It will also help to inculcate punctuality amongst the attendants as the system will never fail to mark attendance atincorrect timings.

3. It proves to be economically beneficial as every basic thing is done by the system. Therefore, resources like paper, pen, etc. are not required. Hence, saves money.

4. Students can evaluate their attendance record for a particular subject in that semester

Objective:

The existing system is a manual entry for the students. Here the attendance is carried out in the hand written registers. It is a tedious job to maintain the huge records. The retrieval of the information is not easy as the records are maintained in the handwritten registers.

The main objective of Attendance Management System using Biometric is to overcome this current problem faced by teachers while marking attendance. This system will provide a hassle-free experience while marking

attendance and that too with less required resources. It will also prevent various errors that are caused while marking attendance manually. Managing huge data records will become convenient as it will be done using a computer system. Easy and user-friendly interface will provide smooth operation and effortless navigation through the system.

Features:

Our system will provide the following features:

1. Hassle-free experience
2. Easy to operate and effortless navigation
3. Huge attendance record databases will be handled efficiently
4. As all the records and attendance will be done using the computer system and Face Recognition scanner, use of resources such as pen, pencil, markers, registers will be minimized.
5. Student can view his/her attendance record at any particular moment.

Benefits Of Attendance Management using Face Recognition

- Automated Time Tracking System.
- Cost-Effective
- Touchless Sign in System: A Post Pandemic Requirement.
- Facial Recognition with Ageing Changes and Accessories.
- More Accurate and Better Worker Attendance.
- The Ubiquity of Cameras on Mobile Devices
- Easy To manage.

II.   LITERATURE SURVEY

In most universities, common means of tracking student attendance in the classroom is by enforcing the students to manually sign the attendance sheet. There are many disadvantages of the current system such as when the attendance sheet is passed around the class some students may purposely sign another student's name to mark their proxy, another issue of having the attendance record in a hard copy form is that a lecturer may lose the attendance sheet. In this project, we are going to make Face Recognition-based Attendance Management System. Here we are going to use Face Recognition scanner as input. Finger print scanner take the input of the student's thumb. The database for Face Recognition identification is created and stored in the software. The records like Student's Roll No., Date & Time etc. will also be maintained. Biometric technology that involves the identification and verification of individuals by analysing the human Face Recognition characteristics has been widely used in various aspect of life for different purposes, most importantly as regards this study the issue of employee attendance. The main aim of this paper is to develop an accurate, fast and efficient automated attendance system using Face Recognition verification technique. We propose a system in which Face Recognition verification is done by using extraction of minute technique and the system that automates the whole process of taking attendance. The study was conducted using a quantitative approach by designing a questionnaire as the data collection instrument based on Face Recognition matching biometric technologies. This system consists of two procedures; enrolment and identification. During the enrolment, the Face Recognition of a person is captured and its unique features are extracted and stored in the database along with the user's data as template for the subject. During identification, the Face Recognition of the person is again captured and the extracted feature is compared with the template in the database in a ratio 1. N-templates, to identify a match (a user) before attendance is made. The enhanced attendance management system was implemented with Python programming language on an IDE framework. The identification mode operates each day of attendance, the Face Recognition image is extracted from an individual and the system conducts a one-to-many comparison to establish a result.

III.   SYSTEM SETUP

For this project, PYTHON and MYSQL languages are used.

Python: Python is a computer programming language often used to build websites and software, automate

tasks, and conduct data analysis. Python is a general-purpose language, meaning it can be used to create a variety of different programs and isn't specialized for any specific problems.

MySQL: MySQL is a relational database management system based on SQL – Structured Query Language. The application is used for a w wide range of purposes, including data warehousing, e-commerce, and logging applications. The most common use for MySQL however, is for the purpose of a web database.

Webcam: A webcam is a video camera that feeds or streams an image or video in real time to or through a computer network, such as the Internet. Webcams are typically small cameras that sit on a desk, attach to a user's monitor, or are built into the hardware.

Sr. No.	Hardware and Software Requirements	
	Name of Equipment	**Specification**
1	Computer System	GB RAM or more, 20GB ofavailable disk space
2	Windows	Windows 8 or higher
3	Visual Studio Code	Version 4.1 or above
4	MySQL	Version 8.0
5	Webcam	HD fixed focus

IV.   WORKING

A. PROJECT ARCHITECTURAL ALGORITHM:

Step 1: Start

Step 2: First, the user will scan their face with the help of webcam.

Step 3: The face recognition program will check if the user is registered.

Step 3.1: If yes, it will mark their attendance in accordance with date and time.

Step 3.2: If no, it will ask the user to register themself through admin.

Step 4: The marked attendance will be reflected in the database.

Step 5: After the scan the user will be notified with a message "Attendance is marked!".
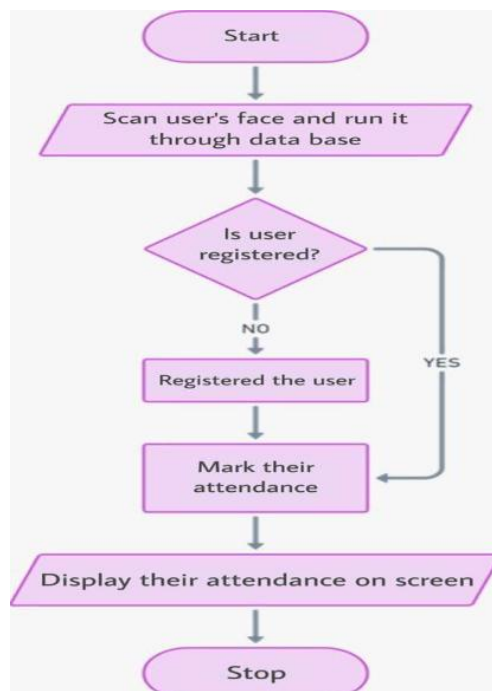
Step 6: Stop

Fig 2: Project architectural flow
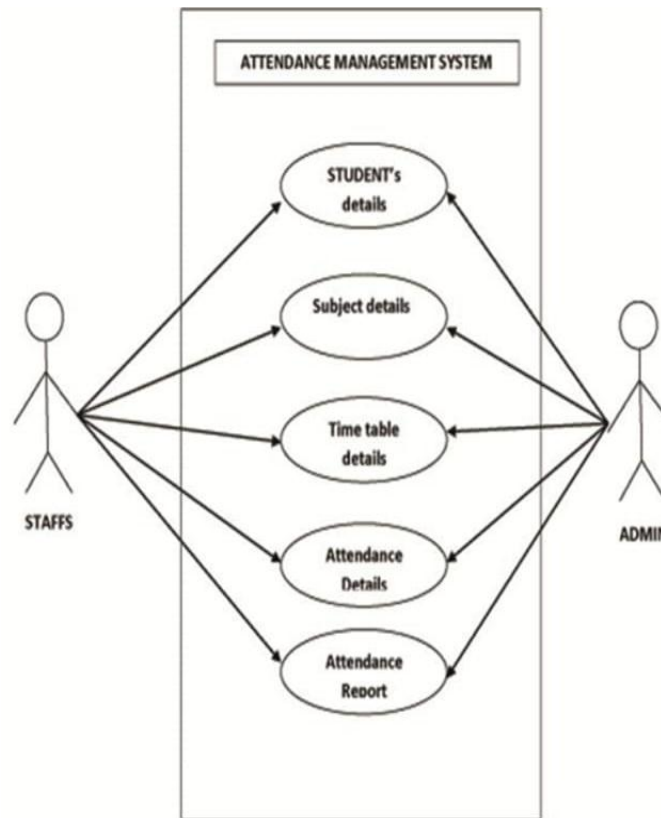
B. MODELLING AND ANALYSIS:

Fig 3: Use case for the system

V. CONCLUSION

In this paper, we have presented a face recognition-based attendance management system. The developed system is an embedded system that is part of a face recognition/authentication. The system extracts the local characteristic of the face which is minutiae points in template based. Templates are matched during both registration and verification processes. For improved quality control during the registration or verification process, a matching score was used to determine the success of the operation. The system can record the clock in and clock out time of in a very convenient manner using their faces to prevent impersonation and reduce level of absence. Also, it reduces most of the administrative jobs and minimizes human errors, avoids proxy punching, eliminates time- related disputes and helps to update and maintain attendance records.

VI. REFERENCES

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