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School of Computer Science, Engg. & Applications

Research Article

Attendance Management System Using Face Recognition

Abstract-
For a long time, face recognition has been a popular study area. Face recognition is a challenging problem to tackle, which draws academics to it. Face recognition technology is used in a practical way in an automated attendance system. We know that we can identify someone just by looking at their face, thus we are working on developing an automatic attendance system based on facial recognition. We used a high-definition camera in this paper, and the video captured by the camera is used by our model to detect and recognise human faces. We can recognise students in the class using this method, and their attendance is recorded in a csv file. In this research, we present a user interface that will assist professors in marking students' attendance from their computer screen. Manual attendance systems are becoming too time-consuming and difficult to maintain. Few students mark the fake attendance of their classmates by using their digital devices, specifically phones, and attempting to show the system the picture of their friend, but the system will display a warning message with a beep sound. The goal of developing a face-recognition system is to save time and make the system smart and efficient.

Introduction-
Facial recognition algorithms can identify people in images and real-time recordings. It is a biometric security layer. Voice, fingerprint, and eye recognition are examples of biometric security. We may use it in real time to unlock phones, discover missing people, aid forensic investigations, assist the blind, and so on. The primary goal of this project is to create a facial recognition-based attendance system. Attendance systems that use facial recognition give authorised data, and the odds of proxy data entering are substantially lower than in other systems. At the time of enrolment, video is captured and images of students are stored using facial detection, recognition, and recording in a separate folder for each student in the proposed system. In real time, the student will stand in front of the computer and show his or her face, which will be captured, the face will be detected and matched with the dataset images, the name and roll number of the current student will be displayed, and the attendance will be updated.

Literature survey-
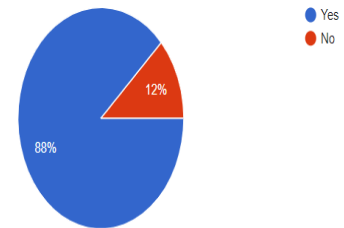In this literature survey, we hosted a Google form and shared it with our friends to know their opinion on this project.
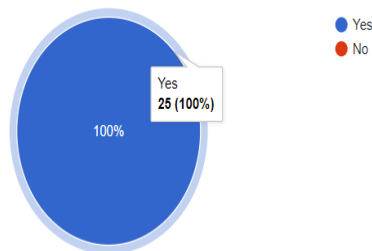
Which Attendance Method do you perfer?

25 responses

Traditional Method
Biometric Method
Face recoginition System

80%
8%
12%
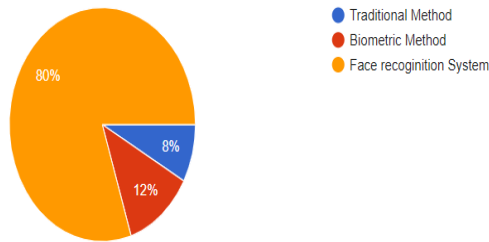
Do you think that face recogintion attendance system will save your time?

25 responses

Yes
No

88%
12%

Will this project be useful in your college?

25 responses

Yes
No

100%

Yes
25 (100%)

Will this method be able to reduce proxy?

25 responses

Yes
NO

96%
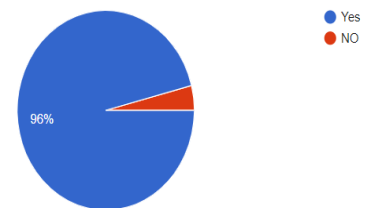
Suggestion

10 responses

It's a best way to reduce proxy

This is a good idea

I believe Face recognition is the best method for attendance in this modern growing world

I would surely prefer face recognition

Face recognition system will be time saving option

It can also be used in office and other companies also

Face recognition system or traditional method should be prefer

Great work go ahead.

Great Idea , should implement further

Methodology-

The professor can examine the attendance statistics from any computer browser linked to the Internet. The attendance is stored in a csv i.e. an excel sheet. The professor can easily download the excel sheet and keep a record of the attendance. It shows the exact date and time too.

The algorithm clicks 50 photos of every student in different facial expressions or in a still manner in order to train itself. We three of us were considered as sample test subjects in this system. The algorithm may require more than 30 photos if it has trouble identifying a particular pupil. Whenever the student who is registered to the system, shows up in the camera, the project identifies him/her and shows its name along with his or her serial number.

Technologies used- Open cv, Flask, Pandas, Numpy, Haar Cascade, KNN Algorithm.

Haar Cascade- Haar Cascade is a classifier that we have used in our project for face recognition. Haar extracts the different faces from the subject of frame. It also sets a boundary or box around each subjects' face.

KNN Algorithm- KNN stands for K-nearest neighbours. Along with Haar Cascade we use KNN algorithm for the working or our facial recognition project. The k-nearest neighbours (KNN) algorithm is a straightforward supervised machine learning algorithm that can solve classification and regression problems.

Experiment Results-

The following are the snapshots of our project-
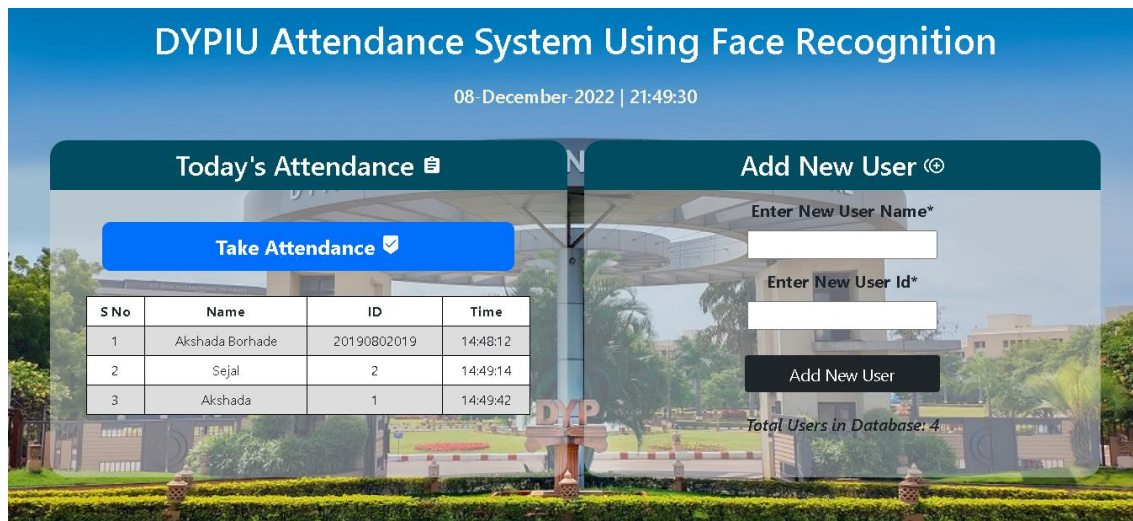
According to the new user, a separate folder is created for each user along with his id i.e. PRN during his or her enrolment which consists of 50 images of them and an example of a users' sample folder with their photos-
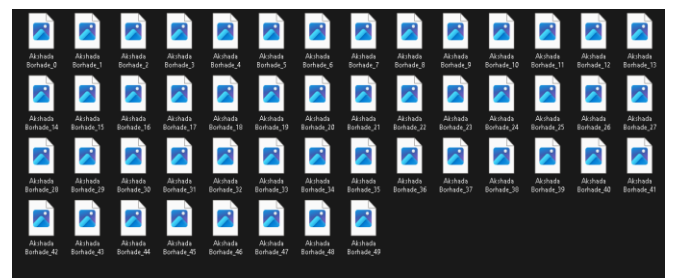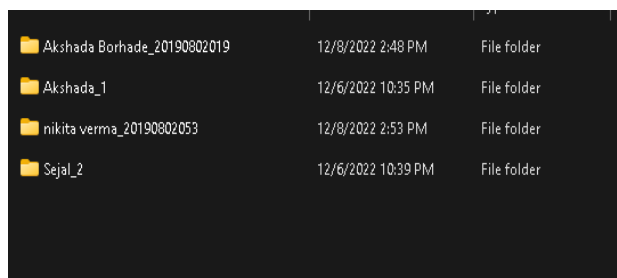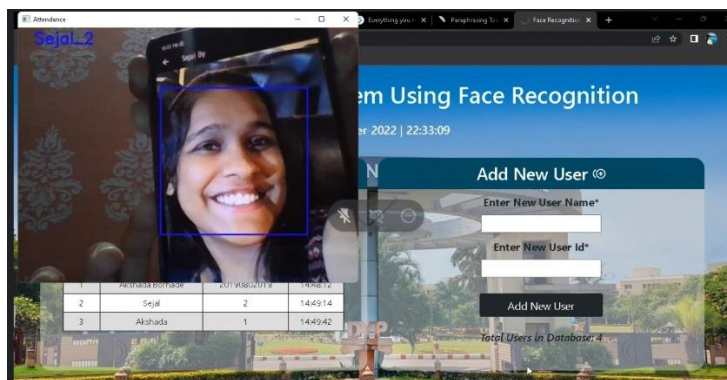

When the user gets enrolled and when he or she takes attendance for itself the model detects the users' face and shows his or her name above the face like shown below-
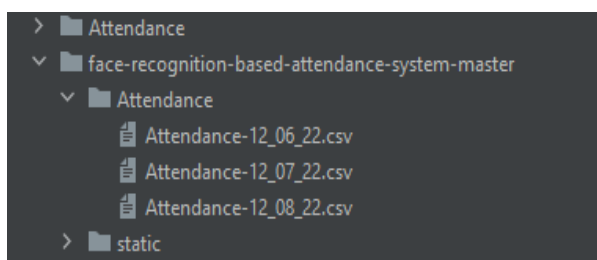
User 1- Akshada Borhade
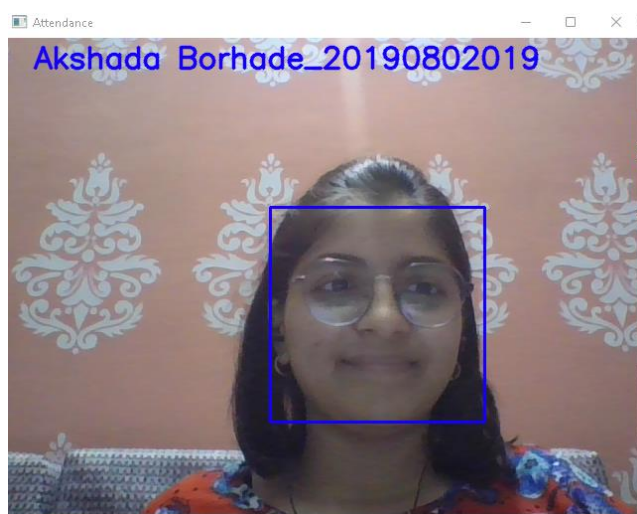
User 2- Sejal Bhattad-

User 3- Nikita Verma-

According to the dates a different csv i.e. excel sheet is created that holds the records of the students' attendance.

Conclusion-

The evolving technology has led to the introduction of the automated attendance system that provides much better results. An automated attendance system using face recognition is easy to install and use. With just a few clicks, you will get all the details related to attendance. Thus, considering all these advancements we have made a project- attendance management system using face recognition.

References-

1. 2018 7th International Conference on Computer and Communication Engineering (ICCCE)
2. Machine Learning - Face Recognition
3. 2018 7th International Conference on Computer and Communication Engineering (ICCCE)
4. Class Attendance Management System using Facial Recognition- Research Gate
5. Face Recognition Attendance System for Students- UK Essays
6. AUTOMATIC STUDENT ATTENDANCE SYSTEM USING FACE RECOGNITION PROJECT
7. REFERENCE NO.:39S_BE_1465

Akshada Borhade

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