



Temperature Controlled RGB LED Light Stick - Mood Light

The circuit presented here is a LED light stick which changes its color in respect with the room temperature. This is an Arduino compatible open source project consisting of 20 x WS2812B Addressable RGB LEDs, LM35 Temperature Sensor and ATmega328 microcontroller. Atmega328 microcontroller reads the LM35 temperature sensor and changes the RGB LEDs color as per sensor analog output. Multiple units of this board can be installed in the room to create full light color effects. Colors of this light will change as the atmosphere's temperature changes. Placing the LED stick underneath a furniture or behind picture frames on the wall helps create a nice effect as well as improve the ambience of the room.

Features

- Operating Supply 5V DC
- Current Consumption 200mA (When All LED On White)
- 20X WS2812 RGB Addressable LEDs
- On Board LM35 Temperature Sensor
- PCB dimensions: 159.86 x 13.81 mm

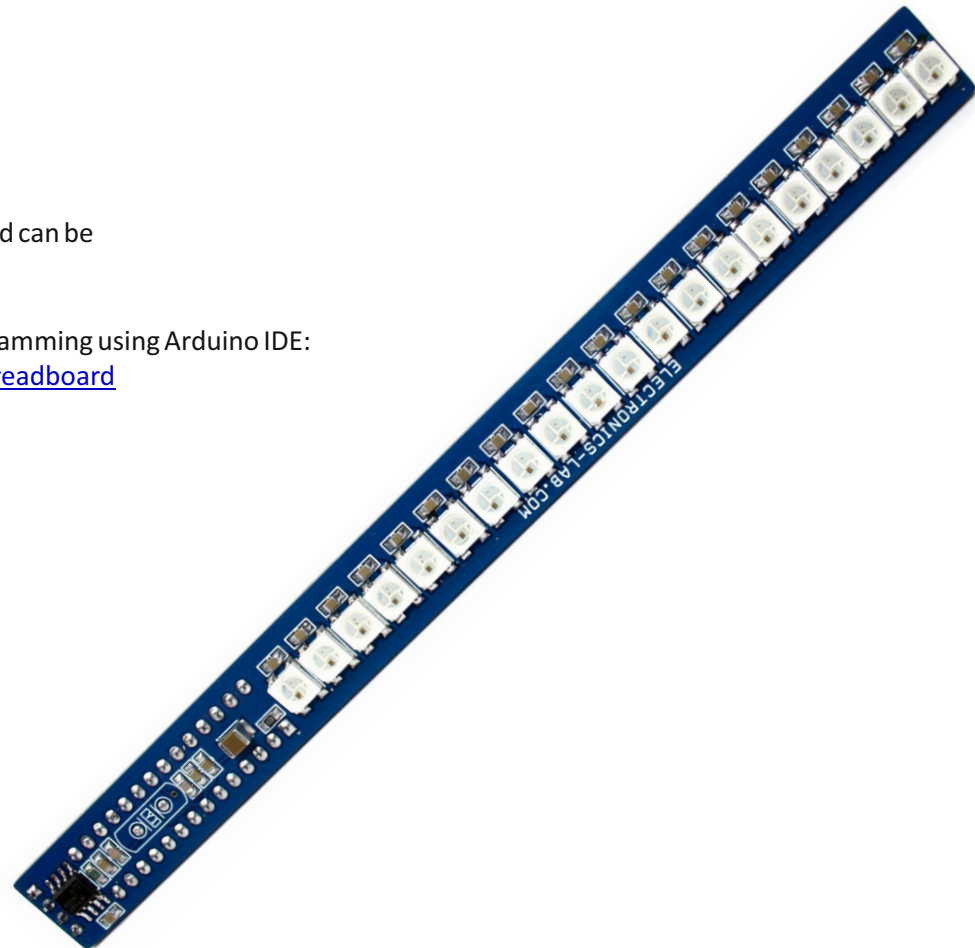
Arduino I/O Configuration (ATmega328 Chip)

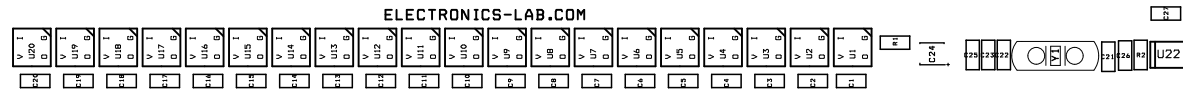
- WS2812 LED connected to Digital Pin D2
- Temperature Sensor LM35 Connected to ADC Analog pin A0

Example Arduino Code is provided to test the board and the code and can be modified or re-written as per user requirements.

Read the following tutorial about Atmega328 microcontroller Programming using Arduino IDE:

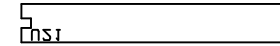
<https://www.arduino.cc/en/Tutorial/BuiltInExamples/ArduinoToBreadboard>





SILK SCREEN TOP

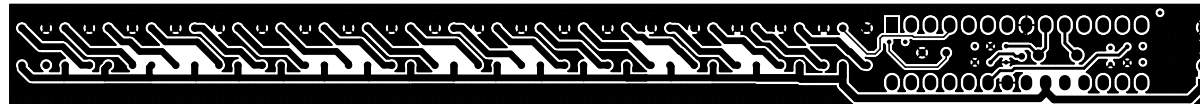
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SILK SCREEN BOTTOM



TOP LAYER

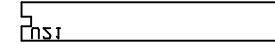


BOTTOM LAYER

PCB DIMENSIONS 159.86MM X 13.81MM



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GND
 GND
 5V DC
 5V DC

BOM				
SR.	QNTY	REF.	DESC	VENDOR/DIGIKEY/Mouser
1	1	CN1	4 PIN MALE HEADER 2.54MM PITCH	DIGIKEY S1011EC-40-ND
2	24	C1 TO C20,C23,C25,C26,C27	0.1uF/50V SMD SIZE 0805	YAGEO
3	2	C21,C22	22PF 50V SMD SIZE 0805	YAGEO
4	1	C24	100uF/16V SDM SIZE 1210	YAGEO
5	1	R1	10K 5% SMD 0805	YAGEO
6	1	R2	10E 5% SMD SIZE 0805	YAGEO
7	20	U1 TO U20	WS2812B LED 5050	DIGIKEY 1528-1104-ND
8	1	U21	ATMEGA328-DIP28	DIGIKEY ATMEGA328P-PU-ND
9	1	U22	LM35 SMD SOIC8	DIGIKEY LM35DMX/NOPBCT-ND
10	1	Y1	16MHZ	DIGIKEY X1103-ND