# Aruduino RGB Ring

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Sometimes we need our project to be colorful. Here it comes.

This module had 8 RGB LEDs, with a core ATMEGA88 chip. The programming to this chip is very simple, as it is Arduino compatible. Also, this module can be controlled by other Arduino Board via UART interface. In this case, the ATMEGA88 functions as a "Display Card". The command or protocol can be defined by programming ATMEGA88.

# **Programming This Module**

### **Hardware Connection**

To upload the program sketch, you might need a <u>Arduino USB Mini Adaptor</u>. Connect them as shown below:



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## Software

Click here to download the code.

Copy the files (boards.txt and programmers.txt ) in /RGB\_RING\_ATMEGA88/hardware-arduino/

to

/arduino-0021/hardware/arduino/



📓 rgb_led_toy_test   Arduino 0018	
File Edit Sketch Tools Help	
DEL Auto Format Ctrl+	
rgb_led_toy_test Fix Encoding & Reload	¢
Serial Monitor Ctrl+	Shift+M
#ifdef MASTER Board	Arduino Duemilanove or Nano w/ AImega328
delay_ms(1000) Serial Port	<ul> <li>Arduino Diecimila, Duemilanove, or Nano */ AImegal68</li> </ul>
sync (); blink_all_times Burn Bootloader	Arduino Mega Arduino Mini
blink_all_times (GREEN, 10, 20);	Arduino BI
blink_all_times (RED, 10, 20);	LilyPad Arduino w/ AImega328
	LilyPad Arduino w/ AImega16S
wobble2 (wobble_pattern_1, 8, RED, CCW, 10, 80)	): // 闭 Arduino Pro or Pro Mini (3.3V, 8 MHz) */ AImega328
wobble2 (wobble_pattern_3, 8, YELLOW, CCW, 10,	80); Arduino Pro or Pro Mini (3.3V, 8 MHz) w/ AImegal68
	Arduino HG or older w/ AImega168
CounterClockWise (WHITE, 10, 20); //流水 逆时针	方向 Arduino NG or older w/ AImegaS
ClockWise (WHITE, 10, 20): //流水 顺时针方向	# Arduino RGB LED Ring (5V, 8 MHz) #/ AImegaS8
rotating_bar (BLUE, CW, 15, 75): //滚动 rotating_bar (GREEN CCW 15, 75):	

Open the code in  $/{\mbox{RGB}_RING\_ATMEGA88}/{\mbox{RGBLEDuar}\,t}$  / and upload.

# Play with Arduino

As mentioned above, this module can be controlled by Arduino. By default the code has been uploaded to ATMEGA88. Arduino board sends command via UART interface and the RGB Ring displays accordingly.

## Hardware connection



# Software

#### Commands supported:

Diaplay	Function	UART Data					
Display	Called	0	1	2	3	4	
OFF		F0	F0				
Flow	ClockWise	F1	color	Direction	Delay	F1	
Rolling	rotating_bar	F2	color	Direction	Delay	F2	
Flash	blink_all	F3	color	Delay	F3		
Sway	wobble2	F4	color	Direction	Delay	Sway Array	F4
Sway Array	Setwobble	F5	8 bit				F5

COLOR	VALUE
RED	0
GREEN	1

BLUE	2
YELLOW	3
TURQUOISE	4
PURPLE	5
WHITE	6

#### Test Code:

This program shows 4 kinds of LED flashing.

```
int ledPin = 13;
void setup() {
 Serial.begin(19200);
 pinMode(ledPin, OUTPUT); // sets the digital pin as output
}
void loop() {
digitalWrite(ledPin, HIGH);
// Flow, color : red, direction : clockwise
Serial.print(0xF1,BYTE);
Serial.print(0,BYTE);
Serial.print(0,BYTE);
Serial.print(0x30,BYTE);
Serial.print(0xF1,BYTE);
delay(5000);
digitalWrite(ledPin, LOW);
// Rolling, color : white, direction : anti-clockwise
Serial.print(0xF2,BYTE);
Serial.print(6,BYTE);
Serial.print(1,BYTE);
Serial.print(0x30,BYTE);
Serial.print(0xF2,BYTE);
delay(5000);
digitalWrite(ledPin, HIGH);
// Flash, color: green
Serial.print(0xF3,BYTE);
Serial.print(1,BYTE);
Serial.print(0x30,BYTE);
Serial.print(0xF3,BYTE);
delay(5000);
digitalWrite(ledPin, LOW);
// sway, color : yellow, direction : anti-clockwise
Serial.print(0xF4,BYTE);
Serial.print(3,BYTE);
Serial.print(1,BYTE);
Serial.print(0x30,BYTE);
```

```
Serial.print(0,BYTE); //by default sway number 0
Serial.print(0xF4,BYTE);
delay(5000);
}
```



Vedio

Youtube: <a href="http://www.youtube.com/watch?v=\_nR0GcfGSB8">http://www.youtube.com/watch?v=\_nR0GcfGSB8</a>