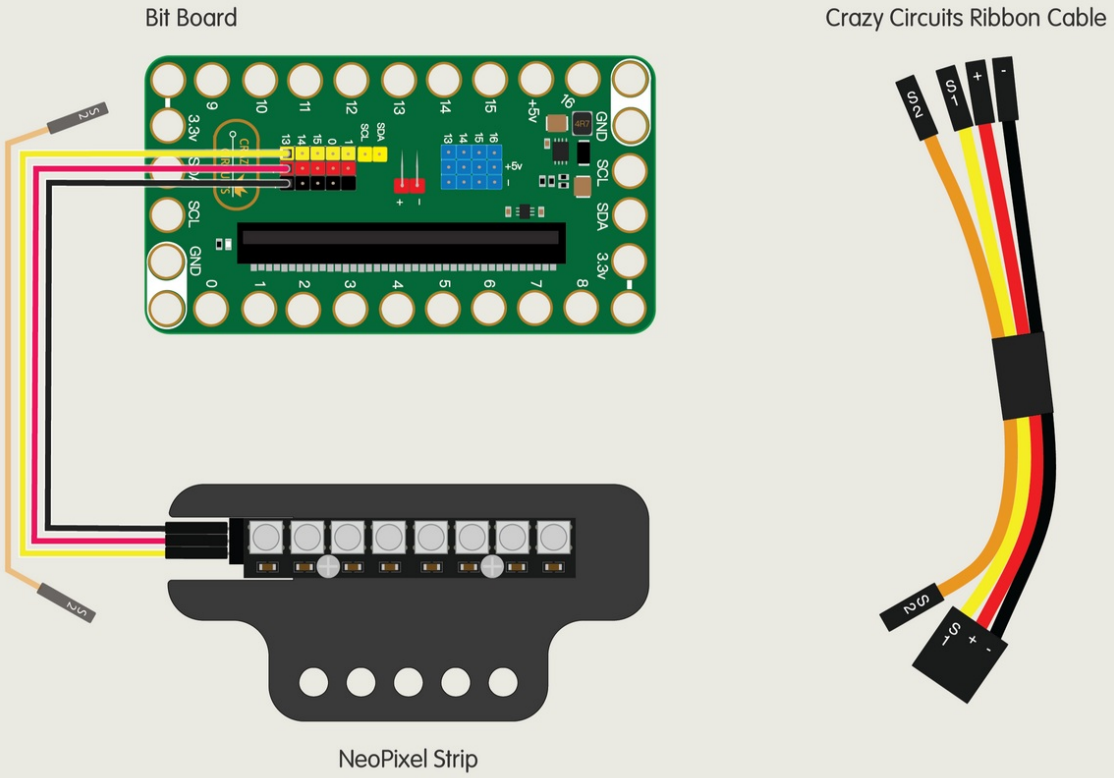
NeoPixel Level

Use the micro:bit's built-in accelerometer along with a NeoPixel Strip to make an electronic level!

Written By: Pete Prodoehl



INTRODUCTION

Use the micro:bit's built-in accelerometer along with a NeoPixel Strip to make an electronic level!

See if your desk is level or if you'll need to worry about your favorite pen rolling away.

TOOLS:

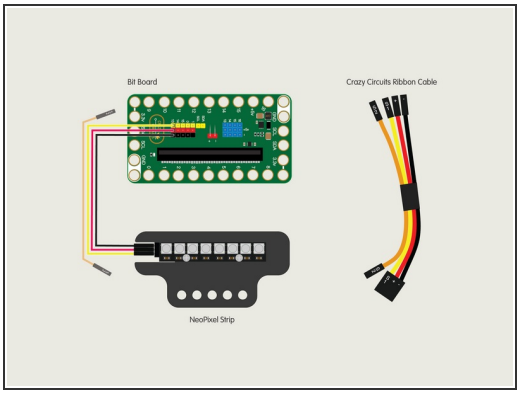
- Computer (1)

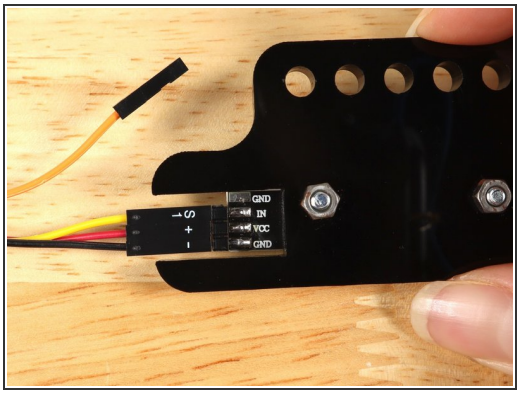
PARTS:

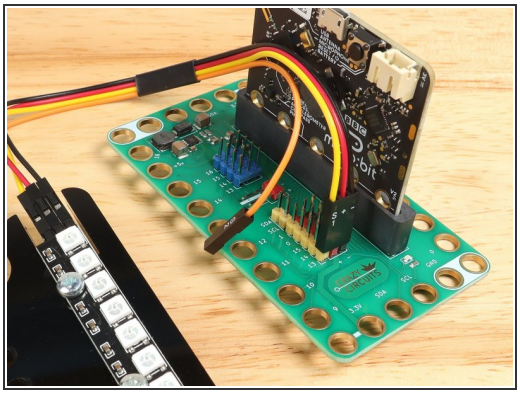
- Crazy Circuits Bit Board (1)
- micro:bit (1)
- Addressable RGB LED Strip (1)

Included with Rover Kit

Step 1 — Connecting the NeoPixel Strip







- The magical thing about these “Individually Addressable” LEDs is that you don’t have to connect each LED to an individual pin on your micro:bit, you just need **one signal wire** along with power (**Positive** and **Negative**) to light things up.
- So let's get connected! If you turn the **NeoPixel Strip** over you'll see labels for the three pins. You should see **IN**, **VCC**, and **GND**.
- Use the Crazy Circuits Ribbon Cable to connect the **NeoPixel Strip** to the **Bit Board**.
- The end with **S1**, **+**, and **-** can plug directly into the **Pin 13** row (make sure S1 goes into 13) and the other end should plug into the **NeoPixel Strip** as shown.

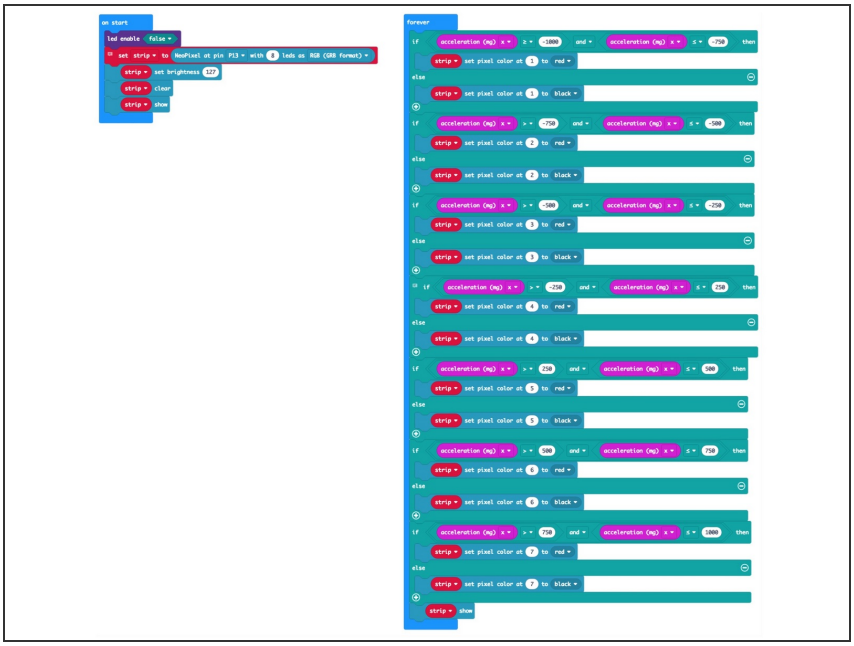
We only need three wires for the **NeoPixel Strip** so you can leave **S2** (the Orange wire) unconnected.

Step 2 — Extending the Code



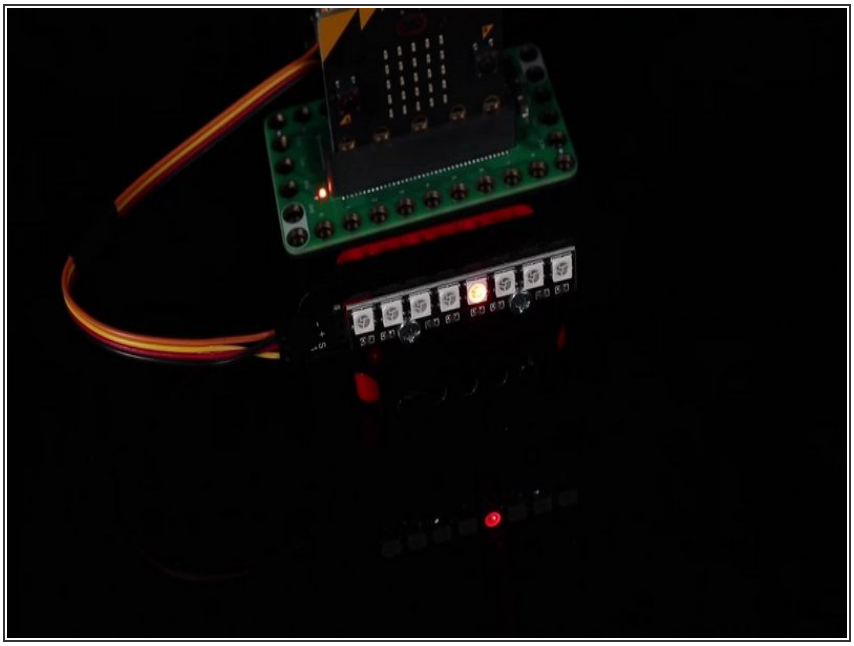
- In the next step we're going to provide a link to the code for this project, but first let's look at the NeoPixel Extension for MakeCode.
- The Extension has the basic blocks you'll need to set up the **NeoPixel Addressable RGB LEDs** and to control them with a micro:bit, and the **Bit Board** makes it very easy to connect things!

Step 3 — Load the Code



- If you've never used a micro:bit before you'll want to check out this guide: Bit Board V2 Setup and Use
- We're going to load the following code for our **NexoPixel Level** program: https://makecode.microbit.org/_H9UKHhVJ3...

Step 4 — Test it Out!

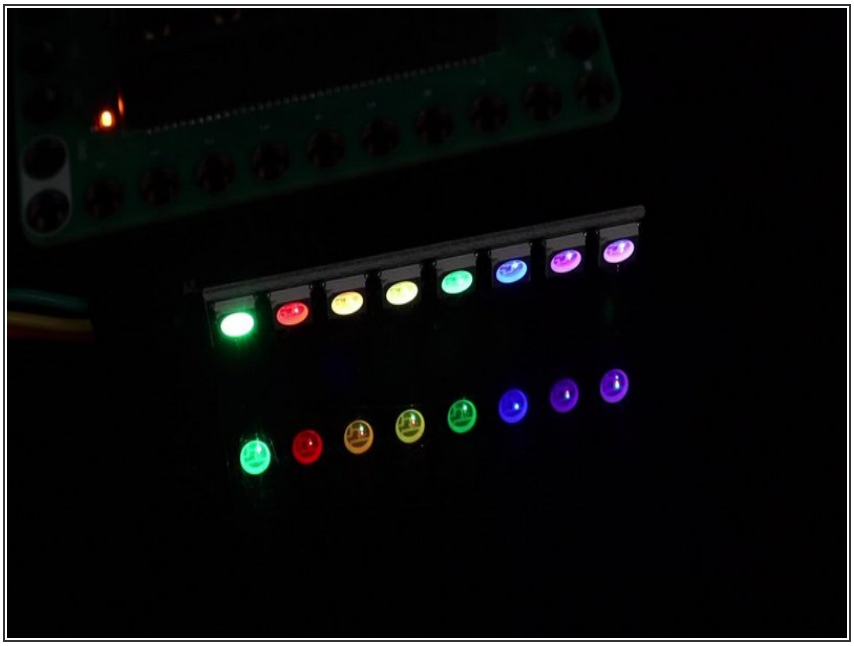


- Leave the **USB Cable** plugged into the micro:bit and it should start to run the code as soon as it's loaded.
- You can leave the NeoPixel Strip lying on the table, but pick up and tilt the Bit Board and micro:bit left and right.
- You should see the single lit-up LED move left and right on the NeoPixel Strip.

Note: Since we want one centered LED we're skipping the very first LED and just using the other seven.

Feel free to play around with the code making changes to see how they affect the operation.

Step 5 — Take it Further



- NeoPixels (or "Addressable RGB LEDs") are a fun way to practice your programming! We've got a few more examples to share.
  - NeoPixel Control
  - NeoPixel Light Detecting
  - NeoPixel Sound Detecting
  - NeoPixel Distance Sensor