

# Real Time Attendance System by Using Matlab

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**Abstract:--** Being one of the most successful applications of the image processing, face recognition has a vital role in technical field especially in the field of security purpose. Human face recognition is an important field for verification purpose especially in the case of student's attendance. This paper is aimed at implementing a digitized system for attendance recording. Current attendance marking methods are monotonous & time consuming. Manually recorded attendance can be easily manipulated in XL sheet. Hence the paper is proposed to tackle all these issues.

**Key words: ---**image processing, face recognition, principle component analysis (PCA).

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## I. INTRODUCTION

The rapid development in the field of pattern recognition and its uses in different areas e.g. signature recognition, facial recognition, arises the importance of the utilization of this technology in different areas in large organizations. This is mainly because these applications help the top-management take decisions that improve the performance and effectiveness of the organization. On the other hand, for an organization to be effective, it needs accurate and fast means of recording the performance of the people inside this organization.

Face recognition is a technique of biometric recognition. It is considered to be one of the most successful applications of image analysis and processing. This attention is clearly evident in the emergence of many research conferences targeting the field of facial recognition, such as International Conference on Audio and Video-Based Person Authentication (AVBPA) and the International Conference on Automatic Face and Gesture Recognition (AFGR). The facial recognition process is similar to the general biometric recognition process, in the face-base biometric systems detection, alignment, feature extraction, and matching take place.

## II. PROPOSED SYSTEM:

We proposes solutions to all the above mentioned problems by providing an easy to identify persons for all the students that attend a certain lecture, section, laboratory or exam at its specific time, thus saving time, effort and reducing distractions and disturbance. Another advantage concerning exams, when the lecturer or the advisor accidentally losses an exam paper or the student lies about

attending the exam, there will be a record of the students' easy to identify the exam at that time, thus protecting both lecturer's and students' rights.

In addition, an automated performance evaluation would provide more accurate and reliable results avoiding human error. The main objective of the system is to provide an automated attendance system that is practical, reliable and eliminates disturbance and time loss in traditional identify systems. A further objective is to present a system that can accurately evaluate students' performances depending on face recognition.

## III. IMPLEMENTATION

The steps of the experiment process are;

1. Initiate capturing the images through the camera which is able to rotate in all direction in the class room.
2. Pre-process the captured images through and extract face image.
3. Calculate the eigen value of the captured face image and compared with that of the existing face images.
4. If the eigen value does not matches with the existing one,save it as a new face image.
5. If the eigen values matches, then the recognition process will start soon.
6. Using PCA algorithm the following steps would be followed
7. Find the face information of matched face image in the database.
8. Record the student details in XL sheet

### A. Face detection and tracking by using CAM shift:

Face detection has been one of the most studied topics in the computer vision literature. The goal of face detection is given an arbitrary image containing an unknown

number of faces (possibly none) to localize the face and determine its size. This is a challenging task considering the variations in pose, lighting, facial expression, rotation, scale, and occlusions. Hundreds of methods have been proposed in the last years.

Probably the most well-known method that dramatically influenced the research on the field and allowed for out-of-lab applications is the Principle Component Analysis(PCA) method. Since this is one of the methods that we evaluated for our system. The PCA method was very successful because of three elements; the computation of the Haar-like features on the integral image, the AdaBoost learning method and the cascade of classifiers it employed. All these ideas were then further extended and lead to many other face detection methods.

**B. Face Segmentation:**

Sometimes we need to identify pixels belonging to different objects. See the following image. Suppose that we want to segment the image, so mark all the pixels belonging to the desired object. This is the basic goal of all the image segmentation tasks.

**C. Face Recognition:  
Face Detection**

This process separates the facial area from the rest of the background image. In the case of video streams, faces can be tracked using a face tracking component.

**Face Alignment**

This process focus on finding the best localization and normalization of the face; where the detection step roughly estimates the position of the face, this step outlines the facial components, such as face outline, eyes, nose, ears and mouth. Afterwards normalization with respect to geometrical transforms such as size and pose, in addition to photometrical properties such as illumination and grey scale take place.

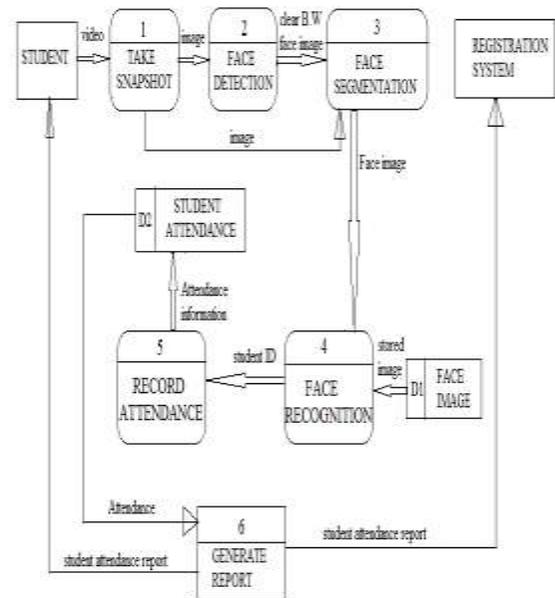
**Feature Extraction**

After the previous two steps, feature extraction is performed resulting in effective information that is useful for distinguishing between faces of different persons and stable with respect to the geometrical and photometrical variations.

**Face Matching**

The extracted features are compared to those stored in the database, and decisions are made according to the sufficient confidence in the match score.

This research is to attempt to provide an easy to identify person that recognizes students using face recognition technology through an image/video stream. The objective behind this research is to thoroughly study the field of pattern recognition (more specifically facial recognition) which is very important and is used in various applications like identification and detection.



**Fig: Steps for Automated Facial Recognition Attendance System**

**D. Record attendance:**

Finally compare the face image and total student image and it will record the attendance name and date with windows XL sheet.

**IV. SIMULATION RESULTS:**



**Fig. Student attendance system**

	A	B	C	D
1	ImageName	Name	date	Attendance
2	prakash.jpg	prakash	11-11-2015	p
3	siva.jpg	siva	11-11-2015	p
4	hello	raju	05-11-1978	p
5	8.jpg	prakash	11-11-2016	p
6	6.jpg	kumar	06-12-1967	p
7	10.jpg	krt	12/12//2016	p
8	8.jpg	ramu	12/12//2016	p
9	10.jpg	rakesh	12/12//2016	p
10	6.jpg	fdbdsgfs	12/12//2016	p
11	8.jpg	clc	12/12//2016	p
12	6.jpg	prasad	12/12//2016	p
13	10.jpg	G Ramesh	12/12//2016	p
14	10.jpg	G Ramesh	12/12//2016	p
15				

**Fig .student details in XL sheet**

**V. APPLICATIONS:**

Automatic face recognition techniques have been utilized in many applications over the past years.

**1. Human-Computer Interaction:**

Video Gaming, virtual reality training programs, proactive computing.

**2. Smart Cards and Face ID:**

Drivers' license, national ID, passports, voters' registration.

**3. Security :**

TV Parental control, Device logon, application security.

**4. Law and video surveillance:**

Crime stopping and suspect alert, suspect tracking and investigation, suspect background check.

**VI. CONCLUSION AND FUTURE SCOPE:**

In this project it saves lot of time and effort. The complete system is implemented in MATLAB. This face recognition system use for purpose of student and lecture. Further process this record of student can be used in exam related issues. The current recognition system has been designed for frontal views of face images. A neural network architecture (may be together with a feature based approach) can be implemented in which the orientation of the face is first determined, and then the most suitable recognition method is selected, Also the current recognition system acquires face images only from face files located on magnetic mediums. Camera and scanner support should be implemented for greater flexibility.

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