

YOLO Detection

1. Purpose of the experiment

Drive the robot dog's yolo detection and label the corresponding name according to object recognition

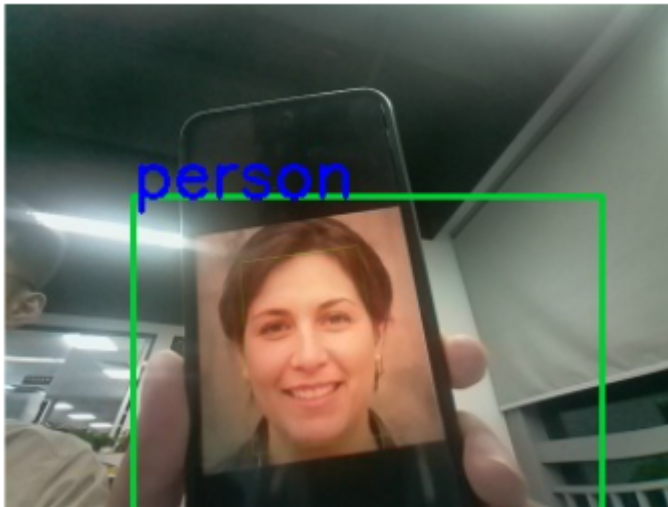
2. Experimental path source code

Enter the robot dog system, end the robot dog program, enter "ip (ip is the robot dog's ip): 8888" in the browser, enter the password "yahboom" and log in. Enter the path of **DOGZILLA_Lite_class/5.AI Visual Recognition Course/08. YOLO detection** and run **yolo.ipynb** . Or enter the command in the terminal to directly start the python script

```
cd /home/pi/DOGZILLA_Lite_class/5.AI Visual Recognition Course/08. YOLO
detection
python3 yolo.py
```

3. Experimental Phenomenon

After running the source code, you can see that the robot dog can detect objects



4. Main source code analysis

```
def yoloFast(self, target="camera"):
    ret=''
    self.open_camera()
    if self.yolo==None:
        self.yolo = yoloxgo('/home/pi/model/Model.onnx',
```

```

['person','bicycle','car','motorbike','aeroplane','bus','train','truck','boat','
traffic light','fire hydrant','stop sign','parking
meter','bench','bird','cat','dog','horse','sheep','cow','elephant','bear','zebra
','giraffe','backpack','umbrella','handbag','tie','suitcase','frisbee','skis','s
nowboard','sports ball','kite','baseball bat','baseball
glove','skateboard','surfboard','tennis racket','bottle','wine
glass','cup','fork','knife','spoon','bowl','banana','apple','sandwich','orange',
'broccoli','carrot','hot
dog','pizza','donut','cake','chair','sofa','pottedplant','bed','diningtable','to
ilet','tvmonitor','laptop','mouse','remote','keyboard','cell
phone','microwave','oven','toaster','sink','refrigerator','book','clock','vase',
'scissors','teddy bear','hair drier','toothbrush'],
    [352,352],0.66)
    if target=="camera":
        self.open_camera()
        success,image = self.cap.read()
    else:
        image=np.array(Image.open(target))
    datas = self.yolo.run(image)
    b,g,r = cv2.split(image)
    image = cv2.merge((r,g,b))
    image = cv2.flip(image,1)
    if datas:
        for data in datas:
            XGOEDU.rectangle(self,image,data['xywh'],"#33cc00",2)
            xy= (data['xywh'][0], data['xywh'][1])
            XGOEDU.text(self,image,data['classes'],xy,1,"#ff0000",2)
            value_yolo = data['classes']
            ret=(value_yolo,xy)
    imgok = Image.fromarray(image)

    #把颜色转回来 Turn the color back
    r,g,b = cv2.split(image)
    image1 = cv2.merge((b,g,r))
    cv2.imshow('frame', image1)#显示在终端上 display on the terminal

    self.display.ShowImage(imgok)
    if ret=='':
        return None
    else:
        return ret
my_edu = my_yolo()
#循环进行摄像头识别，按c键退出 Loop through the camera recognition, press c to exit
while True:
    result=my_edu.yoloFast() #缺省参数，默认使用摄像头识别 Default parameters, use
camera recognition by default
    print(result)
    if cv2.waitKey(1) & 0xFF == ord('q'): break

```

Through the source code, the robot dog calls the edu API library and detects objects by turning on the camera.

