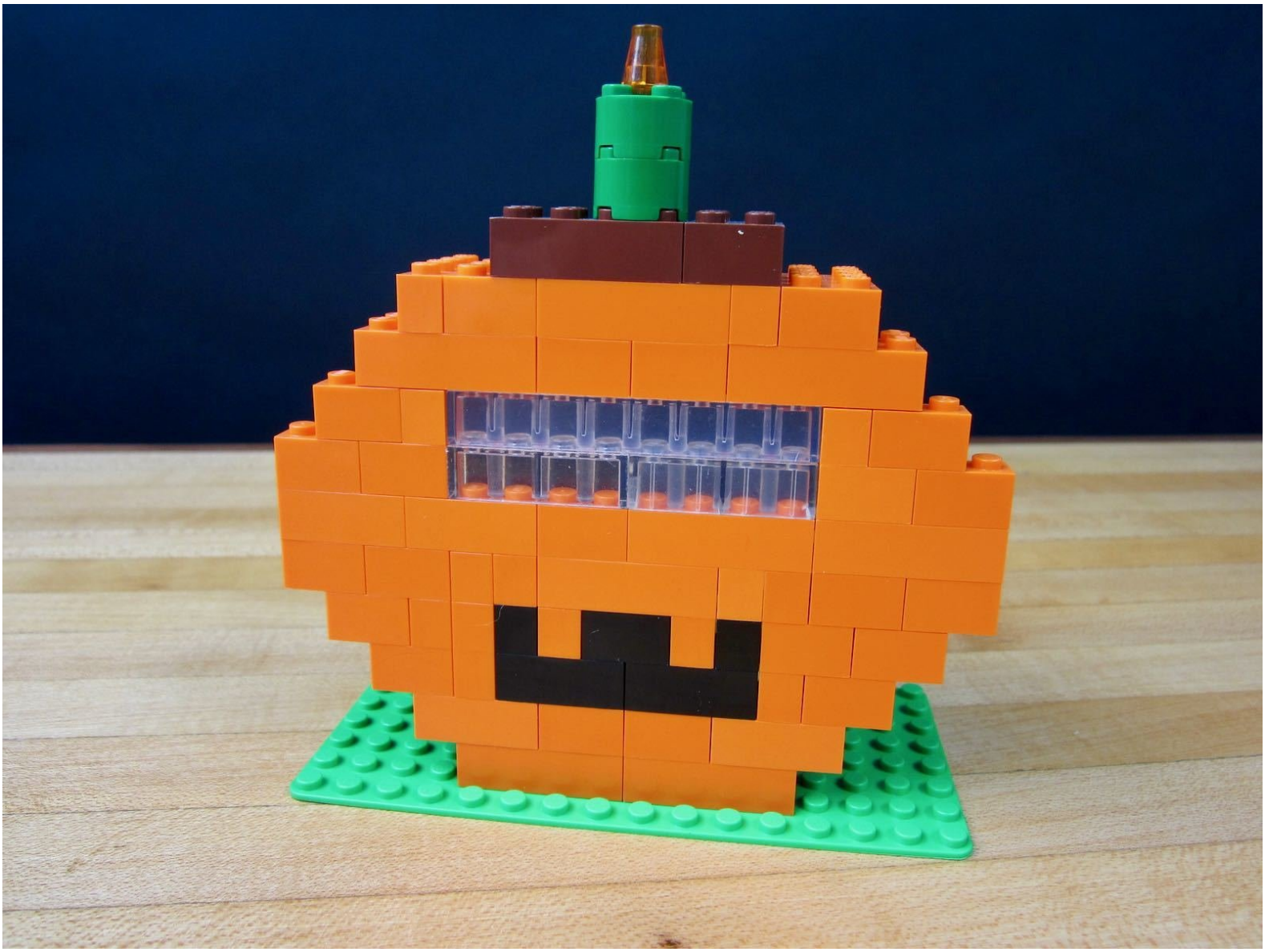
Cylon LEGO Pumpkin

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 Rider. Since we don't have a talking car we're putting our scanner into a pumpkin body made out of LEGO.

TOOLS:

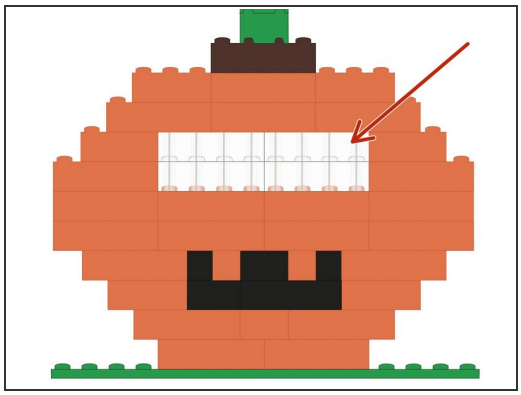
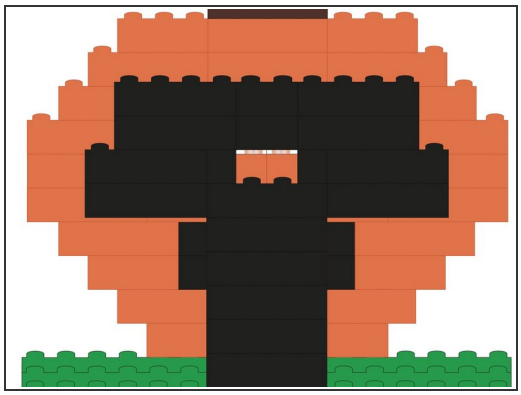
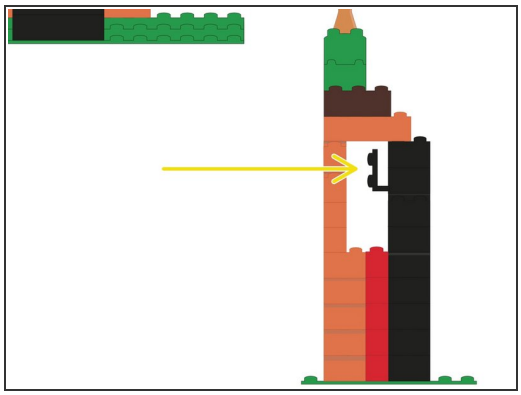
- Scissors (1)
- Computer (1)

PARTS:

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

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Step 1 — Gather Your Bricks

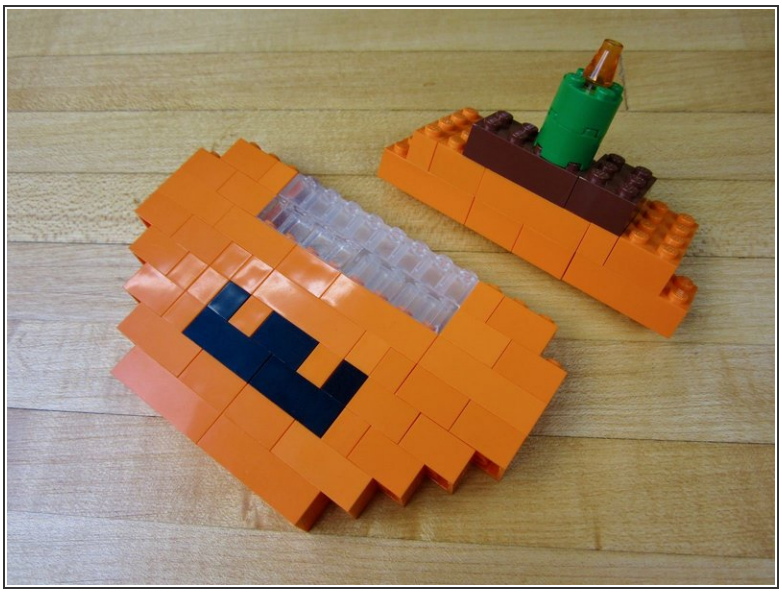




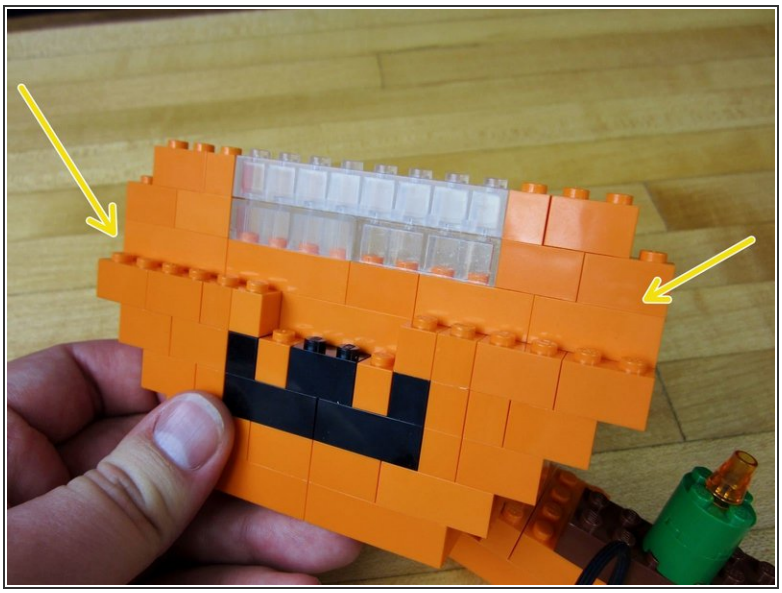
- Use an 8x16 sized base plate as your build platform.
- We used a wide variety of orange and black pieces.
- The most important are some 1x2 or 1x4 sized clear bricks for the "eyes."
- The second most important brick is a right angle brick, so we can stick our LEDs on vertically.

ⓘ If you need to buy specific bricks in specific colors, try BrickLink or BrickOwl.

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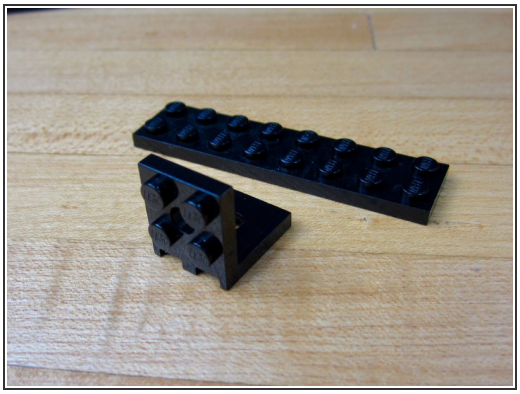
Step 2 — Build Your Pumpkin

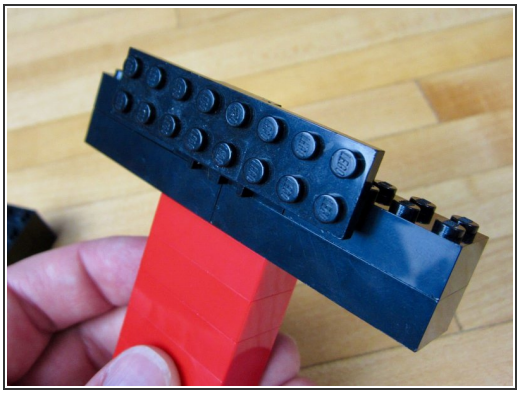


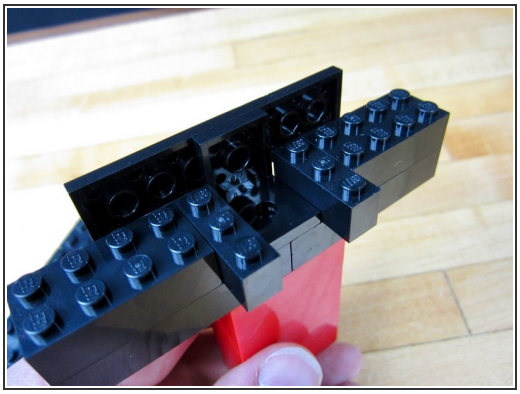


- Build your Pumpkin.
- Notice how we use 2 wide bricks on the bottom half, and 1 wide bricks on the upper half.

Step 3 — Build the LED Holder



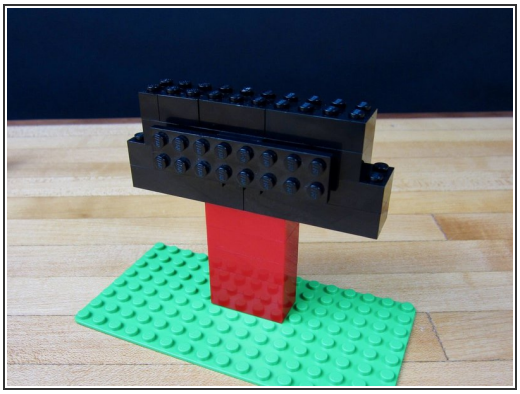
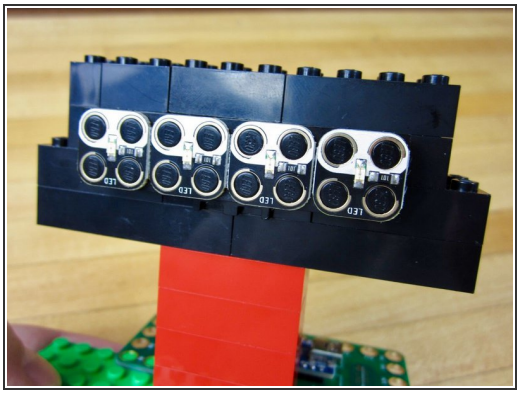
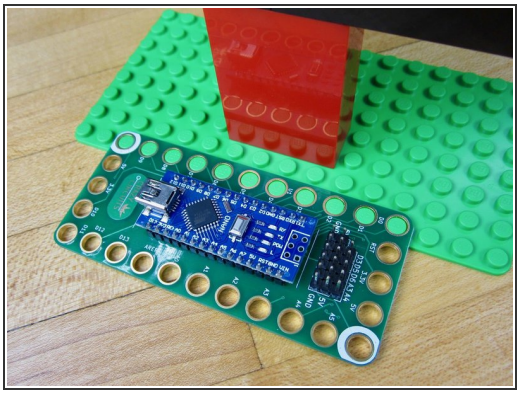




- Use a right angle LEGO piece and a 2x8 plate to create the LED holder.
- Use standard bricks to build the tower that holds everything.

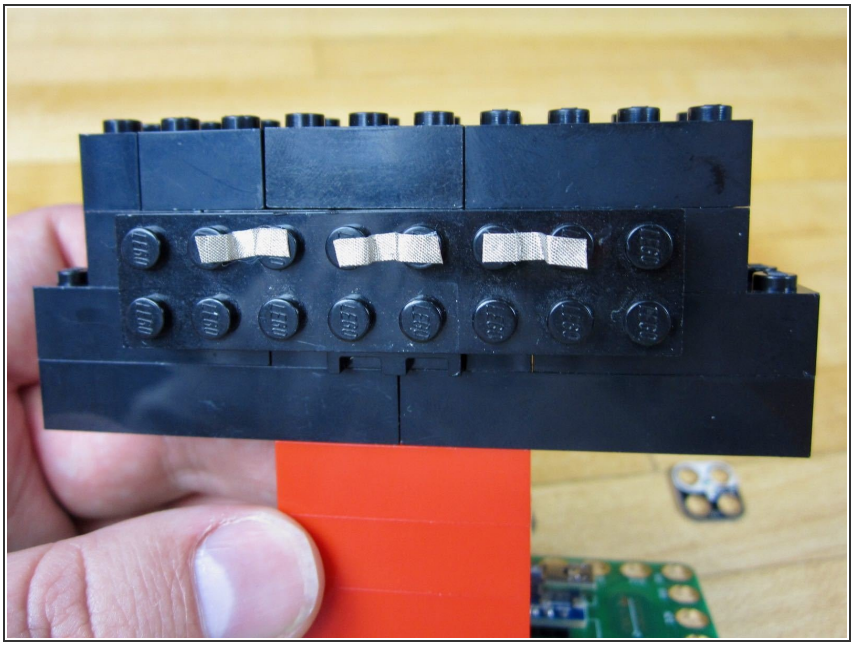
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Step 4 — Lay Out Your Parts

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

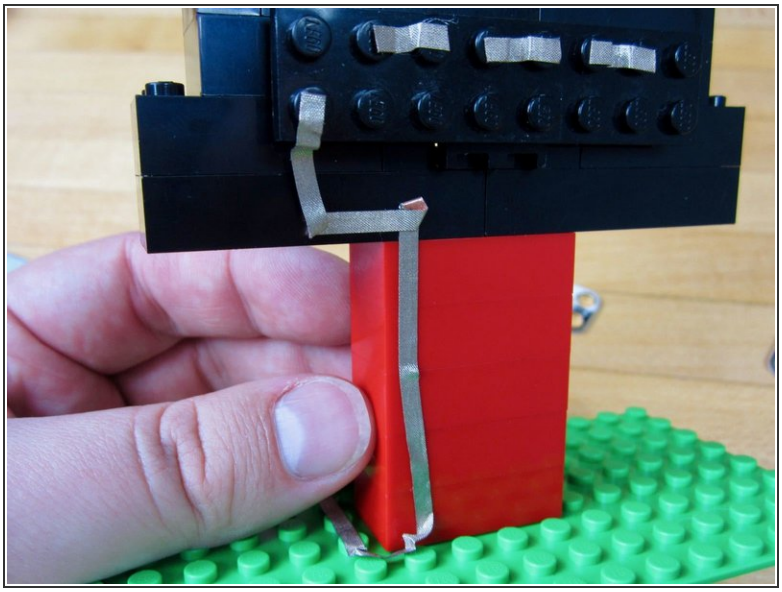
Step 5 — Common Ground

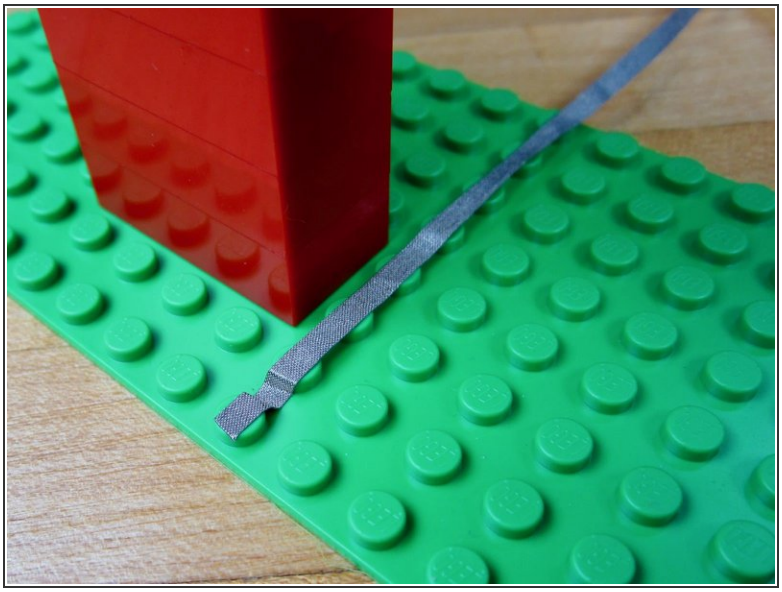


- Connect the Grounds between each of the LEDs.

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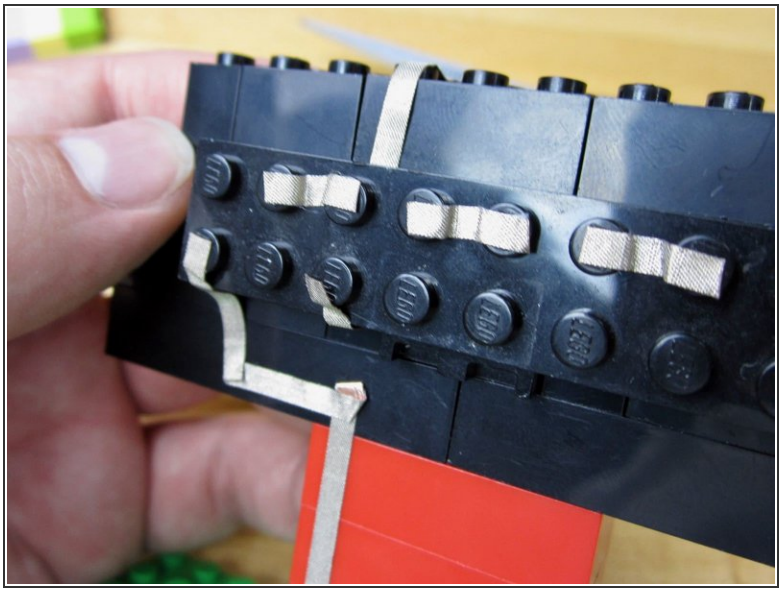
Step 6 — Connect an LED to Pin 2

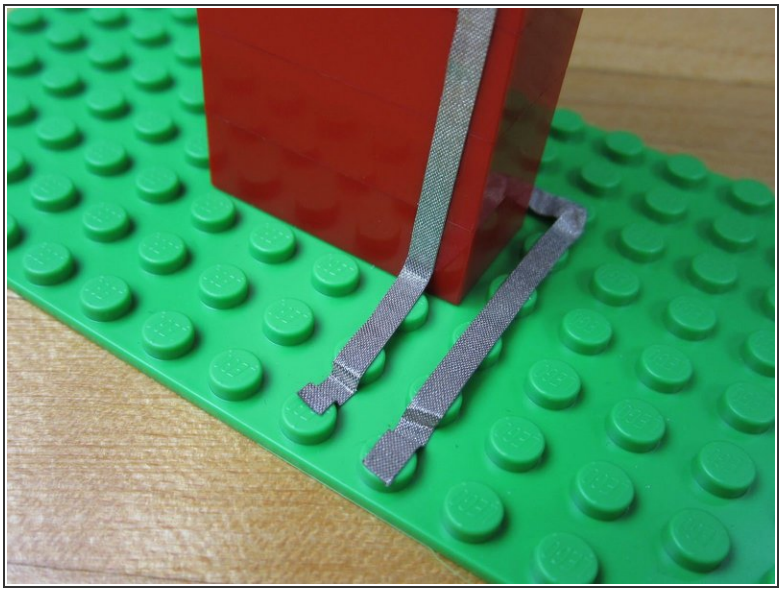




- Run a long line of tape from the far left LED to Pin 2 on the Robotics Board.

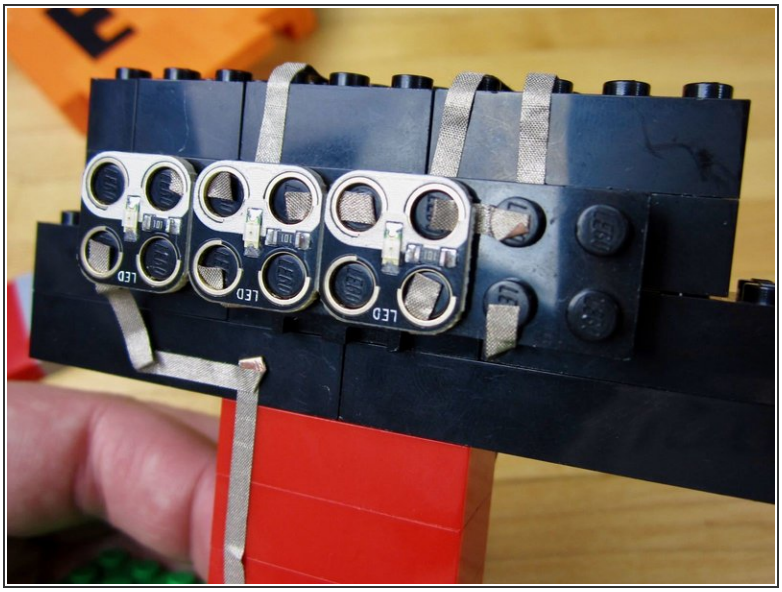
Step 7 — Connect the 2nd LED to Pin 3

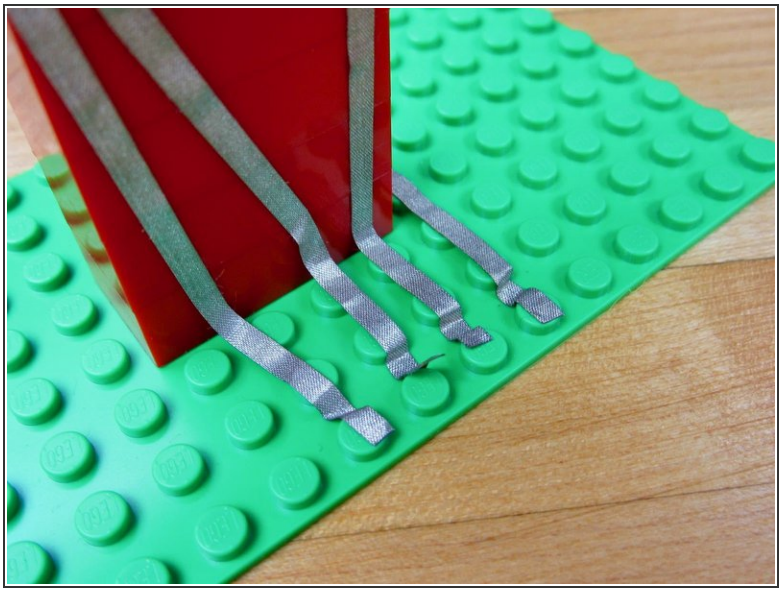




- Run a line of tape from the 2nd LED back around the LED holder.
- Connect to Pin 3 on the Robotics Board.

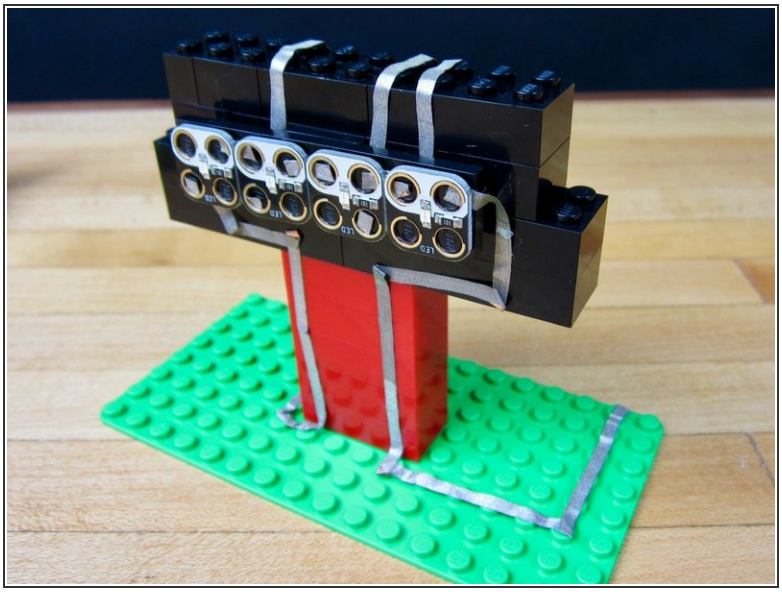
Step 8 — Connect the 3rd and 4th LEDs

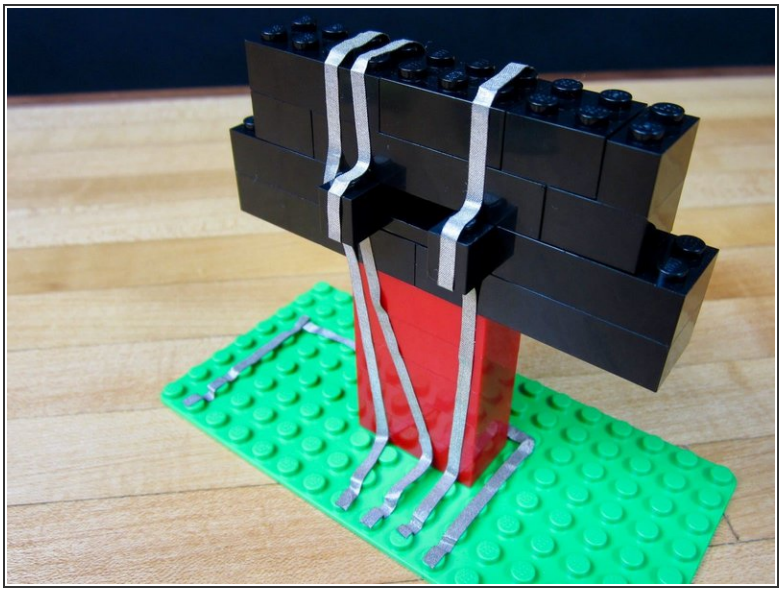




- Do the same thing with the 3rd and 4th LEDs.
- They connect to Pins 4 and 5 on the Robotics Board.

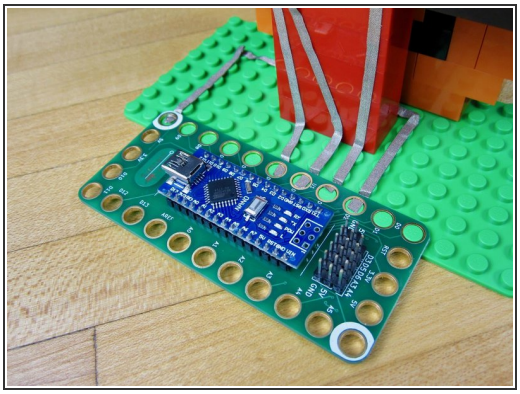
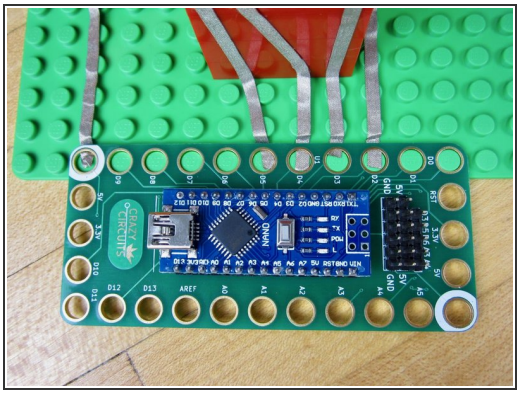
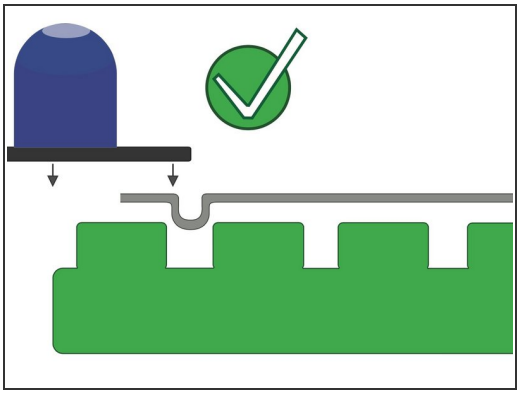
Step 9 — Connect Grounds





- 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

```
#define PIN_COUNT 4

#define UPDATE_DURATION 28 // set the speed

int pins[PIN_COUNT] = {2, 3, 4, 5}; // set the pins

int states[PIN_COUNT];
int current_pin = 0;
int dir = 1;
int update_count = 0;

void setup() {
  for ( int i = 0; i < PIN_COUNT; i++ ) {
    pinMode(pins[i], OUTPUT);
    states[i] = 0;
  }
}

void updatePins() {
  for ( int i = 0; i < PIN_COUNT; i++ ) {
    analogWrite(pins[i], states[i]);
  }
  delay(6);
}

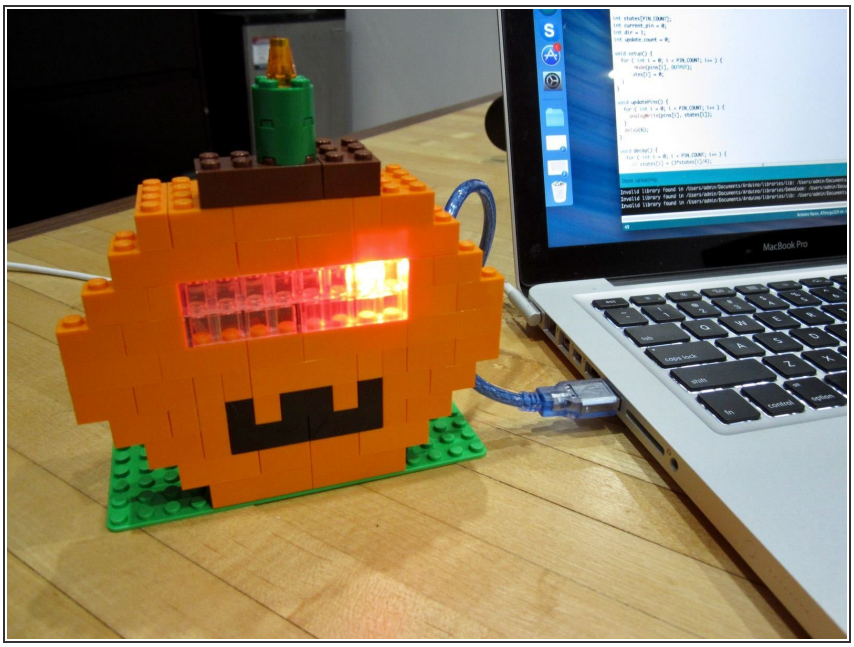
void decay() {
  for ( int i = 0; i < PIN_COUNT; i++ ) {
    // states[i] = (3*states[i]/4);
    states[i] = (6*states[i]/8);
  }
```

⚠ 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.
- ⓘ 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.