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## Automatic attendance system using Webcam

Simran Raju Inamdar

[simranrinamdar@coep.sveri.ac.in](mailto:simranrinamdar@coep.sveri.ac.in)

Shri Vithal Education and Research Institute,  
Pandharpur, Maharashtra

Aishwarya Vijaykumar Patil

[aishwaryavpatil@coep.sveri.ac.in](mailto:aishwaryavpatil@coep.sveri.ac.in)

Shri Vithal Education and Research Institute,  
Pandharpur, Maharashtra

Ankita Digambar Patil

[ankitadpatil@coep.sveri.ac.in](mailto:ankitadpatil@coep.sveri.ac.in)

Shri Vithal Education and Research Institute,  
Pandharpur, Maharashtra

Dr. S. M. Mukane

[smmukane@coe.sveri.ac.in](mailto:smmukane@coe.sveri.ac.in)

Shri Vithal Education and Research Institute,  
Pandharpur, Maharashtra

### ABSTRACT

*Attendance marking in a classroom during a lecture is not only burdensome but also a time-consuming task. Due to a usually large number of students present in the lecture hall, there is always a possibility of proxy attendance. It is extremely difficult for lecturers to manually identify the students who skip their lectures on a regular basis. Attendance management of students through the conventional methods had been a challenge in the recent years. In this method, the camera is fixed in the classroom and it will capture the image, the faces are deleted and then it is recognized with the database and finally, the attendance is marked. In this paper, we propose a conceptual model for automated attendance system through facial recognition.*

**Keywords:** Attendance, Face Recognition, Data Base.

### 1. INTRODUCTION

Face recognition is technique replacing biometric effectively. It is the novel of the all of it uses the facial features of the person for identification. It can be attributed to a technique with minimum flaws as the facial features of every human being are unique. Gallantly surpassing in various fields, face recognition can effectively be used for security systems but has not been pursued due to evident flaws. Attendance marking through the conventional method attendance marked manually on a paper by the in change had its own prons and cons. Method of manual attendance marking in question is vulnerable and time consuming which usually results in a setback to the students. Addressing this issue, innovations have ended up at wide-ranging use of the biometrics. Attendance Management through biometrics had the awkward cost of extra effort and personal time at the user end. After the outbreak of face recognition as a useful method, techniques were evolved to incorporate it in attendance management system.

Biometric Attendance Management mainly uses iris recognition or thumb scanning. With the passage of time advancement are also needed to pace up with ever-growing, Attendance Management through biometrics is also being improved and implemented. As marking techniques are advancing, the dire need to remove hindrances, complications of gadgets, delays and a bona fide attendance is the concept under focus. Whereas the conventional attendance marking/management system is sluggish and vulnerable, facial recognition attendance management system uses face recognition to identify and mark the attendance of students. Facial Recognition is done through a camera without any accessory and the attendance is marked. The faces are used to validate the student's presence. The system is very useful in marking attendance and maintain a record for the teacher, students, and the management. Algorithms are used to match faces with the database faces of the student. Many have explored this aspect and managed to implement the system successfully. There were some limitations of accuracy and validation of the automatically marked attendance through facial recognition.

### 2. LITERATURE REVIEW

The main purpose of the research is to analyze the solution given by others and considering the shortcoming of their proposed system, bring out a better solution. There are different methods for the face recognitions. Naveed et al. proposed a system in which

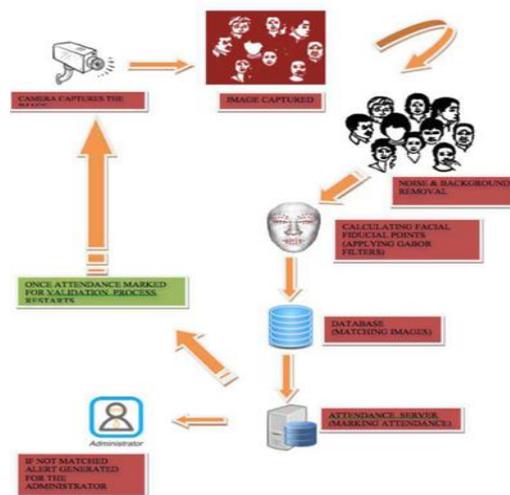
consist two databases. One is a database that contains the picture of the student and other is the attendance database. Attendance database is used to mark the attendance. In this method, skin classification is used and then using this marked the attendance. Another statistical technique is known as LBA (local binary algorithm). Weighted mask, which is based upon local or feature-based approach of face recognition. In the system the feature extraction of the facial part like nose, eyes, and mouth etc.

These done by using LBA technique where the mask will be build up and through which the areas to be matched were separated. Using another technique Gabor Filters to find the facial function points. Gabor filters were applied to the colour picture of the student and using the different facial features. Once the face is recognized then attendance is marked. The student will be marked automatically. They used two cameras one is for capturing and one is for sensing. Visar et al. were proposed the same system but he used that fix the seating arrangement of the student. And using this he will mark the attendance. Abhishek Jha et al was come with new face recognition technique which is PCA an LDA. In this method, he extracted the features from the image for example outline of the eye, nose, ear, etc.

### 3. METHODOLOGY

We propose a model in fig. for attendance management system in which we have two databases one is storage database and the other is known as student database. The storage database contains the already stored images and the masks calculated by the facial fiducial points of the students such that of nose eyes and lips mainly. The other database known as attendance database will be used to mark the attendance of the students. A camera will be fixed in the class in the front, at such an angle where the picture of the whole class can be taken. Once the image is captured noise will be removed and background will also be minimized.

Gabor Filters or jets will be applied after that through which every individual student 31 facial fiducial points will be calculated. It will calculate the measurements of the facial features and then they will be matched to the image information stored in the storage database. This all computation will be headed on the server. Once the matches are done, the student's attendance is marked to solve the issue of validation of the student present in the class or not. We pose a solution that is to take the attendance randomly three times in a lecture so that could be made sure that the student attends the particular lecture and is present in the class actually rather than being marked as present.



**Fig.1. Proposed Model**

### 4. CONCLUSION

In a Muslim country, girls generally wear veil and boys have a beard which may change length posture shape and size. If face recognition is to be done to mark attendance, face detection and verification would be a challenge for the system. As the girls in veil cannot be identified, this issue can be solved by having facial fiducial points of the students faces through which attendance can be marked. It will be done on the basis of the statistics gained about the eyes of girls in veils and boys. With the similarity of eyes and nose etc. We can easily facially recognize the student. It is established that the problem exists so in future work on this should also be done to solve the problem.

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