## Mixed color

Hardware requirements: mBot/mCore Control Panel Implementation: Upload the program to Arduino

### Example programs



## Script description

se	et	le	d	or	n	bo	ba	rd	C	al	ľ	) r	ec	l 💽 gr	ee	n (	0	9	Ы	ue	0	•
1														0	Ī				*			
														20								
														60								
														150								
														255								

wait 1 secs

Adjust the values (or double click the number area to enter values) and let the onboard LED to mix red, green and blue in a certain ratio. In the example script, the onboard LED lights red, yellow, green, azure, blue, pink and white in order.

The value behind red, green and blue are the brightness of each color. The bigger the value is, the brighter the color is (range from 0 to 255).

Control the color changing frequency of the LED lights by setting waiting time.



Repeat the process to make the LED flash.

### Knowledge points Point 1 Principles of color and light mixing

The color of the onboard LED is **three** original color mode (RGB color model, or RGB color model or red, green and blue color model). It is a color-adding model, which could show diversified color effects by mixing two or three colors of them in different ratio.



It can be known from the left diagram that Red+green=yellow green+blue=azure blue+red=pink red+blue+green=white

## Point 2 Color and light of the onboard LED

For the color and light values of the onboard LED, you can refer to <u>RGB color</u> <u>map</u> (as the bigger the value

set led on board all red 💽 green 💽 blue 💽

in is, the brighter the light is, and mixed color is brighter than single color. It is normally to set the value below 40 to prevent dazzling and better identify color and light).

In addition to the color plan in this example program, we can also inquire RGB color table to set the onboard LED color: As the onboard LED can better be identified when the value is below 40, so we can divide the RGB value (the 3rd column in the following table) by 10 and round it to determine the on-board LED value (the 4th column in the following table).

Name	R.G.B value	Onboard LED value	Block setting						
Cyan4	0 139 139	0 14 14	set led on board all red Or green 14 blue 14						
Dodger Blue	30 144 255	3 14 26	set led on board all red 3 green 14 blue 26						

Spring Green 2	0 238 118	0 24 12	set led on board all red Or green 24 blue 12
Firebri ck	178 34 34	18 3 3	set led on board all red 18 green 3 blue 3
VioletR ed	208 32 144	21 3 14	set led on board all red 21 green 3 blue 14
Maroo n	176 48 96	18 5 10	set led on board all red 18 green 5 blue 10
DarkG oldenr od4	139 101 8	14 10 1	set led on board ally red 14y green 10y blue 1y

#### Point 3 What if you execute two LED blocks of different color?

As the script runs fast, if there is no "waiting" between "red light" and "blue light", it is the same with lighting red and blue at the same time, and then you will see yellow. The following two scripts are lighting yellow when they are executed.



### Extended tasks

Use the RGB color table to modify the proportion of red, green and blue light to make beautiful lighting effects. (It is required to upload the program to Arduino.)

Download: Mixed Color.sb2