

**Employees Face Matching Attendance System with Auto Door Open
BY**

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of
Bachelor of Science in Computer Science and Engineering

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DHAKA, BANGLADESH

JANUARY 2022

APPROVAL

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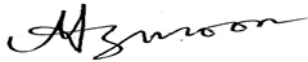
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We hereby declare that, this project has been done by us under the supervision of **Ms.Nazmun Nessa Moon, Associate Professor, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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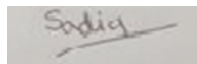
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ACKNOWLEDGEMENT

First, we express our heartiest thanks and gratefulness to almighty God for His divine blessing makes us possible to complete the final year project/internship successfully.

We really grateful and wish our profound our indebtedness to **Supervisor Ms. Nazmun Nessa Moon Associate Professor and Co-Supervisor Dr. Sheak Rashed Haider Noori (SRH), Associate professor & Associate Head – MC**, Department of CSE, Daffodil International University, Dhaka. Deep Knowledge & keen interest of our supervisor in the field of “Machine Learning” to carry out this project. Her endless patience, scholarly guidance, continual encouragement, constant and energetic supervision, constructive criticism, valuable advice, reading many inferior drafts and correcting them at all stage have made it possible to complete this project.

We would like to express our heartiest gratitude to Prof. Dr. Touhid Bhuiyan and Head, Department of CSE, for his kind help to finish our project and also to other faculty member and the staff of CSE department of Daffodil International University.

We would like to thank our entire course mate in Daffodil International University, who took part in this discuss while completing the course work.

Finally, we must acknowledge with due respect the constant support and patients of our parents.

ABSTRACT

This project “Face recognition attendance system and auto door open” is a system for reducing complexities of attending process of any institutions. This project is for an organization so that employers can attend very easy way of attend and auto door open using this system. Now-a-days there are large number of institutions in Bangladesh but they have no biometrics system like face recognition system. But most of the institution provides ID checking security system, a few of organization has fingerprint system. For these reasons, we have developed a system for any organization with many features.

This project is an innovative system which emerging a novelty way by face recognition system and auto door open after detection. To develop this project, we have used Python as a programming language, CSV as database, XML which is a markup language, PyQt as framework, PyCharm as editor, Firefox and google chrome as testing browser. This web sites tested in many ways after implementation and it works successfully.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Modern civilization gives us a smart life but not increases our safety or security. There are huge number of Organizations in Bangladesh but no high security system.

In this web sites there have some mechanism handle the information about employee. In many cases we use ID or password identifying a person. But here by using Biometrics to detect an employee. Biometrics is the use of technologies to identify a person based on fingerprint, iris scanning, retina, gait patterns, palm prints, face recognition and many other forensics. We use here face recognition for verifying a person through his biometric features so that their activity been chased.

This system has four steps of working. When an employee come to the office, he has to Check In first. Face detection and face recognition detect the face by capturing a photo then it crop and store in data file. After detect him as a human object it's encoded the image file. If it recognized as an employee then the file will save to database and the door will unlock that time. It'll be the same as Check Out And his data saved for this day as an attendance which have been register manually with their images as a record.

We use here Haar cascade algorithm to detect the object which identify the objects from an image or video. For the face recognition LBPH algorithm use here. We use personal component analysis (PCA) to make attendance more feasible employees.

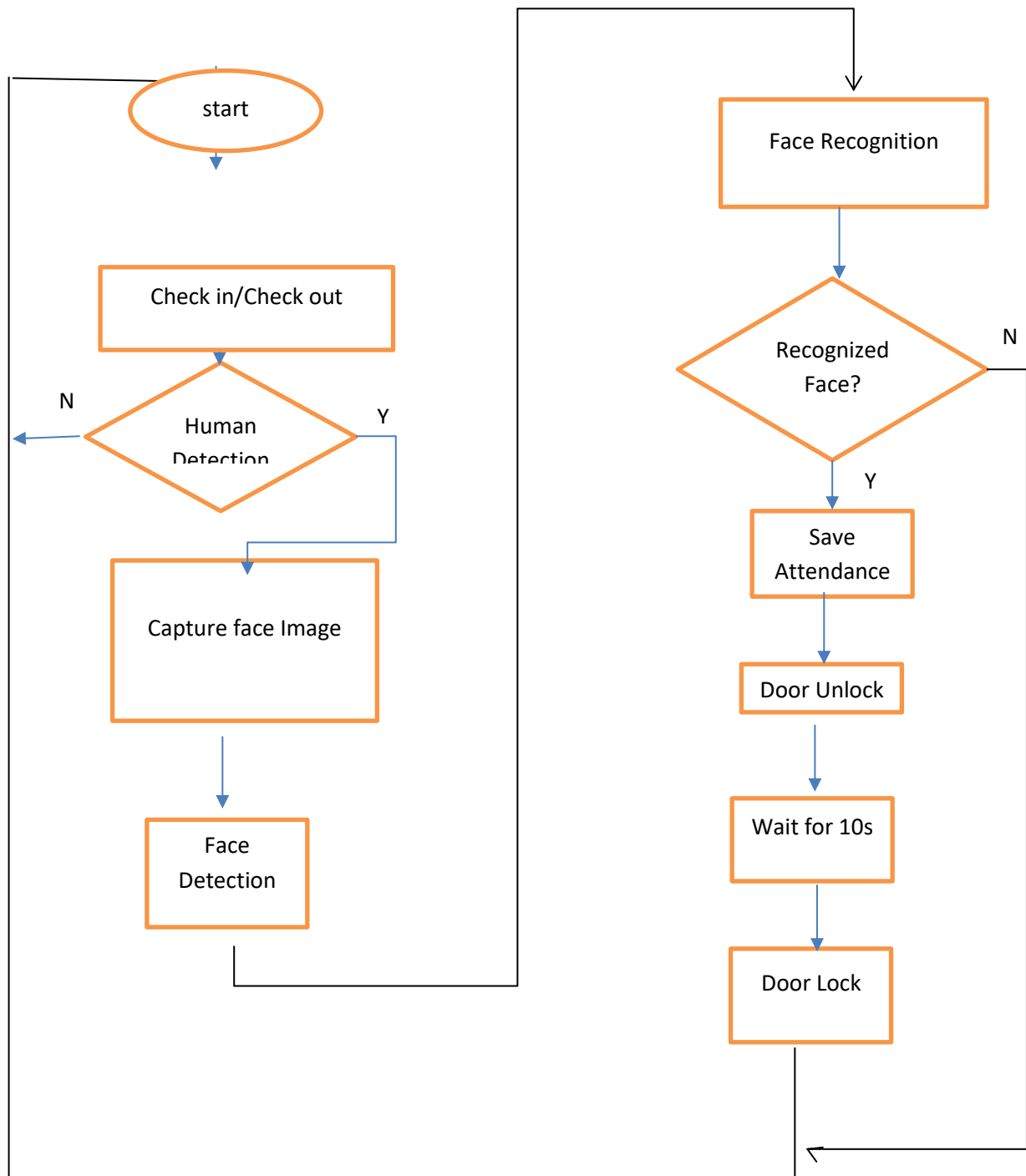


Fig1.1: Steps used for recognize an employee

It also has auto door opening system after face recognition. So that, we can avoid unauthorized access and make security system hard. Figure 1.1 shows the recognize an employee

1.2 Motivation

Most of the organization has security system in biometrics way like fingerprints, voice recognition, Iris, veins and many other ways to ensure the security. But They have no higher security in those system. So, we made a project which will recognize faces of the employers and who try to enroll.

In this platform every employee can get the opportunity to feasible attendance and the company or Institution can observe their daily activities. Though they need to attend by capturing their image and comparing with the stored data.

We live an over populated country. Where most of the time we get stuck into jam. And because of arriving late sometimes we forget or getting late to give attendances manually. And when the object recognized by capturing the door will auto open. It also prevents unauthorized access. This project also reduces time complexities. So, we can say it surely will user-friendly system.

1.3 Objectives

- To check Identify of an Employee using webcam.
- To get their image as data.
- To get daily attendance on any specific date and time.
- To make sure the security.
- To reduce complexities by avoiding unauthorized access.
- To make more feasible for employees and owner.

1.4 Expected Outcome

1. It makes sure the arrival and departure time of any employee.
2. Employers get monitoring their monthly activities.
3. By using this system employers get an easy attendance way by auto face recognize.

4. Employer will not need to go physically to present signing or any other manual way. It takes automatically attendance when he/she comes in front of camera to Check In.
5. Auto door open after recognition.
6. Their daily activities will save into datastore.
7. It surely prevents from time complexities.
8. Prevent from unauthorized access.

1.5 Report Layout

Chapter 1: Introduction

We included here introduction, motivation, objectives and Expected Outcome. The other part explained below.

Chapter 2: Background

This chapter is all about related works, the scope of the problems and challenges of this project.

Chapter 3: Requirement Specification

The life cycle modeling, use case model, data flow diagram and the requirements and collection what needed to fulfill this project.

Chapter 4: Design Specification

Here have front-end design code, back-end design and code and all internal codes which make this project complete.

Chapter 5: Implementation and Testing

When this project meets its desired goal we test it for finding bugs and make sure it's run perfectly or not.

Chapter 6: Conclusion and Future Scope

In this chapter, we discussed the conclusion and future implementation plan for this project.

CHAPTER 2

BACKGROUND

2.1 Introduction

Sometimes, For many reason we have to go in office. But we found nowhere this kind of face recognition system. There might have many other systems like fingerprints. Yes, It's secure but every time it doesn't work properly for many reason. In that case they might fall into trouble. From this kind of thoughts, we decided to make this website so that when an employee check in at office and try to enter the web cam will capture their images and compare it with stored data. If it going to be matched their attendance will done for this day and door will unlock for that employer. So, we search in google about related projects what done by previously because we need to study and research. This chapter actually based on background tasks and it's very important for completing a project properly. We didn't find the same work but get similar projects and papers. Then we search for the limitation of their projects or work and improve or develop the project. Though there have a few numbers of papers so the many things we add and implement here. As a result, we get a great opportunity to do a lot of work on this project.

2.2 Related Work

Here some companies use Biometric way to ensure the security system of their country:

- Alibaba[2]. Authentication method: Facial Recognition.
- Biyo. Authentication method: Veins.
- Nymi. Authentication method: Heartbeat.
- NXT.ID. Authentication method: Fingerprints.

These International Companies use biometric authentication that could be extended the security and makes life ease. But there some problems in fingerprints. This way being affected by cuts or dirt on the palm.

Biometric authentication uses face to quickly confirm a person's identity.[2] It looks for face and is therefore not affected by cuts or dirt on the palm. So, We provides this platform to remove unexpected errors.

Features: These websites are basically activity monitoring platforms to record employer activities. Basically, The owner could surveillance on any employee.

- Check In.
- Check Out.
- Photo gallery.
- Status bar.
- Provides foolproof monitoring system using face recognition.
- Some has limited features.
- Can store the employer daily data.
- Auto door opening system.

Problems:

- Huge storage requirements.
- Vulnerable detection.
- Potential privacy issues.
- Unknown or new person who don't register for any issue cannot get access opening door.

Features:

- Check In.
- Check Out.
- Fingerprint.
- Status bar.

Problems:

- They have no monitoring system.
- They have no face recognition system.
- They have no Auto door opening feature.
- Employers get their monthly activity results.
- They have risk to security issues.

2.3 Relative Studies

we searched about company's security system using biometrics way. we found many ways but we think, my project idea is more innovative from others which also user-friendly from any company.

- Facial recognition allows supervisors to ensure employees are when they checked in and when they checked out [3]. It is monitored for storing their data in database and giving them as monthly result.
- Our webcam capture detected images using face recognition system which is easier than generating fake fingerprints. Although face recognition is absolutely better than no protection at all.
- Here we add auto door opening system recognized an object but the other project has no automation system like that.
- Security is an important issue. We have used OpenCV as Haar cascade, LBPH to make database more secure and more feasible. But the other project they use fingerprints or other biometrics algorithm which is less secure and feasible than it.
- A customer can check his daily activity. And also, can improve their performances.

2.4 Scope of the problem

Though the whole project based on image processing for facial recognition and auto door open. In this section. We mainly use OpenCV and python to implement face recognition system. Basically, OpenCV is a video and image processing library. We use it here for face detection. We have selected CSV as database. And also used Python as a programming language for development this project. We found python as a programming language easy to use. It also user friendly, And we think, many companies will reduce their complexities by using it.

2.5 Challenges

There are some challenges given below:

- As we have done many works with Python but OpenCV was totally new for me. For implementation we need to learn.
- We haven't done any project applying automation. But set up auto door open system in this project We have learn about automation.
- We get to know many programming libraries.
- Make easy attendance system by using face recognition.
- Auto door open recognize face.
- Ensuring data security.
- Blocking unauthorized users from entering.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Life-cycle Modelling for Business

The life-cycle model is one kind of business process model. It is a cycle in an endless way. This model is easy to use for modeling, implementation, execution, monitoring, and optimization in any project. We use this model for business purpose. It will help to user to understand the whole process in a simple diagram.

In this system, Door will automatically open when he/she get recognize by the camera. This is the most time saving and easy way for user.

Figure 3.1 shows the life-cycle model.

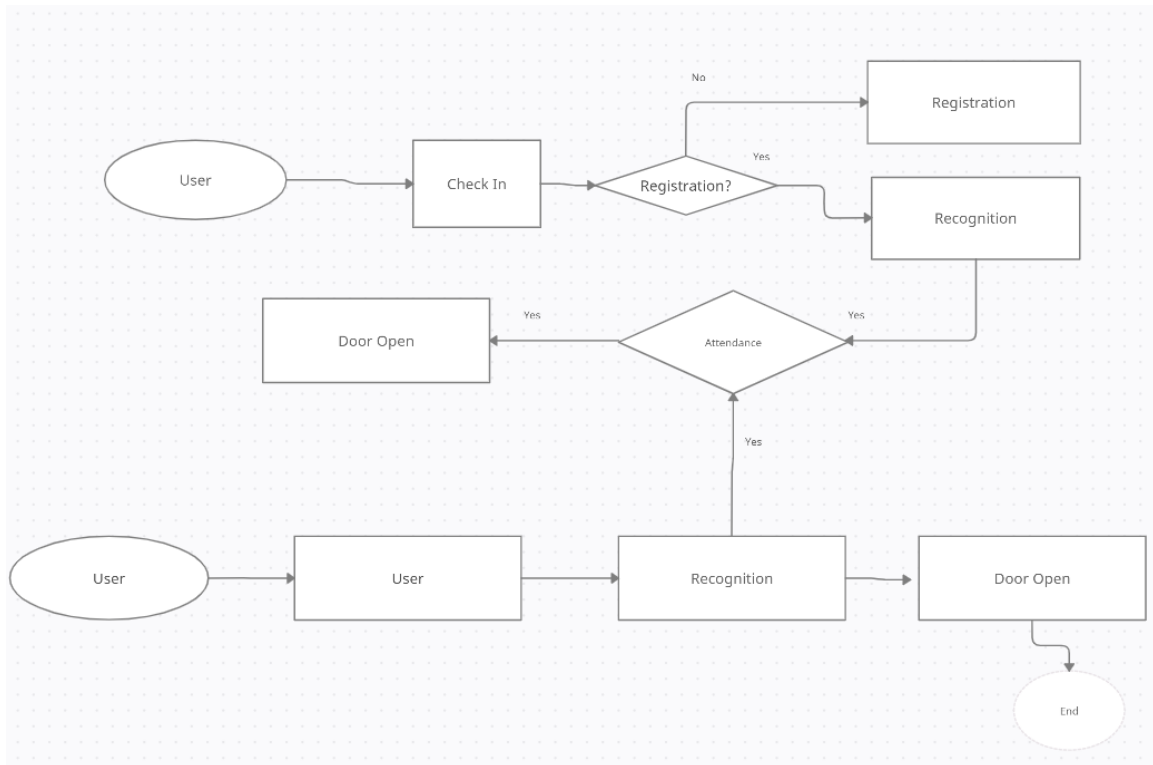


Figure 3.1: Life-cycle Model for face recognition system and auto door opening

3.2 Requirement Collection & Analysis

Requirements actually need to help the organizations to determine the actual needs. So, we collect requirement data and analysis for developing the project. At the same time, we use more understandable language like chats, models, flow charts instead of pages of text. We do here many kinds of diagram so that, we can implement this project easily. Because, we know diagram make so much easy to understand and make any project. when we searched this kind of work, we couldn't find the same work but related work. So, we needed to do more and more study to get an accurate result. We searched the face recognition system by capturing the face images for attendance and auto door opening system, but there's only we found biometrics way where they use fingerprints, veins, voice or face or many other ways. But in our project here have face recognition system with auto door open detecting objects. For Check In user needs register by their name and images. After detecting the user face it compare with the saved file from database. For doing a successful project, we collect the user images and their names as requirements data. After collecting the dataset we analyzes the data and then specify the method for the project.

3.3 Use Case Modeling and Description

A use case is a methodology used in system analysis to identify, clarify and organize system requirements [4].

Here is the face recognition attendance and auto door opening system diagram shown below in Figure 3.2:

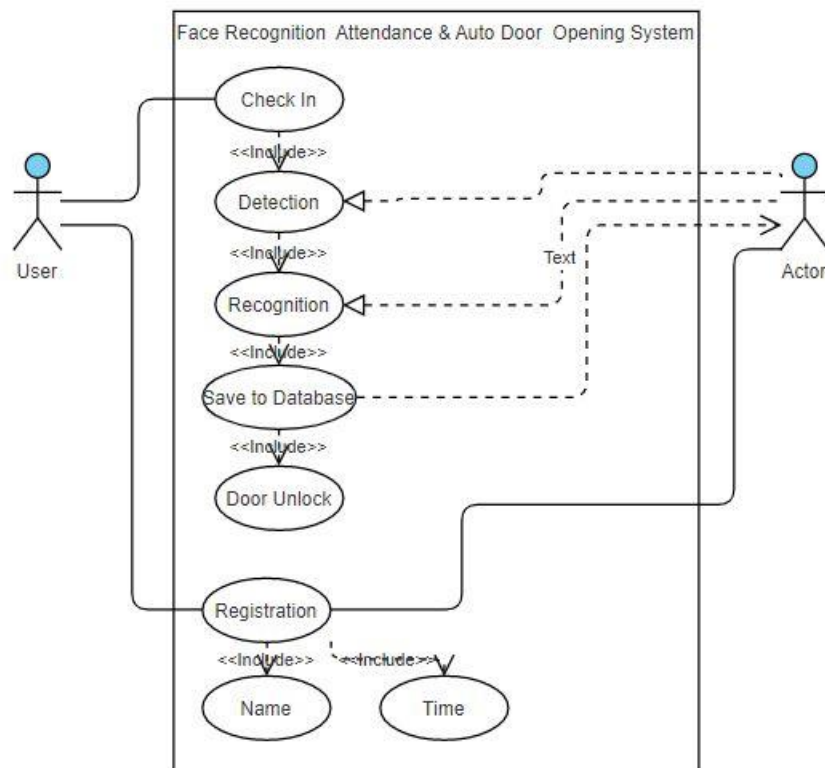


Figure 3.2: Use Case Face recognition and auto door open system

User can easily check in and check out by this system. They can Check In by surveillance camera detection. If they previously registered by their name and images, they will be recognized by the camera their data will save in database and they'll take the record as date and time. After recognition the door will open automatically to enter. But if they are no registered, they are not able to recognition, because their data have not pre recorded by their name and images in database. So, they need to be registered first. Then the surveillance camera can compare their capturing images by the data what stored in CSV file.

The use case named face recognition and auto door open has a reason that this door opens by itself detecting the desire object. Its very innovative process we personally admit.

3.4 Data Flow Model

This diagram shows the flow of this system. By this figure we effortlessly get if the user registered or not. If he registered himself, he will be recognized or the system get him out and take him the previous places. But if he gets recognized the door will open and furthermore his attendance will be updated.

The figure 3.3 shows us the same process by data flow diagram.

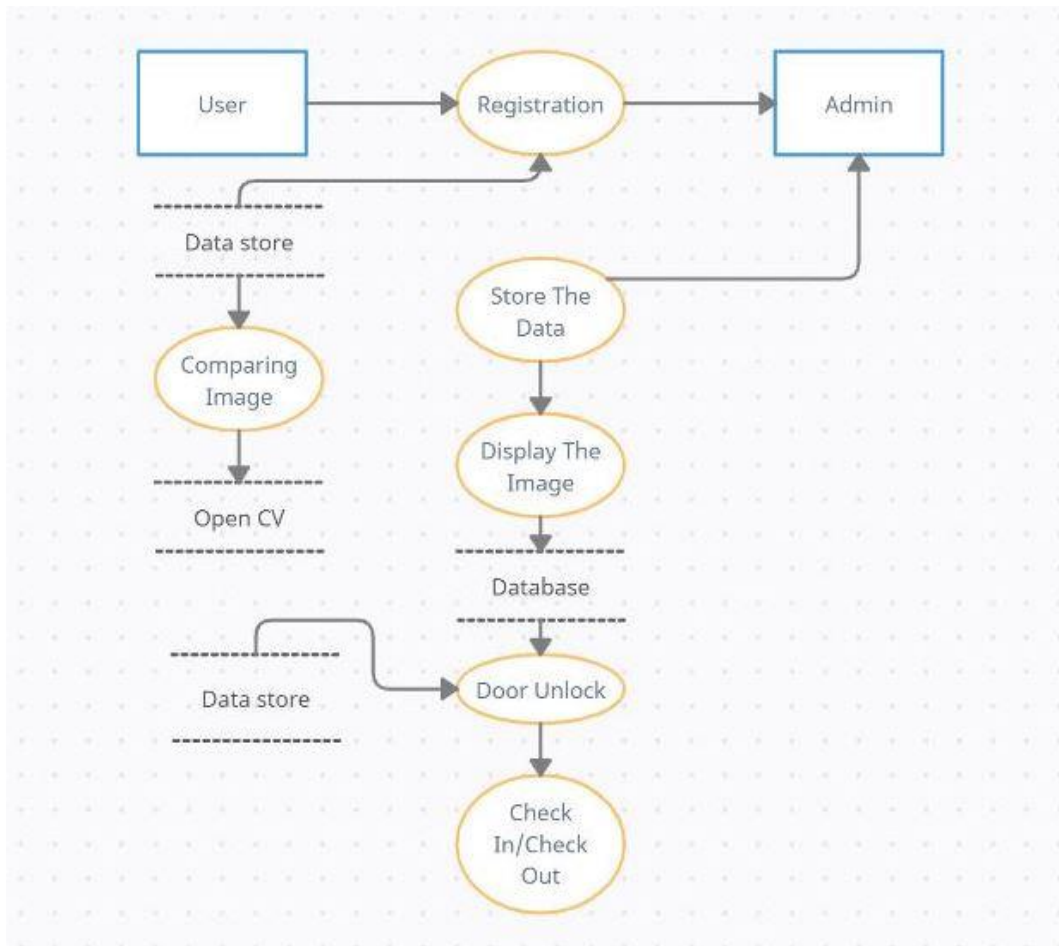


Figure 3.3: DFD (Data Flow Diagram)

3.5 Motives

- In this system has many users, surveillance camera and auto door opening system as admin users.
- User have Check In and Check Out option but before he needs to be registered.
- Admin users need not to register because it is pre-embedded system.
- After Check In or Check Out user can enrolled there attendance by auto opening the door.
- There attendance data save in database. And also show current date and time and also their name.
- Users capturing image compares with prestored database.
- After registration, If an user wants to check their data they can check, and change.
- This system helps to prevent the company from forgery or any instruction.
- An authentic admin is able to edit or delete data from the database.
- This system doesn't allow any data from absentees.
- All user data shown on status bar with their name, the current date and time.
- If users have FAQ, It also considerable.

Nowadays the big lacking we face the problem is the security issue. So, we just wanted to reduce this problem of any organization. And wanted to make it user-friendly. It also knocks off our time.

This is the starting page of this project. It is design with XML code. But here we didn't provides the full code for keeping this report more apprehensible. Figure 4.2 shows the starting logo.

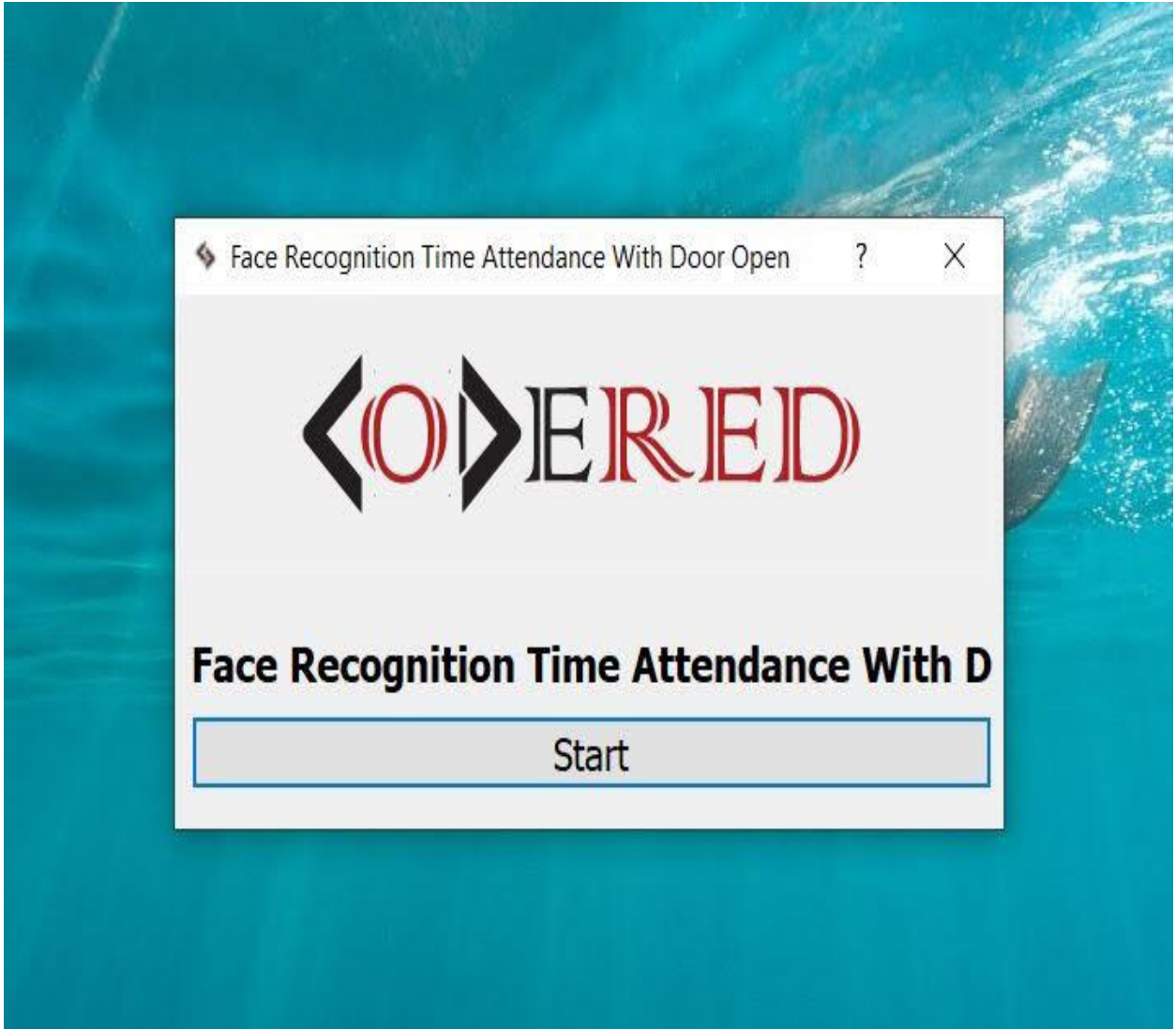


Fig 4.2: Start page

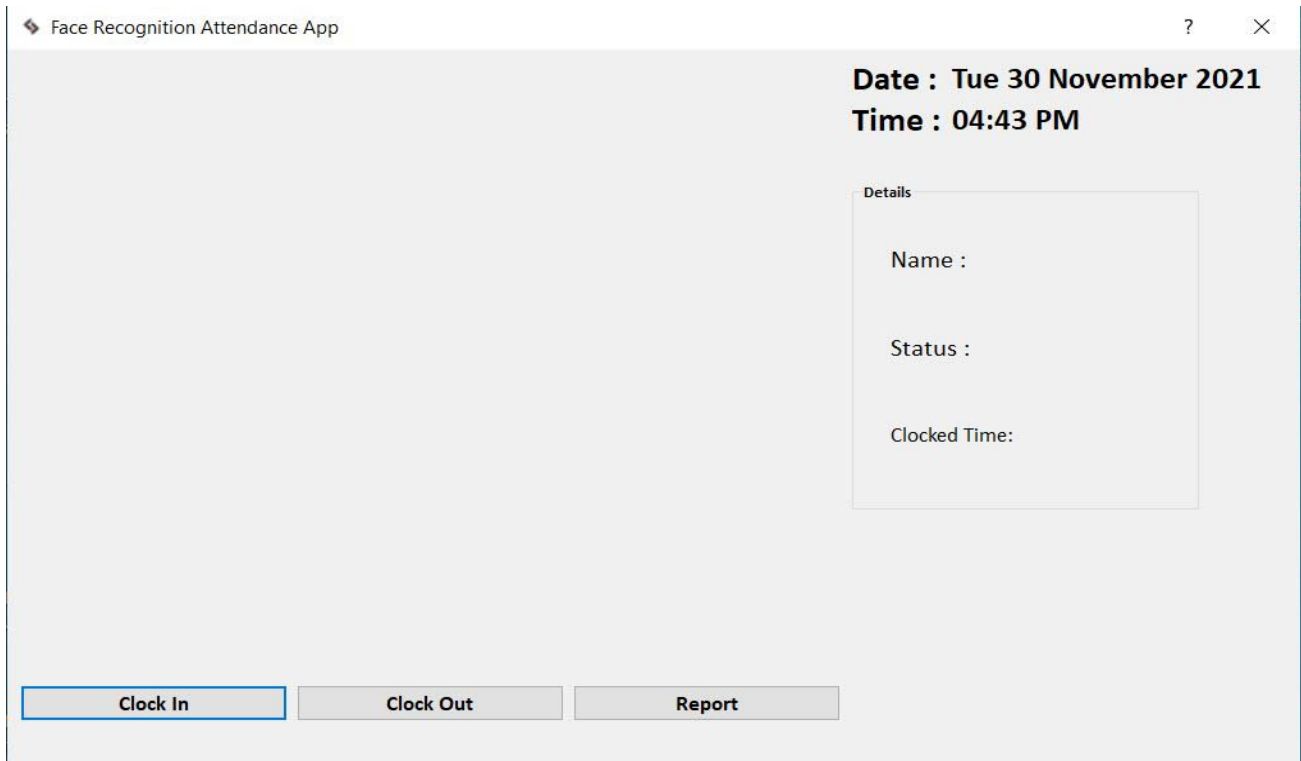


Fig 4.4: Face Recognition Attendance App

This is face recognition attendance app. After tapping on Check In option this app shows the capturing image on display. After recognition the status bar will fill up with user name, attendance time and date. The figure 4.4 shows us the main home page.

4.2 Back-End Design

We code barchart, check in and check out related all codes here. All data stores in database for showing the final result of all employers. And barchart do this work which work as report generator. Every data of employers Is he/she check in or check out stores in datastore. And the previous recorded data like user name and images which stored in CSV file will matches with the recent data then takes them the final destination. After matching and generating reports it also do another work of door opening.

As we know Servo Motor is a closed-loop system that use to control motion and final position. It is mainly used on angular or linear position and for specific velocity and acceleration. So, we use servo motor for auto door opening system. The figure 4.5 shows us the servo motor code.

```
from sklearn.preprocessing import LabelEncoder
#import mediapipe as mp
#import pyfirmata
from pyfirmata import Arduino, SERVO

port='COM8'
pin=10
board= Arduino(port)
board.digital[pin].mode=SERVO
def rotateServo(pin,angle):
    board.digital[pin].write(angle)

def led(total):
    if total == 0:
        rotateServo(pin, 0)
    elif total == 1:
        rotateServo(pin,90)
        time.sleep(5)
    elif total == 2:
        rotateServo(pin,90)
        time.sleep(5)
```

Fig 4.5: Auto door open using Servo Motor

In Fig 4.6 is Barchart about user report that shows average monthly report of user.

```

#Report Using Barchart
x = []
y = []
print("start")
df = pd.read_csv("Attendance1.csv")

le = LabelEncoder()
df["label"] = le.fit_transform(df["Name"])
print("st")
df['Yer'] = df['Date'].apply(lambda x: x.split("/")[0])
df['Mnt'] = df['Date'].apply(lambda x: x.split("/")[1])
df['Day'] = df['Date'].apply(lambda x: x.split("/")[2].split(" ", 1)[0])
Fdf = pd.DataFrame({'Name': [], 'Time': [], 'Attend': []})
dffn = pd.DataFrame({'Name': [], 'Time': [], 'Day': []})

M = '11'
j = 0
Fdf = pd.DataFrame({'Name': [], 'Time': [], 'Attend': []})
while j <= df.label.max():
    dff = df[df.Mnt == M][df.label == j]
    j += 1
    i = 1
    dffn = pd.DataFrame({'Name': [], 'Time': [], 'Day': []})
    while i <= 31:
        fdf = dff[dff.Day == str(i)]
        if fdf.Time.sum() != 0:
            ndf = pd.DataFrame({'Name': fdf.Name.values[0], 'Time': [fdf.Time.sum()],
                               'Day': [fdf.Day.values[0]]})
            dffn = dffn.append(ndf, ignore_index=True)

        i += 1

    Ndf = pd.DataFrame({'Name': dffn.Name.values[0], 'Time': [dffn.Time.mean()],
                       'Attend': [dffn.Name.count()]})
    Fdf = Fdf.append(Ndf, ignore_index=True)

x = Fdf.Name
y = Fdf.Time
z = Fdf.Attend
# for row in plots:
# x.append(row[0])
# y.append(row[1])
X = np.arange(len(x))

plt.bar(X - 0.2, y, 0.4, label='Time')
plt.bar(X + 0.2, z, 0.4, label='Attend')

plt.xticks(X, x)
plt.xlabel('Employee Name')
plt.ylabel('Average Time')
plt.title('Activity of Different Employee')
plt.legend()

```

Fig 4.6: Report using Barchart

Fig 4.7 is code about Check In. When user recognized his face by surveillance camera.

```
~~~~~  
#Check In  
~~~~~  
if self.ClockInButton.isChecked():  
    self.ClockInButton.setEnabled(False)  
    with open('Attendance.csv', 'a') as f:  
        if (name != 'unknown'):  
            buttonReply = QMessageBox.question(self, 'Welcome ' + name, 'Are you Clocking In?',  
                                              QMessageBox.Yes | QMessageBox.No, QMessageBox.No)  
            if buttonReply == QMessageBox.Yes:  
  
                date_time_string = datetime.datetime.now().strftime("%y/%m/%d %H:%M:%S")  
                f.writelines(f'\n{name},{date_time_string},Clock In')  
  
                self.ClockInButton.setChecked(False)  
  
                self.NameLabel.setText(name)  
                self.StatusLabel.setText('Clocked In')  
                self.HoursLabel.setText(' Measuring')  
                self.MinLabel.setText('')  
  
                #self.CalculateElapse(name)  
                #print('Yes clicked and detected')  
                self.Time1 = datetime.datetime.now()  
                #print(self.Time1)  
                self.ClockInButton.setEnabled(True)  
                print("match")  
                led(2)  
            else:  
                print('Not clicked.')  
                self.ClockInButton.setEnabled(True)
```

Fig 4.7: Check In code

Fig 4.8 about Check Out code when user leave the organization he needs to checked out as the same process as Check In.

```

#Check Out
elif self.ClockOutButton.isChecked():
    self.ClockOutButton.setEnabled(False)
    with open('Attendance.csv', 'a') as f:
        if (name != 'unknown'):
            buttonReply = QMessageBox.question(self, 'Cheers ' + name, 'Are you Clocking Out?',
                                                QMessageBox.Yes | QMessageBox.No, QMessageBox.No)
            if buttonReply == QMessageBox.Yes:

                date_time_string = datetime.datetime.now().strftime("%y/%m/%d %H:%M:%S")
                f.writelines(f'\n{name},{date_time_string},Clock Out')
                self.ClockOutButton.setChecked(False)

                self.NameLabel.setText(name)
                self.StatusLabel.setText('Clocking Out')
                self.Time2 = datetime.datetime.now()
                #print(self.Time2)

                self.ElapseList(name)
                self.TimeList2.append(datetime.datetime.now())
                CheckInTime = self.TimeList1[-1]
                CheckOutTime = self.TimeList2[-1]
                self.ElapseHours = (CheckOutTime - CheckInTime)
                self.MinLabel.setText(":{:0f}".format(abs(self.ElapseHours.total_seconds() / 60)%60) + 'm')
                self.HoursLabel.setText(":{:0f}".format(abs(self.ElapseHours.total_seconds() / 60**2)) + 'h')

                with open('Attendance1.csv', 'a', newline='') as file:
                    writer = csv.writer(file)
                    self.ElapseList(name)
                    self.TimeList2.append(datetime.datetime.now())
                    CheckInTime = self.TimeList1[-1]
                    CheckOutTime = self.TimeList2[-1]
                    self.ElapseHours = (CheckOutTime - CheckInTime)
                    h, m, s = str(self.ElapseHours).split(':')
                    result = ((float(h) * 60) + float(m)) / 60
                    print(":{:2f}".format(result))
                    date_time_string = datetime.datetime.now().strftime("%y/%m/%d %H:%M:%S")
                    file.writelines(f'\n{name},{date_time_string},{"::2f".format(result)}')
                print("result")
                print("match")
                led(1)
            else:
                print('Not clicked.')
                self.ClockOutButton.setEnabled(True)

```

Fig 4.8: Check Out Code

4.3 Internal Design and UX

This code about the internal design. This is the design what organize the process communication. What will happen one after another we set up in this code. The figure 4.9 show the internal design code.

```
from PyQt5.QtWidgets import QApplication, QDialog
import resource
# from model import Model
from out_window import Ui_OutputDialog
class Ui_Dialog(QDialog):
    def __init__(self):
        super(Ui_Dialog, self).__init__()
        loadUi("mainwindow.ui", self)
        self.runButton.clicked.connect(self.runSlot)
        self._new_window = None
        self.Videocapture_ = None

    def refreshAll(self):
        """
        Set the text of QLineEdit once it's valid
        """
        self.Videocapture_ = "1"

    @pyqtSlot()
    def runSlot(self):
        """
        Called when the user presses the Run button
        """
        print("Clicked Run")
        self.refreshAll()
        print(self.Videocapture_)
        ui.hide() # hide the main window
        self.outputWindow_() # Create and open new output window

    def outputWindow_(self):
        """
        Created new window for vidual output of the video in GUI
        """
        self._new_window = Ui_OutputDialog()
        self._new_window.show()
        self._new_window.startVideo(self.Videocapture_)
        print("Video Played")

if __name__ == "__main__":
    app = QApplication(sys.argv)
    ui = Ui_Dialog()
    ui.show()
    sys.exit(app.exec_())
```

Fig 4.9: Interaction Design Code

User Home Page Design:

- A display where show an image capturing the surveillance camera.
- Date: Date bar to show the current attendance date of user.
- Time: User arrival time.
- Details bar: Details bar where have user information.
- Name: Show user name.
- Status: Status bar where confirmed user Checked IN or Checked Out.
- Clocked Time: Clocked time about how much time user spend in office.
- Check In: If user check in he will be surveillant by the camera.
- Check Out: If user want to Check out, he will surveillant by camera.
- Report: It shows an user monthly activities result.

UX

We know UX is User Experience. Our main motto to care about user. User satisfaction is a great review for a developer. Our main focused to make this project user-friendly. To make sure we tried this system and share it with my friends and get great feedback from them. But hopefully it will very helpful for any organization

4.4 Implementation Requirements

There are many programming languages. But In our projects we found Python is more suitable from others. So, it save our time and prevent us from many diificulties and complexities like C++, C#, Java and more otherb programming languages. We use here PyQT as python framework. We also use panda, OpenCV, face recognition and many other libraries needed for our project implementation.

- We use PyQT as a framework. This was very helpful because this includes a full packages what needed for implement this projects. We use Python 3.8.0 version as editor.
- We used here almost all necessary library. we use panda, OpenCV, face recognition library, numpy, date and time, CVS, matplotlib.pyplot, sklearn, pypharmata as python library. we stored data in CVS.
- We use PyCharm as an Emulator. It is one kind of operating system and run an application on a different browser.

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Database

Basically, A database is an organized collection of structured information or data. In our project have check in and check out options. And every time of check in and check out the current data will match the previous stored data. And for these, we need a lot of data as dataset. We takes image data. We use CSV file to store all user data. Though it's not all about web site so we need not to worry to connect our project. CSV database manages all these. And we import all images here.

```
Name,DateTime,Status
FAHIM,21/11/07 12:07:54,Clock In
RAJANI,21/11/07 12:08:53,Clock Out
MUNNI,21/11/07 12:09:01,Clock In
MAHIM,21/11/07 12:09:40,Clock In
TONMOY,21/11/07 12:09:58,Clock Out
FAHIM,21/11/07 12:10:18,Clock In
MAHIM,21/11/07 12:16:09,Clock In
FAHIM,21/11/21 21:12:25,Clock In
FAHIM,21/11/21 22:58:14,Clock In
SOHAN,21/11/22 13:39:30,Clock Out
SOHAN,21/11/22 13:39:58,Clock In
SOHAN,21/11/22 13:40:28,Clock In
FAHIM,21/11/22 13:41:41,Clock In
SOHAN,21/11/22 13:47:30,Clock In
SOHAN,21/11/22 13:47:44,Clock Out
SOHAN,21/11/22 14:06:30,Clock In
SOHAN,21/11/22 14:06:40,Clock Out
SOHAN,21/11/22 14:09:54,Clock In
SOHAN,21/11/22 14:44:14,Clock In
SOHAN,21/11/22 14:44:27,Clock Out
BOB,21/11/22 14:50:32,Clock In
BOB,21/11/22 14:51:09,Clock Out
SOHAN,21/11/22 14:56:59,Clock Out
SOHAN,21/11/22 15:04:24,Clock In
SOHAN,21/11/22 15:04:34,Clock Out
RITZ,21/11/22 15:05:54,Clock In
RITZ,21/11/22 15:07:37,Clock In
```

Fig 5.1: CSV Data File

```
OBAMA,21/11/21,05.7
FAHIM,21/11/21,08.0
RITZ,21/11/21,08.4
BOB,21/11/21,06.2
FAHIM,21/11/21,08.8
SOHAN,21/11/21,08.9
SOHAN,21/11/21,07.9
FAHIM,21/11/21,08.3
FAHIM,21/11/21,07.7
FAHIM,21/11/21 22:24:38,10.3
FAHIM,21/11/21 22:53:10,08.2
FAHIM,21/11/21 22:54:17,09.7
FAHIM,21/11/21 22:56:17,07.5
FAHIM,21/11/21 22:58:04,08.4
FAHIM,21/11/21 23:01:09,10.2
FAHIM,21/11/21 23:03:06,08.0
FAHIM,21/11/21 23:04:38,06.9
FAHIM,21/11/21 23:10:05,23.1
FAHIM,21/11/21 23:24:22,21.5
FAHIM,21/11/21 23:25:53,16.8
FAHIM,21/11/21 23:28:31,25.4
SOHAN,21/11/22 13:52:22,150
SOHAN,21/11/22 14:35:18,0.111755267
SOHAN,21/11/22 14:51:09,0.7
SOHAN,21/11/22 14:56:59,0.06
SOHAN,21/11/22 15:04:34,0.5
SOHAN,21/11/22 15:08:50,0.016666667
FAHIM,21/11/22 15:25:39,0.066666667
FAHIM,21/11/22 21:17:54,0.016666667
FAHIM,21/11/22 21:23:31,0.02
FAHIM,21/11/22 21:31:23,0.6
FAHIM,21/11/22 21:53:51,0.8
FAHIM,21/11/22 22:02:13,0.6
FAHIM,21/11/22 22:13:57,0.9
```

Fig 5.2: CSV Data File

This Figure 5.1 and Figure 5.2 are CSV databases. Where all images stored in all user. Every check In and check out time user going to be surveillant by the camera after comparing with prestored data. It is help to make user report monthly average report.

5.2 Testing

After adding all requirements and finishing our projects successfully we run this project for testing purposes. Here's given some examples:

In Fig 5.3 showing detected user on windows display.

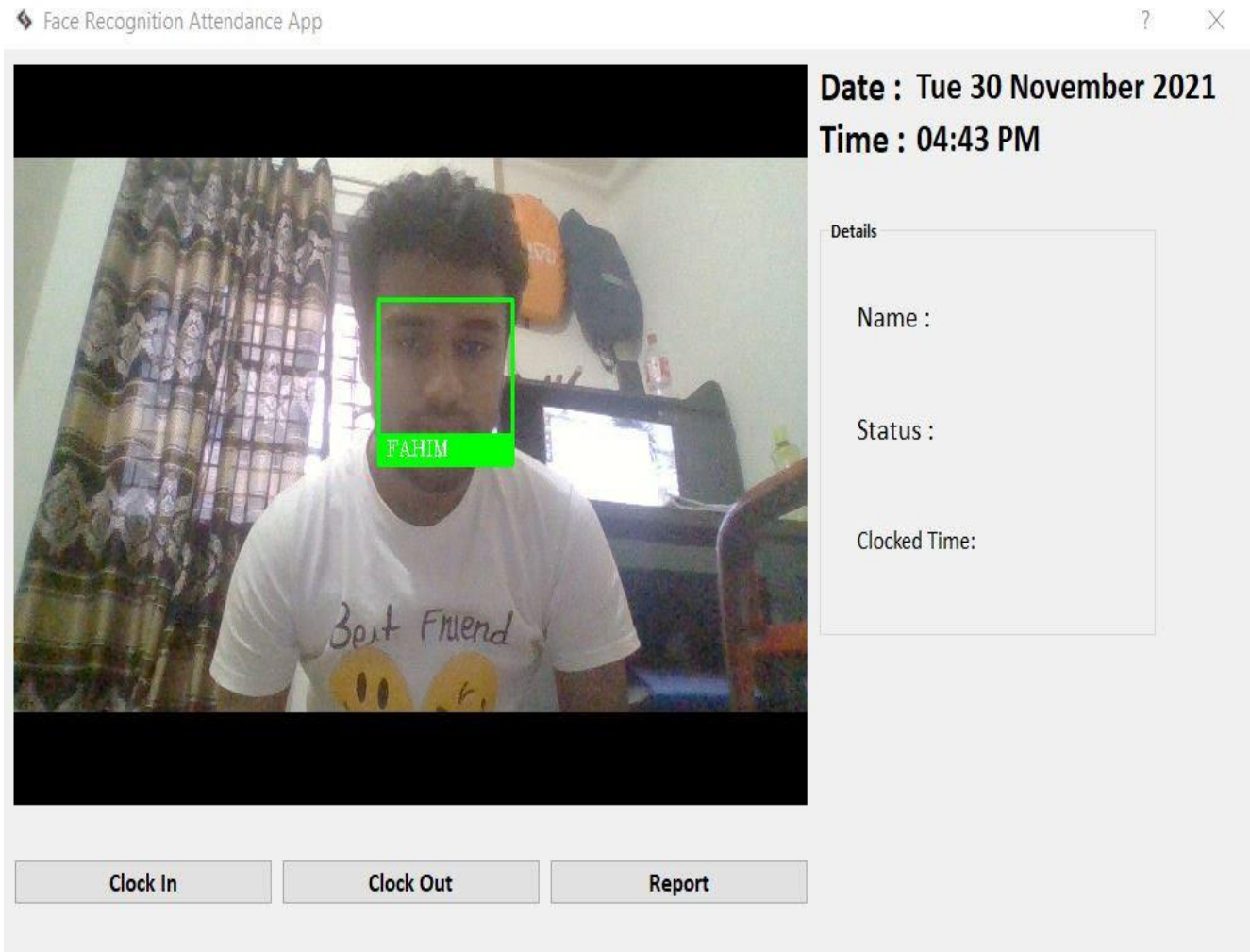


Fig 5.3: Recognize User

When user checked In is shown In Fig 5.4.

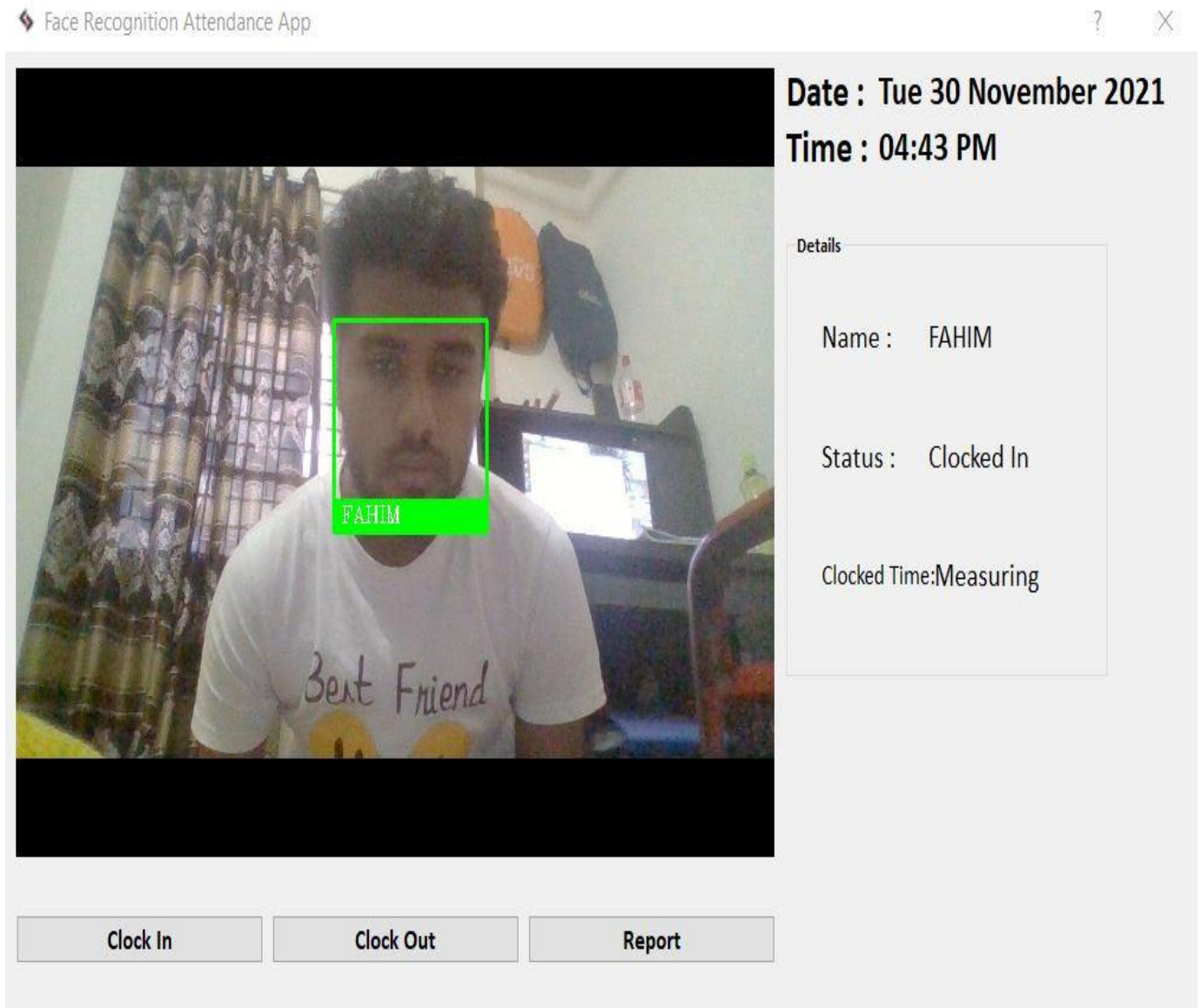


Fig 5.4: User Checked In

5.3 Testing Result and Reports

After completing all implementation, we need to test the project. So, we add some data and check the results. Which shows in 5.5.

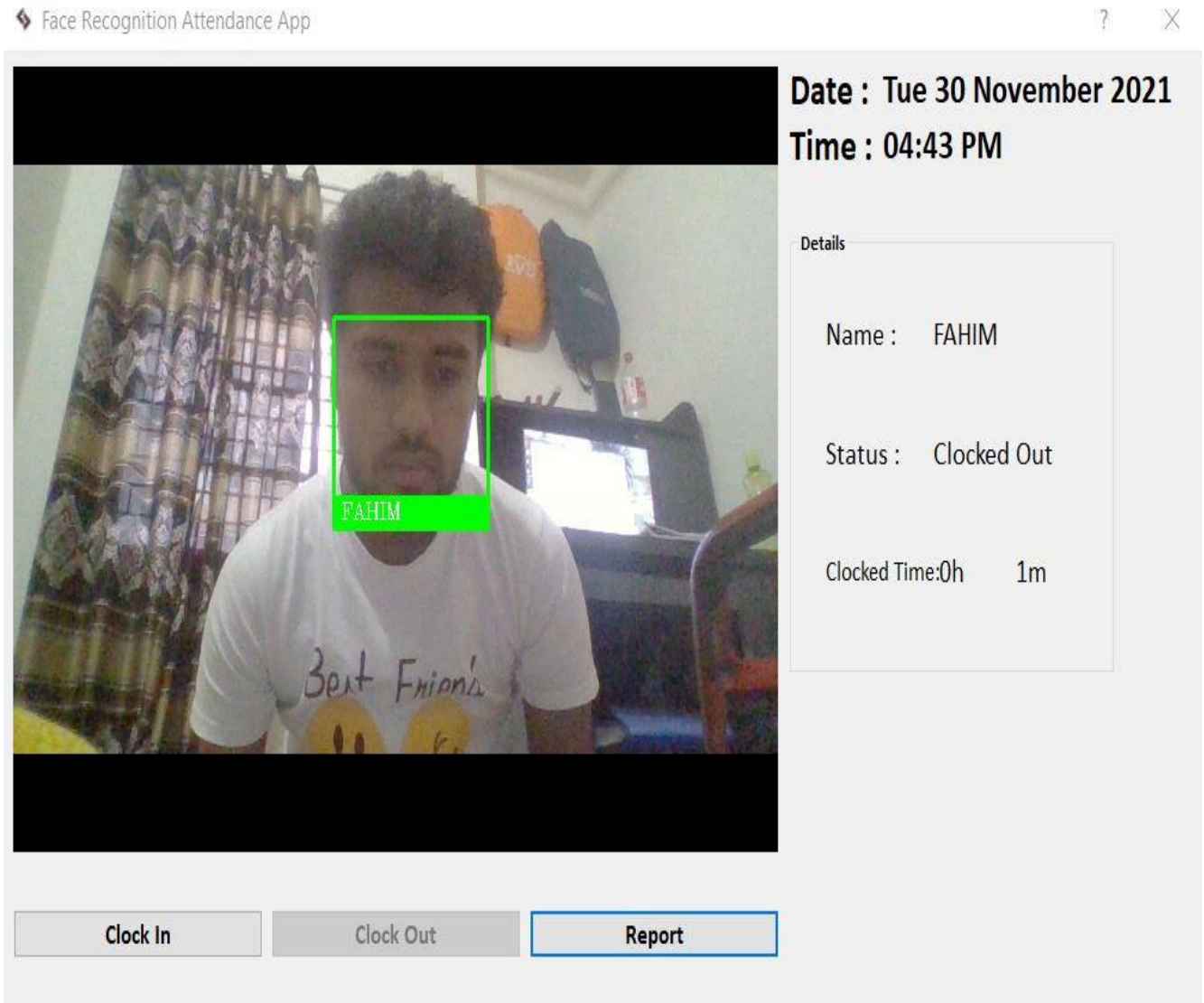


Fig 5.5: User Report

After analysis few days analysis we get this kind of result and report shown in Fig 5.6:



Fig 5.6: Activity of Different Employee

CHAPTER 6

CONCLUSION AND FUTURE SCOPE

6.1 Discussion and Conclusion

This system of face recognition attendance system and auto door opening will help any organization smoothly. Employers and owners of the companies will benefit from using this system. This system reduces the complexities to run an organization. After all, it is a very innovative way to resist numerous issues and unauthorized access. If this project runs successfully, we surely implement this project by adding some new features.

6.2 Scope for Future Developments

We personally believe a developer can make like more efficient, flexible, and more accurate. So, we have some plans to implement this project in the future are given below:

- By adding the 3D system to ensure this system is more secure.
- Attendance confirmed notification system to all the users.
- We will add an option which able to detection any emotion.
- Warning system which ensures regularity.

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APPENDIX

Project Reflection

Less security system of institution inspires me to make this project. We see many issues the employers go through. So, we want to build a project which can ensure their security and can save time. In this system, we choose CSV file for storing data. We collect many images as data. Which can help matching data which current capturing image data. We also add here auto door open system. When a user trying to enter his image will match prestored data. And if it going to be matched then the door will auto open which makes more feasible for user.

We study a lot about this project. So, we hope it will reduce complexities and many issues. And hopefully, this system surely helps for companies.

PLAGIARISM

Plagiarism Report

Face Recognition

ORIGINALITY REPORT

6%	6%	1%	%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

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