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Overview of Face Recognition Based Attendance System

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Abstract: *The management of the attendance can be a great burden on the teachers if it is done by hand. To resolve this problem, smart and auto attendance management system is being utilized. By utilizing this framework, the problem of proxies and students being marked present even though they are not physically present can easily be solved. This system marks the attendance using live video stream. The frames are extracted from video using Open CV. The main implementation steps used in this type of system are face detection and recognizing the detected face, for which dib is used. After these, the connection of recognized faces ought to be conceivable by comparing with the database containing student's faces. This model will be a successful technique to manage the attendance of students.*

Keywords: Face Recognition

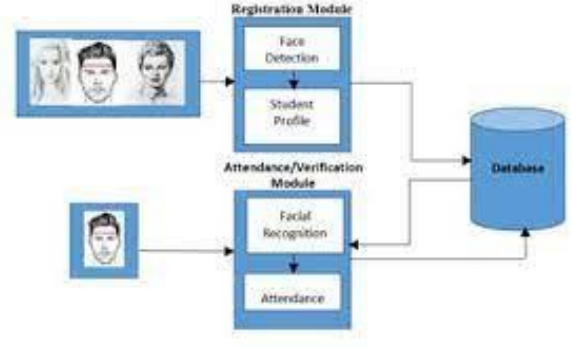
I. INTRODUCTION

Attendance maintenance is a significant function in all the institutions to monitor the performance of the students. Every institute does this in its own way. Some of these institutes use the old paper or file-based systems and some have adopted strategies of automatic attendance using some biometric techniques.

A facial recognition system is a computerized biometric software which is suited for determining or validating a person by performing comparison on patterns based on their facial appearances. Face recognition systems have upgraded appreciably in their management over the recent years and this technology is now vastly used for various objectives like security and in commercial operations.

Face recognition is a powerful field of research which is a computer based digital technology. Face recognition for the intent of marking attendance is a resourceful application of attendance system. It is widely used in security systems and it can be compared with other biometrics such as fingerprint or eye iris recognition systems. As the number of students in an educational institute or employees at an organization increases, the needs for lecturers or to the organization also increase the complication of attendance control. This project may be helpful for the explanation of these types of problems. The number of students present in a lecture hall is observed, each person is identified and then the information about the number of students who are present is maintained.

Student attendance is being taken using one of the bio-metric technique i.e.,Face Recognition. Since Iris and Fingerprints are very short-distance biometrics but our application requires a person to be at a medium distance from the camera, which is fixed at the centre of the classroom near the black board, so that the view of the camera covers the entire classroom.



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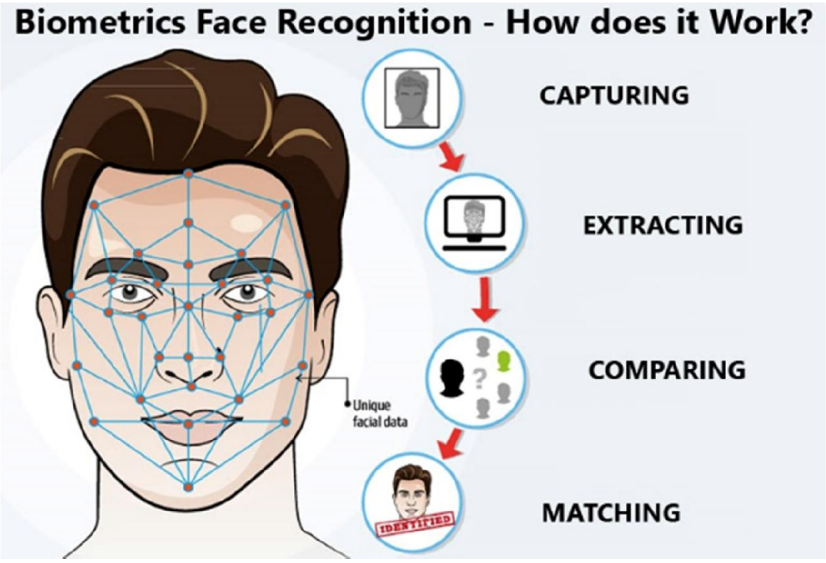
The model is developed with the help of real time Open CV library. The proposed system comprised of using the Viola Jones algorithm for detecting the human faces and then the detected face is resized to the required size, this resized face is further processed by using linear stretch contrast enhancement and finally it is recognized using a simple PCA / LDA. Once recognition is done, automatically attendance will be updated in an Excel Sheet along with his\her name date and time. An html file is automatically updated by our system so that a remote authenticated user can access the attendance file. The main problem in this system is recognised face has to be compared with all the entries stored in the database.

II. TECHNOLOGY USED

The following tools will be used in the implementation of the designed system. They've been divided in to two categories; Mobile and Desktop tools.

- **Mobile Tools**
  The face detection module will use Open CV library for implementation by use of the frontal Haar Cascade face detector in either Android studio.
- **OpenCV for Android Library**
  (Open-Source Computer Vision) is a library of programming functions mainly aimed at real-time computer vision.
- **Android Studio/ Eclipse IDE**
  Android Studio is the official IDE for Android application development, based on IntelliJ IDEA.



III. FUTURE OF FACE RECOGNITION BASED ATTENDANCE SYSTEM

A possible future application for facial recognition systems lies in retailing. A retail store (for example, a grocery store) may have cash registers equipped with cameras; the cameras would be aimed at the faces of customers, so pictures of customers could be obtained. The camera would be the primary means of identifying the customer, and if visual identification failed, the customer could complete the purchase by using a PIN (personal identification number).

After the cash register had calculated the total sale, the face recognition system would verify the identity of the customer and the total amount of the sale would be deducted from the customer's bank account. Hence, face-based retailing would provide convenience for retail customers, since they could go shopping simply by showing their faces, and there would be no need to bring debit cards, or other financial media. Wide-reaching applications of face-based retailing are possible, including retail stores, restaurants, movie theatres, car rental companies, hotels, etc. e.g., Swiss European surveillance: facial recognition and vehicle make, model, colour and license plate reader.

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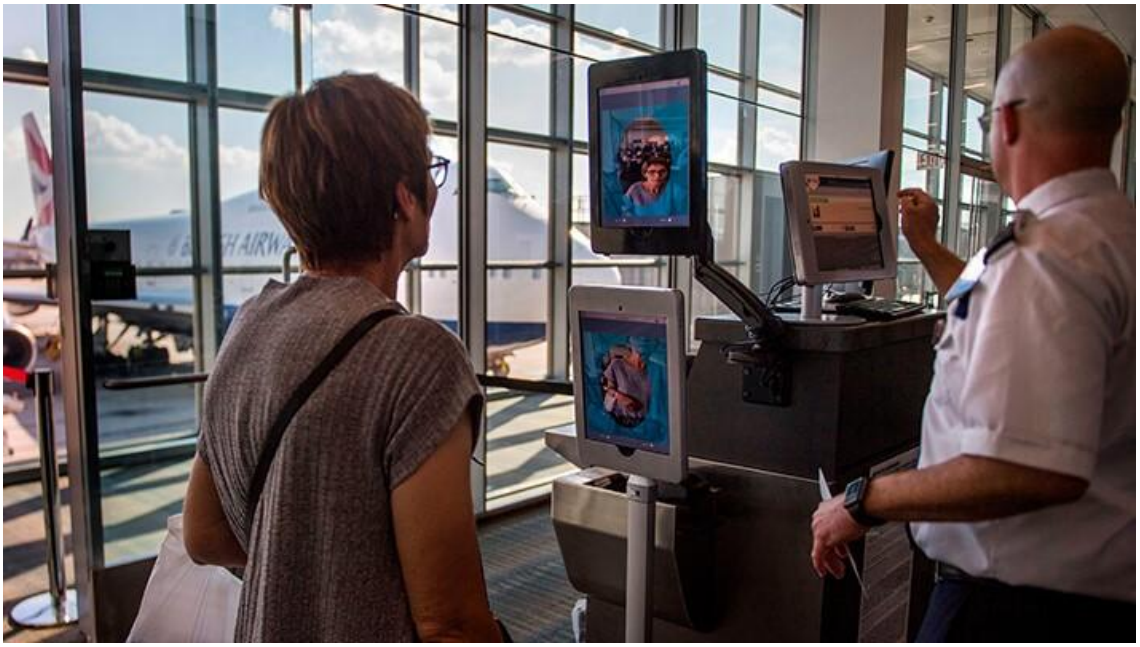

IV. Conclusion

This report features the most productive Open CV face recognition method accessible for Attendance Management. The system has been implemented using the LBPH algorithm. LBPH excels other algorithms by confidence factor of 2-5 and has least noise interference. The implementation of the Smart Attendance System portrays the existence of an agreement between the appropriate recognition rate and the threshold value. Therefore, LBPH is the most authentic and competent face recognition algorithm found in Open CV for the identification of the students in an educational institute and marking their attendance adequately by averting proxies.

References

[1] https://www.questjournals.org/jses/papers/Vol5-issue-2/D05021829.pdf
[2] https://en.wikipedia.org/wiki/Tkinter
[3] https://www.geeksforgeeks.org/
[4] https://stackoverflow.com/
[5] https://docs.python.org/3/
[6] https://www.questjournals.org/jses/papers/Vol5-issue-2/D05021829