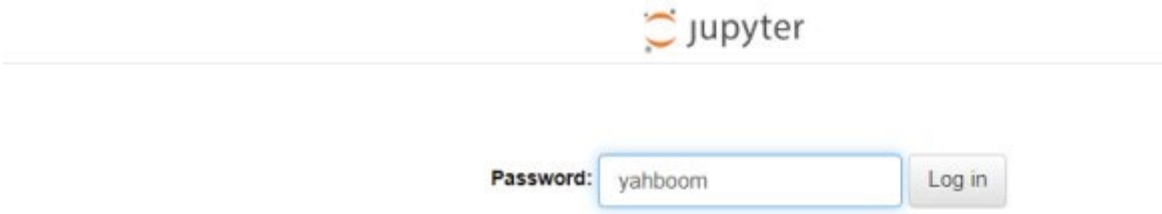
QR code recognition

1. Purpose of the experiment

Drive the robot dog to recognize the QR code

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 **cd ~/DOGZILLA_Lite_class/5.AI Visual Recognition Course/05. QR code recognition** and run **qrcode.ipynb** .

3. Experimental Phenomenon

After running the source code, you can see that the robot dog can recognize the information of the QR code and display the result of the QR code.

[4]:
```
# 导入组件 Importing Components
import ipywidgets.widgets as widgets
image_widget = widgets.Image(format='jpeg', width=320, height=240)  #设置

# 将BGR图像转换为JPEG格式的字节流 Convert a BGR image to a JPEG byte stream
def bgr8_to_jpeg(value, quality=75):
    return bytes(cv2.imencode('.jpg', value)[1])

display(image_widget) #显示出来
```

4. Main source code analysis

```
while(True):
    ret, img = cap.read()
    img_ROI_gray = cv2.cvtColor(img, cv2.COLOR_BGR2GRAY)
    barcodes = pyzbar.decode(img_ROI_gray)
    for barcode in barcodes:
        barcodeData = barcode.data.decode("utf-8")
        barcodeType = barcode.type
        text = "{} ({})".format(barcodeData, barcodeType)
        img=cv2AddChineseText(img,text, (10, 30),(0, 255, 0), 30)
        print("[INFO] Found {} barcode: {}".format(barcodeType, barcodeData))


    b,g,r = cv2.split(img)
    img = cv2.merge((r,g,b))
    imgok = Image.fromarray(img)
    mydisplay.ShowImage(imgok)

    r,g,b = cv2.split(img)
    img1 = cv2.merge((b,g,r))
    image_widget.value = bgr8_to_jpeg(img1)

    if (cv2.waitKey(1)) == ord('q'):
        break
    if button.press_b():
        break
```

Through the source code, we can get that the robot dog uses the camera for recognition and displays the recognized QR code results on the robot dog's screen and the computer's screen.