Project Development Phase

Delivery of Sprint – 3

Date	17 November 2022
Team ID	PNT2022TMID30291
Project Name	Virtual Eye - Life Guard for Swimming Pools to Detect Active Drowning

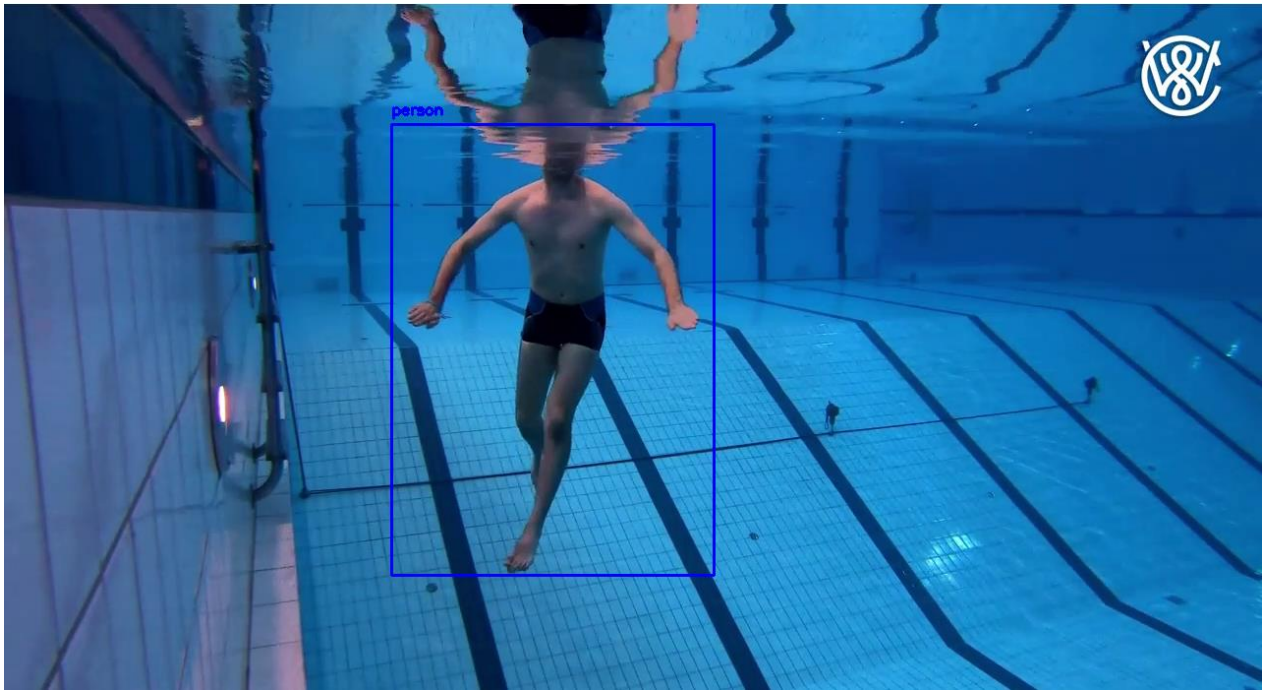
detect.py

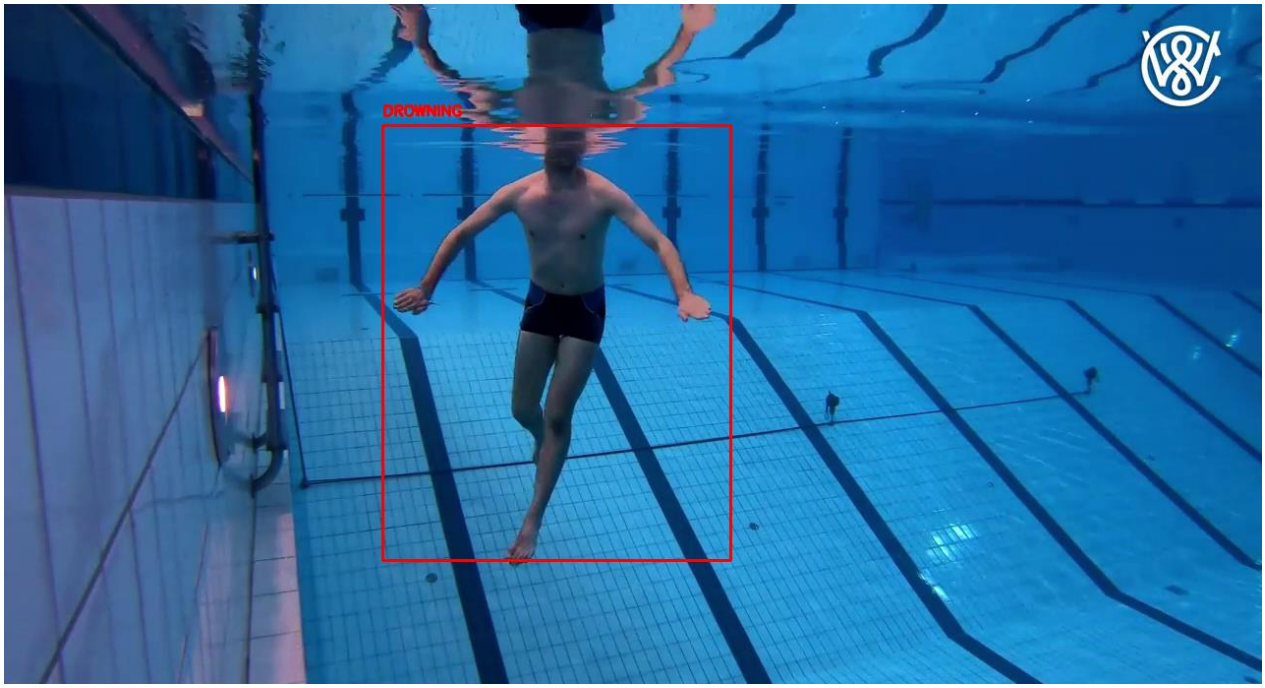
```
webcam = cv2.VideoCapture('sample3.mp4')

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 True:

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

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

```
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)
cv2.imwrite('image.jpg',out)
```

Output:




DROWNING