

## HAZRRI

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**Abstract:** Ever since the covid hit the world, lifestyle of people has been changed specifically the people who are engaged in some sort of work. IT has seen a new boom in recent times and a lot of technology which were unaware in people's mind has now become a household word. People now have no time to waste in manual or unproductive work. One of the fields which consume so much of time and causes unproductivity is making attendance or counting the presents, which is a tedious process. We are coming with a solution which will remove the tediousness and manuality of the attendance system saving ample amount of time in schools, colleges, Employee firms etc. There will be a login system, by which authorized users can access the system. Details will have to be filled so that the next time whenever any attendance has to be marked or updated or deleted, can be done by using his/her face only, removing the manuality and tediousness of the system. It is a Software type Project.

**Keywords:** Face Recognition, Smart Attendance System, Automatic Presence.

### I. INTRODUCTION

In a class of one hour or 40 minutes, 5 to 10 minutes waste in taking attendance which is eventually leads to less productivity. Now if in an office there are 1000 employees, so much time is needed to mark their attendance. So there is a need of such systems which can remove or reduce the manuality of the process and make the remaining time divert into productivity. Although there are such systems which take attendance by fingerprint or RF ID but the problem remains the same i.e. manuality. We came up with a solution which uses face recognition technology for marking attendance and can be used in multiple purposes.

### II. TECHNOLOGY DOMAIN

Face recognition has been there for quite some time but the development and more innovative research have been taken place in recent times. This technology collects the image sample and processes them and makes comparison with the existing images in the database for effective matching. This technology is trending and has several implementation fields. This technique can be used to mark the attendance of employees and students automatically. Moreover, this technology can also be used in vigilante systems on city streets, toll plazas, security forces. Although the technology is prone to vulnerabilities yet the technology is so advanced and can be of great use in the future.

### III. LITERATURE SURVEY

- **Smart Attendance Using Deep Transfer Learning** [1]  
This project is used to record the attendance smartly using face recognition. This project also uses Deep Learning to make the system more efficient and accurate. This project used various algorithms/networks such as SqueezeNet, GoogleNet, AlexNet etc. Thus, the accuracy achieved respectively by these networks is 98%, 93% and 99% respectively.
- **Smart Attendance System Using Face Recognition** [2]  
This project is used to record the attendance efficiently. This project used the face recognition as well as RFID tag to take the attendance. Captures the images of all the students at once and makes attendance. Uses normal algorithms of computer vision and lacks accuracy as proxy attendance has been ejected as attendance during the testing phase of this project.
- **Face Recognition-Based Automated Attendance System** [3]  
This project/system used the HAAR CASCADE algorithm in the backend to process the image capture by the system. This system had used TKINTER as GUI and provides decent accuracy and is easy to use. The attendance generated can be seen or shared in the form of spreadsheets.

- **FR Attendance** [4]

This system is used to mark the attendance of employees and students effectively without external interference. This system used TKINTER library of python for GUI and computer vision for image processing and python as a backend language. This system used local binary histogram pattern to convert and revert the images so that the functions and patterns of a image can be processed effectively. This system had provided the accuracy of 90% but the algorithm used took to long to train the images inputted to the system.

- **RFID and Face Recognition based Smart Attendance System** [5]

This system is used to record the attendance and overcome the limitations of paperwork or fingerprint scanners. This systems used both RFID and FACE techniques to collect the data for marking the attendance accurately and effectively. This systems also ensures single-tier security check so that the proxies can not be bypassed through the system. This System has a very good feature of emotion detection, which can be used to detect the facial expressions and mental health of an employees for further decisions.

- **Automated Smart Attendance system using face recognition** [6]

This system used local binary histogram pattern algorithm for image processing and some basic techniques to implement the project. The accuracy was around 70 % for this system. It used database for the strong of attendance which make the system flexible as far as storing of data is concerned.

- **Contour based image processing and attendance** [7]

This system used the contour technique which helps the image classify based on their shape size and color and then comparison can be made with exiting images to precisely and effectively.

- **Interactive Attendance System for Modern Education Using Computational Intelligence** [8]

This system used the technique of grayscale and histogram to detect the faces captured by camera and make a comparison with existing images and mark the attendance. It used raspberry pi as hardware which make it more portable and easy to build system.

- **Contactless attendance system based on face recognition** [9]

This system has used both local binary histogram and haarcascade algorithm to image processing but both have been found giving ordinary results.

- **Intelligent Attendance System with Face Recognition using the Deep Convolutional Neural Network Method** [10]

This system used CNN and deep learning and conclude some good results, while taking images from front the result were given as 82 % and while taking images from side faces the result were given as 44 %. Overall accuracy of the system is 82% but the system is quite complex in itself.

IV.METHODOLOGY

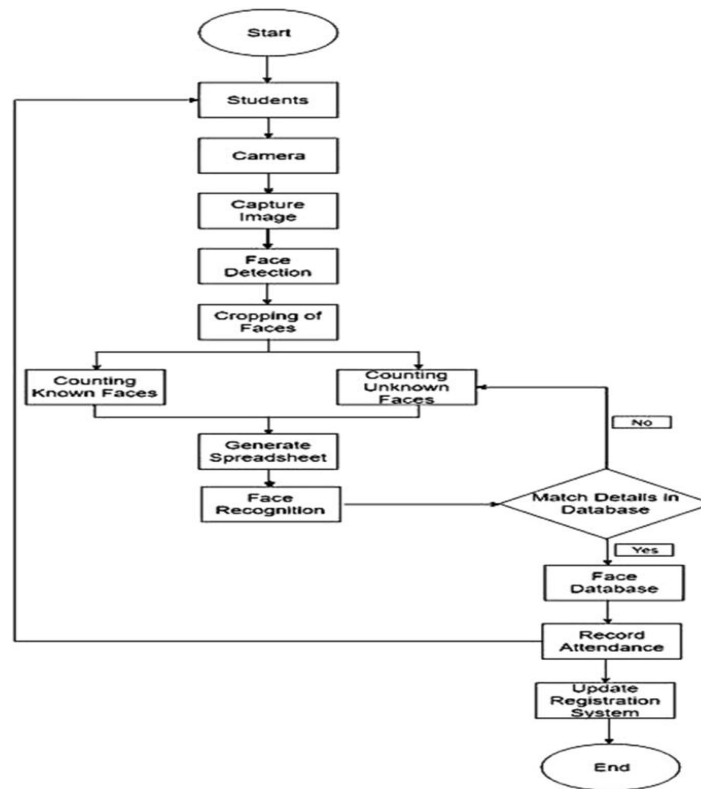


Figure 1:Block diagram showing the working principle of Smart Attendance System

By keeping all the drawbacks of the existing system in the mind new proposed system has been designed. This consist of four module Basic Details ,Train images ,Automatic Attendance, Manual Attendance.

**[A] Basic Details:**

- 1.In this section the student details will be filled manually for the initial time.
- 2.An image will be taken of the student for the future automatic processes.
- 3.Entries will be filled in two fields as enrollment and name.
- 4.Another feature will be available to check if there is redundant entry of the respective student.

**[B] Train Images:**

- 1.In this section/module the images capture taken by the camera will train all at once.
- 2.This module is also helpful and will be used while images will be updated for the existing students.

**[C] Automatic attendance:**

- 1.This section/module will be used to automatically detect the student.
- 2.Capture their images so that the attendance of the students can be mark effectively and smoothly.

**[D] Manual Attendance:**

- 1.The system also have the feature of manual attendance if incase of system failure or any manual updates.
- 2.Thus allow the staff to manually examine the presence of students or incase of any action took against the students.

The above four are the modules of the system which coordinates with themselves for smooth functioning of the system.The system also have a login credential facility so that only authorized users can access the system.

## V. CONCLUSION

With keeping in mind the necessity and functionality of this system we derived the following conclusions-

- To remove the manuality and tediousness, a smart way to record attendance.
- A Better way to collect and organize the attendance data.
- Time wasted in manual work transformed into Productive one.

## VI. FUTURE WORK

- An special feature of providing attendance only to those students who were present for the lecture for quite some specific time.
- A student present in the class for threshold time will be provided with the attendance.

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