Detect.py

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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):
```

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bbox0 = bbox[0] #centre = np.zeros(s) centre = [0,0]
#for i in range(0, len(bbox)): #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('alarm.mp3')
# press "Q" to stop
if cv2.waitKey(1) & 0xFF == ord('q'): break
# release resources webcam.release() cv2.destroyAllWindows()
```