

4.4 Use of RGB programming light strips

1. Introduction to RGB programming light bar driver

In the previous 【5.1 Using of GPIO】 , we introduced the RGB strip driver and the PCA9685 driver using the same I2C2 bus, so the underlying driver code for I2C communication is also consistent with the PCA9685, but the address of the communication is different.

Let me introduce the use of RGB programming light strips on the underlying code that is consistent with the PCA9685 driver I2C communication:

The RGB programming light bar is a custom-made module specially designed for Jetbot by Yahboom. It is also very convenient to use the customized RGB_Lib.py.

You can simply implement the cool lighting demonstrations by simply calling the corresponding instance methods in our library.

Path of package : [Jetbot-AI Car] --> [Annex] --> [Driver file]--> [RGB_Lib.py]



As shown in the above figure, it is the RGB game included in our Jetbot robot car APP. **The I2C slave address of the RGB stripe peripheral is 0x1B.**

When we first create an RGB instance, we automatically call the initialization function in Programming_RGB() to get the I2C peripheral, and then we can call the method inside the instance:

Import Yahboom officially packaged RGB driver library

Create and initialize a programmable RGB object

```
from RGB_Lib import Programming_RGB
RGB = Programming_RGB()
```

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* Set color of all RGB light

```
Set_All_RGB(self, R_Value, G_Value, B_Value)
```

* Close all RGB light

```
OFF_ALL_RGB(self)
```

* Set the RGB light color at a certain location

```
Set_An_RGB(self, Position, R_Value, G_Value, B_Value)
```

* Set water light effects

```
Set_WaterfallLight_RGB(self)
```

* Set color breathing light effects

```
Set_BreathColor_RGB(self)
```

* Set chameleon light effects

```
Set_ChameleonLight_RGB(self)
```

As shown below:

The first function is to control the range of RGB lights.

The second function is to control the breathing rate of a monochrome breathing light.

The third function is to start displaying the monochrome breathing light effect set in front.

```
Set_BreathSColor_RGB(self, color) #Color value range:0-6
Set_BreathSSpeed_RGB(self, speed) #Speed value range:1,2,3
Set_BreathSLight_RGB(self)
```

2. Use RGB driver to light any 16 million color RGB lights

First import the RGB driver library and create an instance of controlling the RGB programming light bar:

Import Yahboom officially packaged RGB driver library

Create and initialize a programmable RGB object

```
from RGB_Lib import Programming_RGB
RGB = Programming_RGB()
```



Then, follow the code as shown in the figure to achieve the corresponding display effect:

Set the first RGB light to white., which is the left rear position RGB light of Jetbot

The color parameter in the method is R G B

```
RGB.Set_An_RGB(0, 0xFF, 0xFF, 0xFF)
```

Set all RGB to red

```
RGB.Set_All_RGB(0xFF, 0x00, 0x00)
```

Set all RGB to green

```
RGB.Set_All_RGB(0x00, 0xFF, 0x00)
```

Set all RGB to blue

```
RGB.Set_All_RGB(0x00, 0x00, 0xFF)
```

Close all RGB

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```
RGB.OFF_ALL_RGB()
```

The corresponding complete source code is located:

[/home/jetbot/Notebook/5.Using of RGB strip/1.Light up a RGB light at any position/Light up a RGB light at any position.ipynb](#)

3.RGB special effects

First, import the RGB driver library and create an instance of controlling the RGB programming light bar:

The first step is to import the RGB driver library, create an instance of controlling the RGB programming light bar, and then realize the corresponding lighting effects according to the following code:

Setting the water light effect

The RGB light on the Jetbot light strip is lit purple at a time to form the effect of the water light.

```
RGB.Set_WaterfallLight_RGB()
```

Setting the chameleon effect

```
RGB.Set_ChameleonLight_RGB()
```

Set gradient breathing light effects

```
RGB.Set_BreathColor_RGB()
```

Setting Monochrome Breathing Light effects

Set the breathing color: RGB.Set_BreathSColor_RGB(0) parameter is set to 0-6 for a total of 7 colors. Set the breathing rate: RGB.Set_BreathSSpeed_RGB(3) parameter is set to 1-3 three speeds Start breathing: RGB.Set_BreathSLight_RGB()

```
RGB.Set_BreathColor_RGB(0)
RGB.Set_BreathSSpeed_RGB(3)
RGB.Set_BreathSLight_RGB()
```

Close all effects and close all RGB light

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```
RGB.OFF_ALL_RGB()
```

The corresponding complete source code is located:

[/home/jetbot/Notebook/5.Using of RGB strip/2.RGB special effects/RGB special effects.ipynb](#)