



## ADDRESSABLE 7 SEGMENT DISPLAY

⌚ Sep 29th, 2019 | 🚩 by: Andrei Gabriel



Like 6

Share

External Website

Views 944

DISPLAY PCB homemade Arduino 7-segment DIY

This is a huge 7 segment display. I mean is not huge, but compared with a common 7 segment display module, this one is quite big. The board is 130 by 80 mm. But that's not the best part of this project. This PCB is controlled in series using just one data pin. If you ever used this WS 2811 addressable LED strips, you will know how this 7-segment display PCB works as well. Because this one is controlled by the same chip. Actually, 3 chips because each IC could control 3 segments and the PCB has a total of 8 segments including the decimal point. Not just that, but you could place multiple modules in series and control all of them just with one data cable, because the data out from one module is the data in of the next one and so on, so you could place 10 modules in series if you want, all controlled by one data signal from the microcontroller.

### PART 1 - What we need

For this project we need the PCB so download and send it to JLCPCB. Once we have the PCB drivers and a lot of LEDs. Also a few resistor drivers can't deliver too much current for transistors to do that. See the list below.  
We need:

1 x display PCB: [GERBER files](#)

3 x WS2811: [LINK eBay](#)

Accept Cookies & Privacy Policy?

By using our website and services, you expressly agree to the placement of our performance, functionality, and advertising cookies. [Learn More](#)

[Accept Cookies](#)

[Customise Cookies](#)

57 x LEDs: [LINK eBay](#)

7 x AO3401A transisitor: [LINK eBay](#)

7 x 23R 0805 resistir: [LINK eBay](#)

1 x 180R 0805 resistir: [LINK eBay](#)

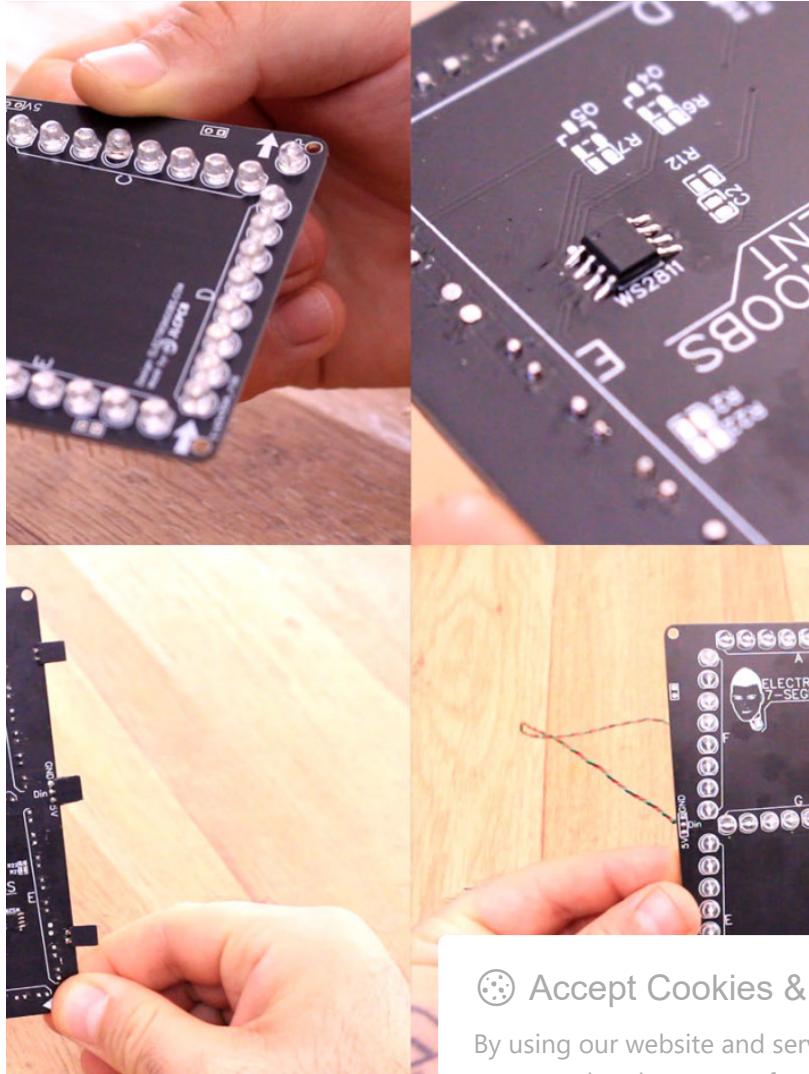
7 x 2K 0805 resistir: [LINK eBay](#)

3 x 100R 0805 resistir: [LINK eBay](#)

3 x 100nF 0805 capacitor: [LINK eBay](#)

1 x female pins angle: [LINK eBay](#)

1 x male pins angle: [LINK eBay](#)



#### FILES TO DOWNLOAD FOR THIS STEP

PCB Gerber files

Accept Cookies & Privacy Policy?

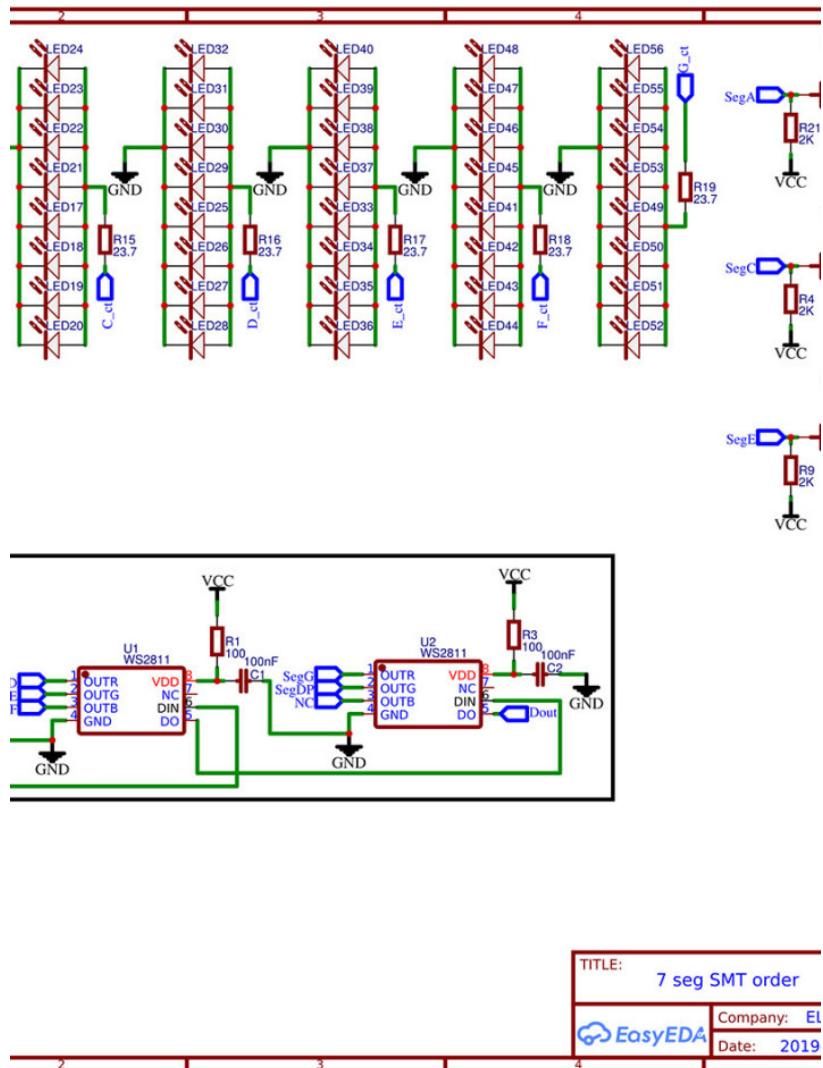
By using our website and services, you expressly agree to the placement of our performance, functionality, and advertising cookies. [Learn More](#)

[Accept Cookies](#)

[Customise Cookies](#)

## PART 2 - Schematic

See the schematic below. We can see 8 LEDs in parallel for each segment and one separated LED for the decimal point. Since the WS2811 can't control 8 LEDs at the same time because not enough current, I'll use some PNP transistors to do that. Each transistor has a 2K pulldown and will be controlled with a PWM signal from the WS2811 driver. We will also need the drivers and a few more female and male pins to place around the PCB. We use some resistors to limit the current.



## PART 3 - Mount it all

Ok, making the PCB is very easy. Get the components we need and mount the F all the LEDs and we need a total of 57 cathode and which the anode and do you can trim the pins of the LEDs to length.

Accept Cookies & Privacy Policy?

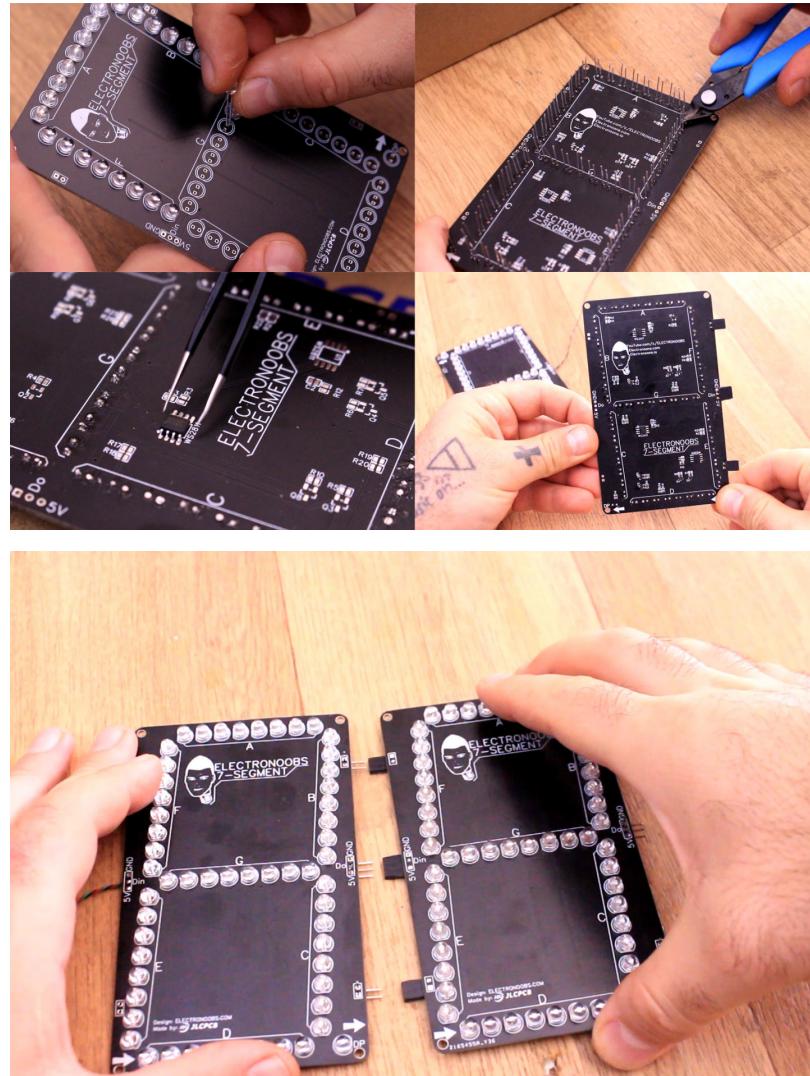
By using our website and services, you expressly agree to the placement of our performance, functionality, and advertising cookies. [Learn More](#)

[Accept Cookies](#)

[Customise Cookies](#)

Then I solder the 3 ICs on the back of the PCB. Then the small mosfets and the rest of the resistors. I then connect 3 thin wires for 5V, GND and data in for the first module. The PCB has some more pins in order to connect one PCB to the other. So on the left side we have female pins and on the right we have male pins and we can put PCBs together.

As for the Arduino code, you will need the Adafruit neo pixel library for this so download that from below. In the code I've created a few functions so we define the Arduino pin that we will use for data and the amount of modules, in case 2 because I have only 2 PCBs. See code in next part.



## PART 4 - Code

Below you have the code for the 7 segment. We have a few examples to show characters or numbers separately. We have two voids: one to draw a character or number and the other is to draw a line. Download the code from below and also the link.

[Accept Cookies & Privacy Policy?](#)

By using our website and services, you expressly agree to the placement of our performance, functionality, and advertising cookies. [Learn More](#)

[Accept Cookies](#)

[Customise Cookies](#)

FILES TO DOWNLOAD FOR THIS STEP

[7 segment code](#)[!\[\]\(bd1a142de767a21e5362c595f844a4ff\_img.jpg\) DOWNLOAD](#)[New pixel Library](#)[!\[\]\(74d4806277d7e73349d8e8c0897931e9\_img.jpg\) DOWNLOAD](#)

```
//Example 1
//Could show 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 and a b c
d e f h l o p s u x(DP)
show_char(0,0);           //module 0 show a 0
show_char(1,'a');         //module 1 show the A
delay(delay_time);
show_char(0,1);           //module 0 show a 1
show_char(1,'b');         //so on...
delay(delay_time);
show_char(0,2);
show_char(1,'c');
delay(delay_time);
show_char(0,3);
show_char(1,'d');

.
.
.
```

## PART 5 - Control the modules

Connect 5V and GND to the Arduino from the 7 segments display. Connect the data pin to pin D6 of the Arduino. Upload the code and see the results. That's it. I hope you like it. Consider supporting my work on [PATREON](#).

[Addressable Big 7 Segments Display PCB](#)



See more tutorials from Andrei Ga

**0 Comments**



[Accept Cookies & Privacy Policy?](#)

By using our website and services, you expressly agree to the placement of our performance, functionality, and advertising cookies. [Learn More](#)

[Accept Cookies](#)

[Customise Cookies](#)

[Login](#) or [Sign Up](#) to post cor



### Share Your Ideas

Create, innovate, research and have fun!

[Sign Up or Login in order to comment, like, share tutorials and more.](#)

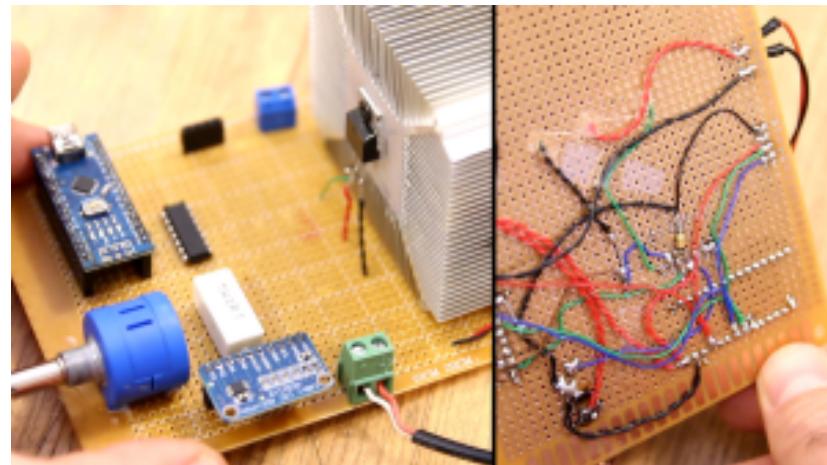
---

### SIGN UP

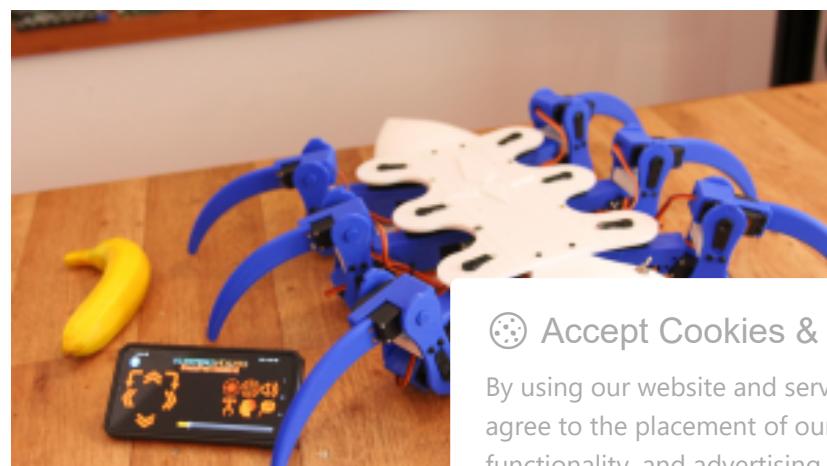
[Learn More](#)

### Top Tutorials

#### DIY CONSTANT LOAD CONTROLLER



#### HEXAPOD ROBOT



[Accept Cookies & Privacy Policy?](#)

By using our website and services, you expressly agree to the placement of our performance, functionality, and advertising cookies. [Learn More](#)

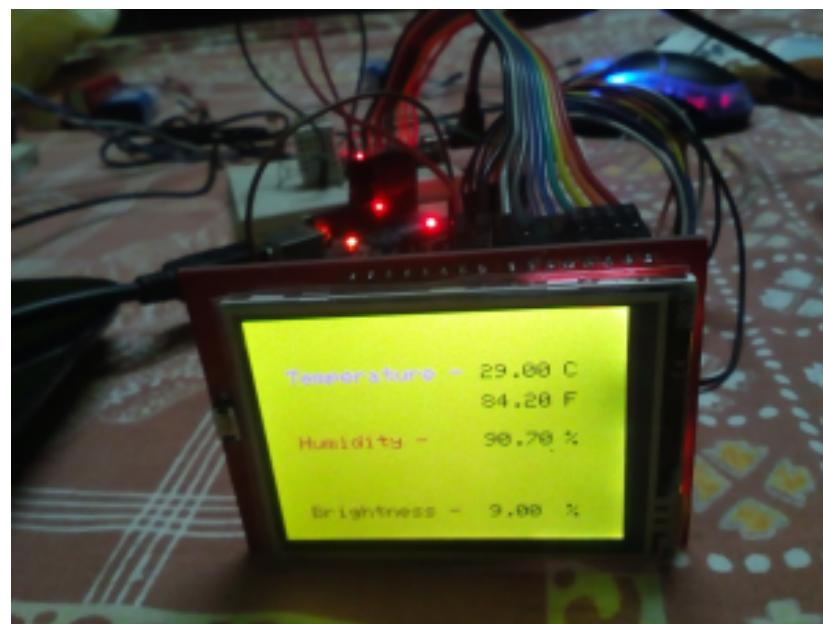
#### DIY SMOKE MACHINE

[Accept Cookies](#)

[Customise Cookies](#)



LCD Weather Monitor

[View More](#)

## Top Projects

### Arduino based transmitter receiver

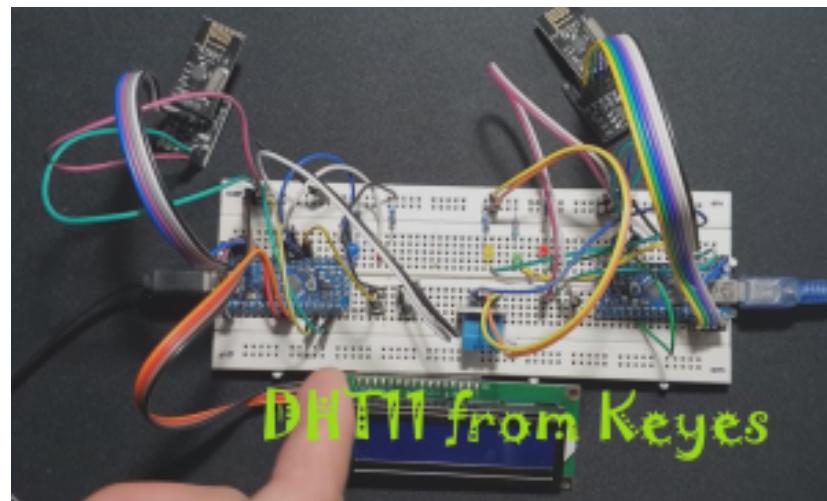
[Accept Cookies & Privacy Policy?](#)

By using our website and services, you expressly agree to the placement of our performance, functionality, and advertising cookies. [Learn More](#)

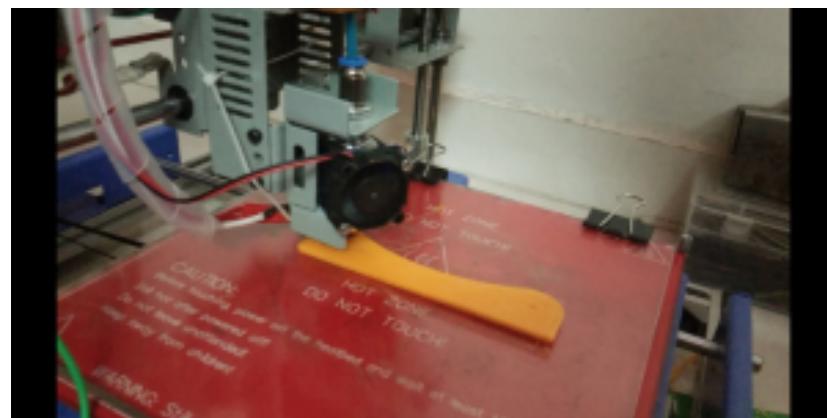
[Accept Cookies](#)[Customise Cookies](#)



Breadboard Prototyping: Wireless Weather Station with Remote Switch



3D printer



Arduino smartwatch



Accept Cookies & Privacy Policy?

By using our website and services, you expressly agree to the placement of our performance, functionality, and advertising cookies. [Learn More](#)

[Accept Cookies](#)

[Customise Cookies](#)


[View More](#)

### Random creators

 **Noob 276**

 **Noob 373**

 **Noob 1887**

 **Noob 1489**

 **Noob 1770**

 **Noob 82**

### Popular tags

Arduino

DIY

homemade

Radio

RC

3D printed

OLED

bluetooth

servo

[Accept Cookies & Privacy Policy?](#)

By using our website and services, you expressly agree to the placement of our performance, functionality, and advertising cookies. [Learn More](#)

[Accept Cookies](#)

[Customise Cookies](#)

controller

craft

LCD

Soldering

portable

DISPLAY

ARDUINO

[View More](#)

© Electronoobs.io 2019

Powered by  Xwebing.com

Accept Cookies &amp; Privacy Policy?

By using our website and services, you expressly agree to the placement of our performance, functionality, and advertising cookies. [Learn More](#)

[Accept Cookies](#)[Customise Cookies](#)