

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY**  
**Belagavi**



**RV INSTITUTE OF TECHNOLOGY AND MANAGEMENT®**

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**BACHELOR OF ENGINEERING**

*In*

**COMPUTER SCIENCE AND ENGINEERING**

**A Report On**

***“Facial Recognition Attendance System using MongoDB”***

*Submitted in partial fulfillment for Mini Project Assignment*  
*In*

***“Application Development using Python (18CS55)”***

***Submitted by***

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# Abstract

In this digital era, face recognition system plays a vital role in almost every sector. Face recognition is one of the mostly used biometrics. It can be used for security, authentication, identification, and has got many more advantages. Despite of having low accuracy when compared to iris recognition and fingerprint recognition, it is being widely used due to its contactless and non-invasive process. Furthermore, face recognition system can also be used for attendance marking in schools, colleges, offices, etc. This system aims to build a class attendance system which uses the concept of face recognition as existing manual attendance system is time consuming and cumbersome to maintain. And there may be chances of proxy attendance. Thus, the need for this system increases. This system consists of four phases- database creation, face detection, face recognition, attendance updation. Database is created by the images of the students in class. Face Recognition library and mongoDB is been used to make this project possible.

**Keywords:** Face Recognition, MongoDB, Face\_recognition

# Introduction

Traditional method of attendance marking is a tedious task in many schools and colleges. It is also an extra burden to the faculties who should mark attendance by manually calling the names of students which might take about 5 minutes of entire session. This is time consuming. There are some chances of proxy attendance. Therefore, many institutes started deploying many other techniques for recording attendance like use of Radio Frequency Identification (RFID), iris recognition, fingerprint recognition, and so on. However, these systems are queue based which might consume more time and are intrusive in nature. Face recognition has set an important biometric feature, which can be easily acquirable and is non-intrusive. Face recognition based systems are relatively oblivious to various facial expression. Face recognition system consists of two categories: verification and face identification. Face verification is an 1:1 matching process, it compares face image against the template face images and whereas is an 1:N problems that compares a query face images. The purpose of this system is to build a attendance system which is based on face recognition techniques. Here face of an individual will be considered for marking attendance. Nowadays, face recognition is gaining more popularity and has been widely used. In this paper, we proposed a system which detects the faces of students from live streaming video of classroom and attendance will be marked if the detected face is found in the database. This new system will consume less time than compared to traditional methods.

# Implementation

Typically this process can be divided into four stages,

## 1. Dataset Creation

Images of students are captured using a web cam. Multiple images of single student will be acquired with varied gestures and angles. These images undergo pre-processing. The images are cropped to obtain the Region of Interest (ROI) which will be further used in recognition process. Next step is to resize the cropped images to particular pixel position. Then these images will be converted from RGB to gray scale images. And then these images will be saved as the names of respective student in a folder.

## 2. Face Detection

Face detection here is performed using Face\_recognition library with OpenCV. Face\_recognition algorithm needs to be trained to detect human faces before it can be used for face detection.

## 3. Face Recognition

Recognize and manipulate faces from Python or from the command line with the world's simplest face recognition library.

Built using dlib's state-of-the-art face recognition built with deep learning. The model has an accuracy of 99.38% on the Labeled Faces in the Wild benchmark.

## 4. Attendance Updation

After face recognition process, the recognized faces will be marked as present in the excel sheet and the rest will be marked as absent and the list of absentees will be mailed to the respective faculties. Faculties will be updated with monthly attendance sheet at the end of every month

# Results

## attendance

Storage size:	Documents:	Avg. document size:	Indexes:	Total index size:
20.48 kB	3	75.00 B	1	36.86 kB

## Encoding\_data

Storage size:	Documents:	Avg. document size:	Indexes:	Total index size:
20.48 kB	3	1.60 kB	1	36.86 kB

## Users

Storage size:	Documents:	Avg. document size:	Indexes:	Total index size:
20.48 kB	2	77.00 B	1	36.86 kB

```
PS D:\College Projects\Look Like> python .\main.py
Welcome VISHNU
Attendance taken succesfully!
```

# Conclusion

This system aims to build an effective class attendance system using face recognition techniques. The proposed system will be able to mark the attendance via face Id. It will detect faces via webcam and then recognize the faces. After recognition, it will mark the attendance of the recognized student and update the attendance record in mongodb.

# References

- [https://www.researchgate.net/publication/341876647 Face Recognition based Attendance Management System](https://www.researchgate.net/publication/341876647_Face_Recognition_based_Attendance_Management_System)
- <https://pypi.org/project/face-recognition/>