VISVESVARAYA TECHNOLOGICAL UNIVERSITY,
BELGAUM, KARNATAKA

PROJECT REPORT
ON

EMPLOYEE ATTENDANCE USING FACE RECOGNISATION

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF

BACHELOR OF ENGINEERING
IN
COMPUTER SCIENCE AND ENGINEERING

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S.D.M. College of Engineering and Technology,
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CERTIFICATE

This is to certify that the project titled **Employee Attendance Using Face Recognisation** is a bona fide work carried out by **Tejas M P (2SD17CS108), Manoj Naik (2SD17CS044), Rahul A (2SD17CS072),Prashant Kalli(2SD17CS066)** submitted in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering** in **Computer Science and Engineering** of **S.D.M. College of Engineering and Technology, Dharwad, Karnataka** (An autonomous institution affiliated to Visvesvaraya Technological University, Belgaum, Karnataka), during the year 2019–2020. It is certified that all corrections/suggestions indicated for internal assessment have been incorporated in the report deposited in the department library. The project has been approved, as it satisfies the academic requirements in respect of project report prescribed for the said degree.

Dr Archana Nandibewoor	**Dr. U. P. Kulkarni**
Project Guide	**Head of Department**

DECLARATION

We hereby declare that the dissertation work titled **Employee Attendance Using Face Recognisation**, has been carried out under the guidance of **Dr Archana Nandibewoor, Assistant Professor, Department of Computer Science and Engineering, S.D.M. College of Engineering and Technology, Dharwad**, in partial fulfillment of the degree of **Bachelor of Engineering in Computer Science and Engineering** from **Visvesvaraya Technological University, Belgaum, Karnataka**, during the academic year 2019–2020.

I also declare that I have not submitted this dissertation to any other university for the award of any other degree.

Place: Dharwad

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Abstract

Face recognition is a technique in which images and patterns are analyzed and recognized. Face detection is known as the identification of face from a image. Many improved techniques are implemented in face recognition in past ten years. Some well known methods in each category are overviewed and then benefits and drawbacks are mentioned and analyzed. . For the purpose of recognizing the face, the most recent algorithms and the approaching technology methods are analyzed in this paper

PROBLEM STATEMENT

A lot more goes into keeping proper time and attendance records than just recording when employees clock in and out each day. From correctly tracking hours logged and paid time off to making sure certain insurance requirements are being met, there are a wide variety of advantages to using time and attendance systems. One of the largest benefits is the added financial insight into your business.Many companies are investing on computer visualisation and artifficial intelgence

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Chapter 1

Introduction

Attendance management is the act of managing attendance or presence in a work setting to minimize loss due to employee downtime. Attendance control has traditionally been approached using time clocks, timesheets, and time tracking software, but attendance management goes beyond this to provide a working environment which maximizes and motivates employee attendance. Recently it has become possible to collect attendance data automatically through using real-time location systems and face recognition, which also allow for cross-linking between attendance data and performance.

1.1 Objective

Creating a database that contains attendance information of the employees Linking this system to an existing employee management system Capturing live feed from camera to record attendance times Linking the information captured by the feed to the database for accuracy of results.

1.2 Methodlogy

There are two main functions of this system:

a) Add Face

b) Recognize Face and Store to database

Add Face:

We use the classifier as the haarcascade This cascade classifies images as positive and negative. Positive image: the image with face Negative image: the image without the face We are capturing a video from system computer Then we read a image from the video

and convert into grayscale because it occupies 256 bits of memory and when we convert to grayscale so we can easily train and recognize the image because it converts into bits as positive image to 1 and other to zeros. then we store the images to the folder which present as data set with idno we capture nearly 30 grayscale images with different position for the accuracy

Recoginze Face and Store to database:

We will open the video camera from the system and we detect the face from the image through harcascade and then we call the LBPH Recognizer and we read the data from the trainner.yml from the recognizer and we predict the id which matches to id in the trainer.yml using recognizer .After prediction we mark the attendance in the excel sheet as present by calling xlwt. We write the data of the user which he has filled in his login form to his database which we have created through sqlite3.

Chapter 2

Literature Survey

2.1 Haar Cascade Classifiers :

We will implement our use case using the Haar Cascade classifier. Haar Cascade classifier is an effective object detection approach which was proposed by Paul Viola and Michael Jones in their paper, “Rapid Object Detection using a Boosted Cascade of Simple Features” in 2001.

2.2 Local Binary Pattern (LBP):

It was first described in 1994 (LBP) and has since been found to be a powerful feature for texture classification. It has further been determined that when LBP is combined with histograms of oriented gradients (HOG) descriptor, it improves the detection performance considerably on some datasets.

Chapter 3

Design

The proposed system caters to organizations such as schools, colleges, offices and a wide array of businesses which would find this system valuable, the main intent we have with this system is to protect user privacy. We intend to keep user data safe and inaccessible To anyone who intends to access, manipulate or meddle with the system.

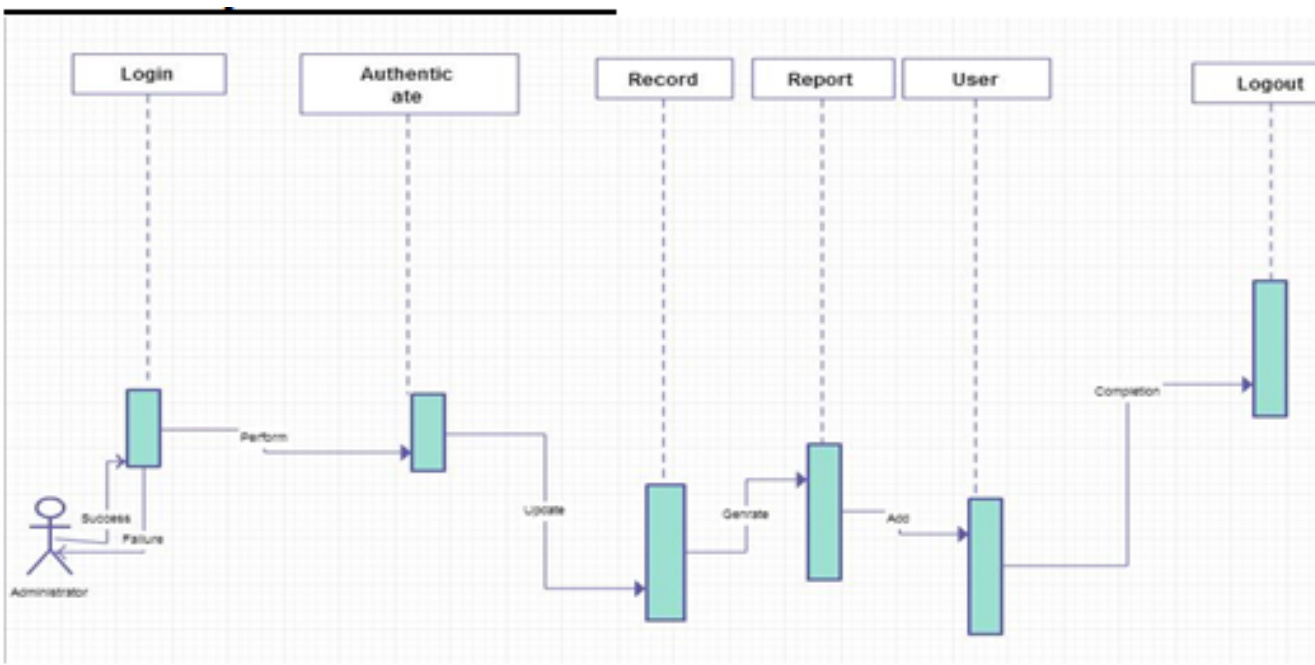

Figure 1: Admin

3.1 Architecture

3.1.1 Admin Sequence Diagram

A sequence diagram (Figure 1) depicts a set of actions to be performed when a user uses a system. Here, an administrator logs in, and is being authenticated. He can update records; generate reports on attendance and payroll. He can add a new user (Employee and Admin) and can choose to repeat all these processes. On completion, he logs out of the system.

3.1.2 Employee Sequence Diagram

Here, an administrator logs in, and is being authenticated. He can update records; generate reports on attendance. He can add a new user (Employee and Admin) and can choose to repeat all these processes. On completion, he logs out of the system

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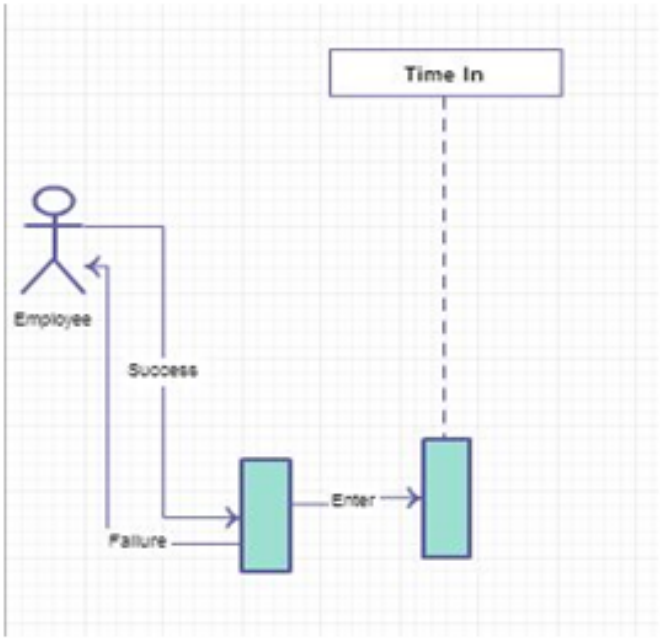

3.1.3 ER Diagram

An entity-relationship diagram is a type of data modelling that show a graphical representation of objects or concepts within an information system or organization and their

relationship to one another. This entity relationship diagram describes an employee belonging to a department holding the admin position logging in to a user account. He can choose to make enrolment of a new employee. An employee registers attendance and his salary calculated based on attendance and Wage per day.

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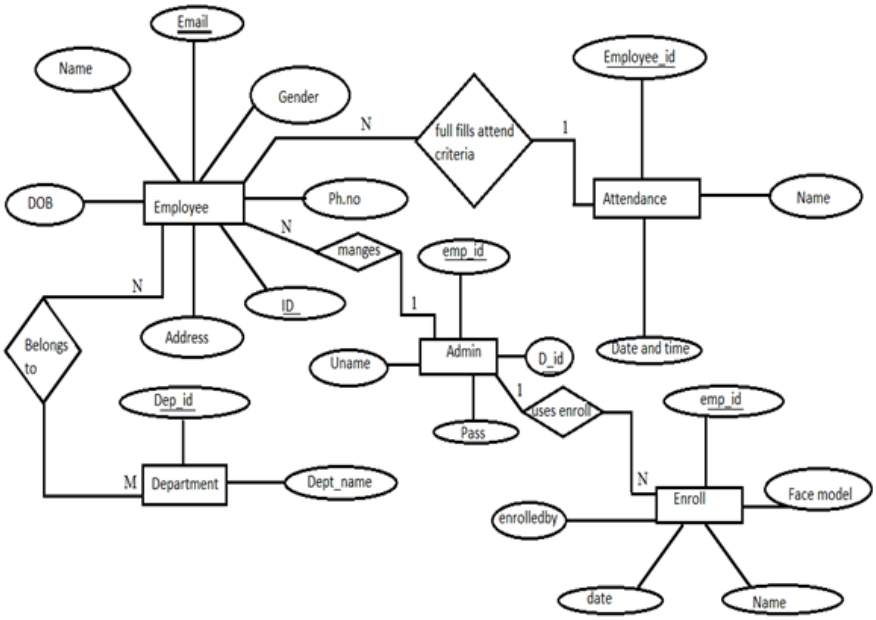

Chapter 4

Project Specific Requirements

4.1 Software Requirement

- Windows 7 or higher
  - Python version 3.x
  - 40 Gb's of disk space
  - SQLite database

4.2 Hardware Requirement

- Camera
  - Computer system
  - Capable 64 bit processor
  - A minimum of 4gb's of RAM

Chapter 5

Implementation

5.1 Description of Languages Used

. • Python: Python is an interpreted, high-level, general-purpose programming language. Its language constructs and object-oriented approach aim to help programmers write clear, logical code for small and large-scale projects.

5.2 5.2 Description and Installation of Tools and Libraries Used

5.2.1 Opencv

This library is a open source machine learning algorithm which is used to computer visualization.

5.2.1.1 Instaltion

pip install opencv

5.2.2 Os

:

it is used define the path.

5.2.2.1 Instalation

pip install Os

5.2.3 Tkinter

Is used to create gui.

5.2.3.1 Instalation

pip install Tkinter

5.2.4 Pickle

:

I It is used to retrieve data from other file

5.2.4.1 Instalation

pip install pickle

5.2.5 Numpy

It acts as a multidimensional array which used to store the numerical values and numerical operation

5.2.5.1 Instalation

pip install numpy

5.3 working

5.3.1 user interfarance

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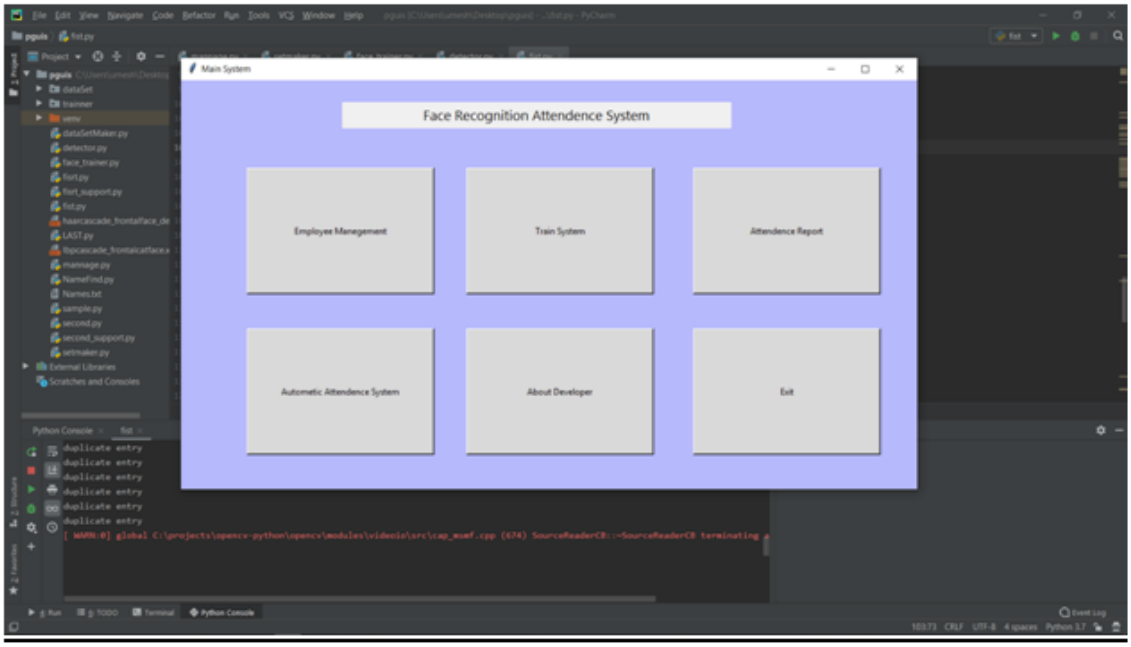
! 

The user interface primarily deals with simplifying the usage experience, we've implemented a minimalistic design which aims to reduce system resource usage allowing for usability on a variety of systems with different hardware requirements.

The administrator can access various functionalities of the system by clicking on the buttons.

These functionalities include Employee management, Train system, Attendance report, Automatic attendance system, about developer and Exit.

5.3.2 Adding Employee Information

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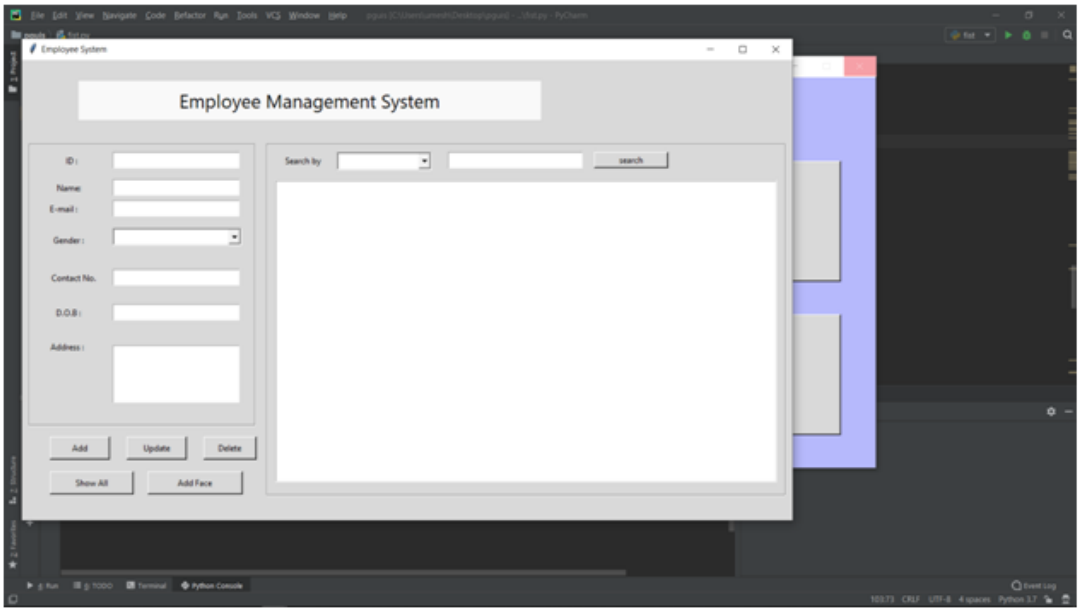
! 

The employee management button opens a new window where the administrator level user can enter new values into the system by pressing the add button.

Deletion also happens at this very window, it is done by providing details of the employee and afterwards proceeding to click delete button. Updating existing models can also be done. By utilizing the show all button we can show the entries as well.

5.3.3 Add Image

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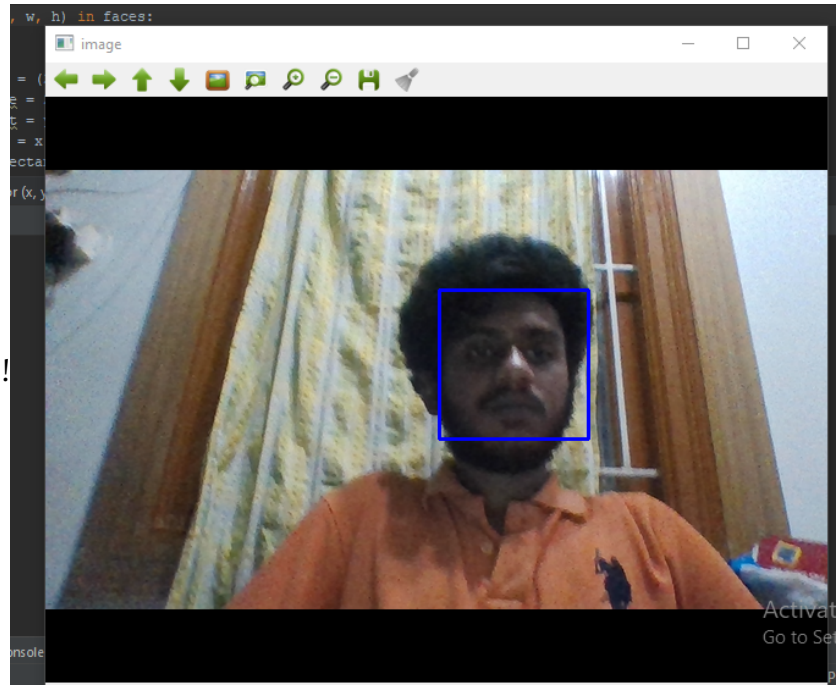

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The add button:This button provides the option to gather face data for further training of the system

5.3.4 Recognize Image

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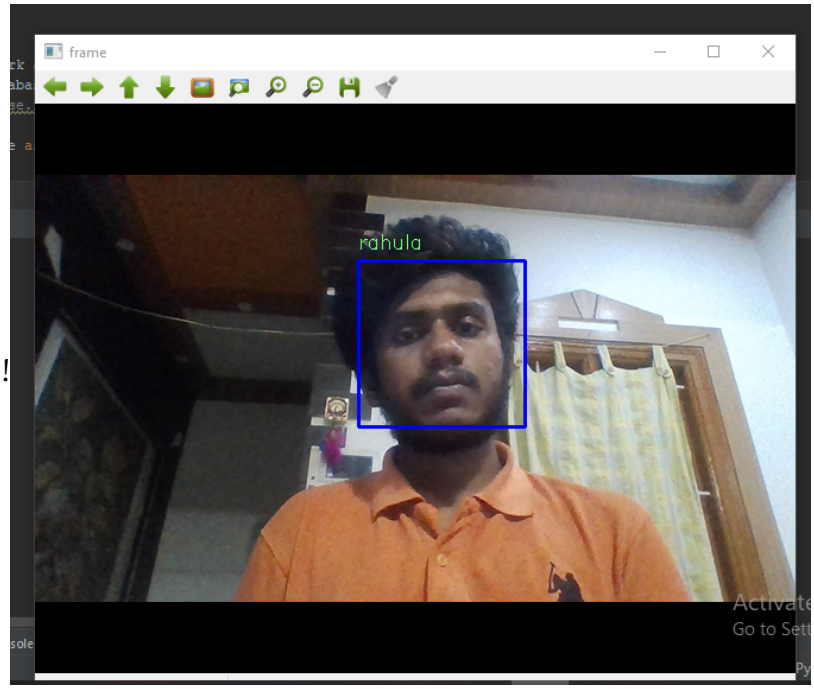

!

This button enables gathering of attendance using face recognition, multiple employees may enter the screen to enter their respective attendances at once.

5.3.5 Update Information

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Updated attendance log:

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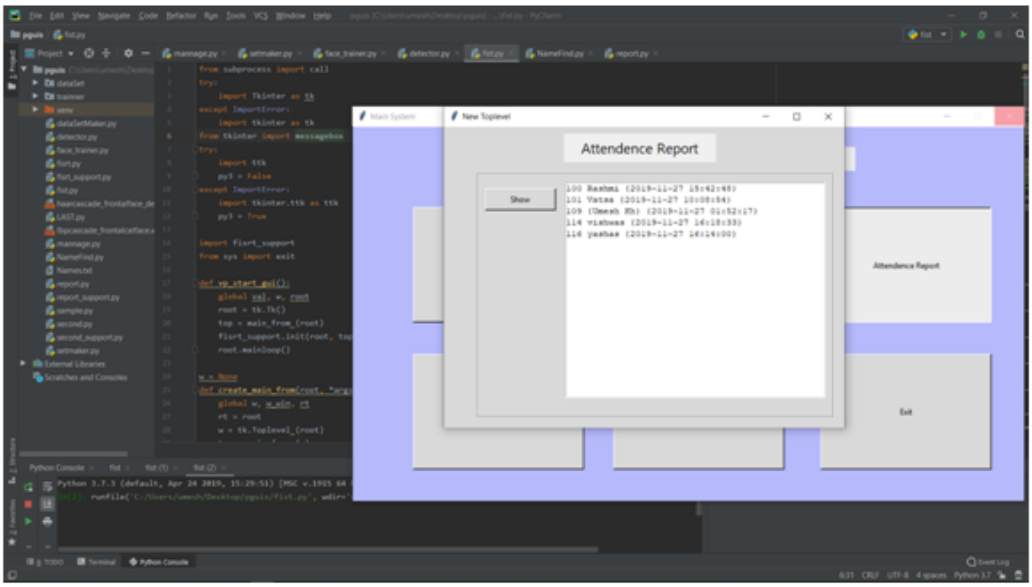

employee's attendance record has been updated with his id, name and also date, time.

5.4 Conclusion

The Face recognition attendance system provides a convenient and efficient means of tracking and monitoring employees, this system of TNA or tracking and attendance is a viable tool for companies to implement swift registry of time of entry and exit, in addition to this the system is capable of providing much more than just an efficient employee tracking system. The system can be scaled to provide many more functionalities, we see this as the next phase in attendance systems in the coming years. This system of ours is better compared to other biometric options as it makes use of pre-existing hardware such as a webcam on a desktop or a laptop, hence it removes the initial investment proving itself as a much more lucrative option for newly established companies or businesses.

Another important feature of our system is that it is based primarily on python this enables us to add functionality at a very fast pace should the need arise, it also allows us to produce programs that work very effectively producing no lags.

Further we intend to use this to perform transactions, for an example, when an employee goes to a food court inside a company they may pay by simply providing a glance of their face.

These are some of the advantages that our system provides. We see great potential for our system as it has not been utilized across all organizations, this has great value upon implementation.

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