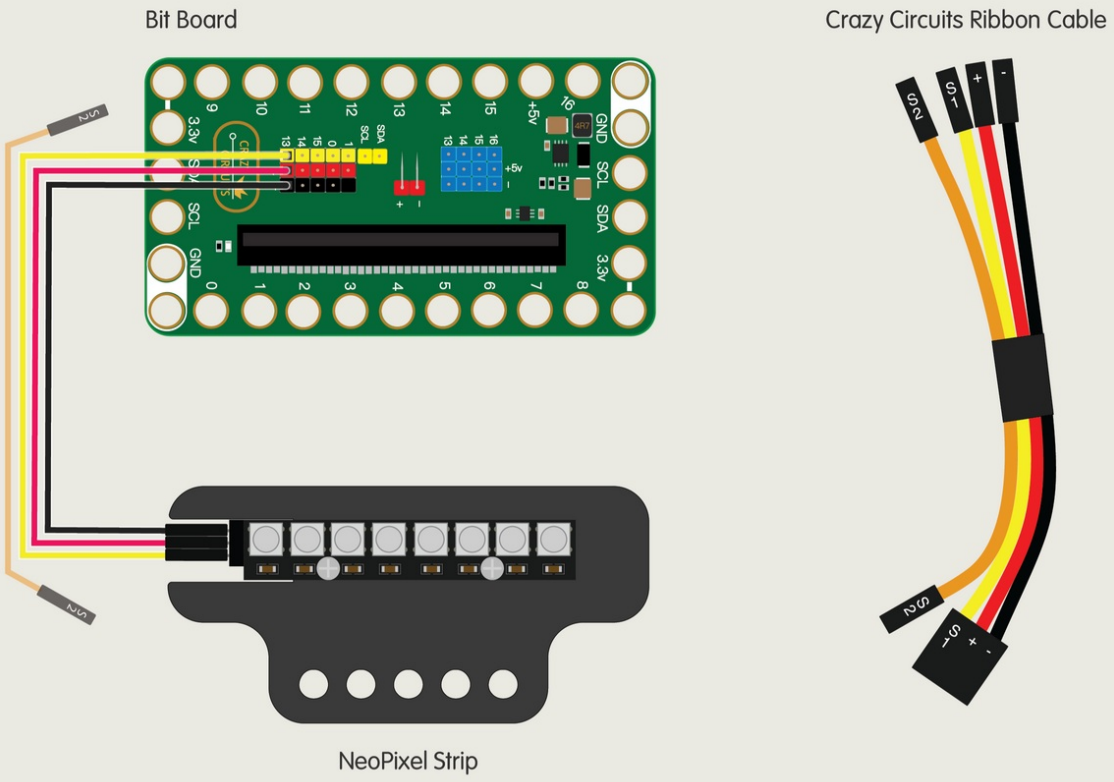
NeoPixel Control

Use the built-in buttons on the micro:bit to control a NeoPixel strip.

Written By: Pete Prodoehl



INTRODUCTION

Use a micro:bit to control a NeoPixel strip. **Button A** on the micro:bit changes the color and **Button B** changes the brightness.

TOOLS:

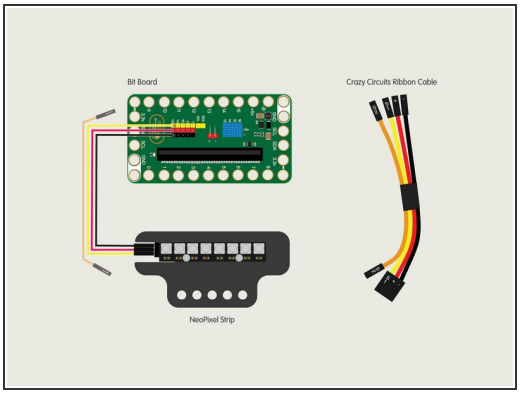
- Computer (1)

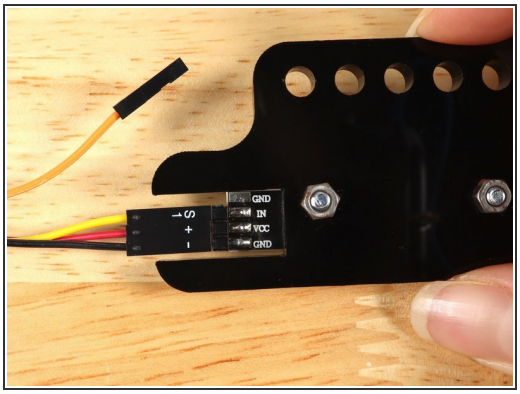
PARTS:

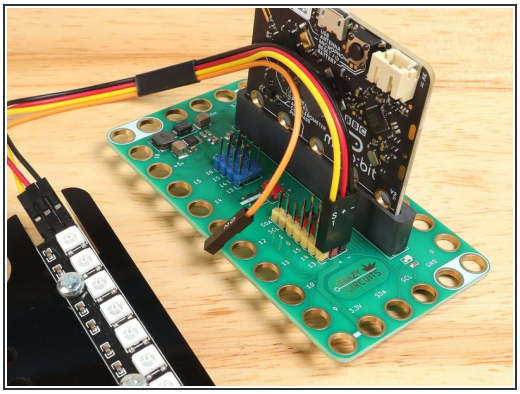
- Crazy Circuits Bit Board (1)
- micro:bit (1)
- Addressable RGB LED Strip (1)

Included with Rover Kit

Step 1 — Connecting the NeoPixel Strip





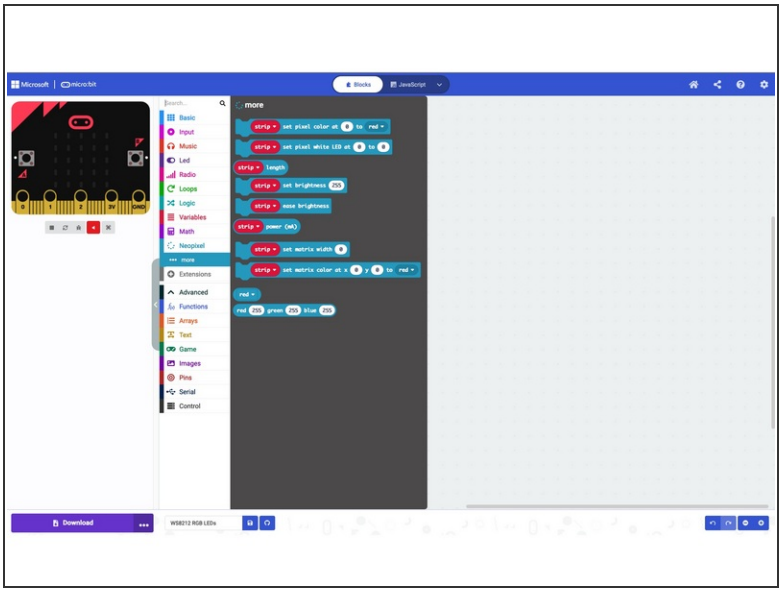


- The magical thing about these “Individually Addressable” LEDs is that you don’t have to connect each LED to an individual pin on your micro:bit, you just need **one signal wire** along with power (**Positive** and **Negative**) to light things up.
- So let's get connected! If you turn the **NeoPixel 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.

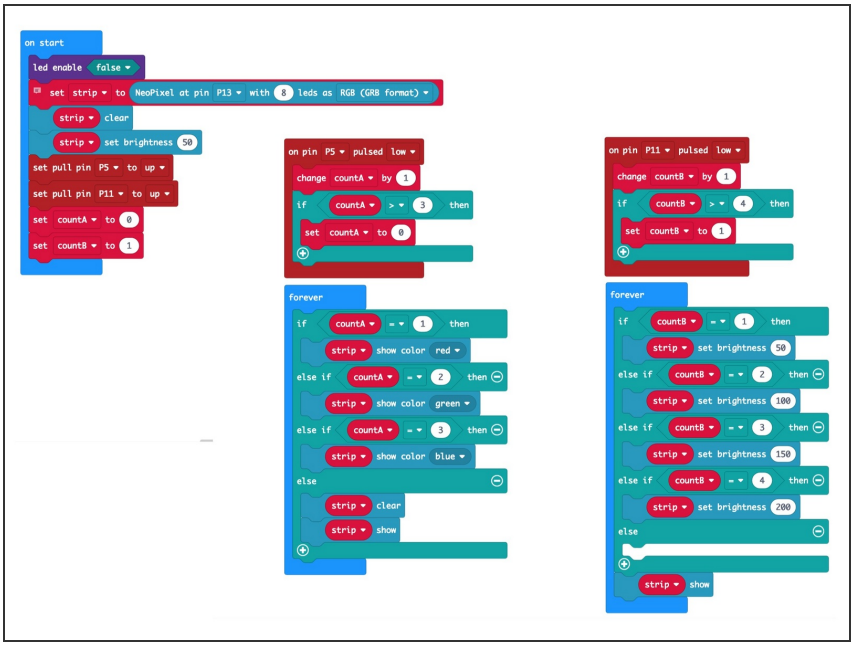
Step 2 — Extending the Code





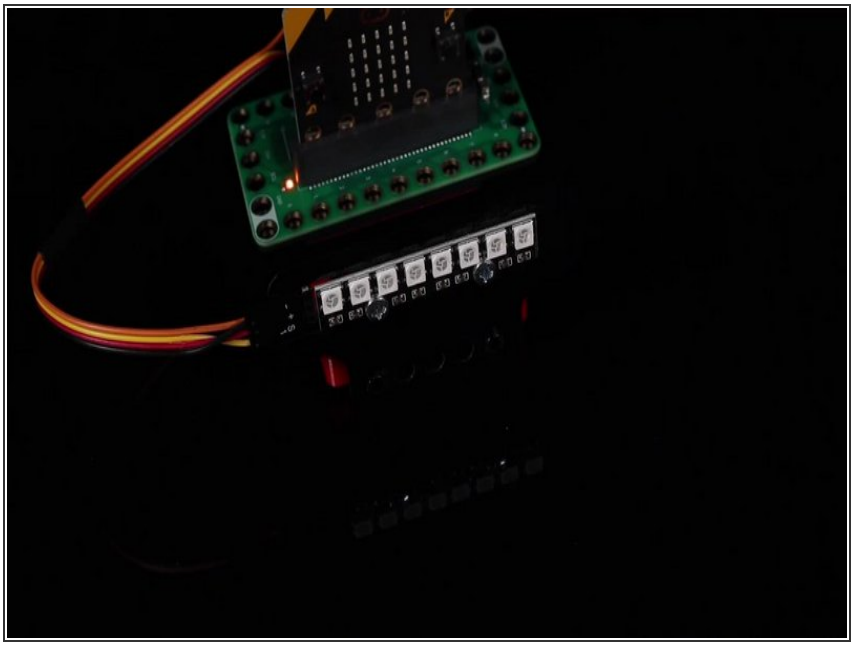
- In the next step we're going to provide a link to the code for this project, but first let's look at the NeoPixel Extension for MakeCode.
- The Extension has the basic blocks you'll need to set up the **NeoPixel Addressable RGB LEDs** and to control them with a micro:bit, and the **Bit Board** makes 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 Control** program: https://makecode.microbit.org/_cvPFr391x...

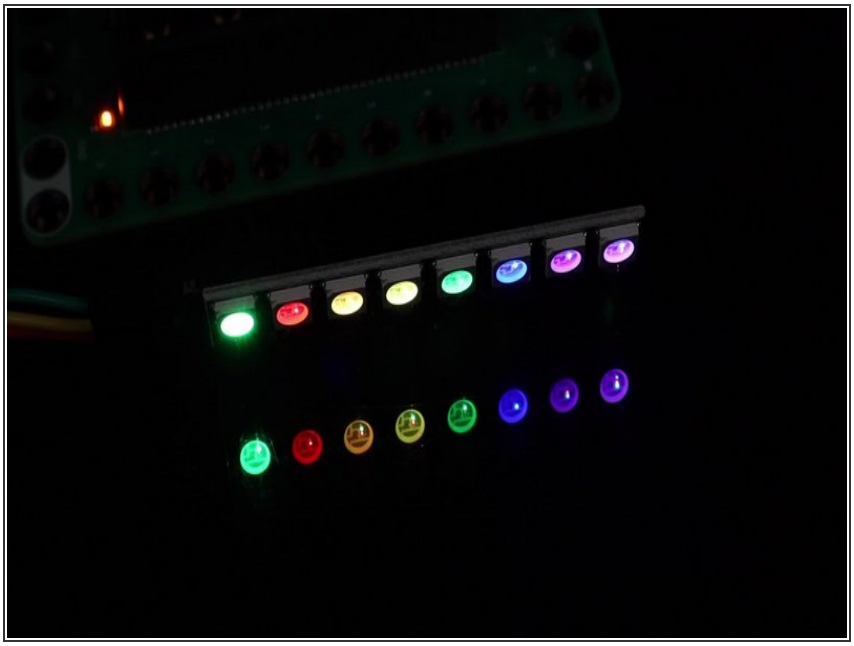
Step 4 — Test it Out!



- Leave the **USB Cable** plugged into the micro:bit and it should start to run the code as soon as it's loaded.
- Press the **A Button** a few times and you should see the NeoPixel Strip rotate through different colors.
- Now press the **B Button** a few times and the NeoPixel Strip should change brightness.

- [ ] Take a look at the code and see if it makes sense.
- [ ] 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 Light Detecting
  - NeoPixel Sound Detecting
  - NeoPixel Level
  - NeoPixel Distance Sensor

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