Face Recognition & Automatic Attendance

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About Me!

I'm Arhaan Goyal. A student in grade 10 of Pathways School Noida.
I am very interested in Mathematics, Physics, Chemistry, and Coding

Table of contents

01

Acknowledgements

The people who have helped
me in this project.

Thank You!

I would like to express gratitude to my mentor Mr Kuldeep and the supervisor Ms Pooja, as well as Mr Ken who gave me the golden opportunity to do this wonderful project on the topic of Automatic Attendance, which helped me gain a great deal of knowledge regarding Artificial Intelligence.

02

My internship journey

“It’s not the destination, it’s the journey.”

- **Kobe Bryant**

The Plan

The Project

Choosing from a variety of options.

01

Background Information

Learning about the project I chose.

02

Coding

Creating my product using python coding.

03

User-Interface

Creating the UI of my product so it can be used.

04

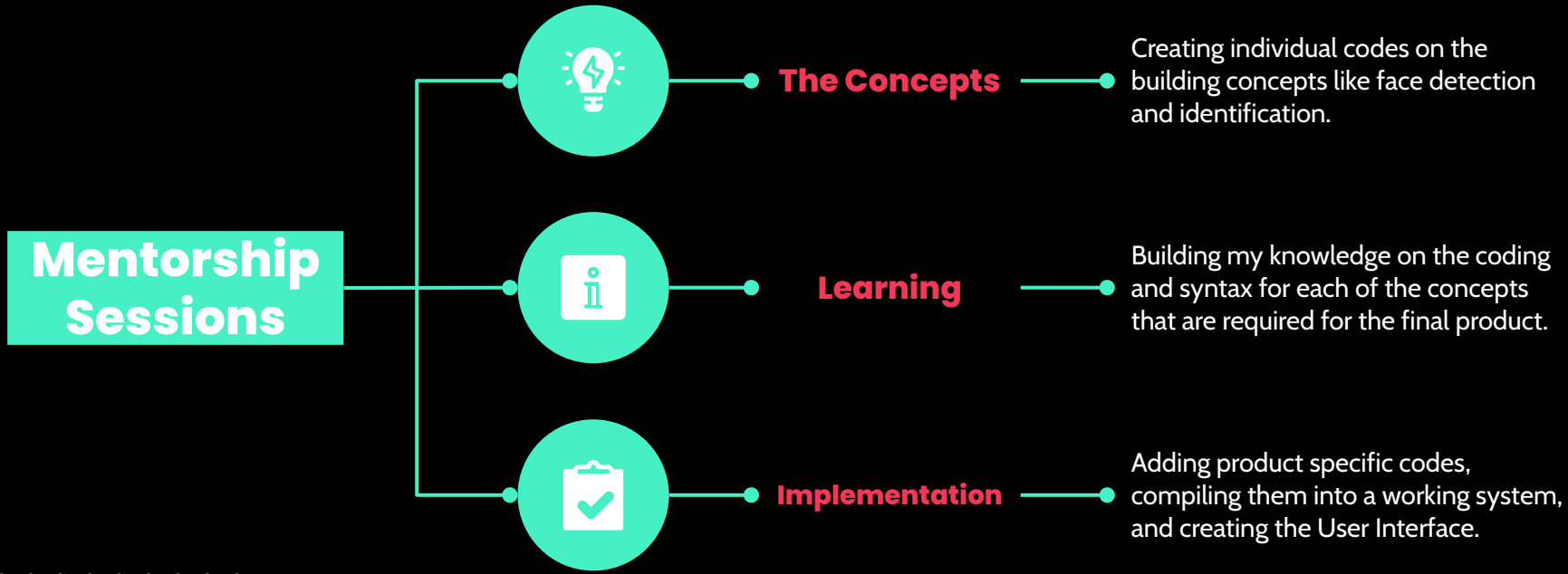
From the beginning to the end

The sessions:-

- An orientation session
- Three mentorship sessions
- A doubt clearing session

All of these were conducted by Mr Kuldeep and supervised by Ms Pooja.

Mentorship sessions breakdown



My Experience

My experience of the internship journey

From the orientation and the first mentorship session, I got to know that the teachers have appropriate examples of each concept.

Reliable

When I was understanding the approach and basic concepts in the first session, I instantly figured out that this would be a really interesting project.

Interesting

Throughout the internship, I gained knowledge about AI and improved upon my python coding skills.

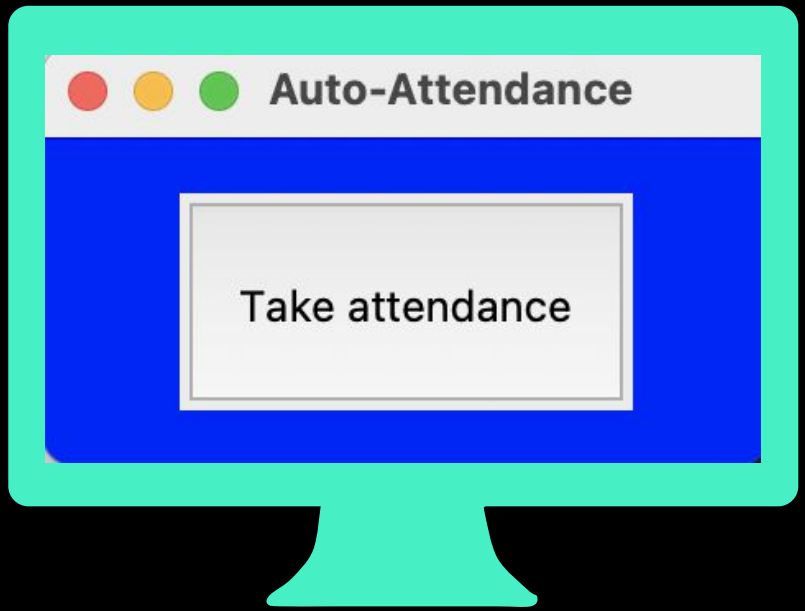
Informative

03

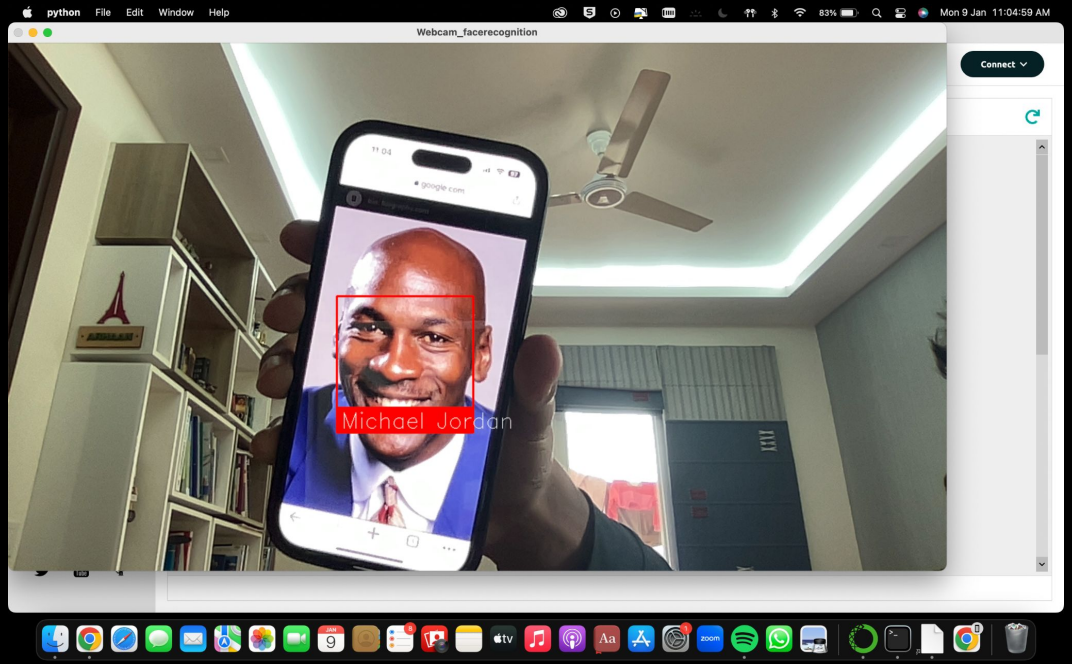
The Application

The App!

This is the User-Interface of the application.



The App!



The Camera

The camera is opened when the user clicks take attendance.

Identification

The identification of the person in the video is possible because a reference image has been coded into the program.

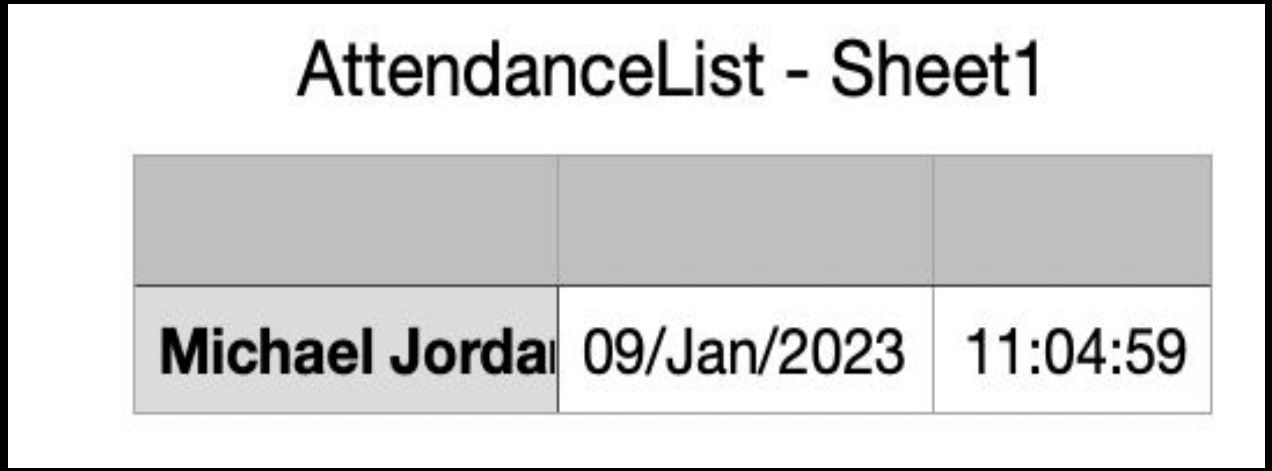
The attendance

Excel Sheet

The people in the camera automatically get their name and attendance time on the excel sheet.

Unknown

If an unknown person is shown in the camera then the name in the excel sheet is unknown, the time is still available.



AttendanceList - Sheet1

Michael Jorda	09/Jan/2023	11:04:59

The Code

```
import numpy as np
import face_recognition as fr
import cv2
import os
from datetime import datetime
from tkinter import *
```

Importing Libraries

```
top = Tk()
top.title("Auto-Attendance")
top['bg']= 'blue'
top.geometry("222x100")
```

User Interface

```
def markAttendance(name):
    with open('/Users/apple/Desktop/AttendanceList - Sheet1.csv','r+') as FILE:
        allLines = FILE.readlines()
        AttendanceList = []
        for line in allLines:
            entry = line.split(',')
            AttendanceList.append(entry[0])
        if name not in AttendanceList:
            now = datetime.now()
            dtString = now.strftime('%d/%b/%Y, %H:%M:%S')
            FILE.writelines(f'\n{name},{dtString}')
```

Function 1

```
def detection():
#Read two known faces
    face_1 = fr.load_image_file("Lebron.jpeg")
    face_2 = fr.load_image_file("MJ.jpeg")
    face_3 = fr.load_image_file("pic2_.png")

#Generate ecoding of two faces
    face_1_encoding = fr.face_encodings(face_1)[0]
    face_2_encoding = fr.face_encodings(face_2)[0]
    face_3_encoding = fr.face_encodings(face_3)[0]

    known_encodings = [face_1_encoding, face_2_encoding, face_3_encoding]
    known_names = ['LeBron James', 'Michael Jordan', 'Arhaan Goyal']

    video_capture = cv2.VideoCapture(0)
    while video_capture.isOpened():
        ret, frame = video_capture.read()

        face_locations = fr.face_locations(frame)
        face_encodings = fr.face_encodings(frame, face_locations)

        for (top, right, bottom, left), face_encoding in zip(face_locations, face_encodings):

            matches = fr.compare_faces(known_encodings, face_encoding)

            namee = "Unkown "

            face_distances = fr.face_distance(known_encodings, face_encoding)

            best_match_index = np.argmin(face_distances)
            if matches[best_match_index]:
                namee = known_names[best_match_index]

            cv2.rectangle(frame, (left, top), (right, bottom), (0, 0, 255), 2)

            cv2.rectangle(frame, (left, bottom - 35), (right, bottom), (0, 0, 255), cv2.FILLED)
            font = cv2.FONT_HERSHEY_SIMPLEX
            cv2.putText(frame, namee, (left + 6, bottom - 6), font, 1.0, (255, 255, 255), 1)
            markAttendance(namee)
            cv2.imshow('Webcam_facerecognition', frame)
        if cv2.waitKey(1) == ord('q'):
            break

    video_capture.release()

    cv2.destroyAllWindows()
```

Function 2

How does it work?

Face Detection

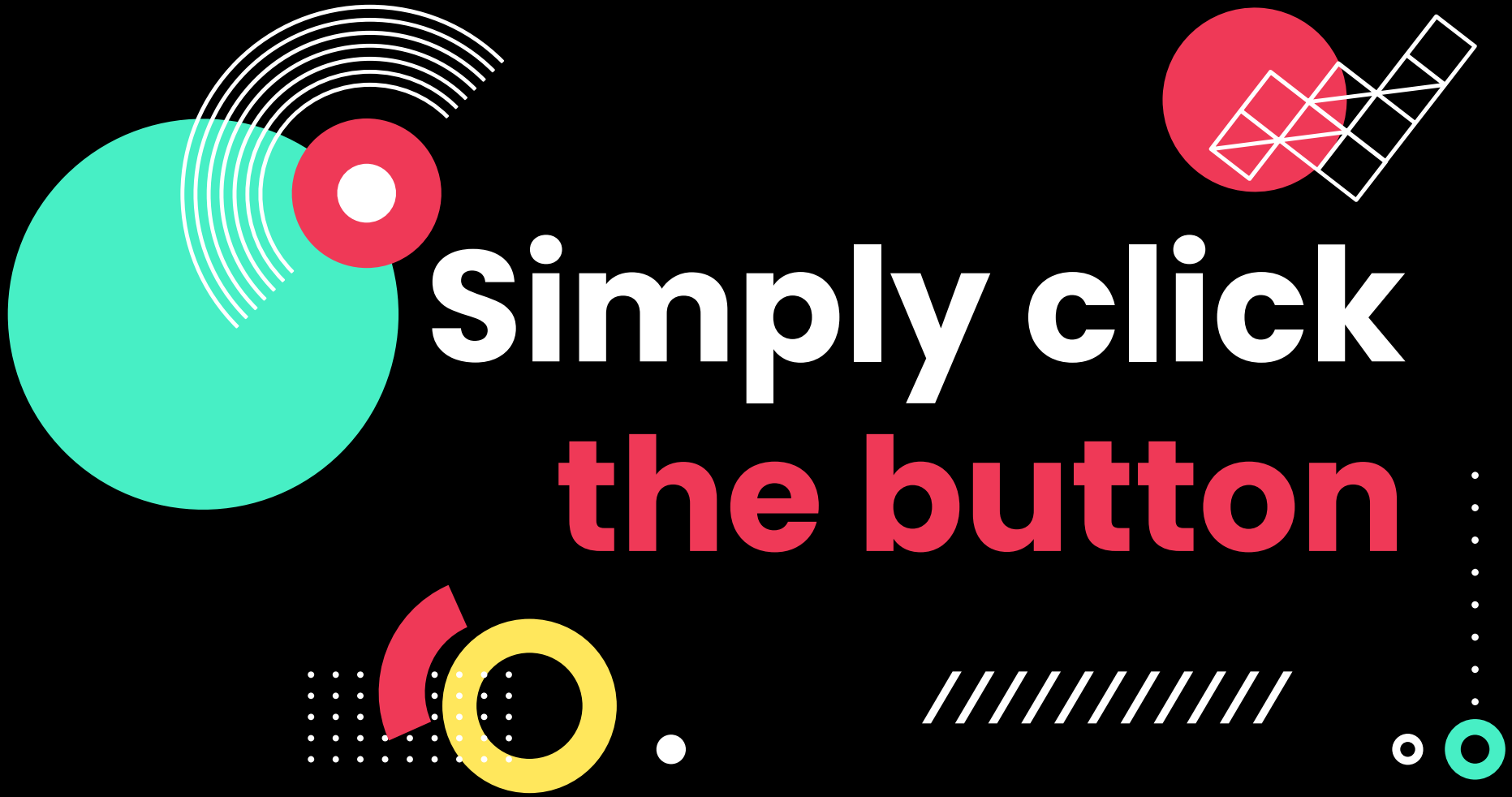
Detecting if a face is in frame.

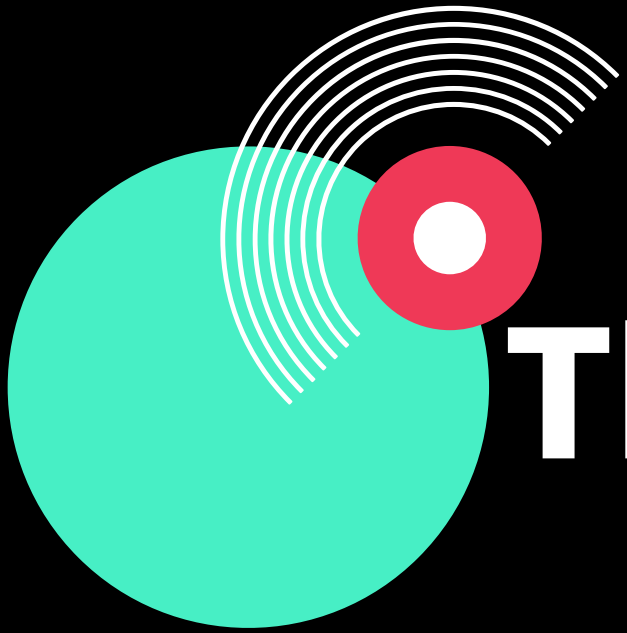
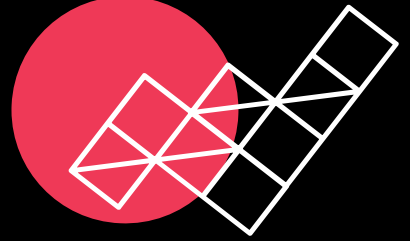
Face Recognition

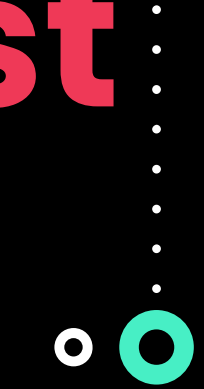
Recognizing if the face matches with the sample.

Recording Information

Writing the information like name, date, and time of recognized face.


Simply click
the button

The app does the rest

Thank you!

Do you have any questions or feedback?
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