Student Smart Attendance Through Face Recognition using Machine Learning Algorithm

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ABSTRACT

Attendance is alwaysmost important methodto be followed and to monitoring student activities and ensuring students are eligible to complete the course. Despite the advances in technology most educational institutions stillusing the old registration system. In this study, we offer a novel method for taking student attendance in the classroom that is more efficient, less time consuming, and can be done utilizing equipment that are already in use. Which are easily accessible with the help of Smartphones,laptops and desktops are examples. The proposed system has the following features The knowledge of machine learning have been put to good use in the creation of an intelligent attendance system with the aid of facial recognition technology.

Keywords: Machine learning, Face recognition, Smart attendance, Monitoring, Attendance system, Facecapturing.

1. INTRODUCTION

Face recognitionis a hotly debated and rapidly evolving field of study. Face recognition research is ongoing, and it has progressed to the point that where a computer can recognize a human face better than human being.Face recognition can also be used to take attendance in educational institutions. Manually taking attendance by calling out each student's name one by one is a time- consuming and inefficient process. By far the best solution to this problem is a face recognition-based on attendance system.

It is easy to create a face recognition model by using the computational power of Machine learning. Machine Learning lab has developed technology that can recognize faces, up to 92.3 percent accurately, which is 2.9 less accuracy than human.We've evolved to be able to recognize faces. As a result, AI can identify attempts to mimic manbehavior. The system will identify the human-face visible marks as nodal points, that has an information such as the distance between the eyes, depth of the eye orbits, and nose inches. As a result, the difference between these placesis used to generate a different face print code.

2. LITERATURE REVIEW

Traditionallyin olden days the, attendance was recorded manually, but this has consume more time and sometime got an human error. Moreover, there is a lot of problem about the source of attendance records, but in reality, it does not apply to most attendance records. Taken from the actual situation. The old method of recording attendance on paper is not available for longer time. Based on our research, there are many methods available for solve this problem.

The [1] first paper we studied is called biometric-based, attendance. In this article, biometrics are upscaled in real time Deployment, it provides a latecomer solution.

The [2] second paper entitled "Finger- based Attendance Management with, SMS Alerts to Parents". This paper introduced the system Includes a terminal fingerprint and attendance module, and an SMS system that tells parents to get information about their children.

 The [3] third paper entitled "Key Authentication Based- Door Lock Monitoring System". This project is more focused Automating organizational security is less secure than actual physical security.

The [4] fourth paper entitled "Employee Attendance- Monitoring- System Using Radio Frequency ID Cards". Promotion Automatic wireless identification using ID tags and reading methods.

3.EXISTING SYSTEM

The existing system has mostly consisted of the, manual register where the supervisor can input the attendance record of all the students. Other technologies have been created to the replace manual

system has contains the fingerprint scanner, retina scan, voice recognition system and so on.

4.DRAWBACK IN EXISTING SYSTEM

• Employees can commit the time theft.

• Manual time entry is very hard to implement and requires lot of time.

• Are the ineffective and outdated.

• Keyboard and printing errors may occur.

• No review of your eligibility woks in system.

• Incorrect Entry of Times may occur.

• Too much paperwork and need lot of space to maintain.

5.PROPOSED SYSTEM

The important purpose of oursystem is to extract a face of student and make comparison with the data stored in earlier in our database. The system can also implements the user which prevent an intruder from operating it. The student's face is captured in different way that all of the student's features are uniquely identified and also their locations are uniquely recognized. By using thissystem, manual presence is not needed as the system shot images through the camera connected to the computer.

Figure.1.0

IMAGE CAPTURE

Cameras - are attached to the system to record students', face-to-face images. And the rest is for the - facial recognition.

FACE DETECTION

With thehelp ML Kit's Face Detection API, you can detect the faces by an image, and identify - key facial features, and focus on the outside of the detected face. But API detection faces does not recognize people.

ALGORTHM USED

The algorithm used in our project is a**Haar Cascading algorithm**.It is an Object Detection Algorithm which is used to find faces in a photo or an actual time - video.Haar Cascade is an - gadget learning-based technique where quite a few good and the bad images are used to, educate the classifier. advantageous photos – these pics, contain the photographs that are the we want our classifier to pick out correctly. poor pics – photos of the entirety else, which do not, incorporate the object we want to locate

TECHNOLOGY USED

1. Tinkers is mostly used for complete GUI design.
2. OpenCV for capturing images, and face recognition.
3. CSV, Numpy, Pandas, datetime etc. are used for different functioning activity.

FEATURE

1. Easy interactive with GUI support.

2. Password protectivity for new user registration has been implemented.

3. Create and updates CSV file for details of the registered student in the system.

4. Create a fresh CSV daily, for marking attendance with addition of proper ID, date and time continuously

5. Display daily attendance on the main screen with id, date, time and name.

6. FLOW CHART
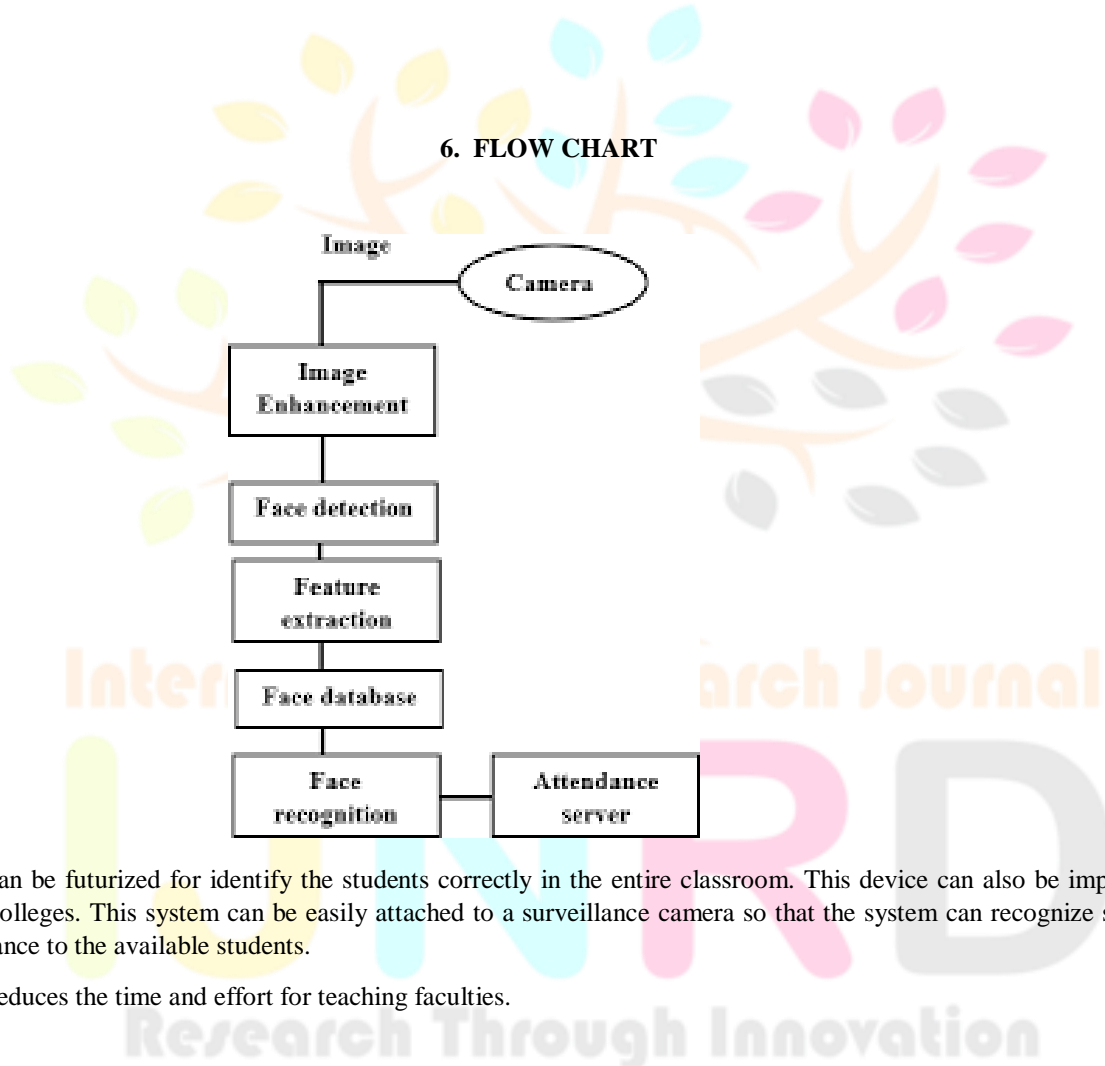
The system can be futurized for identify the students correctly in the entire classroom. This device can also be implemented in schools and colleges. This system can be easily attached to a surveillance camera so that the system can recognize students and assign attendance to the available students.

This greatly reduces the time and effort for teaching faculties.

8. CONCLUSION

The proposed presence detection model is good in reducing the additional hardware components. All the equipment- needed for this project are already available own a days. Machine learning approaches for recognizing faces and recognizing have been proven to be very effective. Proposed work achieved by inthe result session. The probability of the ML model also depend on the resolution of the camera used to capture the images in the classroom. Therefore, for effective face recognition, we recommend that you have at least one camera with a resolution of 480p or higher.

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