# SYNOPSIS

## On

**Attendance system using face detection**

**In**

**Computer Science and Engineering**



# Submitted To: Submitted By:

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# ABSTRACT

Nowadays Educational institutions are concerned about regularity of student attendance. Mainly there are two conventional methods of marking attendance which are calling out the roll call or by taking student sign on paper. They both were more time consuming and difficult. Hence, there is a requirement of computer-based student attendance management system which will assist the faculty for maintaining attendance record automatically. In this project we have implemented the automated attendance system using ‘TKINTER’ and ‘PYTHON’. We have projected our ideas to implement an “Automated Attendance System Based on Face Recognition”. The application includes face identification, which saves time as well as being purely softwere based it can be flagged as eco-friendly as it reduces the use of paper. This system also eliminates the chances of fake attendance because of the face being used as a biometric for authentication. Hence, this system can be implemented in a field where attendance plays an important role. The proposed system is designed in TKINTER platform supported with a script of PYTHON as well as SQL database. The algorithm used in the system is based on image comparison on the basis of the encoded values of the face from the image from database with the image recorded by the system in run time. The system has output in the form of excel sheet.

# Objective and Scope

The main objective of this work is to make the attendance marking and management system efficient, time saving, simple and easy. Here faces will be recognized using face recognition algorithms. The processed image will then be compared against the existing stored record and then attendance is marked in the database accordingly. Compared to existing system traditional attendance marking system, this system reduces the workload of people. This proposed system will be implemented with 4 phases such as Image Capturing, Segmentation of group image and Face Detection, Face comparison and Recognition, Updating of Attendance in database.

# Software Requirements

* Windows Xp, Windows 7(ultimate, enterprise)
* Visual studio code (version 1.73)

**Technology used**

* Open-CV
* Decision Tree
* KNN

# Database

* Sql 2019

# Hardware Requirements

* OS: Windows 11 64-bit
* CPU: AMD Ryzen 5
* Memory: 8 GB RAM
* Free storage: 5 GB SSD
* Tools: Windows PowerShell 7.2, Git 2.x

## INTRODUCTION

The Attendance System using Face – Recognition is a replacement way method for the traditional way of marking attendance. The proposed system is python , tkinter based system supported with MySQL database. This system can be implemented on a single faculty system of a particular institute. This system is proposed to be based on biometrics .i.e. Face Authentication. Since there is presence of biometrics, this system completely eliminates the chances of fake attendance which is a problem with the traditional methods of attendance. The Attendance management is the significant process that were carry out in every institute to monitor the performance of the student. Every institute does this is its own way. Some of there institute use the old paper or file-based system and some have adopted strategies of automated attendance system using some biometric technique. A facial recognition system is a computerized software which is suited for determining or validating a person by performing comparisons on patterns based on their facial appearances. In this system OpenCV & Face Recognition libraries were used which are one of the popular libraries for face detection by using these libraries system first capturing the student photos and storing them into the database which were further used for the training purpose after that at the time of attendance when system camera get on system will detect the faces that were present in the frame the faces were detected by using HOG i.e. (Histogram of Oriented Gradients) which were carrier out in the system. after that if image that were present in the frame is tilted then Face Landmark Estimation algorithm will be carried out and face will be transformed to be as close as possible to perfectly centered. After that system will encode all the images that were present in the database as well as the face which were detected in the frame. For performing encoding Deep Conversional Neural Network algorithm will get carried out & for each face 128 measurements were generated then the measurements of the face that were detected in frame it get compared with the measurements of the faces that were present in the image which is earlier stored in the database. So at last by using simple liner SVM algorithm system will find the person in database of know peoples (i.e. capture at the starting of the project) who has closest measurements to the image that were detected by camera. After finding perfect match system will generate the name and date & time & present mark and store the entry in CSV file. Which were further uploaded on the database and also user can open it with Microsoft Excel.

# Problem Statement

* The system don’t recognize properly in poor light so may give false results.
* It can only detect face from a limited distance.

# Advantages

* The software can be used for security purposes in organizations and in secured zones.
* The software stores the faces that are detected and automatically marks attendance.
* The system is convenient and secure for the users.
* It saves their time and efforts.

# Application

* The system can be used for places that require security like bank, military etc.
* It can also be used in houses and society to recognize the outsiders and save their identity.
* The software can used to mark attendance based on face recognition in organizations.

# Data Flow Diagram

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# Future Scope

# To improve the functionality and reliability of the system in the future we can add some of the following enhancements: 1. Add a self generating defaulter list, that is created after a certain amount of fixed time has passed for any student whose attendance is below seventy five percent. 2. The System will have to separate between recognised and unrecognised faces, faces that go unrecognised can be stored in a secondary database.

# Conclusion

# This paper presents a simple yet efficient approach to calculate the attendance in a class by employing facial recognition techniques. The output of this system can be outlined as follows: As is seen in Fig. 6, the system not only detects just one face of a single student, but successfully detects multiple students or faces. As the system works for three faces at once by law of induction we can say that it will work for at least more than 15 faces at a single time. The system also successfully recognises and marks the attendance of the detected students. We wish to implement an efficient, time saving and easy to operate system which will in turn benefit both faculty and students.

# References

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