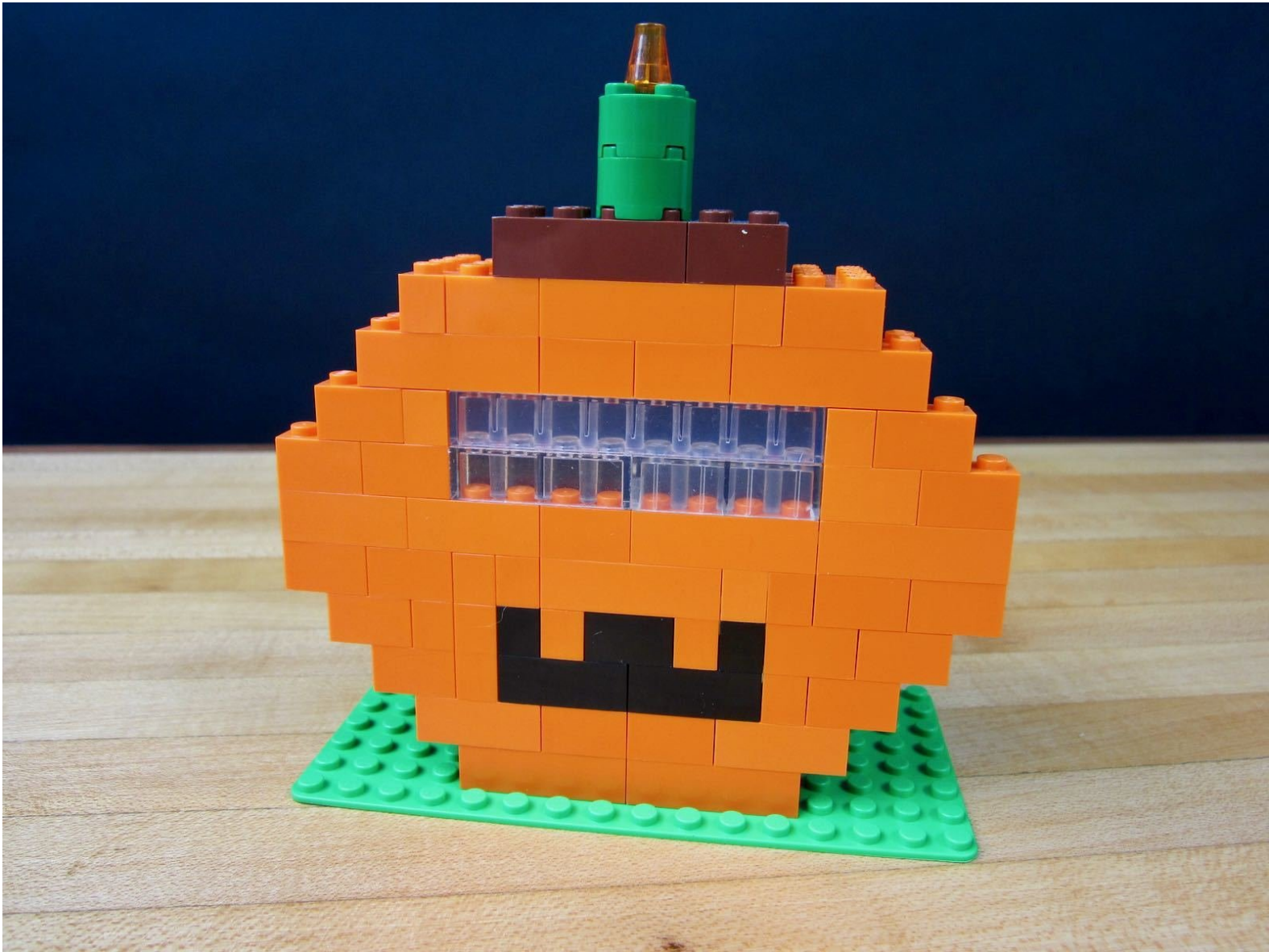




# Cylon LEGO Pumpkin

A LEGO Pumpkin with Cylon Eyes. (AKA, a Larson Scanner.)

Written By: Joshua



# INTRODUCTION

Stop using weak, organic, pumpkins for your Halloween decorations! Instead create a cold, robotic pumpkin that will never let you down.

This project creates a simple Larson Scanner out of four LEDs. The Larson Scanner effect was seen in such classic TV shows as Battlestar Galactica and Knight Ridder. Since we don't have a talking car we're putting our scanner into a pumpkin body made out of LEGOs.



## TOOLS:

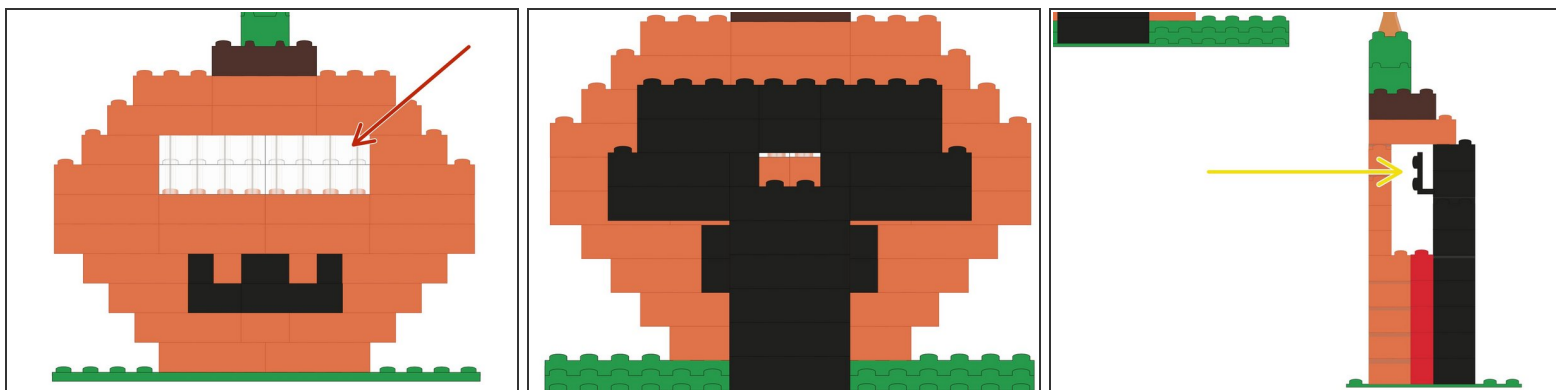
- [Scissors](#) (1)
- [Computer](#) (1)



## PARTS:

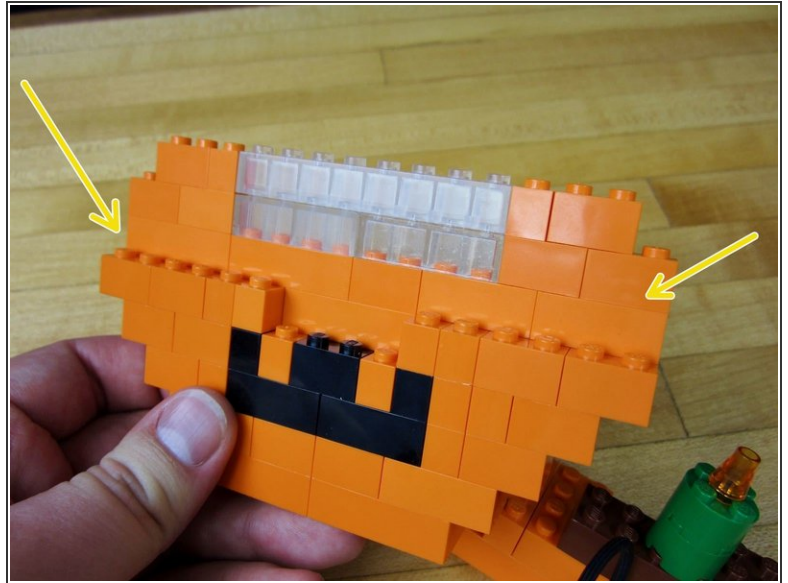
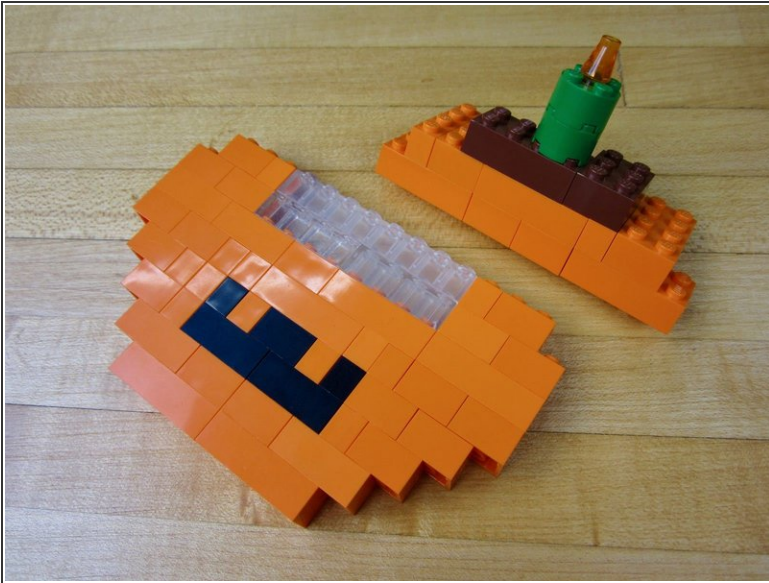
- [Crazy Circuits Robotics Board](#) (1)
- [Mini LED Chip](#) (4)
- [LEGO Bricks](#) (1)

## Step 1 — Gather Your Bricks



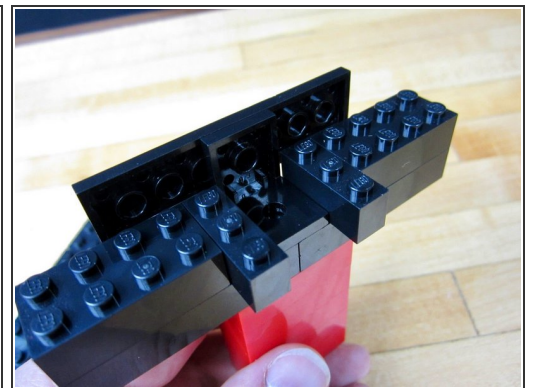
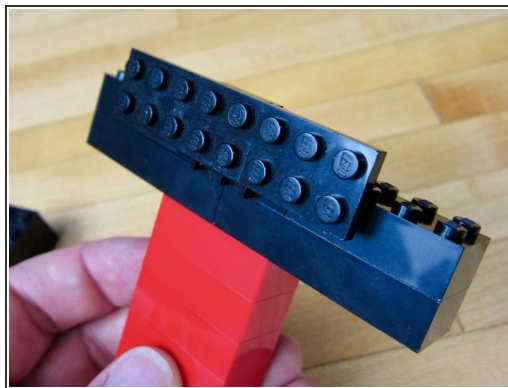
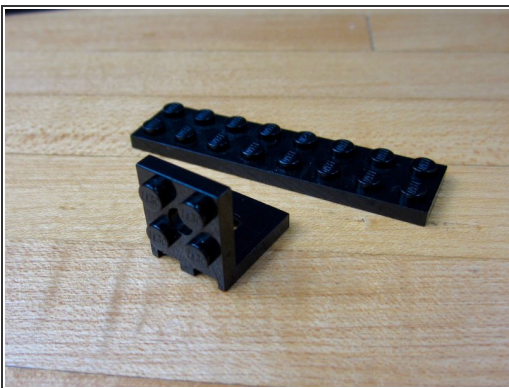
- Use an 8x16 sized base plate as your build platform.
- We used a wide variety of orange and black pieces.
- The most important are some 1x2 or 1x4 sized clear bricks for the "eyes."
- The second most important brick is a right angle brick, so we can stick our LEDs on vertically.
- ① If you need to buy specific bricks in specific colors, try [BrickLink](#) or [BrickOwl](#).

## Step 2 — Build Your Pumpkin



- Build your Pumpkin.
- Notice how we use 2 wide bricks on the bottom half, and 1 wide bricks on the upper half.

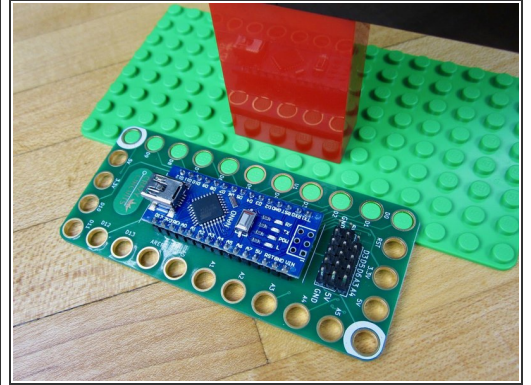
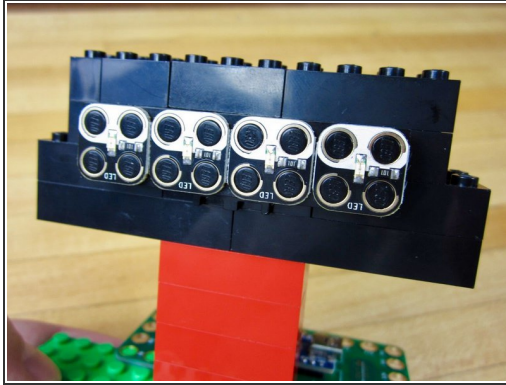
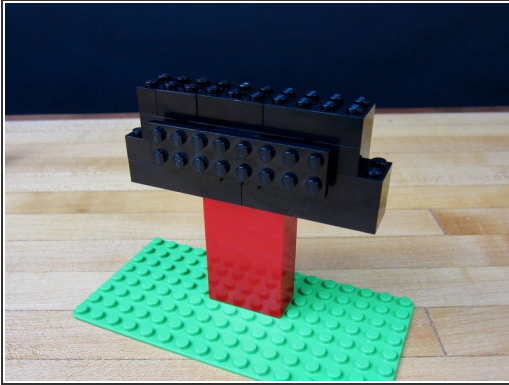
## Step 3 — Build the LED Holder



- Use a right angle LEGO piece and a 2x8 plate to create the LED holder.
- Use standard bricks to build the tower that holds everything.

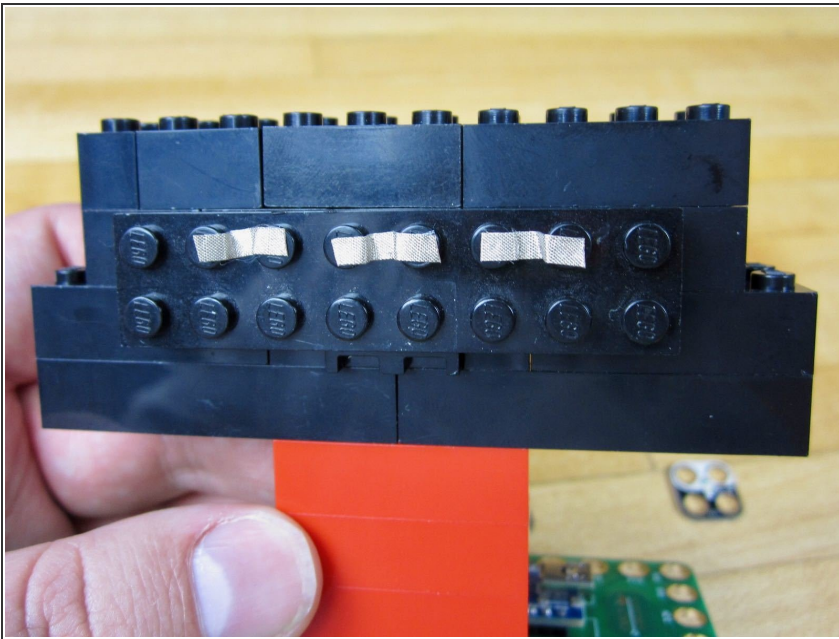


## Step 4 — Lay Out Your Parts



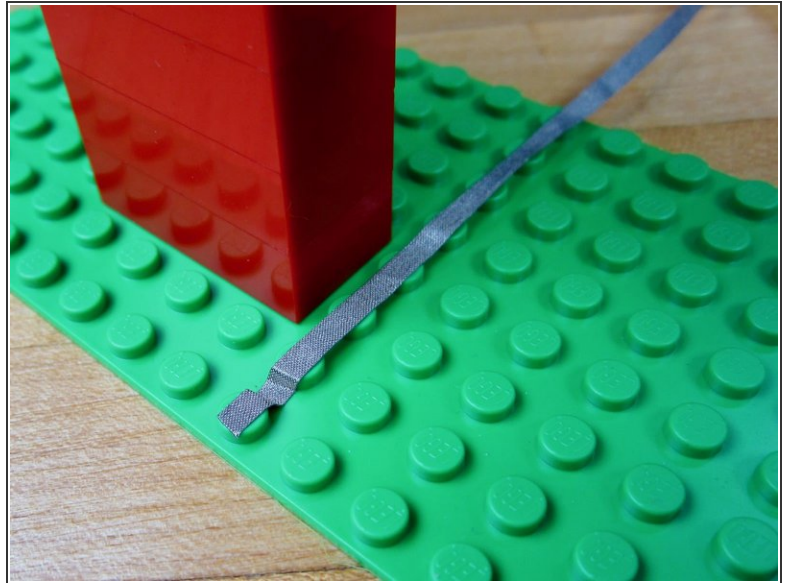
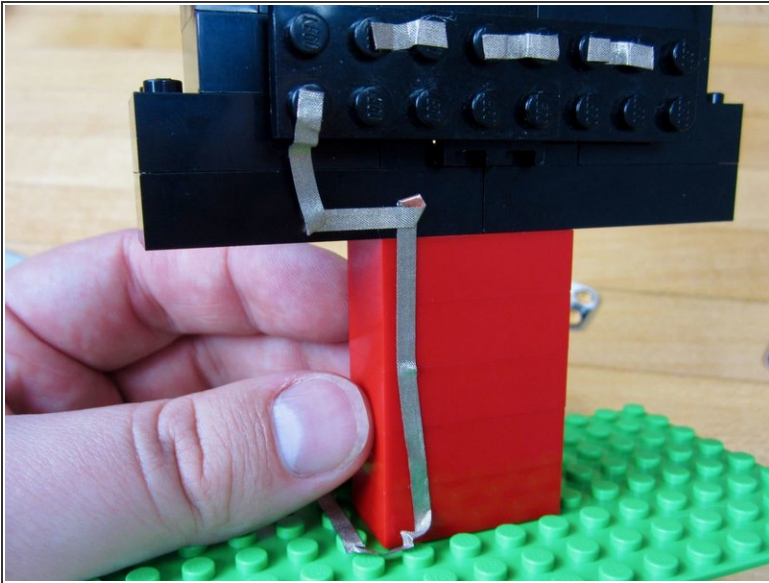
- Stick your tower to the base plate.
- Stick on the LEDs and Robotics Board.

## Step 5 — Common Ground



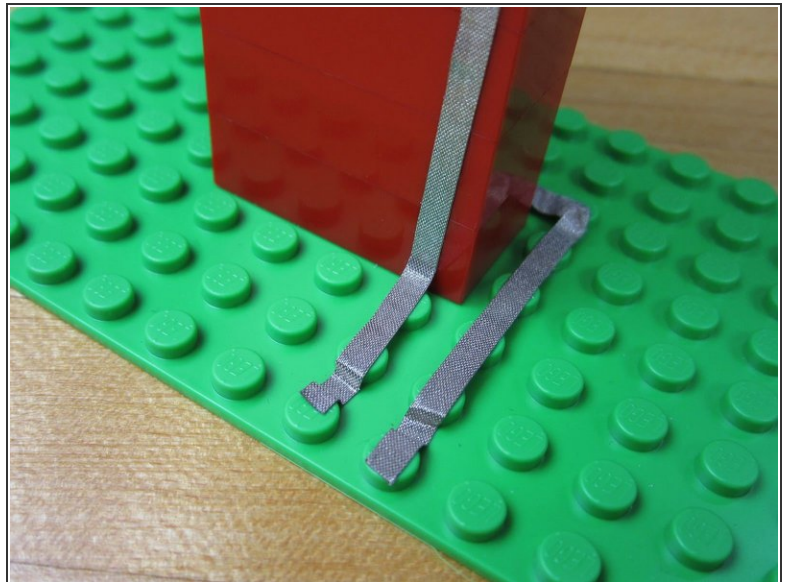
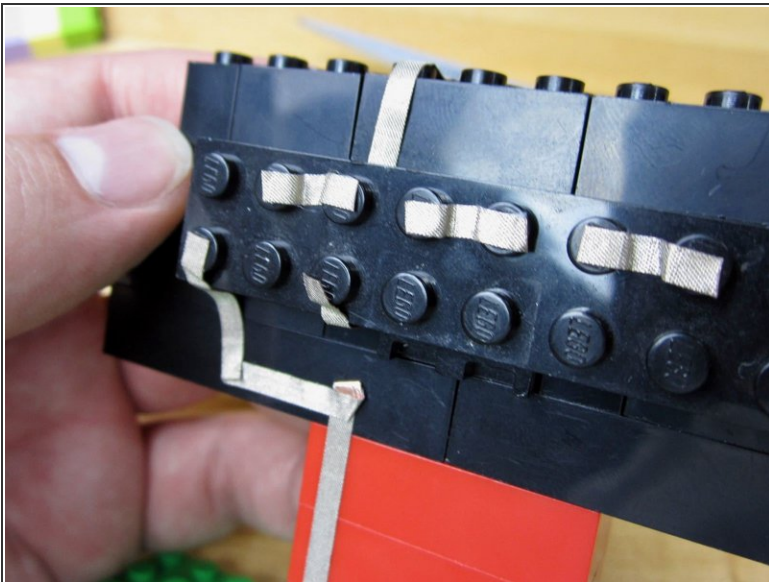
- Connect the Grounds between each of the LEDs.

## Step 6 — Connect an LED to Pin 2



- Run a long line of tape from the far left LED to Pin 2 on the Robotics Board.

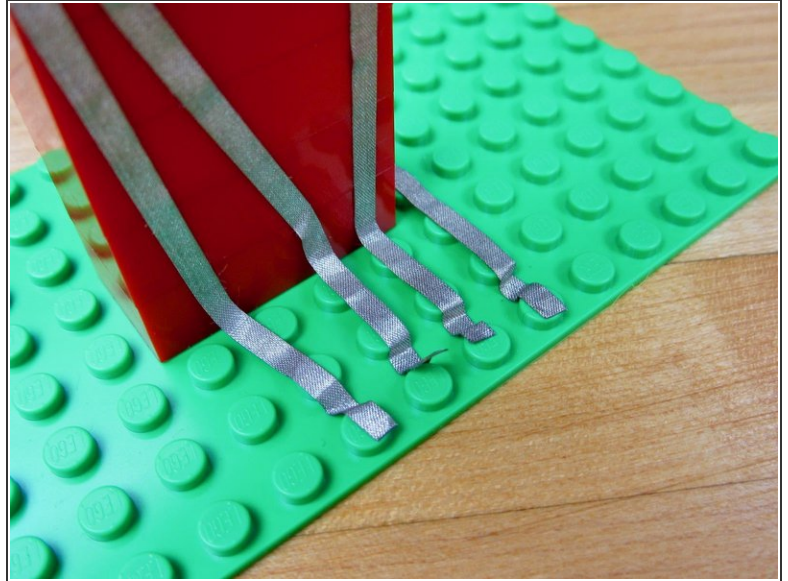
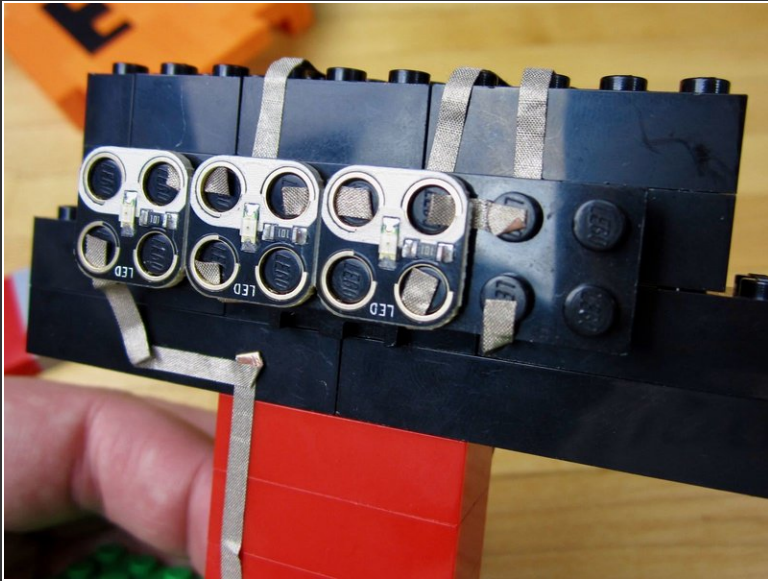
## Step 7 — Connect the 2nd LED to Pin 3



- Run a line of tape from the 2nd LED back around the LED holder.
- Connect to Pin 3 on the Robotics Board.

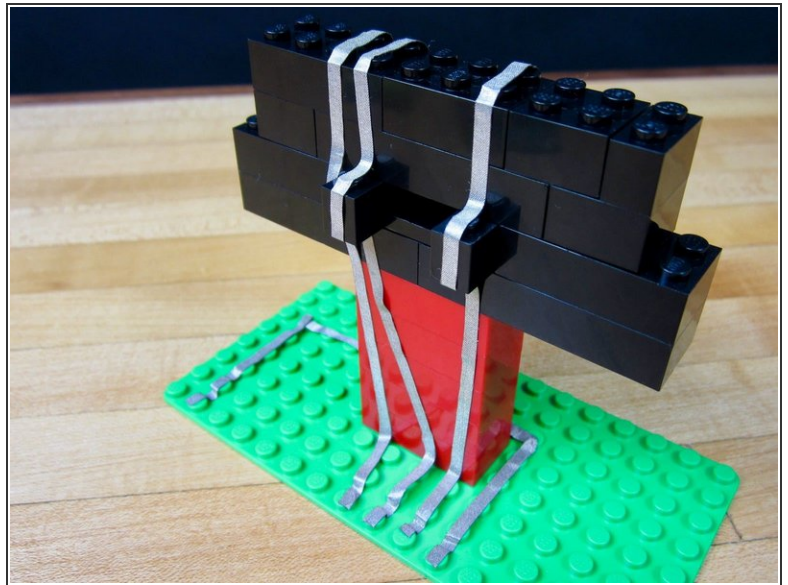
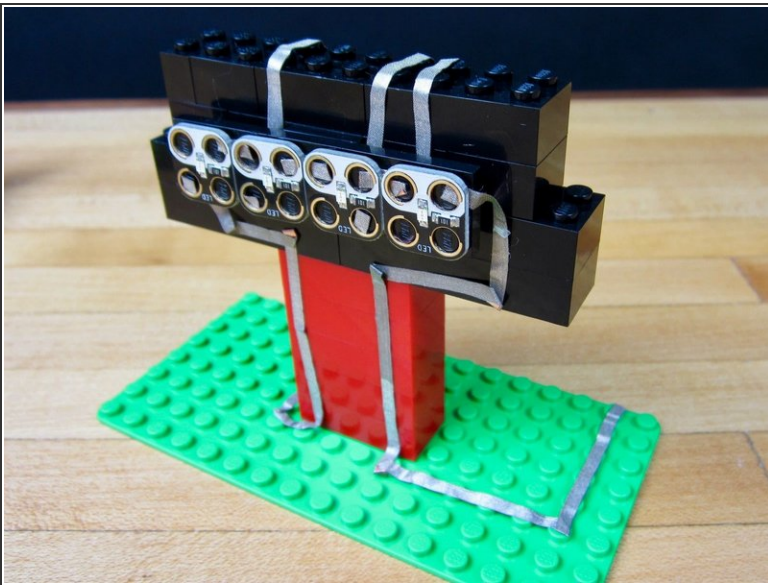


## Step 8 — Connect the 3rd and 4th LEDs



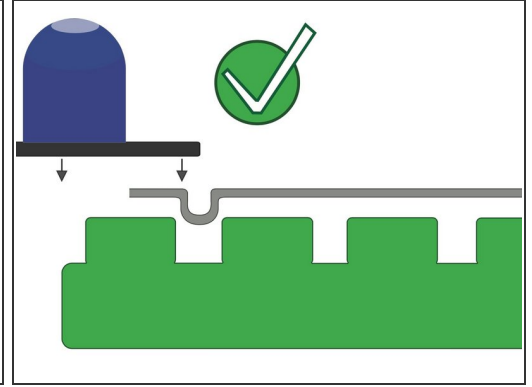
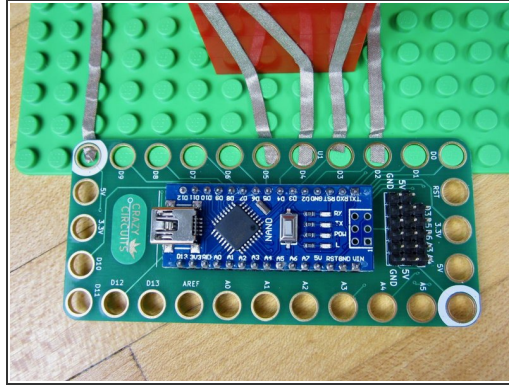
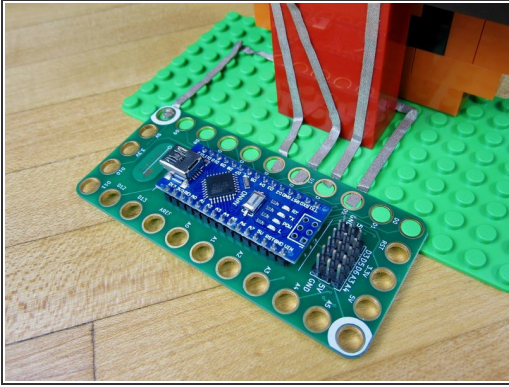
- Do the same thing with the 3rd and 4th LEDs.
- They connect to Pins 4 and 5 on the Robotics Board.

## Step 9 — Connect Grounds



- Run a long line of tape from your 4th LED to the Ground hole on your Robotics Board.
- Put on the LEDs when finished.

## Step 10 — Attach the Robotics Board



- Pop on the Robotics Board.
- Double check your connections to make sure you're using Pin 2-5, and that you're also hooked up to Ground.

⚠ If your board isn't popping on check to make sure your tape ends are not too long.



## Step 11 — Upload the Code

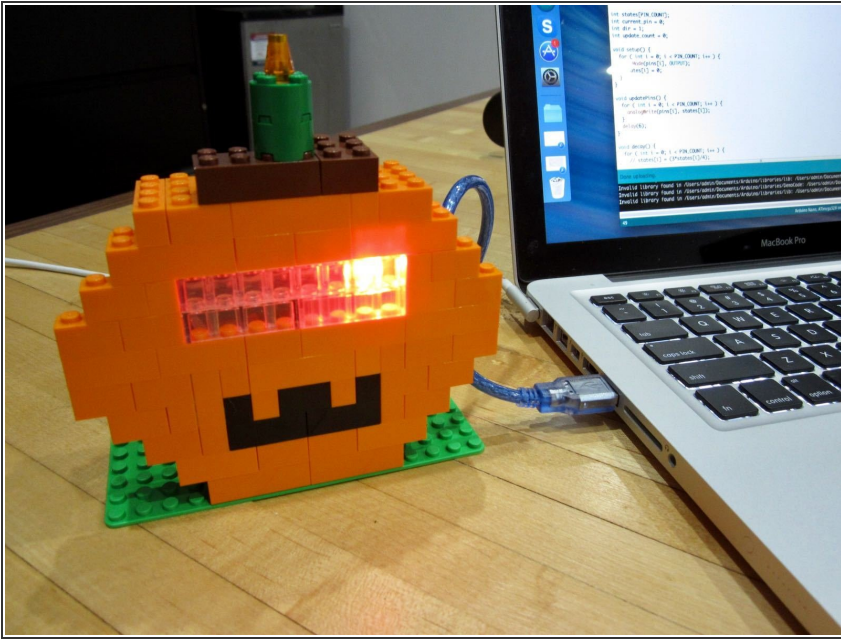
```
2 #define PIN_COUNT 4
3
4 #define UPDATE_DURATION 28 // set the speed
5
6 int pins[PIN_COUNT] = {2, 3, 4, 5}; // set the pins
7
8 int states[PIN_COUNT];
9 int current_pin = 0;
10 int dir = 1;
11 int update_count = 0;
12
13 void setup() {
14   for ( int i = 0; i < PIN_COUNT; i++ ) {
15     pinMode(pins[i], OUTPUT);
16     states[i] = 0;
17   }
18 }
19
20 void updatePins() {
21   for ( int i = 0; i < PIN_COUNT; i++ ) {
22     analogWrite(pins[i], states[i]);
23   }
24   delay(6);
25 }
26
27 void decay() {
28   for ( int i = 0; i < PIN_COUNT; i++ ) {
29     // states[i] = (3*states[i]/4);
30     states[i] = (6*states[i]/8);
31   }
```



If you've never used our Robotics board before, STOP! Read the [Robotics Board User Guide](#). You'll need it to download all the right software and drivers.

- Open up the Arduino software and open up a new project window. [Copy and Paste](#) this code into the project window.
- Upload the code.
- ⓘ You can add more LEDs to your project by changing just a couple of lines of code. On line 2 you can change the number of LEDs you're using. Then on line 6 add the other LED Pins that you're using.

## Step 12 — Power via USB or Battery



- Once the code is uploaded it will run every time it is powered on.
- Use a USB wall adaptor to power it independently from a computer.
- ① You can use a 4 AA or AAA battery holder and attach it to the 5V and Ground on the board. This can be done with the help of a Screw Terminal chip.