ATTENDANCE ANALYSIS WITH IMAGE PROCESSING

import tkinter as tk

from tkinter import Message ,Text

import cv2,os

import shutil

import csv

import numpy as np

from PIL import Image, ImageTk

import pandas as pd

import datetime

import time

import tkinter.ttk as ttk

import tkinter.font as font

window = tk.Tk()

#helv36 = tk.Font(family='Helvetica', size=36, weight='bold')

window.title("Attendance analysis with Image Recognisition")

dialog\_title = 'QUIT'

dialog\_text = 'Are you sure?'

#answer = messagebox.askquestion(dialog\_title, dialog\_text)

window.geometry('720x480')

window.configure(background='white')

#window.attributes('-fullscreen', True)

window.grid\_rowconfigure(0, weight=1)

window.grid\_columnconfigure(0, weight=1)

#path = "profile.jpg"

#Creates a Tkinter-compatible photo image, which can be used everywhere Tkinter expects an image object.

#img = ImageTk.PhotoImage(Image.open(path))

#The Label widget is a standard Tkinter widget used to display a text or image on the screen.

#panel = tk.Label(window, image = img)

#panel.pack(side = "left", fill = "y", expand = "no")

#cv\_img = cv2.imread("img541.jpg")

#x, y, no\_channels = cv\_img.shape

#canvas = tk.Canvas(window, width = x, height =y)

#canvas.pack(side="left")

#photo = PIL.ImageTk.PhotoImage(image = PIL.Image.fromarray(cv\_img))

# Add a PhotoImage to the Canvas

#canvas.create\_image(0, 0, image=photo, anchor=tk.NW)

#msg = Message(window, text='Hello, world!')

# Font is a tuple of (font\_family, size\_in\_points, style\_modifier\_string)

message6= tk.Label(window, text="Mini Project H Saikrishna 1232 " ,bg="white" ,fg="black" ,width=25 ,height=2,font=('times', 13, 'italic bold underline'))

message6.place(x=800, y=13)

message = tk.Label(window, text="Not Registered?" ,bg="white" ,fg="black" ,width=20 ,height=3,font=('times', 15, 'italic bold underline'))

message.place(x=70, y=13)

message5 = tk.Label(window, text="Already Registered?" ,bg="white" ,fg="black" ,width=20 ,height=3,font=('times', 15, 'italic bold underline'))

message5.place(x=80, y=300)

lbl = tk.Label(window, text="Enter Roll No",width=20 ,height=2 ,fg="blue" ,bg="white" ,font=('times', 10, ' bold ') )

lbl.place(x=85, y=70)

txt = tk.Entry(window,width=20 ,bg="white" ,fg="black",font=('times', 15, ' bold '))

txt.place(x=215, y=70)

lbl2 = tk.Label(window, text="Enter Name",width=20 ,fg="blue" ,bg="white",height=2 ,font=('times', 10, ' bold '))

lbl2.place(x=85, y=120)

txt2 = tk.Entry(window,width=20 ,bg="white" ,fg="black",font=('times', 15, ' bold ') )

txt2.place(x=215, y=120)

lbl3 = tk.Label(window, text="Result : ",width=20 ,fg="black" ,bg="white" ,height=2 ,font=('times', 13, ' bold underline '))

lbl3.place(x=50, y=270)

message = tk.Label(window, text="" ,bg="white" ,fg="red" ,width=20 ,height=2, activebackground = "yellow" ,font=('times', 12, ' bold '))

message.place(x=240, y=270)

lbl3 = tk.Label(window, text="Attendance Report: ",width=20 ,fg="blue" ,bg="white" ,height=2 ,font=('times', 15, ' bold underline'))

lbl3.place(x=800, y=150)

message2 = tk.Label(window, text="" ,fg="red" ,bg="white",activeforeground = "green",width=30 ,height=4 ,font=('times', 15, ' bold '))

message2.place(x=800, y=250)

def clear():

txt.delete(0, 'end')

res = ""

message.configure(text= res)

def clear2():

txt2.delete(0, 'end')

res = ""

message.configure(text= res)

def is\_number(s):

try:

float(s)

return True

except ValueError:

pass

try:

import unicodedata

unicodedata.numeric(s)

return True

except (TypeError, ValueError):

pass

return False

def TakeImages():

Id=(txt.get())

name=(txt2.get())

if(is\_number(Id) and name.isalpha()):

cam = cv2.VideoCapture(0)

harcascadePath = "lbpcascade\_frontalface.xml"

detector=cv2.CascadeClassifier(harcascadePath)

sampleNum=0

while(True):

ret, img = cam.read()

gray = cv2.cvtColor(img, cv2.COLOR\_BGR2GRAY)

faces = detector.detectMultiScale(gray, 1.3, 5)

for (x,y,w,h) in faces:

cv2.rectangle(img,(x,y),(x+w,y+h),(255,0,0),2)

#incrementing sample number

sampleNum=sampleNum+1

#saving the captured face in the dataset folder TrainingImage

cv2.imwrite("TrainingImage\ "+name +"."+Id +'.'+ str(sampleNum) + ".jpg", gray[y:y+h,x:x+w])

#display the frame

cv2.imshow('frame',img)

#Id2='Taking Samples'

#tt1=str(Id2)

#cv2.putText(im,str(tt1),(x,y+h), font, 1,(255,255,255),2)

#wait for 100 miliseconds

if cv2.waitKey(30) & 0xFF == ord('q'):

break

# break if the sample number is morethan 100

elif sampleNum>100:

break

cam.release()

cv2.destroyAllWindows()

res = "Click on Done"

row = [Id , name]

with open('StudentDetails\StudentDetails.csv','a+') as csvFile:

writer = csv.writer(csvFile)

writer.writerow(row)

csvFile.close()

message.configure(text= res)

else:

if(is\_number(Id)):

res = "Enter Alphabetical Name"

message.configure(text= res)

if(name.isalpha()):

res = "Enter Numeric Id"

message.configure(text= res)

def TrainImages():

recognizer = cv2.face\_LBPHFaceRecognizer.create()#recognizer = cv2.face.LBPHFaceRecognizer\_create()#$cv2.createLBPHFaceRecognizer()

harcascadePath = "lbpcascade\_frontalface.xml"

detector =cv2.CascadeClassifier(harcascadePath)

faces,Id = getImagesAndLabels("TrainingImage")

recognizer.train(faces, np.array(Id))

recognizer.save("TrainingImageLabel\Trainner.yml")

res = "succesfully registered"#+",".join(str(f) for f in Id)

message.configure(text= res)

def getImagesAndLabels(path):

#get the path of all the files in the folder

imagePaths=[os.path.join(path,f) for f in os.listdir(path)]

#print(imagePaths)

#create empty face list

faces=[]

#create empty ID list

Ids=[]

#now looping through all the image paths and loading the Ids and the images

for imagePath in imagePaths:

#loading the image and converting it to gray scale

pilImage=Image.open(imagePath).convert('L')

#Now we are converting the PIL image into numpy array

imageNp=np.array(pilImage,'uint8')

#getting the Id from the image

Id=int(os.path.split(imagePath)[-1].split(".")[1])

#extract the face from the training image sample

faces.append(imageNp)

Ids.append(Id)

return faces,Ids

def TrackImages():

recognizer = cv2.face.LBPHFaceRecognizer\_create()#cv2.createLBPHFaceRecognizer()

recognizer.read("TrainingImageLabel\Trainner.yml")

harcascadePath = "lbpcascade\_frontalface.xml"

faceCascade = cv2.CascadeClassifier(harcascadePath);

df=pd.read\_csv("StudentDetails\StudentDetails.csv")

cam = cv2.VideoCapture(0)

font = cv2.FONT\_HERSHEY\_SIMPLEX

col\_names = ['Id','Name','Date','Time']

attendance = pd.DataFrame(columns = col\_names)

while True:

ret, im =cam.read()

gray=cv2.cvtColor(im,cv2.COLOR\_BGR2GRAY)

faces=faceCascade.detectMultiScale(gray, 1.2,5)

for(x,y,w,h) in faces:

cv2.rectangle(im,(x,y),(x+w,y+h),(225,0,0),2)

Id, conf = recognizer.predict(gray[y:y+h,x:x+w])

if(conf < 60):

ts = time.time()

date = datetime.datetime.fromtimestamp(ts).strftime('%Y-%m-%d')

timeStamp = datetime.datetime.fromtimestamp(ts).strftime('%H:%M:%S')

aa=df.loc[df['Id'] == Id]['Name'].values

tt=str(Id)+"-"+aa

attendance.loc[len(attendance)] = [Id,aa,date,timeStamp]

else:

Id='unknown checking'

tt=str(Id)

if(conf > 80):

noOfFile=len(os.listdir("ImagesUnknown"))+1

cv2.imwrite("ImagesUnknown\Image"+str(noOfFile) + ".jpg", im[y:y+h,x:x+w])

cv2.putText(im,str(tt),(x,y+h), font, 1,(255,255,255),2)

attendance=attendance.drop\_duplicates(subset=['Id'],keep='first')

cv2.imshow('im',im)

if (cv2.waitKey(1)==ord('q')):

break

ts = time.time()

date = datetime.datetime.fromtimestamp(ts).strftime('%Y-%m-%d')

timeStamp = datetime.datetime.fromtimestamp(ts).strftime('%H:%M:%S')

Hour,Minute,Second=timeStamp.split(":")

fileName="Attendance\Attendance\_"+date+"\_"+Hour+"-"+Minute+"-"+Second+".csv"

attendance.to\_csv(fileName,index=False)

cam.release()

cv2.destroyAllWindows()

#print(attendance)

res=attendance

message2.configure(text= res)

clearButton = tk.Button(window, text="Clear", command=clear ,fg="white" ,bg="red" ,width=10 ,height=1 ,activebackground = "red" ,font=('times', 10, ' bold '))

clearButton.place(x=450, y=70)

clearButton2 = tk.Button(window, text="Clear", command=clear2 ,fg="white" ,bg="red" ,width=10 ,height=1, activebackground = "red" ,font=('times', 10, ' bold '))

clearButton2.place(x=450, y=120)

takeImg = tk.Button(window, text="1.Register Now", command=TakeImages ,fg="white" ,bg="green" ,width=12 ,height=2, activebackground = "yellow" ,font=('times', 13, ' bold '))

takeImg.place(x=120, y=200)

trainImg = tk.Button(window, text="2.Done", command=TrainImages ,fg="red" ,bg="yellow" ,width=12 ,height=2, activebackground = "green" ,font=('times', 13, ' bold '))

trainImg.place(x=300, y=200)

trackImg = tk.Button(window, text="Take Attendance", command=TrackImages ,fg="white" ,bg="green" ,width=15 ,height=3, activebackground = "blue" ,font=('times', 15, ' bold '))

trackImg.place(x=120, y=400)

quitWindow = tk.Button(window, text="Quit", command=window.destroy ,fg="white" ,bg="red" ,width=15 ,height=3, activebackground = "yellow" ,font=('times', 15, ' bold '))

quitWindow.place(x=800, y=450)

copyWrite = tk.Text(window, background=window.cget("background"), borderwidth=0,font=('times', 30, 'italic bold underline'))

copyWrite.tag\_configure("superscript", offset=10)

copyWrite.insert("insert", "saikrishna")

copyWrite.configure(state="disabled",fg="red" )

copyWrite.pack(side="left")

copyWrite.place(x=800, y=750)

window.mainloop()