



Python project



FACE RECOGNITION ATTENDANCE SYSTEM

Submitted by:-

Bhoomi Gupta

Nabhanya Singh

Mohit Mendiratta

Aman Phaltankar

Aditya Singh Sikarwar

Submitted to:-

Mr. Vijay Boosa

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ABSTRACT

Face recognition is among the most productive image processing applications and has a pivotal role in the technical field. Recognition of the human face is an active issue for authentication purposes specifically in the context of attendance of students.

Attendance system using face recognition is a procedure of recognizing students by using face biostatistics based on the high-definition monitoring and other computer technologies.

The development of this system is aimed to accomplish digitization of the traditional system of taking attendance by calling names and maintaining pen-paper records.

Present strategies for taking attendance are tedious and time-consuming. Attendance records can be easily manipulated by manual recording. The traditional process of making attendance and present biometric systems is vulnerable to proxies. This paper is therefore proposed to tackle all these problems. The proposed system makes the use of Haar classifiers, KNN, CNN, SVM, Generative adversarial networks, and Gabor filters. After face recognition attendance reports will be generated and stored in excel format. The system is tested under various conditions like illumination, head movements, the variation of distance between the student and cameras.

PROJECT OBJECTIVES

- ✓ Reducing time wastage during conventional class attendance.
- ✓ Utilizing latest trends in machine vision to implement a feasible solution for class attendance system.
- ✓ Automating the whole process so that we have digital environment.
- ✓ Preventing fake roll calls as one to one attendance marking is possible only.
- ✓ Encouraging the use of technology in daily lives.

INTRODUCTION

The Attendance System using Face – Recognition is a replacement way method for the traditional way of marking attendance. The proposed system is python, this system can be implemented on a single faculty system of a particular institute.

Traditionally attendance is marked manually by teachers and they must make sure correct attendance is marked for respective student.

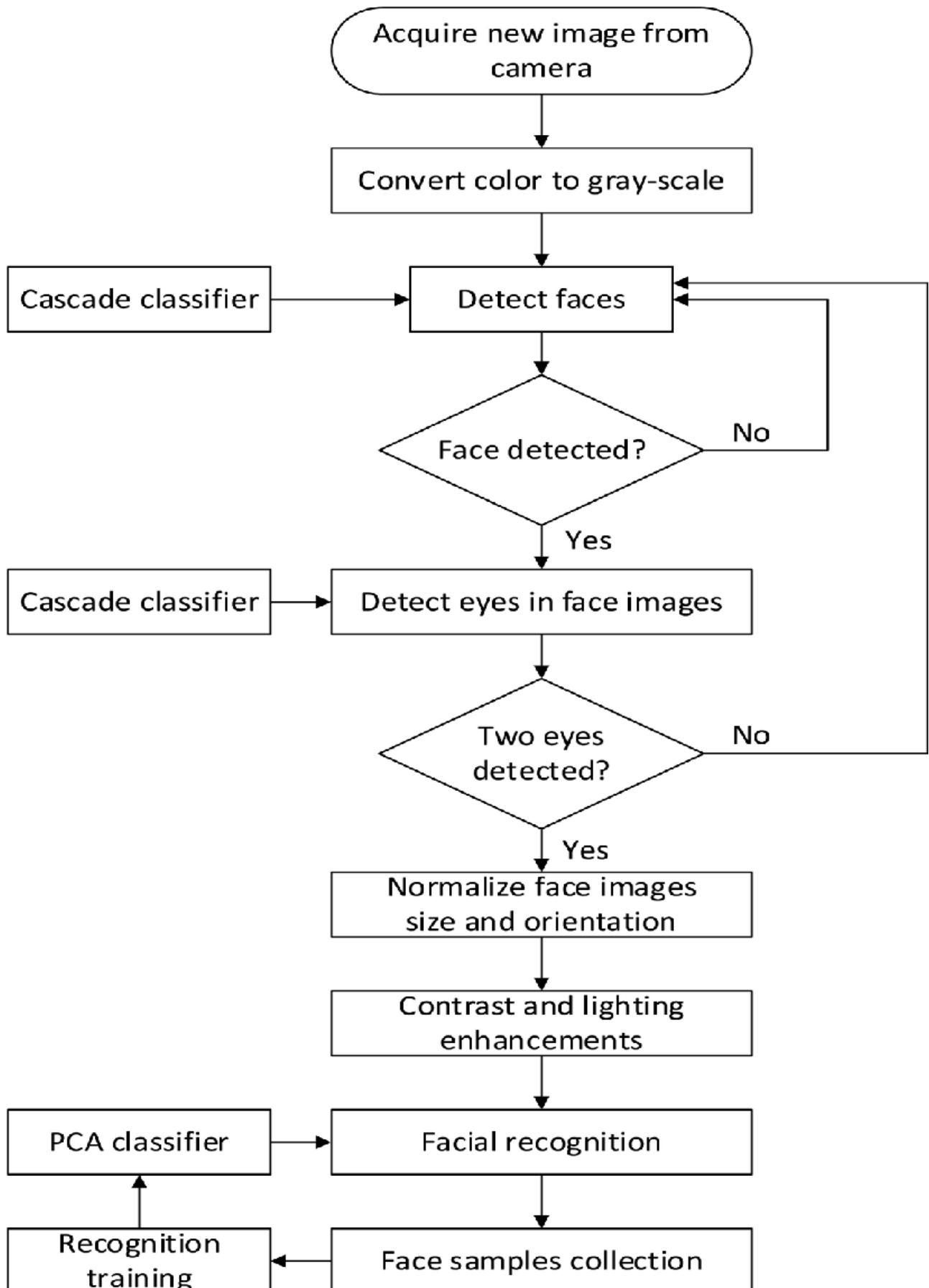
This whole process wastes some of lecture time and part of correct information is missed due to fraudulent and proxy cases.

In order to determine classroom attendance, face detection and face recognition are performed. Face detection is used to determine the location of the faces in the classroom image and extract sub images for each face. Then, in face recognition, the face images detected will be compared with the data base consisting of images of students in the class, and attendance will be recorded accordingly.

SYSTEM REQUIREMENTS

- 4 GB RAM (Minimum)
- 80 GB HDD / SSD
- Dual Core processor
- CDRom (installation only). VGA resolution monitor
- HD Cameras
- Microsoft Windows 98/2000/NT with service pack 6 /
XP with service pack 2/
Windows 7 with service pack 2
- SQL Server 2008 R2

FLOW DIAGRAM



PROJECT CODE

```
import face_recognition
import cv2
import numpy as np
import csv
import os
from datetime import datetime

video_capture = cv2.VideoCapture(0)

aditya_image = face_recognition.load_image_file("Photos/Aditya.jpeg")
aditya_encoding = face_recognition.face_encodings(aditya_image)[0]

aman_image = face_recognition.load_image_file("Photos/Aman.jpeg")
aman_encoding = face_recognition.face_encodings(aman_image)[0]

bhoomi_image = face_recognition.load_image_file("Photos/Bhoomi.jpeg")
bhoomi_encoding = face_recognition.face_encodings(bhoomi_image)[0]

nabhanya_image = face_recognition.load_image_file("Photos/Nabhanya.jpeg")
nabhanya_encoding = face_recognition.face_encodings(nabhanya_image)[0]

mohit_image = face_recognition.load_image_file("Photos/Mohit.jpeg")
mohit_encoding = face_recognition.face_encodings(mohit_image)[0]

known_face_encoding = [
    aditya_encoding,
    aman_encoding,
    bhoomi_encoding,
    nabhanya_encoding,
    mohit_encoding
]

known_faces_names = [
    "Aditya Singh Sikarwar",
    "Aman Phaltankar",
    "Bhoomi Gupta",
    "Nabhanya Singh",
    "Mohit Mendiratta"
]

students = known_faces_names.copy()

face_locations=[]
face_encodings=[]
face_names=[]
s=True
```



```

now = datetime.now()
current_date = now.strftime("%Y-%m-%d")

f= open(current_date+'.csv','w+',newline = '')
Inwriter = csv.writer(f)

print("These are all students in B'Tech section(A)")
print(students)
while True:
    _,frame = video_capture.read()
    small_frame = cv2.resize(frame,(0,0),fx=0.25,fy=0.25)
    rgb_small_frame = small_frame[:, :, :-1]
    if s:
        face_locations = face_recognition.face_locations(rgb_small_frame)
        face_encodings =
face_recognition.face_encodings(rgb_small_frame,face_locations)
        face_names = []

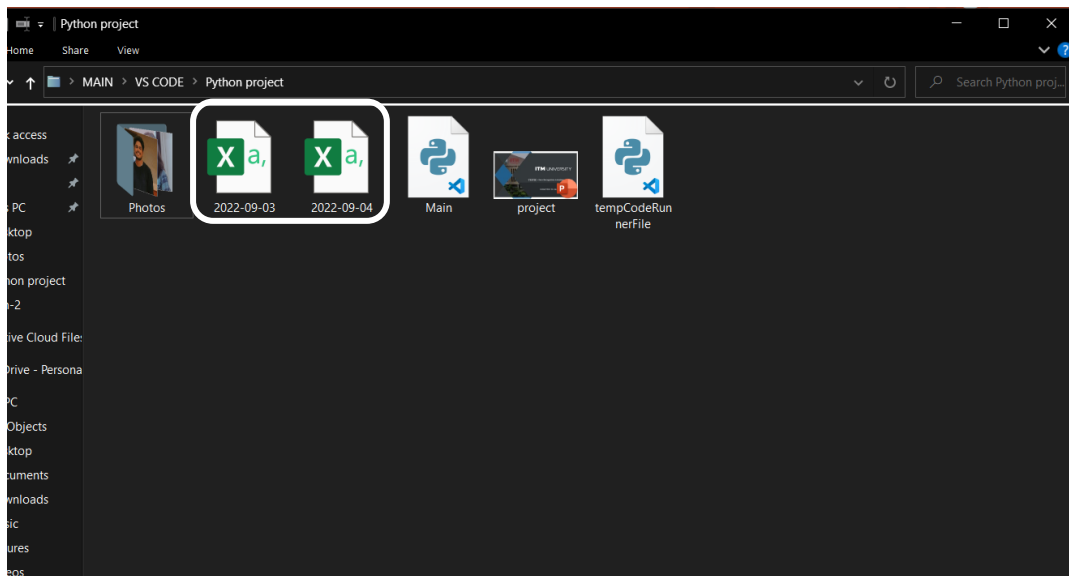
        for face_encoding in face_encodings:
            matches = face_recognition.compare_faces(known_face_encoding
,face_encoding)
            name=""
            face_distance =
face_recognition.face_distance(known_face_encoding,face_encoding)
            best_match_index = np.argmin(face_distance)
            if matches[best_match_index]:
                name = known_faces_names[best_match_index]
                face_names.append(name)

            if name in known_faces_names:
                if name in students :

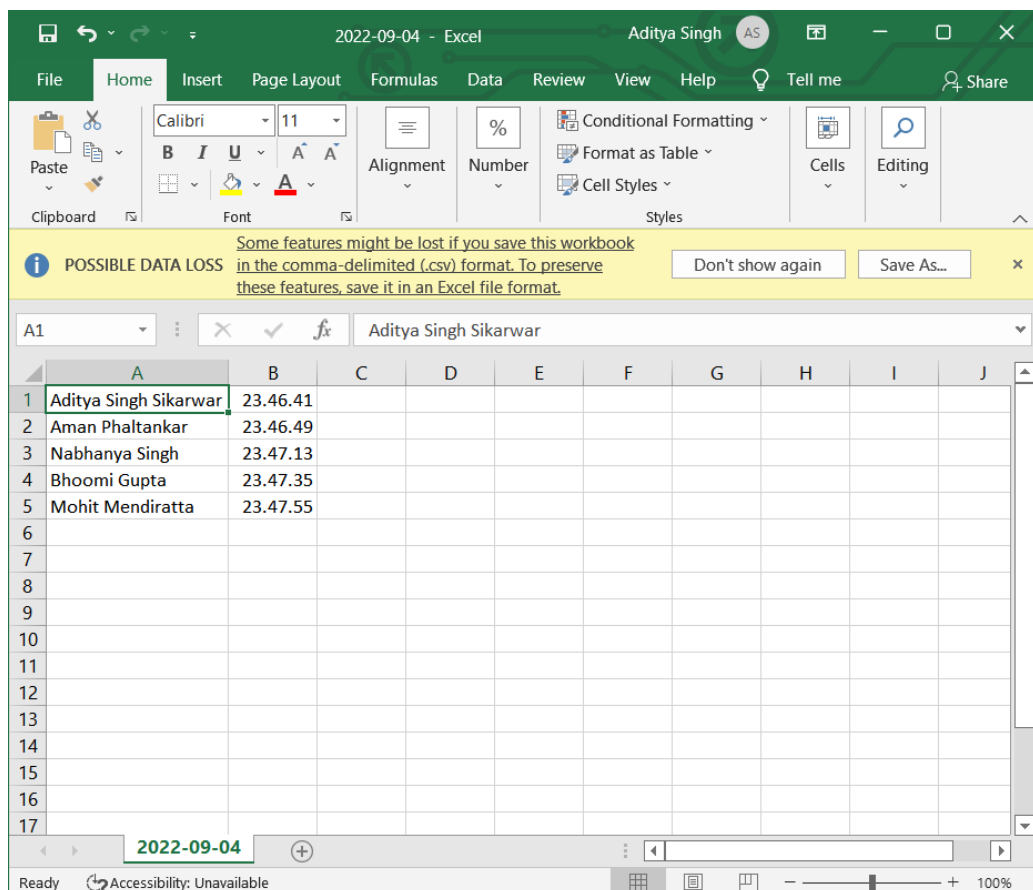
                    students.remove(name)
                    print(students)
                    time_now= datetime.now()
                    current_time = time_now.strftime("%H:%M:%S")
                    Inwriter.writerow([name,current_time])
cv2.imshow("Attendance system", frame)
if cv2.waitKey(1) & 0xFF ==ord('q'):
    if students==known_faces_names:
        print("All Students are Absent Today")
    else:
        print("These Students are absent today--> ", students)
    break

video_capture.release()
cv2.destroyAllWindows()
f.close()

```



It will create a Excel file Named
Current Date



It will Mark Attendance and time. When
Student Enter in class

CONCLUSION

Thus, the aim of this paper is to capture the video of the students, convert it into frames, relate it with the database to ensure their presence or absence, mark attendance to the particular student to maintain the record. The Automated Classroom Attendance System helps in increasing the accuracy and speed ultimately achieve the high-precision real-time attendance to meet the need for automatic classroom evaluation.

FUTURE SCOPE

- Automated Attendance System can be implemented in larger areas like in a seminar hall where it helps in sensing the presence of many people.
- Sometimes the poor lighting condition of the classroom may affect image quality which indirectly degrades system performance, this can be overcome in the latter stage by improving the quality of the video or by using some algorithms

BIBLIOGRAPHY

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THANK YOU