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import cvlib as cv
from cvlib.object_detection import draw_bbox
import cv2
import time
import numpy as np
from playsound import playsound
#for PiCamera
#from picamera Import PiCamera
#camera = PiCamera
#camera.start_preview()
# open webcam
webcam = cv2.VideoCapture(0)

if not webcam.isOpened():
    print("Could not open webcam")
    exit()

t0 = time.time() #gives time in seconds after 1970

#variable dcount stands for how many seconds the person has been standing
still for
centre0 = np.zeros(2)
isDrowning = False

#this loop happens approximately every 1 second, so if a person doesn't
move,
#or moves very little for 10seconds, we can say they are drowning

#loop through frames
while webcam.isOpened():

    # read frame from webcam
    status, frame = webcam.read()

    if not status:
        print("Could not read frame")
        exit()

    # apply object detection
    bbox, label, conf = cv.detect_common_objects(frame)
    #simplifying for only 1 person

    #s = (len(bbox), 2)

    if(len(bbox)>0):
        bbox0 = bbox[0]
        #centre = np.zeros(s)
        centre = [0,0]

        #for i in range(0, len(bbox)):

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        #centre[i]
    =[(bbox[i][0]+bbox[i][2])/2, (bbox[i][1]+bbox[i][3])/2 ]

    centre =[(bbox0[0]+bbox0[2])/2, (bbox0[1]+bbox0[3])/2 ]

    #make vertical and horizontal movement variables
    hmov = abs(centre[0]-centre0[0])
    vmov = abs(centre[1]-centre0[1])

    #there is still need to tweek the threshold
    #this threshold is for checking how much the centre has moved

    x=time.time()

    threshold = 10
    if(hmov>threshold or vmov>threshold):
        print(x-t0, 's')
        t0 = time.time()
        isDrowning = False

    else:

        print(x-t0, 's')
        if((time.time() - t0) > 10):
            isDrowning = True

        #print('bounding box: ', bbox, 'label: ' label , 'confidence:
' conf[0], 'centre: ', centre)
        #print(bbox,label ,conf, centre)
        print('bbox: ', bbox, 'centre:', centre, 'centre0:', centre0)
        print('Is he drowning: ', isDrowning)

        centre0 = centre
        # draw bounding box over detected objects

    out = draw_bbox(frame, bbox, label, conf,isDrowning)

    #print('Seconds since last epoch: ', time.time()-t0)

    # display output
    cv2.imshow("Real-time object detection", out)
    if(isDrowning == True):
        playsound(r'C:\Users\HP\Downloads\alarm.mp3')

    # press "Q" to stop
    if cv2.waitKey(1) & 0xFF == ord('q'):
        break

# release resources
webcam.release()
cv2.destroyAllWindows()

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