KIET

KAKINADA INSTITUTE OF
ENGINEERING & TECHNOLOGY

A Mini -Project Report

On

FACE RECOGNITION BASED AUTOMATED STUDENT ATTENDANCE SYSTEM

Python

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ABSTRACT

Face is the representation of one's identity. Hence, we have proposed an automated student attendance system based on face recognition. Face recognition system is very useful in life applications especially in security control systems. The airport protection system uses face recognition to identify suspects and for criminal investigations. In our proposed approach, firstly, video framing is performed by activating the camera through a userfriendly interface. he median filtering is applied to remove noise followed by conversion of colour images to grayscale images. Next, the features extracted from the test images are compared with the features extracted from the training images. The facial images are then classified and recognized based on the best result obtained from the combination of algorithm. Finally, the attendance of the recognized student will be marked and saved in the excel file. The average accuracy of recognition is 100 % for good quality

images, 94.12 % of low-quality images and 95.76 % for Yale face database when two images per person are trained.

LIST OF ABBREVATIONS

CV – Computer Vision

OS _ operating system

CSV _ Comma Separated Values

INTRODUCTION

The main objective of this project is to develop face recognition based automated student attendance system. In order to achieve better performance, the test images and training images of this proposed approach are limited to frontal and upright facial images that consist of a single face only. The test images and training images have to be captured by using the same device to ensure no quality difference. In addition, the students have to register in the database to be recognized. The enrolment can be done on the spot through the user-friendly interface.

AIM AND OBJECTIVE

The objective of this project is to develop face recognition based automated student attendance system. Expected achievements in order to fulfill the objectives are:

*To detect the face segment from the video frame.

*To extract the useful features from the face detected.

*To classify the features in order to recognize the face detected.

*To record the attendance of the identified student.

TECHNOLOGIES USED

Python

MODULES

Computer Vision (cv2)

face_recognition

Numpy

Operating system (OS)

Comma Separated Values (csv)

SYSTEM REQUIREMENTS

Hardware Requirements:

RAM: 4GB and higher

Processor: Intel I3 and above
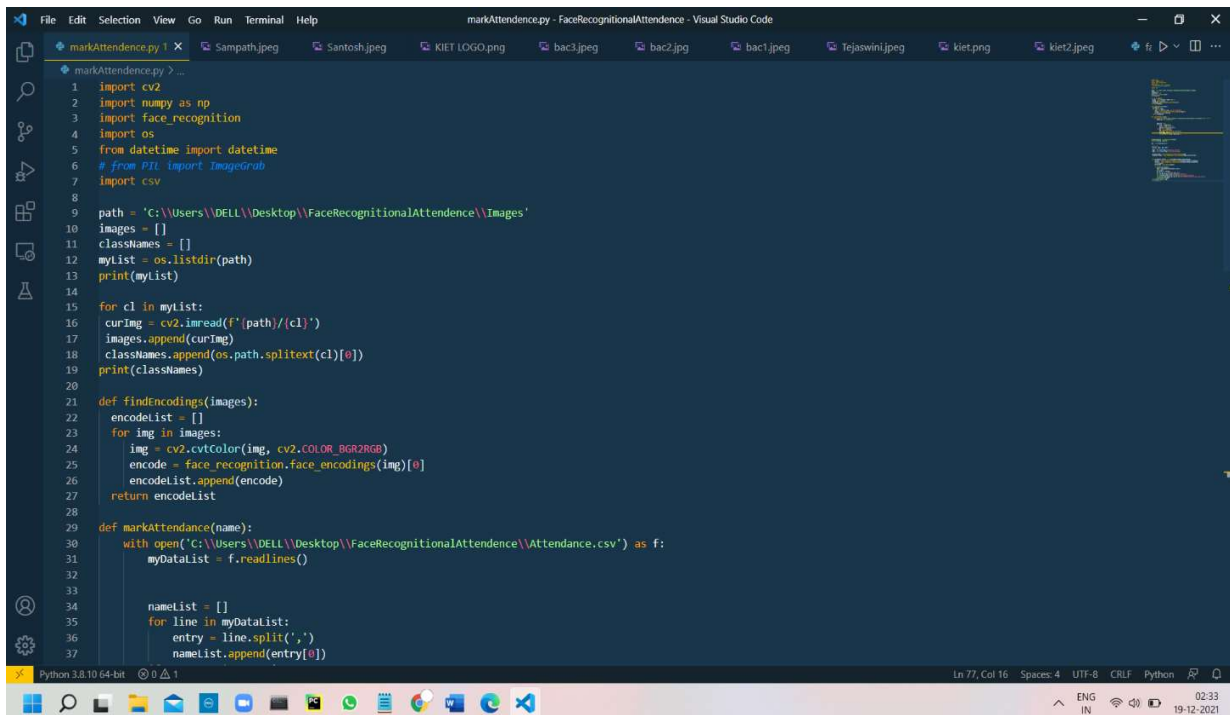
Hard Disk: 500GB: Minimum

Software Requirements:

OS: Windows or Linux

Python IDE: Python 2.7 and above

Setup Tools and pip to be installed for 3.6 and above

Language: Python

CODE


```python
import cv2
import numpy as np
import face_recognition
import os
from datetime import datetime
# from PIL import ImageGrab
import csv

path = 'C:\\Users\\DELL\\Desktop\\FaceRecognitionalAttendence\\Images'
images = []
classNames = []
myList = os.listdir(path)
print(myList)

for cl in myList:
    curImg = cv2.imread(f'{path}/{cl}')
    images.append(curImg)
    classNames.append(os.path.splitext(cl)[0])
print(classNames)

def findEncodings(images):
    encodeList = []
    for img in images:
        img = cv2.cvtColor(img, cv2.COLOR_BGR2RGB)
        encode = face_recognition.face_encodings(img)[0]
        encodeList.append(encode)
    return encodeList

def markAttendance(name):
    with open('C:\\Users\\DELL\\Desktop\\FaceRecognitionalAttendence\\Attendance.csv') as f:
        myDataList = f.readlines()

        nameList = []
        for line in myDataList:
            entry = line.split(',')
            nameList.append(entry[0])
```

HARDWARE COMPONENTS

1. Camera

2.Memory – for storage purpose
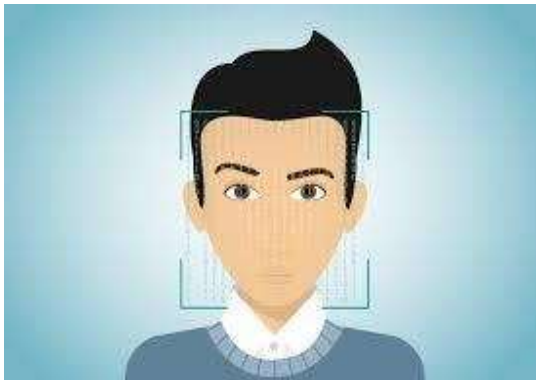
STEPS INVOLVED:

- for doing this project first we have to import required modules.

- After importing modules we have use that modules.

- first we used opencv library to capture images from camera.

- And we have to give path of images using os module.

- Then we have convert rgb image file to bgr file and we have to resize our images to run our code faster.

- After we use encode functions to encode images using face-recognition modules.

- Then we match captured images with live image if image encodings are same it recognizes that person name.

- Inorder to take attendence we create a csv file to store attendance.

- Then we created a attendence function to take attendence and save with time by using time module.

- Finally we had run the code to see output it opens camera and checksthe person if the person image encoding is present in our data it returns true and marks attendence in csv file.

<u>OBSERVATIONS</u>

1. **Face recognition based automated student attendance system is saving the time by decreasing the human work.**

<u>ADVANTAGES</u>

* **Automated time tracking system.**

* **Cost-effective.**

* Increased security.

* Time saving.

* Easy to manage.

<u>SOLUTION</u>

Smart attendance system using face recognition makes use of facial recognition technology to identify and verify a person and mark attendance automatically.

A facial recognition attendance system is a contactless technology that provides freedom from any physical interaction between the man and the machine.

<u>CONCLUSION</u>

We hereby conclude that this method is very useful for identifying and verify a person and mark attendance automatically