

# Facial Recognition-based Attendance Tracking System using Computer Vision & Machine Learning

Dr. Shirkande S. T.<sup>1</sup>, Shreyash Gaikwad<sup>2</sup>, Hrutik Sargar<sup>3</sup>, Kunal Kanse<sup>4</sup>

<sup>1,2,3,4</sup> SB Patil college of Engineering, Indapur, Computer Engineering

\*\*\*

**ABSTRACT-** AFR stands for Automated face recognition is visible dramatic overall performance advancements over the previously instances, and analogous systems are now significantly used for safety and marketable operations. an automatic device for mortal face reputation in a real time heritage for a council daily mark the attendance in their students. So clever Attendance the usage of actual Time Face recognition is a real- world result which comes with exertion of handling scholar's attendance. The project is truly delicate because the actual time history deduction in an picture continues to be a task. To descry real time mortal face are used and a simple fast famous person element evaluation has used every day recognize the faces detected with a excessive delicacy fee. The faces that match the ones attendance gets marked. Our system keeps the attendance statistics of students routinely.

manual entering logbooks turns into a sensitive task and it also wastes the time. So, we designed a powerful module that accommodates of face recognition to control the attendance data of scholars. Our module also enrolls the group of faces. This technique of enrolment is only once and their face will gets stored in database. for the duration of enrolling of face, we endure a gadget because it is miles a onetime system. you can have your personal roll quantity as your student identification a good way to be unique for every student. The presence of every pupil can be streamlined in a database. The effects showed bettered overall performance over guide attendance operation system. Attendance is marked after identity. This product gives a whole lot farther consequences with correct results in person interactive way as opposed to being attendance and depart operation systems.

**KEY-WORDS:** Face Recognition, attendance management system, smart campus, biometric surveillance, Computer Vision, Authentication, validation, machine learning

## 1. INTRODUCTION

keeping the attendance is usually crucial in all the institutes for checking overall performance of scholar. each institute has its own patterns. a few are taking attendance manually the usage of the old paper or teach- grounded method and a few have espoused forms of automatic attendance using some biometric approaches. however, in those styles students must stay for long time in making a line at time they enter the elegance. several

biometric systems are to be had but the essential authentications are same are all of the approaches. each biometric device consists of registration way precise functions of a person is saved within the database and there are processes of identity and verification.

These two procedures evaluate the biometric point of someone with preliminarily stored template captured on the time of registration. Biometric templates can be of several kinds like Fingerprints, Eye Iris, Face, Hand figure, hand, Gait, and voice.



Fig. 1

Our system uses the face recognition method for the automated attendance of scholar inside the class room terrain. Face recognition includes two methods, in first step faces are detected inside the image and these detected faces are as compared with the database for verification. several styles were proposed for face discovery i.e., Ada raise set of rules, the float raise set of rules, the S- Ada raise set of rules assist Vector Machines (SVM), and the Bayes classifier The effectiveness of face recognition algorithm can be expanded with the short face discovery algorithm. In all of the under patterns suds is simplest.

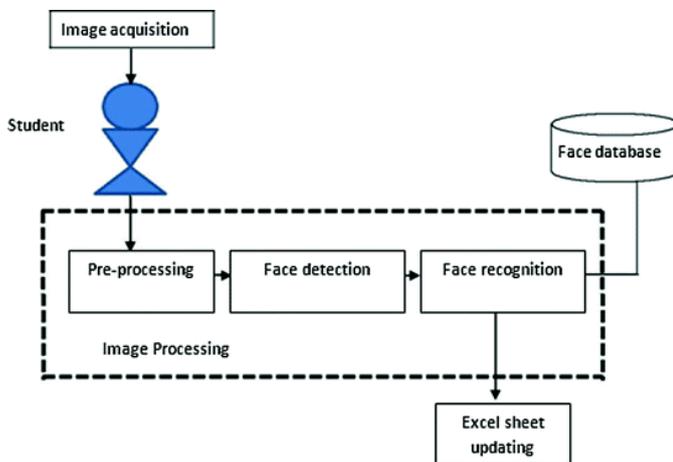
Our device employed this set of rules for the discovery of faces in the office room picture. Face popularity approaches can be Divided into types look grounded which use texture functions this is implemented to complete face or some precise areas, other is factor grounded which uses functions that are geometric including eyes, mouth, eye brows, nostril and Relation among them. Statistical gear similar as Linear distinguish analysis (LDA), superstar element analysis (PCA), Kernel patterns, and Neural Networks, Eigenfaces have been used for production of face template.

## 2. PROBLEM STATEMENT:

every time a lecture, or lab starts, the instructor or coaching assistant postpones the lecture. record scholar attendance. this is mostly a time-ingesting method, mainly in lectures with many students. It additionally reasons plenty of misunderstanding or interruption for the duration of the exam. additionally, the attendance list gets corrupted. Transmission loss between different colleges and personnel students and therefore the wide variety of registered college students is moreover there. Of course, teachers tend to call couples randomly named college students, it is not an awesome scholar. No assessment method is finished. eventually, those facts are hired with the aid of group of workers to look at students' attendance costs.

This method is simple and powerful for low variety of students. On the alternative hand, it handles an oversized wide variety of data. students often bring about human blunders. Face popularity-based attendance system may be a problem of spotting face for taking attendance via using face recognition generation supported high- definition screen video and other records generation. recognized faces to determine who that person is.

## 3. SYSTEM ARCHITECHTURE



### Relevant mathematics associated with the Project:

Let S be the Whole system  $S = I, P, O$

I-input

P-procedure

O-output

Input (Video)

I=Input as Image

Where,

Dataset

Image

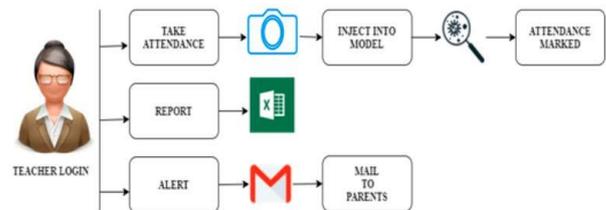
Procedure (P),

$P=I$ , Using I System perform operations and

calculate the prediction

Output(O)-

O=System detects face attendance



## 4. ADVANTAGES:

- Time-Saving for Workforce.
- Increased Efficiency and Capability.
- Improved Wellness and Productivity. ...
- Easy Integration with Other Systems. ...
- Easy To Manage Records.

## 5. CONCLUSION:

automated Attendance tool has been estimated for the cause of lowering the mistakes that occur inside the traditional (guide) attendance taking device. The purpose is to automate and make a tool that is beneficial to the economic business enterprise organization which includes an institute. The efficient and accurate method of attendance in the workplace surroundings that would replace the antique manual techniques. This method is secure enough, dependable, and to be had for use. No need for specialized hardware for putting in the device inside the workplace. it may be constructed the usage of a digital camera and laptop.

## REFERENCES:-

1. Design of Attendance System Based on Face Recognition and Android Platform, Xiaojun Bai 1Tianyi Shi, 2Feihu Jiang, 3 and Yuang Wu 2020 International Conference on Computer Network, Electronic and Automation (ICCNEA).
2. Smart Attendance Monitoring System (SAMS): A Face Recognition based Attendance System for Classroom Environment Shubhobrata Bhattacharya, Gowtham Sandeep Nainala, Prosenjit Das and Aurobinda Routray , 2018 IEEE
3. Conceptual Model of the Smart Attendance Monitoring System Using Computer Vision : Louis Mothwa ; JulesRaymond Tapamo ; Temitope Mapati IEEE 2018
4. Face Recognition-Based Mobile Automatic Classroom Attendance Management System: Refik Samet 1, Muhammed Tanriverdi 2, 2017 International Conference on Cyberworlds.
5. S. T. Shirkande and M. J. Lengare, "Optimization of Underwater Image Enhancement Technique by Combining WCID and Wavelet Transformation Technique," 2017 International Conference on Computing, Communication, Control and Automation (ICCUBEA), 2017, pp. 1-6, doi: 10.1109/ICCUBEA.2017.8463759.