

# An Effective Automated Attendance Technique Using Face Identification

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**Abstract.** With evolution in computing and many different new technologies, algorithmic images and videos are playing major part inside the present era of intelligence. Face is an important bio-metric thing in picture and video database of reconnaissance system. Recognize of human faces and look in an image chronology is a critical function in dynamic environments, especially in videos where state, lighting, position of object and posture can fluctuate exceptionally from frame to border. A motorized attendance technique is deployed for marking face identification for colleges and school and real time id a biggest factor in to it to take the attendance. Intelligent motorized attendance taking using face recognition in real time is a biggest & time efficient solution for day to day activities of handling students as well as employees. In to this system conglomerate user faces are recorded and recognized multiple texture-based notability with information-based trend..

**Keywords:** Face Recognition, Eigen Vector, Principle Component Analysis, Viola and Jones Algorithm.

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## I. Introduction

In today's situation, when we say keeping track of lectures and attendance of their employees, various operating organisations and Establishments keep track of their employees' compensation and dealing hours by misusing traditional methods such as filing and paper work. However, only a few organisations use the most recent technological methods, such as biometric methods (thumb impression), to keep track of their payments, lecture records, and so on[1]. Historically, colleges and professors pass a sheet or build roll calls and mark the attendance of the scholars, and this sheet any pass to the primary department/section that's upgraded to surpass [1], and this sheet any pass to keep a softcopy for the recorded session.

This ancient practise of marking attendance and keeping records has become time consuming and frantic. Furthermore, the biometric system only serves one professor or staff member at a time at institutes or organisations. So, why not implement an automatic attendance system based on face recognition? As a result, we've devised a strategy to require attendance for more than one worker or student at a time that we want to place within the attending system at class rooms or functioning space wherever the system will do the crucial time detection by analysing faces utilising Viola and Jones formula. Face Recognition is a technology that is being used in a variety of applications that recognise people's faces in digital photographs.

Face recognition is an intellectual procedure that allows us to rework and identify faces in a visible scene. Faces unit of measurement usually ponder and express occasion of recognition for object-class system. The goal of object-category detection is to find the locations and sizes of all objects in a large image that belong to a specific category. It's comparable to image recognition in that the image of a specific is compared mistreatment as a gift in an extremely picture. image compared to the image stored in information.

If facial attributes are changed in the database it will automatically negate the comparison procedure. Eigen Values are calculated by analyzing faces or employees or scholars, this face detection techniques helps in calculating the efficient eigen values so that in later stages it will help us in comparing the live images with the pre-stored data available in the system. The conventional algorithms are employed to get all the specific facial region details like eyebrows, nostril, iris and mouth corners. Since we are taking real time images from working areas or classes, we might face issues like bad lighting, noise which makes it difficult to compare the image with the stored data but since we have shirring effect, we can mitigate this problem. The evaluated health merits of each applicant, favor to its prediction on the bases of Eigen-faces. The clicked pictures of all applicants with the highest heath merits will get selected for advance authentication. At this stage, the face symmetry is measured and therefore the existence of the various countenance is verified for every face candidate.

## II. Formulation of Problem With using Technology:

It isn't interesting to use those paper sheets to calculate participation because there are various categories in a very small foundation and each category has different understudies. These various sheets and passages must be physically entered in order to maintain the record. This can be extremely riotous and tedious at times. Consider a scenario in which an Automation is documented in such frameworks and the table work is exhausted. The first basic method of distinguishing a person is through his or her face. So why not use face and recognition innovation to mark the participation of students or employees? The best calculation available is the Viola and Jones calculation, which makes use of LBP capabilities. Any employee or educator who has a suitable tool or a device with a camera must use it to capture the image and transfer it to the framework to calculate participation. Because of their security and ease of use, online applications are commonly used in any corporation or foundation. Thus, the plan is to create a web-based code that offers shopper confirmation, a dashboard with distinctive layouts, photograph transfer, and an archive that holds all of the records for workers and students.

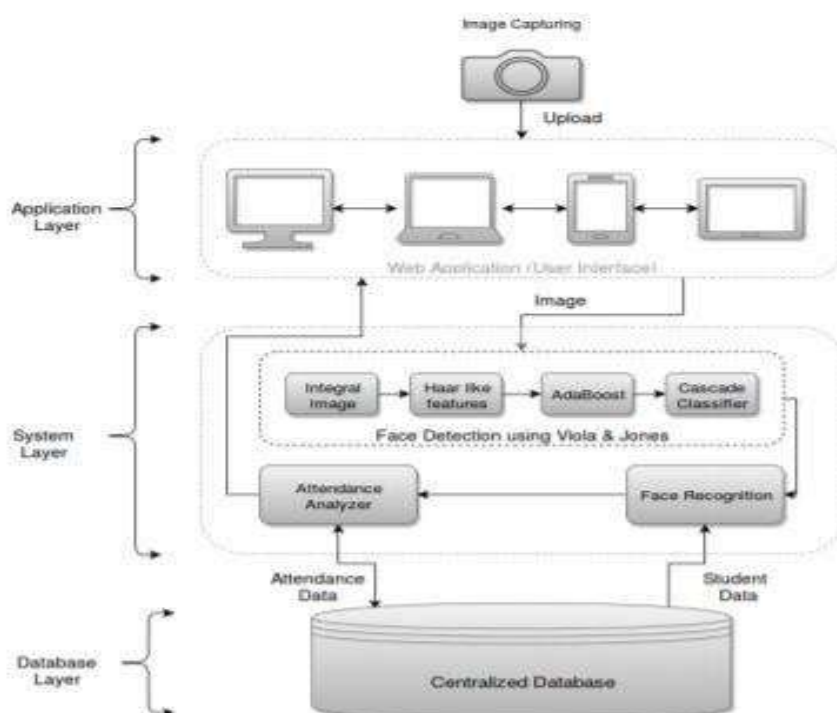


Fig.1. System Architecture for Real Time Face Identification.

Reduced paper usage in the workplace may result in higher potency measures and increased productivity levels across the board. We are going to reduce the use of paper work in order to reduce its consumption, which we will accomplish by keeping softcopy of all records, which we will accomplish by misusing various document management software's. Doing so may provide motivation to employees as well as significant financial savings for your company

## III. FACERECOGNITION:

As a contraction, this paper employs PCA (Principle Part Analysis) technology for image identification. Various applications make use of the same technique for identification and contraction. PCA is a commonly used technology for introducing new patterns in data, communicating data as an eigenvector, and determining the similarities between various types of data [2]. The system implementation is then divided into three major parts. Face Detection and Extraction, Face Recognition and Identification, Learn and Train Face Images We intend to implement it by utilizing the cross-platform and open supply OpenCV library.

### 3.1 ALGORITHM FOR EFFICIENT ATTENDANCE MANAGEMENT: FACE RECOGNITION

We have a propensity for victimization in this approach. Viola and Jones formula for face detection and biometric authentication we have a tendency to be victimization co-related formula. Its implementation includes data creation and face detection methods. It takes input image through a web camera indefinitely wherever simply just in case making information. Face detection is performed on the captured image. After face detection,

the captured image can be cropped and stored in the data. If there is any movement, video police work will be used to spot the moving object. The captured image goes through two processes, the first of which is face detection and the second of which is any processing by face recognition [3].

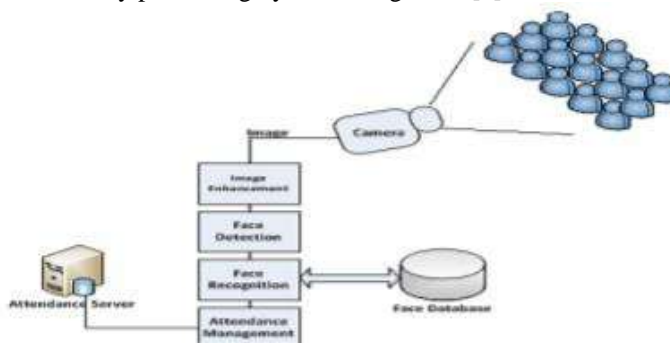


Fig. 2. Experimental Setup for Face Detection

#### IV. METHODOLOGY

The proposed system includes an automatic attendance system that combines an online app and face recognition algorithms. Any device with a camera will take a picture or a video and upload it to the server using an internet app. Face detection and recognition are applied to the received file, and the detected faces are extracted from the image. The extracted face knowledge is then compared on the concept of values with the saved faces from information, and on correct recognition, the data is updated with the attending, and a sheet is generated and displayed on the net application.

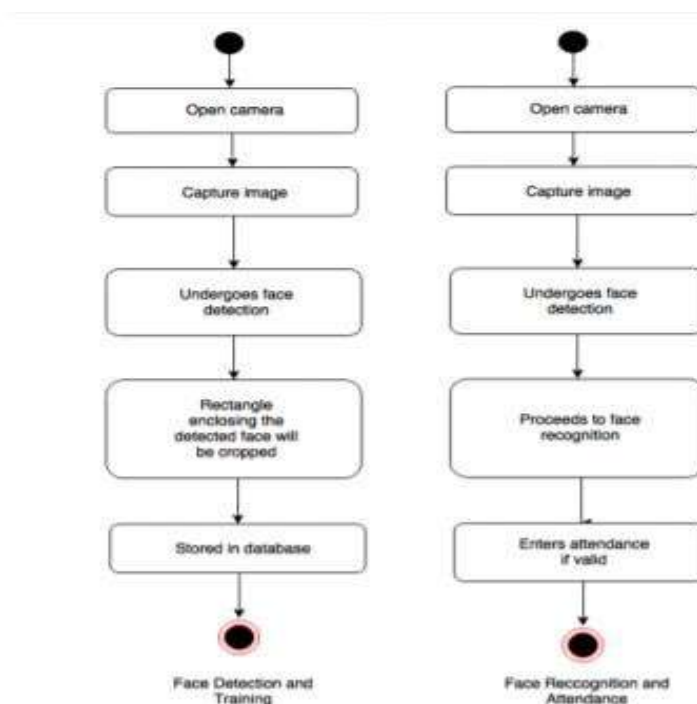


Fig. 3. Flow Diagram for Face Recognition and Attendance

This work is divided into five stages:

Step 1: Developing coaching knowledge Initially, the system is trained, which means that cropped images are saved to data for detection and recognition. Later stages involve the information being analyzed and matched with the detected images, as well as the file being uploaded and the attending [4] being marked.

Step 2: Capturing Throughout this, the video or image will be captured using a tool, and the captured file will be uploaded to the server via an internet app.

Step 3: Face Identification: When we upload the file to the server, we'll use the Viola - Jones algorithm to detect faces. The received frames have been checked for faces and folk have been cropped for better recognition.

Step 4: Human Face: The trained images provided by the knowledge have a high correlation with the detected images. Currently, the system detects recognizable images.

Step 5: Marking Attendance: When the framework reaches the financially lucrative face detection and recognition stage, the students are simply recognized and examined. Uploaded images are matched with knowledge, and students can have their attendance recorded.

### V. Conclusion

This method was devised in order to take care of the attendees. It replaces the manual system with an automatic system that is faster, more efficient, less expensive, and saves time and money by replacing stationary materials and thus paper work [5]. As a result, this method is expected to produce the desired results and, in the future, could also be enforced for logout. In the near future, the potency could also be improved by desegregating different techniques with it. It is usually simply imposed at any institute or organization. The only way could also be planned as an example of strength against variations, that is, in the near future we may build a system that is strong and would also add undesirable conditions.

It's planned for an academy to wish the scholars' attendance here, but in the future, it's typically accustomed to an analogous work on entry additionally as exit points. Authors are working to improve the effectiveness of face recognition in order to develop more cost-effective systems in the near future. In future work, authors will improve face recognition effectiveness by exploiting the interaction between our system, users, and thus the administrator.

#### 5.1 A Segment Sample

Please note that the primary paragraph of a section or segment isn't indented. The primary paragraphs that follows a table, figure, equation etc. doesn't have associate indent, either.

Subsequent paragraphs, however, unit of measurement indented.

Sample Heading (Third Level). Solely 2 levels of headings should be numbered. Lower level headings stay unnumbered; they're formatted as difference headings.

Sample Heading (Forth Level). The contribution should contain no quite four levels of headings. The next Table one provides an outline of all heading levels.

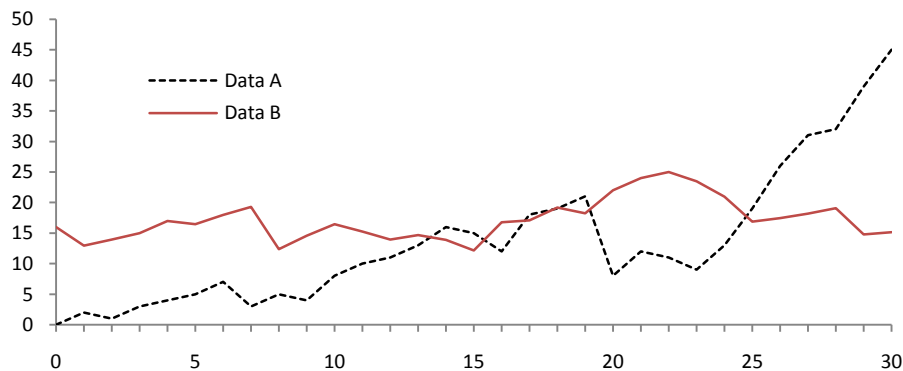
**Table 1. Table captions must be placed on top of the tables.**

Heading level	Example	Font size and style
Title (centered)	<b>Lecture Notes</b>	14 point, bold
1 <sup>st</sup> -level heading	<b>1 Introduction</b>	12 point, bold
2 <sup>nd</sup> -level heading	<b>2.1 Printing Area</b>	10 point, bold
3 <sup>rd</sup> -level heading	<b>Run-in Heading in Bold.</b> Text follows	10 point, bold
4 <sup>th</sup> -level heading	<i>Lowest Level Heading.</i> Text follows	10 point, italic

Displayed equations are centered and set on a separate line.

$$x + y = z(1)$$

Please try to avoid rasterized images for line-art diagrams and schemas. Whenever possible, use vector graphics instead (see Fig.2).



**Fig.2.** A figure caption is always placed below the illustration. Short captions are centered, while long ones are justified. The macro button chooses the correct format automatically.

For citations of references, we prefer the use of square brackets and consecutive numbers. Citations using labels or the author/year convention are also acceptable. The following bibliography provides a sample reference list with entries for journal articles [1], an LNCS chapter [2], a book [3], proceedings without editors [4], as well as a URL [5].

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