

# Attendance Tracker using Face Recognition

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**Abstract**— This project addresses the design and implementation of automated attendance tracker using face recognition with its application in schools, colleges and also at work places. Automated attendance system using face recognition is a system in which tracking of daily attendance is done by the program by recognizing the face. This system checks the face when it comes in front of the camera and recognizes it based upon the given image data on which the system is trained. Then it tracks the attendance of the person file if the face matches with image data and stores it in an excel file.

**Keywords:** Attendance Tracker, Face Recognition, OpenCV

## I. INTRODUCTION

Face recognition is the technology in which the human face is detected and matched with the digital image which is already stored in the database. Face recognition is a biometric system which is accurate and more secured system. When an attendance tracker is made using face recognition it is an efficient system as attendance record maintained will be accurate.

Face recognition system is more beneficial over id scanning systems as if a person forgets his id he will not be able to mark his attendance. Face recognition system also makes it possible to avoid fake attendance which is likely to be done with the system that involves id scanning. In this system the entire data of a person can be obtained swiftly just by scanning a person's face.

This technology can also be used for detection of criminals if their digital image is available. This will make it easy for cops to find criminals also in crowded areas.

## II. LITERATURE SURVEY

There are few places where automated attendance tracking system is used. Every system used has its own different features and method of developing the system.

- 1) Samridhi Dev, Tushar Patnaik published an IEEE paper. In this paper, they have described a simple attendance system using face recognition, and trained a model on the same. They have also stated how the system responds to different camera angles.
- 2) Nandhini R, Duraimurugan N, S.P.Chokkalingam published paper in IJEAT. In this paper they have compared different attendance system. They have stated the advantages of using automatic attendance system over the traditional system and also proposed an easy way to develop automatic attendance system.
- 3) Mayank Srivastava, Amit Kumar, Aditya Dixit, Aman Kumar published paper in IEEE. In this paper they have developed attendance system using python programming language. They have used opencv for developing the system. They used data science technique for training the model.

- 4) Smitha, Pavithra S Hegde, Afshin published paper in IJERT. In this paper they have described various steps for creating attendance system. They have used Haar-Cascade algorithm for image detection. They have developed the system in which the generated attendance will be received to the students via e-mail.

## III. BLOCK DIAGRAM

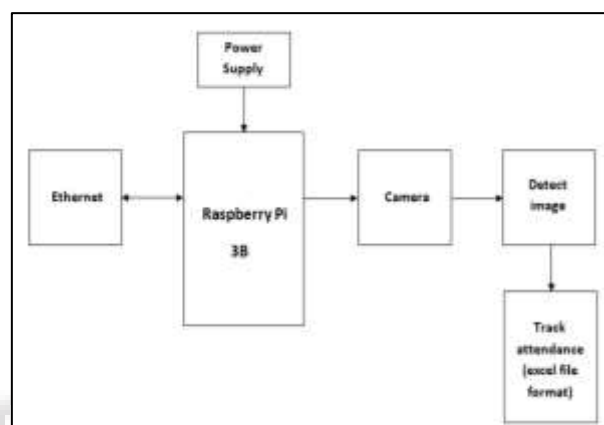


Fig. 1: Block Diagram

## IV. METHOD

This system is based on face recognition which involves image processing. This system is based on OpenCV library. The library is open source library supported by Python as well as JAVA. When the software first runs it opens the camera connected to controller. When the camera is turned on it will scan the face that is which is in front of the camera. The image captured by camera will then be compared with the pre stored images in the system. When a face or multiple faces are in front of the camera, it starts to locate faces visible in the screen. This is done using the OpenCV and face-recognition libraries. The OpenCV is an open-source library built in python for working on image processing and computer vision related problems. The library is used at the initial stage of the program at which the data processing is done. The data used here majorly are image data. Through the library, we can perform multiple operations such as accessing the camera, image reading, image cropping, conversion of image from BGR (Blue-Green-Red) to RGB (Red-Green-Blue) format for faster and efficient performance of the software, drawing rectangles around faces and adding text as well, and various other operations. The face-recognition library, on the other hand, is primarily used for locating faces and their identification. Using this library, we can find the faces in an image by finding their locations and also find their encodings. Once the software has found the face, it checks the face with the images stored in the database (known images) by comparing the encodings of the face seen in the screen with the encodings of the face in the images in the database. If the face matches with one of the faces in the

database, it shows the name of the person's face as a label in the webcam itself. If the face doesn't match with the database images, then it labels the image as "UNKNOWN". The software then stores the attendance of the person of the current date in an excel file format. The software stores the attendance only if the faces match with the database which prevents false attendance. Also, the program creates a new file on every new date for attendance tracking which helps in maintaining attendance of the individual on each date.

The data will be processed by the system using Raspberry Pi. The camera module is connected to the dedicated slot available in raspberry pi. When the camera scans the image it will send the data to the pi and the raspberry pi will then process the scanned image. It will check the data (image) given by camera with pre stored data. If the data matches it will store the attendance.

#### V. ADVANTAGES

Automated attendance system is very fast and efficient system as compared to manual system. This system tracks the attendance of students or employees without any errors as the attendance is tracked by scanning image. Also the load on the person to count attendance will become less as the count will be taken by system itself.

This system is time efficient system as the time needed to mark attendance of each person will be reduced. Also it will become more efficient to keep the record as the system will store the attendance in new excel file each day. This will help to keep better track of attendance.

This system records the exact time at which the students or employees arrive at the institute.

#### VI. APPLICATIONS

This system can be used in army camps for surveillance. The system can be made to store the data of every army soldier and if some enemy spy enters the army camp the system will detect the spy as the digital image of the spy is not available in the system. The system can include a buzzer in it. The buzzer will start ringing when an unknown person enters the camp.

#### VII. CONCLUSION

Thus, the aim of this project is to capture the image of the students, relate it with the data set to check their presence or absence, mark attendance according to student to maintain the record. The automatic attendance system using face recognition helps in increasing the accuracy and rate eventually achieve high accuracy attendance to meet the need for automated classroom

#### REFERENCES

- [1] Samridhi Dev Tushar Patnaik", Student Attendance System using Face Recognition , IEEE Xplore Part Number: CFP20V90-ART ; ISBN: 978-1-7281-5461-9
- [2] Nandhini R, Duraimurugan N, S.P.Chokkalingam", Face Recognition Based Attendance System ,ISSN: 2249 – 8958, Volume-8, Issue-3S, February 2019
- [3] Mayank Srivastava, Amit Kumar, Aditya Dixit, Aman Kumar", Real Time Attendance System Using Face

Recognition Technique, 2020 IEEE  
10.1109/PARC49193.2020.236628

- [4] Smitha, Pavithra S Hegde, Afshin , Face Recognition based Attendance Management System, IJERT ISSN: 2278-0181 Vol. 9 Issue 05, May-2020