

# Face Recognition Based Attendance System Using Raspberry Pi

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**Abstract:** *The main purpose of this task is to develop a presence monitoring system grounded on the face recognition of the educational institution in order to develop and upgrade the current attendance system to be more effective and effective as ahead. The old system now has a lot of nebulosity that has led to inaccurate impartiality and inefficiency. Using technology, this Task will resolve any being crimes in the current system while bringing it to a fully new position by performing multiple tasks. A person's face is one of the natural features that can identify a person else. Thus, it's used to track identity as the chances of a face turning or recreating are low. Also, during the participation session, the face will be compared to the website to gain power. At the end of the day, presence information about a person can be penetrated from the jeer pi for automatic download. In short, this bettered interpretation of the attendance monitoring system not only saves a lot of coffers, but also offers great comfort to directors as numerous processes are automated. Keywords Raspberry Pi, Pi camera, WIFI Module, Open CV, Raspberry Pi OS, System.*

**Keywords:** Raspberry Pi, Pi camera, WIFI Module, Open CV, Raspberry Pi OS, System, etc.

## I. INTRODUCTION

This is a Work about Facial Recognition- Grounded Attendance Monitoring System for Educational Institution. In this chapter, the problem as well provocation, exploration objects, compass of work, Job benefactions and the background of work knowledge will be banded in further detail. Current systems used to modernize robotization are generally grounded on RFID, Bio-metric grounded, and MATLAB grounded. Frequently, the hands- on process of sharing are complex and time- consuming. It's thus important to make an effective operation system to go automatically. Another advantage of these types is that the addition of false cons can be averted. Open Command Visualization (Open- CV) is an open-source library where the source law is open, and is useful in the viewing terrain similar as image processing. The main aphorism of this work is to take and manage to get used to seeing faces.

## II. LITERATURE SURVEY

Traditionally it was a matter of time consuming and frequently leading to mortal error. In addition, there's a lot of queries about the sources of the actuality records which in fact, numerous of the actuality records haven't been restored to their original state. Research; there are numerous results available to break this problem. According to the exploration journal Attendance System which uses NFC Technology with a camera bedded in a mobile device. The trip system is developed using Near Field Communication (NFC) technology and mobile app. According to the exploration paper, each pupil is given an NFC marker with a different ID at the time of his or her council registration. Attendance at each class will be taken by touching or distributing these markers to the educator mobile phone. The bedded camera on the phone will also capture the pupil's face to shoot all the data to the council garcon to do confirmation and verification. The advantage of this system is that the NFC is easier to use, and the connection speed is much advanced. It really speeds up the process of taking the most present. Other than that, the usability of the mobile app as an NFC pupil was actually a distraction for the educator. Thus, unique pupil information similar as biometrics or facial recognition, guanine to the pupil should be used rather of the NFC marker. This will ensure the presence will be taken by the real pupil. (1)

The alternate exploration journals Face Recognition Based Attendance Marking System grounded on facial recognition- This system uses a camera to take hand prints to check faces and recognition. The captured image is compared one by one with the face database to search for the worker’s face where attendance will be marked when a result is set up in the face database. The main advantage of this system is where attendance is marked on the garcon which is largely secure where no one can mark the attendance of other. Although fresh sweats have been invested in the delicacy of the face discovery algorithm, the system is presently untouched. This program requires an independent computer that will bear a constant power force that makes it impalpable. therefore, in order to break this problem, the whole being system of operation can be upgraded to a bedded design so that it works in the same way with just batteries that make it movable. ( 2)

According to this exploration journal, the presence of scholars is essential to the literacy process. To record the presence of scholars, many styles can be performed; one of them is pupil signing. The process has several failings, similar as demanding time to be present; the appearance runner is lost, directors must enter the presence data one by one on the computer. To overcome this, the paper proposed a web- grounded pupil- grounded approach to face recognition. In the proposed system, the Convolutional Neural Network (CNN) is used to descry faces in images, in- depth metric literacy is used to produce facial embedding, and K- NN is used to descry pupil faces.

Therefore, a computer can descry faces. From the tests performed, the system was suitable to identify the faces of the scholars who attended, and their attendance data was automatically saved. Thus, university directors are reduced to recording attendance information. Terms of Reference Student program, convolutional neural network, in- depth study of mathematics, neighbor K. In this paper, a face- to- face pupil plan is proposed. By using Convolutional Neural Network to descry faces, CNN's Dlib or in- depth study of facial embedding criteria, and K- NN for facial discovery, the system effectively detects the face of a pupil who performs attendance. Student data that has been linked in the form of the pupil’s ID number, date and time, is used by the system to record pupil attendance. (3)

This paper deals with the design and performance of secure locking robotisation using boo Pi for Door unleashing to give essential security to the homes, bank lockers and associated control operations and shoot security alert through the GSM module. Raspberry Pi operates and controls the videotape camera for landing it for turning ON a relay for door unlock. The module accommodates a secured face recognizer for automatic door opening. Keywords Raspberry pi B model, Pi camera, PCA, SIM 300. The design of the face recognition system using boo pi can make it lower, simpler and use lower power, so it's much easier than a PC- rested face recognition program. Thanks to open-source law, it's free to make software upgrades to Linux. The primary element algorithm is used for face recognition and discovery process. Also shoot a security communication to authorized particular services. The upgraded system is cheaper, hastily, farther dependable and offers enough harshness to suit the conditions of different systems. ( 4)

**III. PROPOSED METHODOLOGY**

As shown in Figure 1 this process was done without mortal intervention. The Raspberry Pi system is equipped with an OpenCV library, and the Raspberry Pi Camera module is connected for face recognition and recognition. The data is stored on a memory card connected to the boo Pi and can be entered online.

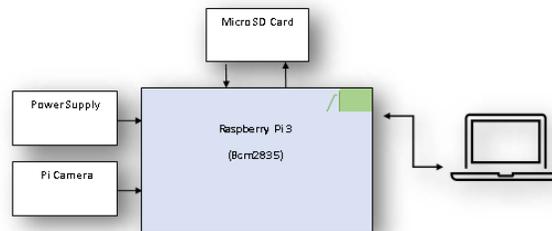


Figure 1: Block diagram

IV. METHODOLOGY OF IMPLEMENTATION

- Step 1-Give Power Supply to raspberry Pi
- Step 2-Connect to the internet
- Step 3- Connect the Raspberry Pi to Laptop with using VNC Viewer application installed in laptop
- Step 4- For new student we need to take his Face shot through pi camera and we will add his name and take his face shot. Images will be get stored in specific directory
- Step 5- After running attendance code the camera window will pop up on the screen
- Step 6- When the registered attendee will come in front of camera the attendance will be automatically get stored using CSV File
- Step 7- As an attendance sheet the Name, Time, Date will be shown in CSV file in table format.

V. RESULTS

Our work is an innovative idea of intelligent system which has principally the attendance system point and to take attendance date in easy way and will give help in colorful field like artificial, Health and in any service sectors like police station, company, services, school, council, etc. As shown in Figure 2, 3, 4; With the help of Pi camera in this system the face can get detected and information will be transferred to boo pi and the attendance will be automatically taken.

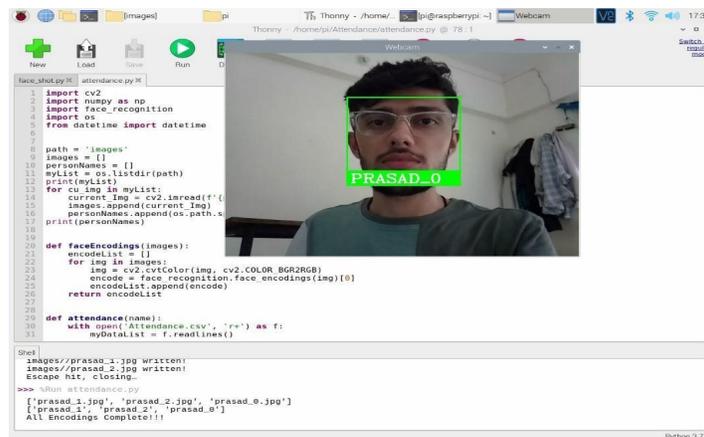


Figure 1: Face detection

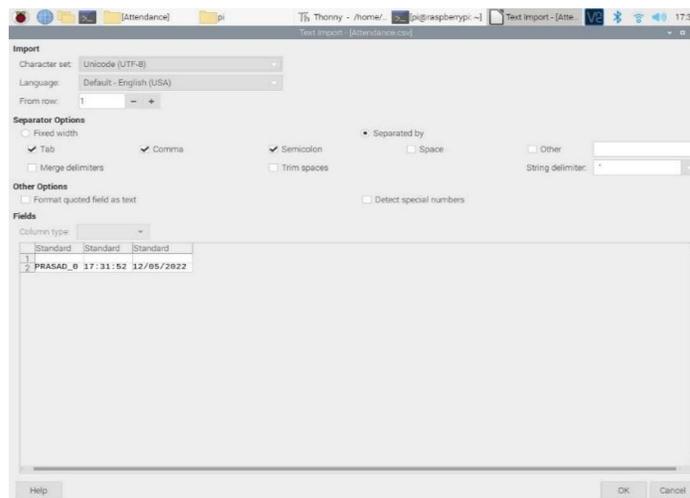


Figure 2: Result of Attendance

### VI. CONCLUSION AND DISCUSSION

Before the development of this work, there are numerous loopholes in the process of taking attendance using the old system which caused numerous troubles to ultimate of the institutions. thus, the face recognition point bedded in the attendance monitoring system cannot simply guarantee that presence will be directly detected and excluded errors in the former interpretation. By using technology to overcome misapprehensions, you not only save coffers but also reduce mortal intervention throughout the process by managing all the hard work in the machine. The only strike to this result is having enough space to keep all the faces in the database. Fortunately, there's a micro- SD presence that can compensate for the volume of data. In this work, the face database is successfully erected. Piecemeal from that, the face recognition system also works well. The current state of COVID will reduce communication to give attendees and social sequestration will be followed consequently. Eventually, the system not only solves the problems that live in the old model but also gives the stoner access to the collected information that perfected the actuality of technology to help mortal conditions.

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