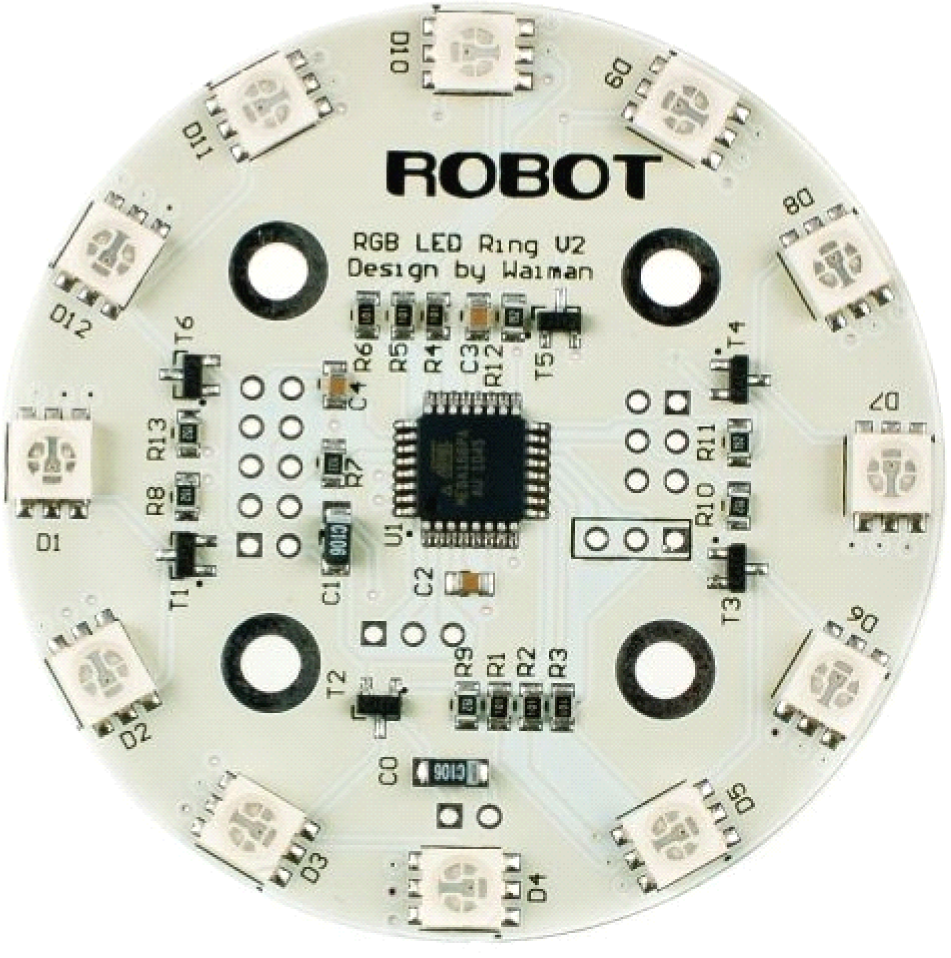
# Arduino Cyclic RGBuino Shield V2.0



## Introduction

This is probably the most beautiful LED ring ever. Each led on the ring can be controlled seperatly on its brightness and colors (RGB). It comes with pre-burned bootloader which has several buildin led scripts.

It allows I2C/Serial communication from any MCU and can be serially linked to make a beautiful Art piece via I2C.

It can be programmed using standard Arduino IDE by FTDI breakout board.

## Specificiation

CPU: Atmega 168P (Lilypad Board in Arduino IDE)

Supply voltage:5V

Interface: serial/I2C

12 SMD RGB LED

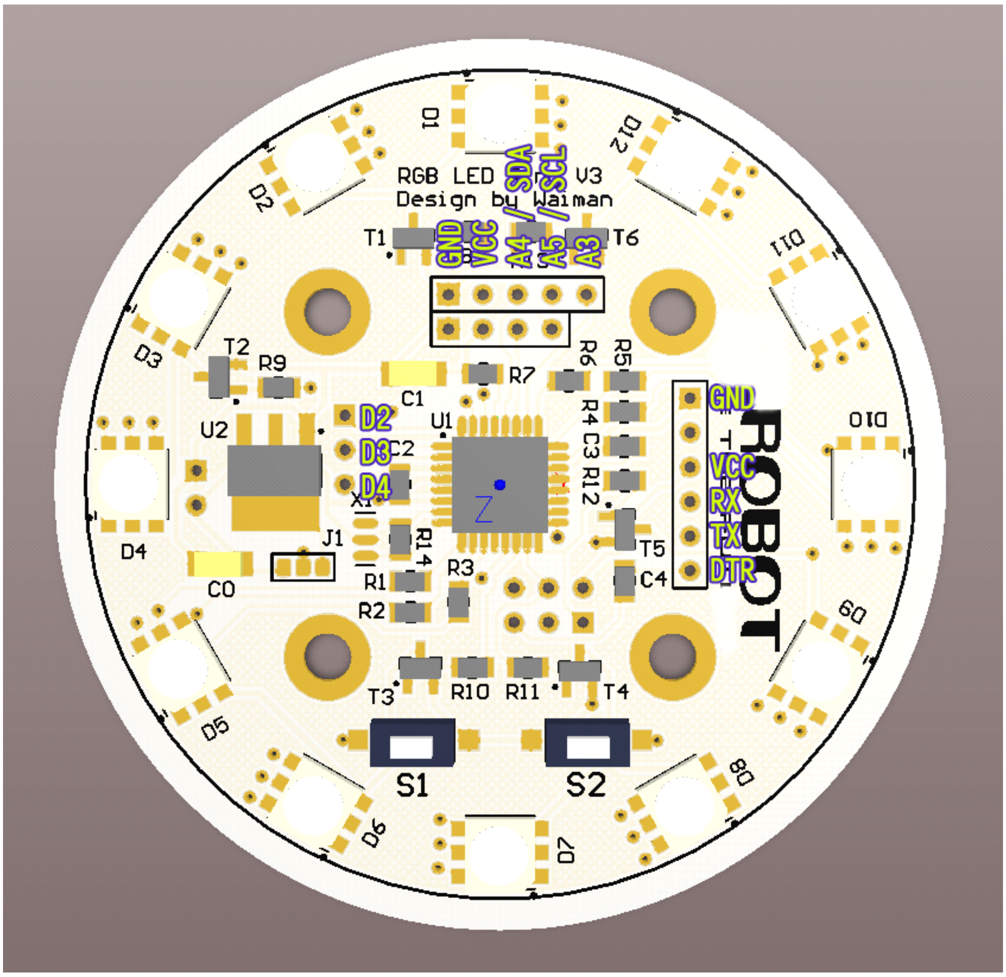
Firmware upgradable

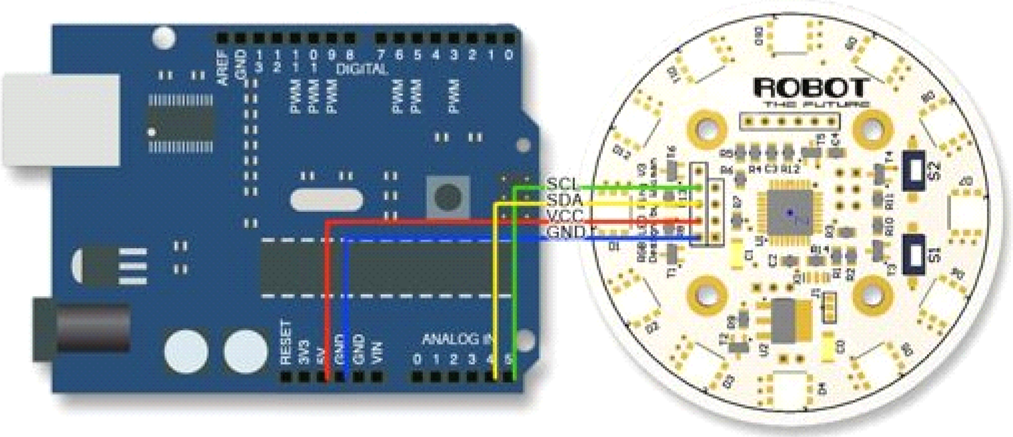
Stand-alone operation: No microcontroller needed for light script playback

## I2C connection instructions

I2C connection

Connect your Arduino to the Arduino Cyclic RGBuino Shield. Since we are providing power from the FTDI board do not plug in the 5V Vcc to the I2C side of the Arduino Cyclic RGBuino Shield. The only two wires you need to connect are the SDA to pin 4 and SCL to pin 5.


RGB LED V3
Design by Waiman
GND
VCC
A4 / SDA
A5 / SCL
A3
T1
T6
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
T2
R9
C1
R7
R6
R5
U2
U1
D2
D3
D4
C2
R4 C3 R12
GND
VCC
RX
TX
DTR
ROBOT
X1
J1
R14
R1
R2
R3
T5
C4
C0
T3
R10
R11
T4
S1
S2


AREF
GND
13 12 11 10 9 8 7 6 5 4 3 2 1 0
DIGITAL
PWM
SCL
SDA
VCC
GND
RESET
3V3
5V
GND
GND
VIN
ANALOG IN
0 1 2 3 4 5
ROBOT
S1
S2

### Prepare sketches and library

Download the Rar file with the source code and library.

Place the RGB_Ring_V2.h include file in :

Arduino-0022Libraries

1、The sender.pde sketch needs to be uploaded to the Arduino. Please be mindful to upload the correct sketch to the correct board

2、The Receiver.pde sketch needs to be uploaded to the Arduino Cyclic RGBuino Shield Ring.

3、In the Arduino IDE please select "LiliPad Arduino W/ATmega 168" from the Tools>Boards menu.

**Note** : If you accidentaly load the sketch to the wrong board just start over, just make sure to choose the correct board and com port for each board.

### Setting up serial terminals

These sketches have been optimized to work with a serial terminal. You can use PuTTY or any other serial monitor. You can open a terminal window for each of the devices. Both are configured as follows:

your com port/ 9600 baud rate/ 8 data bits/ 1 stop bit/ no parity/ Hardware flow control

The hardware flow control will not affect the Arduino, but it is important for the Arduino Cyclic RGBuino Shield, this will reset the Ring every time the serial port is opened or closed. Once the serial monitor is open for each you should be greeted by the words "hello from Arduino" and "Hello from LED Ring" This will help you identify which is which. Now you can start passing commands to the Arduino Cyclic RGBuino Shield via the Arduino Serial terminal.

### Arduino Cyclic RGBuino Shield interaction

The following are the commands used to control your Arduino Cyclic RGBuino Shield. Included are the parameters needed and the terminal command to execute each command.

```
                              //Term command
#set_led_rgb(LED, INT, INT, INT);    //b    The first parameter is the LED
```

number from 0-11, INT = intensity 0-64
#set_led_unicolor(LED, RGB, Int); //u RGB = 0, 1, OR 2.
#set_all_rgb(R, G, B); //r int = intensity i.e.:RED 00, GREEN 25, BLUE 34: set_all_rgb(00, 25, 34);
#set_all_unicolor(RGB, Int); //a
#rotate(color, dir); //o Color, direction, color is set from 0-7 and rotation from 0-2
#clearCommand(); //- No parameters needed
#random_leds (); //x indicate how many LEDs to light and the delay between each
#fader (); //f how many times to repeat
#fader_hue (); //h how many times to repeat
#sequence(); //S how many times to repeat *NOTE: CAPITAL S
#color_wave (0) ; //w amount to increase ,delay

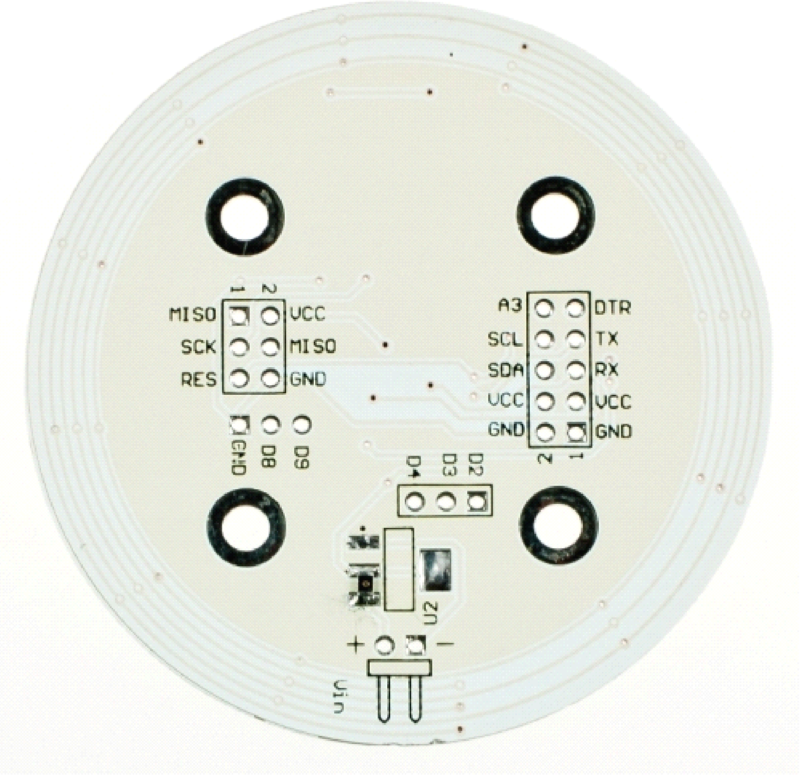
Each terminal command should be preceeded by a "c" and ended with an "s". These commands are case sensitve.

EXAMPLE:co029901s

This will send the command (c) rotate(o) the color Blue (02) times (99) clockwise (01) send (s)

Please study the sketch, it has been commented to give you a better idea of the functionality.

## The back side :

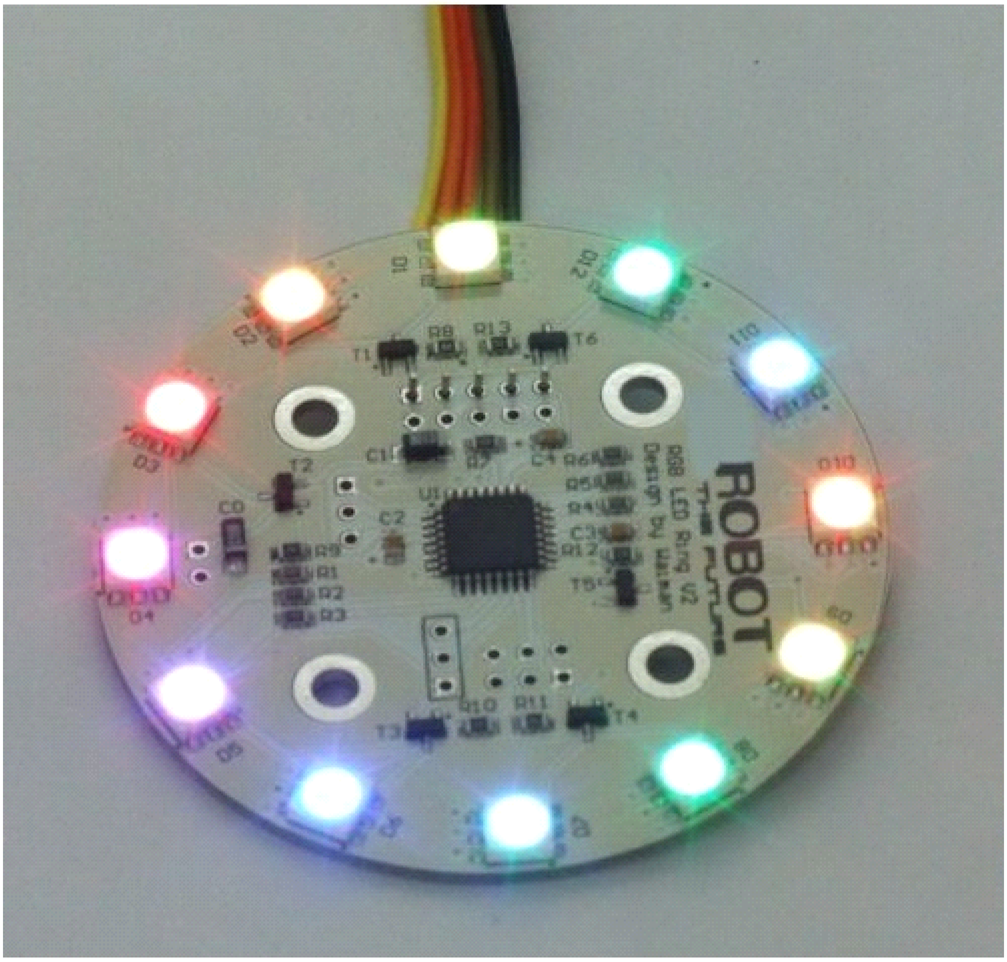


## Color enumeration

RED
GREEN
BLUE
YELLOW
TURQUOISE
FUCHSIA
WHITE
BLACK = OFF

Rotate CW = 1, CCW= 2

ROBOT



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