# FACE RECOGNITION BASED ATTENDANCE SYSTEM

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**ABSTRACT - Science has taken a great leap in recent time. Artificial intelligence is one of the field which has shown a rapid growth. These technologies have greatly reduced the effort which we used to put in our day to day work earlier. Face Recognition is one of such technology. The working of this technology is that it recognises the features of an individual face and matches it with the data which is stored in the database.**
**A lot of algorithm are used to significantly improve the working of the system. It is not only compatible with image but also with cctv footages**.

## I.    INTRODUCTION

Face Recognition can be used in various other domains but it is used here for the sake of marking students attendance. Generally students attendance are marked used the traditional approach in most of the places. This technique is time consuming and many a times students mischievously students mark bogus attendance.
There are also chances of human error.

Moder approach that uses face recognition is very effective in tackling such problems. In this method we just need to take a photograph or a small video footage of entire class and using the provided technology of the students can be marked successfully. We just need to feed details of every student only once and afterwards entire database of the students are maintained automatically.

This not only save time but also guarantees genuine attendance of the students without any disparities. Inorder to make sure that attendance is marked every time the most recent image of the student is used for the comparison. This technology can also be used by the police and other law enforcement agencies to have an eye on the crowd and search for the culprits.

## II.    METHODOLOGY

The implementation of face recognition system consists of following three stages:

1.Image Acquisition-

Image acquisition is a process by which facial scan technologies can acquire the facial feature of an individual. Various algorithm are their to detect the face of an individual from the video or image captured using a good quality camera.

2.    Image Processing-

Image processing start after successful image acquisition. In this step image is cropped and converted to black and white format. This step facilitates initial comparison based on grey scale features of the image.
Image processing makes the acquired image ready to be compared with the image in the database. Normalization process is sometime required to prep the image by bringing the dimension of the image similar to the saved template.

3.    Image classification and decision making-

The facial recognition system attempts to match the facial features as we humans do it. There are certain features of one's face that likely to differ from one another. Some features are upper ridges of the eyes socket, distance between eyes, nose shape, width of nose, length of jaw line.

Normally every face has nearly 80 distinct points known as nodal points.

PCA algorithm is used for process of selecting features and SVM algorithm is for the classification of the image.
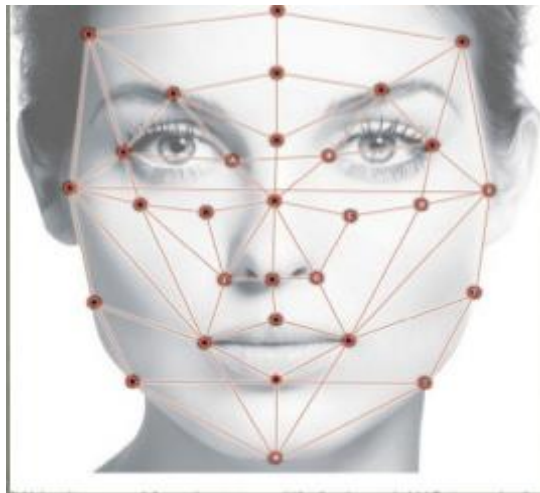


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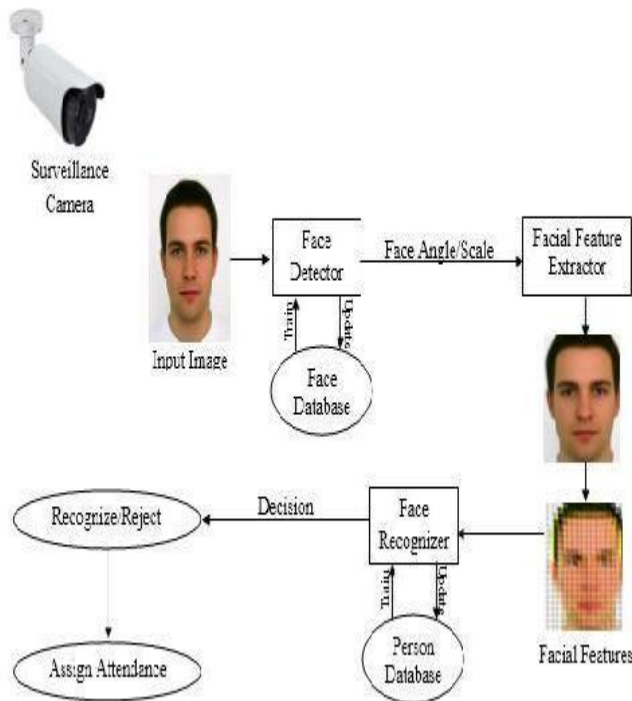


**1. Take a video: -**

CCTV is stationed at a significant place so that the footage of all students can be taken properly.



**2. Frame Separation:-**

The video captured is separated into its constituent frame for sake of analysing it properly.

**3. Face detection: -**

In this step the captured image is scrutinized to find its resemblance with the stored data. In this step the image is also simplified so that the results can be obtained easily. CNN algorithm can be performed to find the face.

**4. Face Recognition: -**

In this step comparisons are made with the available data on student data to update student attendance.



**5. Working After: -**

The post-process method includes the work of updating students' names in the database. The database can be updated weekly or monthly to record the number of students

present. This data can be shared with students parents on regular basis.

## IV. RESULT

The main goal of this project is that, the data captured is converted into image to detect and match it. Further the images of the student which are matched successfully is provided with attendance, else the system marks the student absent in the database.

## V. CONCLUSION

Therefore, the purpose of this paper is to extract a student's video, convert it into formats, link it to a database to verify their presence or absence, to mark attendees of a particular student to save a record. The Automated Classroom Arrival Program helps to increase accuracy and speed ultimately achieving the maximum amount of real-time arrival to meet the need for automatic classroom testing

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