2. Color recognition

1. Purpose of the experiment

Drive the robot dog to do color recognition

2. Experimental path source code

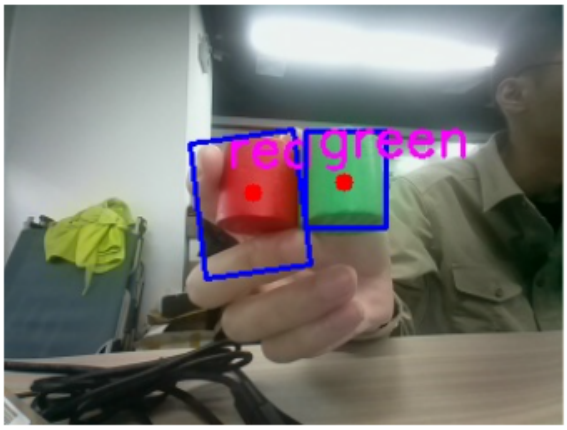
Enter the robot dog system, end the robot dog program, enter "ip (ip is the robot dog's ip): 8888" in the browser, enter the password "yahboom"

and log in. Enter the path of **cd ~/DOGZILLA_Lite_class/5.AI Visual Recognition Course/02. Color recognition** and run **color_detection.ipynb** .

3. Experimental Phenomenon

After running the source code, the robot dog can recognize four colors: **red, yellow, blue and green at the same time.**

```
[11]: thread1 = threading.Thread(target=TEST)
      thread1.daemon = True
      thread1.start()
```



4. Analysis of main source code parameters

```
def TEST():
    detected_colors = []  # 用于存储检测到的颜色名称 Used to store detected color
names
    unique_colorstemp=None
```

```
    global color_hsv
    display(image_widget)
    while True:
        ret, frame = image.read() #usb摄像头 usb camera
        frame, binary,hsvname=update_hsv.get_contours(frame,color_hsv)
        unique_colors = list(dict.fromkeys(hsvname))
        # 根据列表的长度来决定如何分割字符串 Determine how to split the string based
on the length of the list
        num_colors = len(unique_colors)

        if(unique_colors!=unique_colorstemp):
            unique_colorstemp=unique_colors.copy()

        # 实时传回图像数据进行显示 Real-time image data transmission for display
        image_widget.value = bgr8_to_jpeg(frame)

        #显示在小车的lcd屏幕上 Display on the LCD screen of the car
        b,g,r = cv2.split(frame)
        img = cv2.merge((r,g,b))
        imgok = Image.fromarray(img)
        mydisplay.ShowImage(imgok)
```

From the code, we can see that: by turning on the camera of the robot dog, the corresponding color recognition is performed; and the results are displayed on the computer screen and the robot dog screen.