SmartBridge Externship Program

Internet of Things

Assignment 6

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Develop a python code to detect any object using Haar cascade classifier.

Code:

```
import cv2

eye_classifier=cv2.CascadeClassifier("haarcascade_eye.xml")
fullbody_classifier=cv2.CascadeClassifier("haarcascade_fullbody.xml")
plate_classifier=cv2.CascadeClassifier("haarcascade_licence_plate_rus_16stages.xml")
lowerbody_classifier=cv2.CascadeClassifier("haarcascade_lowerbody.xml")
profileface_classifier=cv2.CascadeClassifier("haarcascade_profileface.xml")
number_classifier=cv2.CascadeClassifier("haarcascade_russian_plate_number.xml")
smile_classifier=cv2.CascadeClassifier("haarcascade_smile.xml")
upperbody_classifier=cv2.CascadeClassifier("haarcascade_upperbody.xml")
silverware_classifier=cv2.CascadeClassifier("lbpcascade_silverware.xml")

#It will read the first frame/image of the video
video=cv2.VideoCapture(0)

while True:
    #capture the first frame
```

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check,frame=video.read()
gray=cv2.cvtColor(frame, cv2.COLOR_BGR2GRAY)



#detect the faces from the video using detectMultiScale function

eyes=eye_classifier.detectMultiScale(gray,1.3,5)
fullbody=fullbody_classifier.detectMultiScale(gray,1.3,5)
plate=plate_classifier.detectMultiScale(gray,1.3,5)
lowerbody=lowerbody_classifier.detectMultiScale(gray,1.3,5)
profileface=profileface_classifier.detectMultiScale(gray,1.3,5)
number=number_classifier.detectMultiScale(gray,1.3,5)
smile=smile_classifier.detectMultiScale(gray,1.3,5)
upperbody=upperbody_classifier.detectMultiScale(gray,1.3,5)
silverware=silverware_classifier.detectMultiScale(gray,1.3,5)
print()

#drawing rectangle boundries for the detected face
for(x,y,w,h) in eyeglasses:
    cv2.rectangle(frame, (x,y), (x+w,y+h), (127,0,255), 2)
    cv2.imshow('Face detection', frame)
    #picname=datetime.datetime.now().strftime("%y-%m-%d-%H-%M")
    #cv2.imwrite(picname+".jpg",frame)

#drawing rectangle boundries for the detected eyes
for(ex,ey,ew,eh) in eyes:
    cv2.rectangle(frame, (ex,ey), (ex+ew,ey+eh), (255,0,0), 2)
```

```
        cv2.putText(frame, 'Eyes', (ex, ey-10), cv2.FONT_HERSHEY_SIMPLEX,
0.7, (0, 255, 0), 2)
        cv2.imshow('Face detection', frame)



    for(fx,fy,fw,fh) in profileface:
        cv2.rectangle(frame, (fx,fy), (fx+fw,fy+fh), (0,0,0), 4)
        cv2.putText(frame, 'Face', (fx, fy-10), cv2.FONT_HERSHEY_SIMPLEX,
0.7, (0, 255, 0), 2)
        cv2.imshow('Face detection', frame)

    for(sx,sy,sw,sh) in smile:
        cv2.rectangle(frame, (sx,sy), (sx+sw,sy+sh), (0,255,0), 2)
        cv2.imshow('Face detection', frame)

    for(dx,dy,dw,dh) in fullbody:
        cv2.rectangle(frame, (dx,dy), (dx+dw,dy+dh), (70,130,180), 2)
        cv2.imshow('Face detection', frame)

    for(lox,loy,low,loh) in lowerbody:
        cv2.rectangle(frame, (lox,loy), (lox+low,loy+loh), (127,255,212), 2)
        cv2.imshow('Face detection', frame)

    for(ux,uy,uw,uh) in upperbody:
        cv2.rectangle(frame, (ux,uy), (ux+uw,uy+uh), (0,0,128), 2)
        cv2.imshow('Face detection', frame)
```

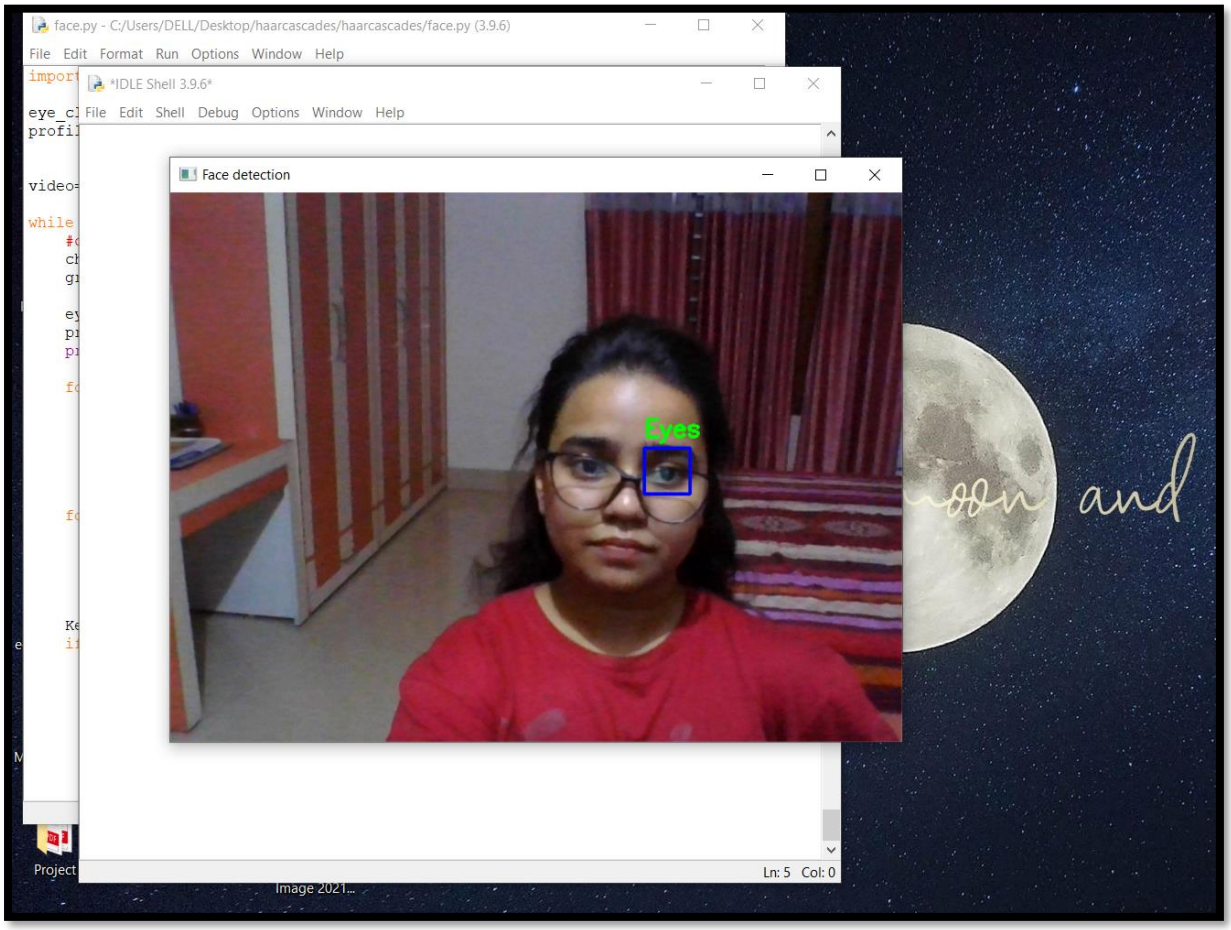
```
    for(px,py,pw,ph) in plate:
        cv2.rectangle(frame, (px,py), (px+pw,py+ph), (139,69,19), 2)
        cv2.imshow('Face detection', frame)

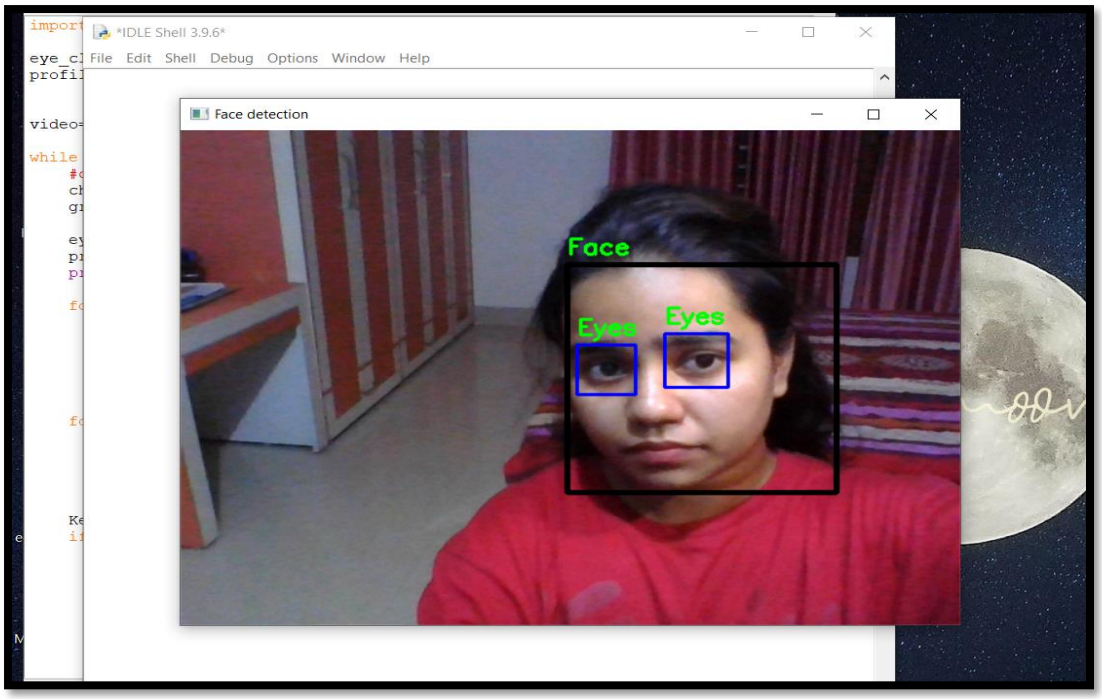

    for(nx,ny,nw,nh) in number:
        cv2.rectangle(frame, (nx,ny), (nx+nw,ny+nh), (218,112,147), 2)
        cv2.putText(frame, 'Number plate', (fx, fy-10),
cv2.FONT_HERSHEY_SIMPLEX, 0.7, (0, 255, 0), 2)
        cv2.imshow('Face detection', frame)

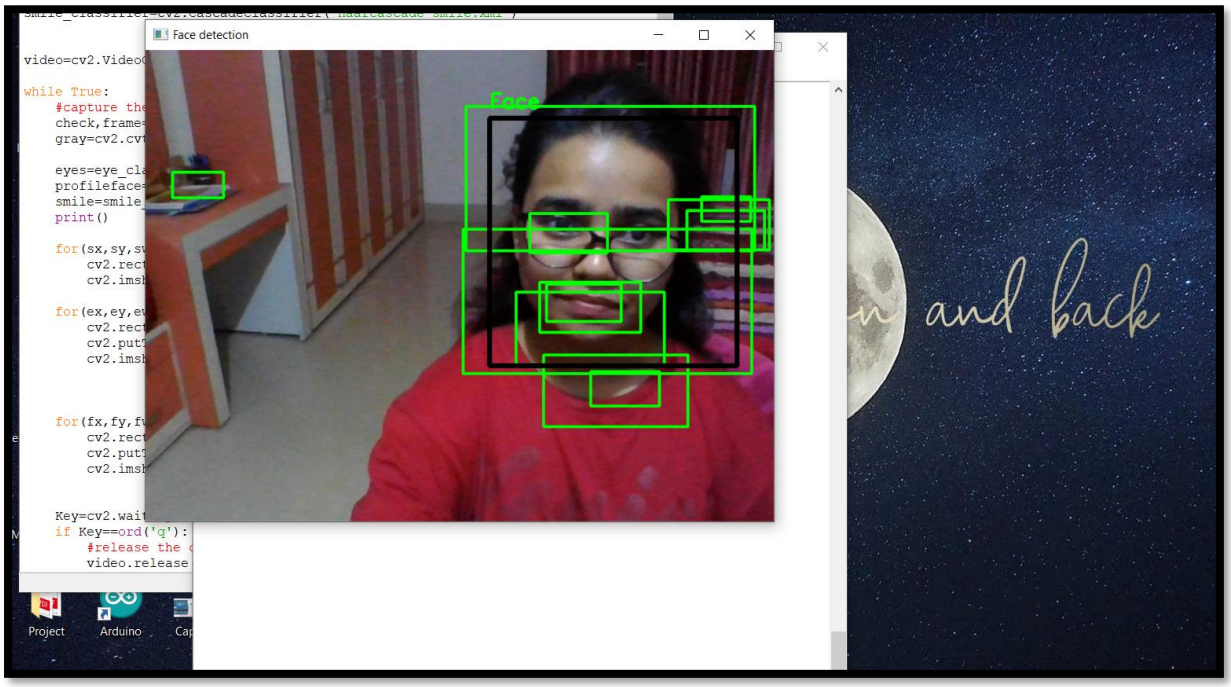

    for(bx,by,bw,bh) in silverware:
        cv2.rectangle(frame, (bx,by), (bx+bw,by+bh), (218,112,147), 2)
        cv2.imshow('Face detection', frame)

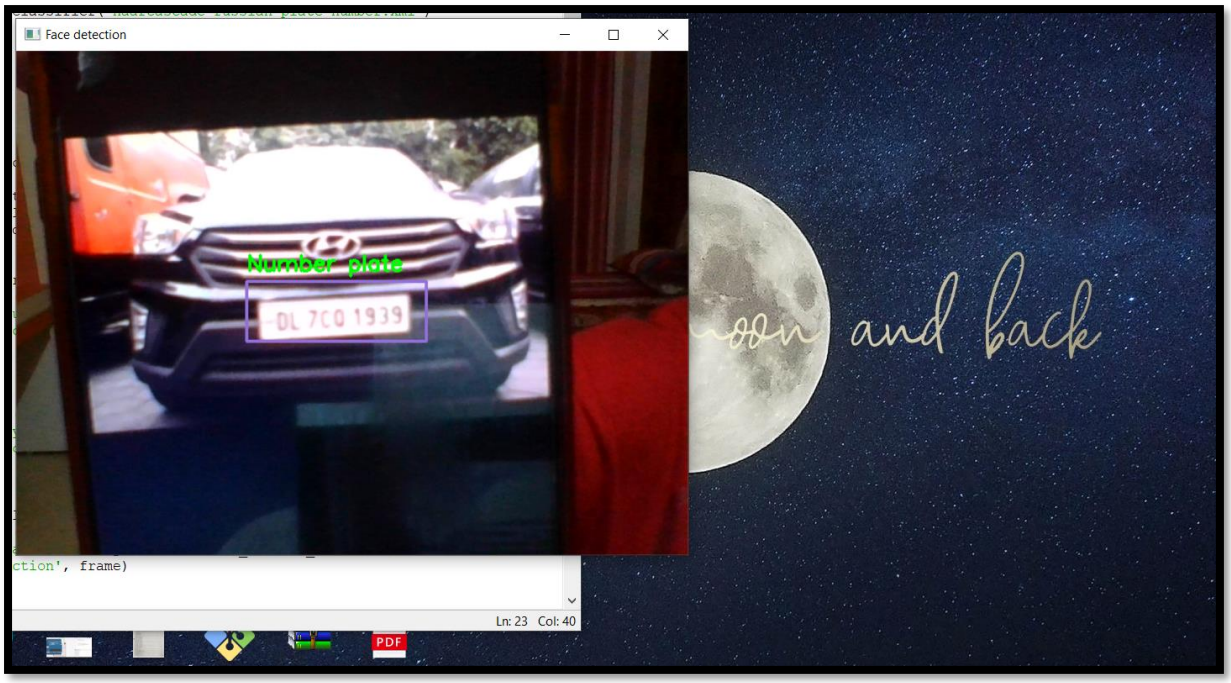

    #waitKey(1)- for every 1 millisecond new frame will be captured
    Key=cv2.waitKey(1)
    if Key==ord('q'):
        #release the camera
        video.release()
        #destroy all windows
        cv2.destroyAllWindows()
        break
```

Output:


face.py - C:/Users/DELL/Desktop/haarcascades/haarcascades/face.py (3.9.6)
File Edit Format Run Options Window Help
IDLE Shell 3.9.6
File Edit Shell Debug Options Window Help
Face detection
Eyes
Ln: 5 Col: 0


IDLE Shell 3.9.6
File Edit Shell Debug Options Window Help
Face detection
Face
Eyes
Eyes


Face detection
Face
Project
Arduino


Face detection
Number plate
DL 7CQ 1939
ction', frame)
Ln: 23 Col: 40
PDF
and back