```
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)):
#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()
```