

Carolina Con 15 Badge Guide



Hack the Planet

By wm & mt

Repo with code and other instructions:

<https://github.com/49thSecurityDivision/CC-15-Badges>



Each anti static bag should include:

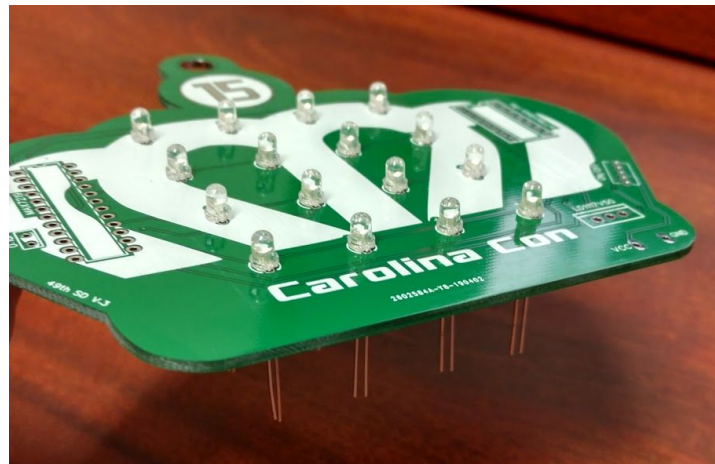
- 1 Crown Shaped PCB
- 16 Clear Blue LEDs
- 1 Battery Pack for 4 AAA Batteries
- 1 Power Switch
- 1 5V Voltage Regulator (The thing with 3 metal prongs)
- 1 0.1uf Capacitor (Yellow thing)
- 1 10K Resistor (not pictured, our bad)
- 1 7 Pin Socket
- 1 12 Pin Socket
- 1 ATTINY84 (The brain)
- 1 MAX7219 (The bigger looking black chip)

*if your bag is missing parts tell a staff member and we will scavenge for more parts

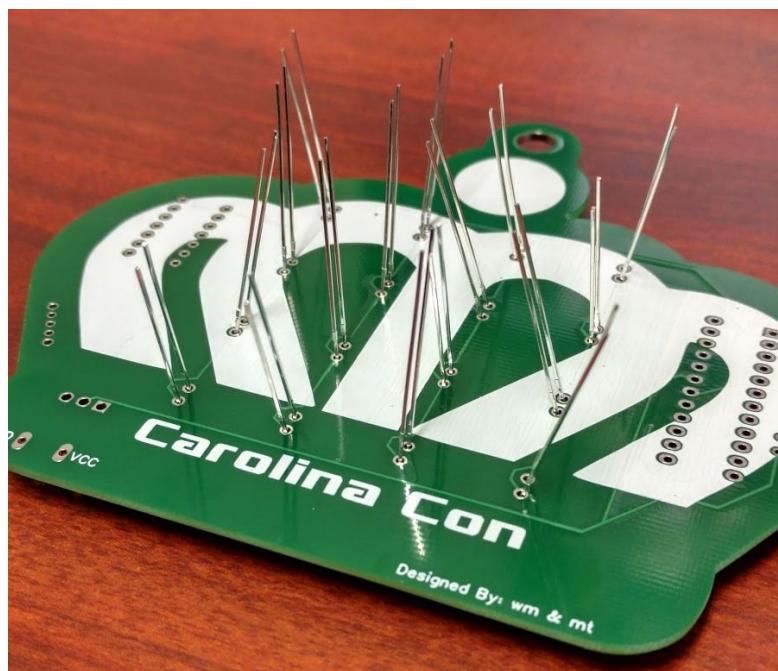
I recommend soldering the parts in this order. If you don't know how to solder shout "I don't know how to solder!" and someone will help you.



Insert the 16 LEDs into the front of the PCB. Ensure the longer lead goes into the hole with the "+" label.



Once the LEDs are in place carefully flip the PCB upside down so that the leads are sticking up.



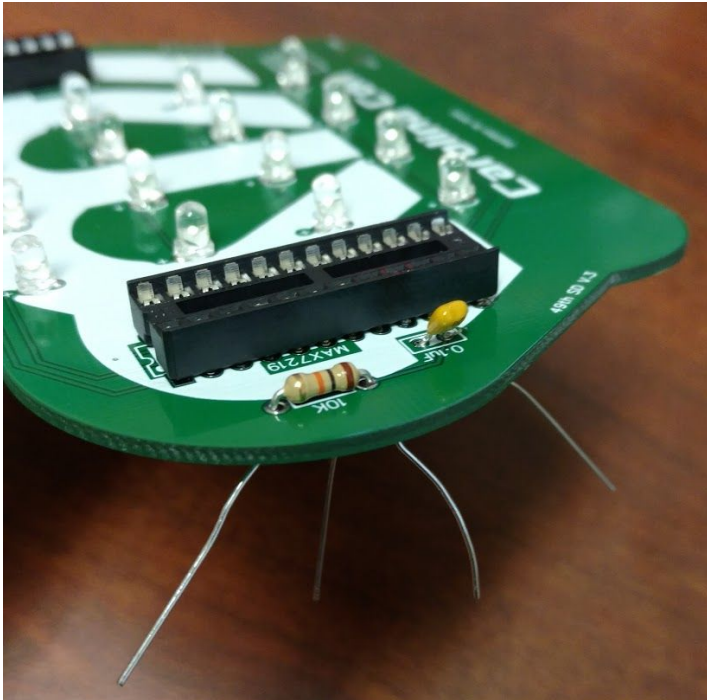
Now that the PCB is upside down you may solder the LEDs to the PCB. Try and keep the leads as straight in the air as possible.



Clip off the LED leads with clippers.

Solder the 2 IC sockets next by applying solder to the pins on the backside.





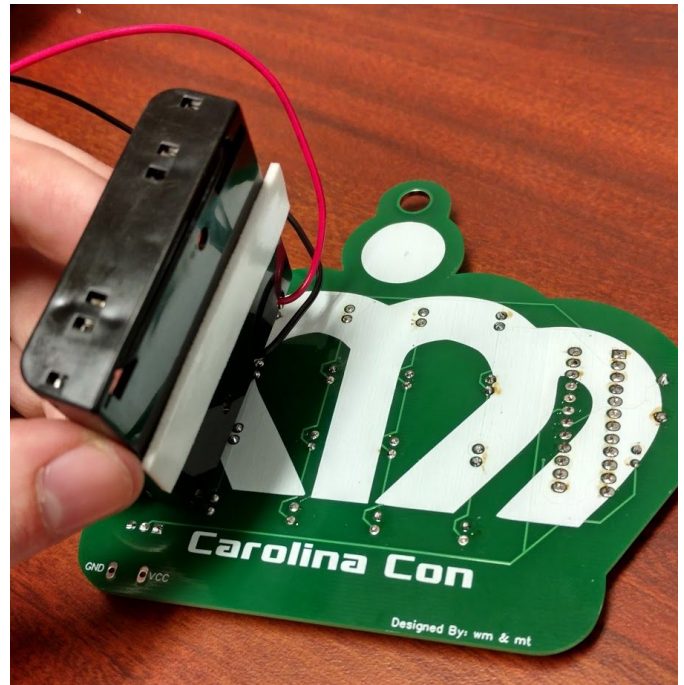
Place the 10K Resistor and 0.1uF Capacitor in their respective locations. You may need to pull the capacitor through the hole with pliers. Apply solder to the backside of the PCB.

Place the 5V regulator in the PCB holes as far as it will go then bend it flat onto the PCB. It doesn't need to be super close. Apply solder to the 5V regulator on the top of the PCB.

Press the Power Switch onto the PCB. Ensure the black plastic is hanging off of the PCB. Solder it in place by applying solder to the back of the PCB.

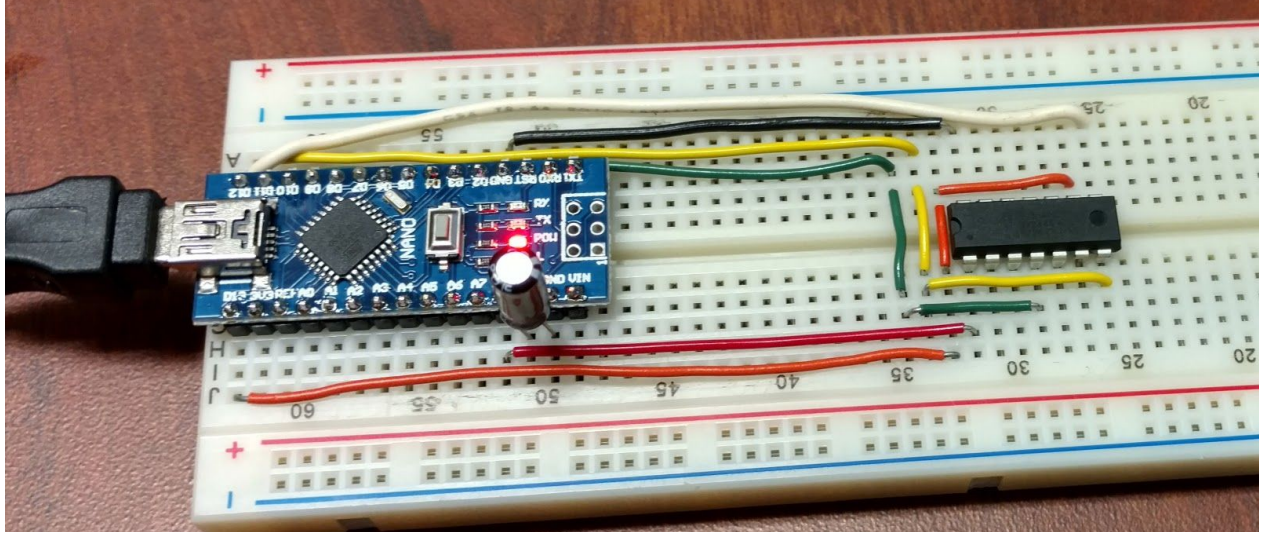


Flip the PCB over and cut off any remaining leads. Get a strip of double sided tape from the roll and apply it like shown in the picture. Honestly, it doesn't stick very well. Feel free to use duck tape it if we have that onsite.



Once the battery pack is in place ask one of the staff members for 4 AAA batteries and place them in the pack.

Solder the red wire from the battery pack to the pad labeled "VCC" and the black wire to the pad labeled "GND".



Take the ATTINY84 (the smaller black chip) to a staff member to have it programmed for you. If you want to check out the code on github for yourself you can to clone the repo here.

<https://github.com/49thSecurityDivision/CC-15-Badges>



Place the ATTINY84 into its socket and the MAX7219 into its socket. Ensure the round notch is facing upwards
Congratulations! The badge is finished!