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# Facial Recognition Class Attendance Management System

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**ABSTRACT:** Attendance marking during a lecture in a classroom is not only a difficult but also time-consuming process. There will always be a chance of proxy attendance if there is an exceptionally large number of students present during the lecture (s). It's proven difficult to track attendance using traditional ways. In the field of face recognition, the demand for efficient and automatic attendance marking solutions is expanding. In recent years, common biometrics such as fingerprints and radio frequency identification tags have been widely used to address the problem of automatic attendance recording. However, these systems lack the element of reliability. Face detection and identification algorithms are used in this suggested project to create an automated attendance marking and management system. Instead than using traditional methods, the suggested solution intends to create an automated system that uses facial recognition technology to track students' attendance. The major goal of this project is to make the attendance tracking and management system more efficient, time-saving, simple, and straightforward. Face recognition techniques will be used here to recognize faces.

The processed image will then be compared to the existing stored record, and attendance will be recorded accordingly in the database. This technique decreases people's burden when compared to the present traditional attendance marking system. This suggested system will be implemented in four phases: image capture, group image segmentation and face detection, face comparison and recognition, and database attendance updating.

**KEYWORDS:** Face recognition, NFC, camera, Infrared, face, and face dataset, attendance management system

## I. INTRODUCTIONS

At the moment, facial recognition and image processing is a fascinating topic that has only scratched the surface. Facial recognition is rapidly surpassing other forms of biometrics (fingerprints, RFID, etc.) because facial recognition systems use a set of features that are unique to each individual. Our goal in developing this project is to make the attendance system efficient, stop methods and means of proxies, and save time that would otherwise be lost in the lecture. The traditional method, i.e., pen and paper, is not only time consuming and burdensome, but it is also prone to proxies and manipulation.

The idea for this project came to us in class when we saw the amount of time that has to be skipped for attendance and the nonchalance of students who had already marked their attendance, causing the method to be further delayed. We then decided that this would be a good and interesting field to delve into for our Project because the field of image processing, recognition, and other related fields has a wide range of applications and would help us inculcate our skills and make us a tad bit ready for the future.

## II. LITERATURE REVIEW

This section focuses on proposed facial recognition and image processing techniques, methodologies, and concepts that are more unique and niche to a single process that uses facial recognition algorithms and image processing techniques. Capture, detection, image matching, and attendance marking are the four aspects of the proposed project.

There are a number of existing systems that are closely analogous to the proposed idea of using facial recognition techniques and algorithms to mark attendance in a class. A literature review of the proposed systems was conducted in order to analyse them. The proposed case study was built around a few key sources in the field of facial recognition and image processing. Using the other design methodologies, a descriptive framework was created. [1]

### iii. PROPOSED SYSTEM DESIGN

The suggested system's architecture has been designed to be simple and straightforward to grasp. The procedures that must be completed in order to attain the system's final end goal, which is to ensure that the student's attendance is updated correctly and on time.

Anyone can access the system, and the instructors can quickly check and maintain student attendance as needed. The DroidCam app will make it simple to capture live video feeds from the classroom while also performing student recognition.

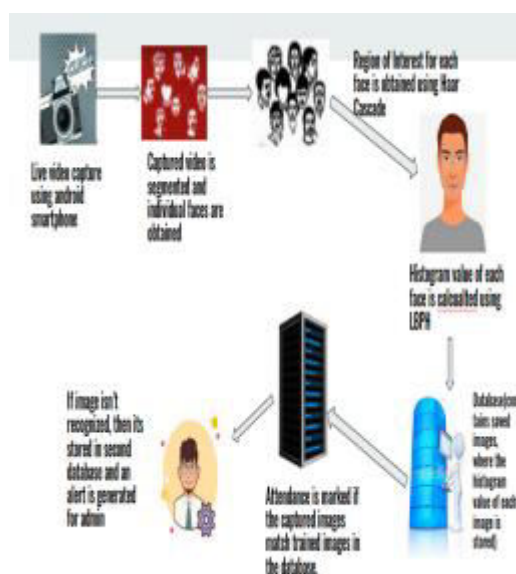


Figure1:Proposedsystemarchitecture

### 3.1 Haar Cascade

The Haar Cascade algorithm is a collection of object detection classifiers. Haar Cascade is a machine learning technique that uses a large number of positive and negative images to train the classifier. Positive photos are those that we want the classifier to classify, whereas negative images are those that we don't want it to classify.

## IV. CONCLUSSION

Using facial recognition algorithms, this research proposes a simple yet effective method for calculating class attendance. This system's output not only recognises a single student's face, but it also recognises numerous students or faces. Because the system works for three faces at once due to the law of induction, we can assume that it will operate for at least 15 faces at once.

In addition, the system correctly recognises and records the attendance of the detected kids.

We want to put in place a system that is effective, time-saving, and simple to use, which will benefit both professors and students.

## V. FUTUREWORK

We can add some of the following modifications to the system in the future to improve its functionality and reliability:

1. Create a self-generating defaulter list for any student whose attendance falls below 75% after a specified length of time has passed.
2. The system must distinguish between recognised and unrecognised faces; unrecognised faces can be maintained in a separate database.

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