

INTRODUCTION

Connect a NeoPixel Stick to a Bit Board and control it with code.

We'll explore how to control an Addressable RGB LED Strip (also called "NeoPixels").



TOOLS:

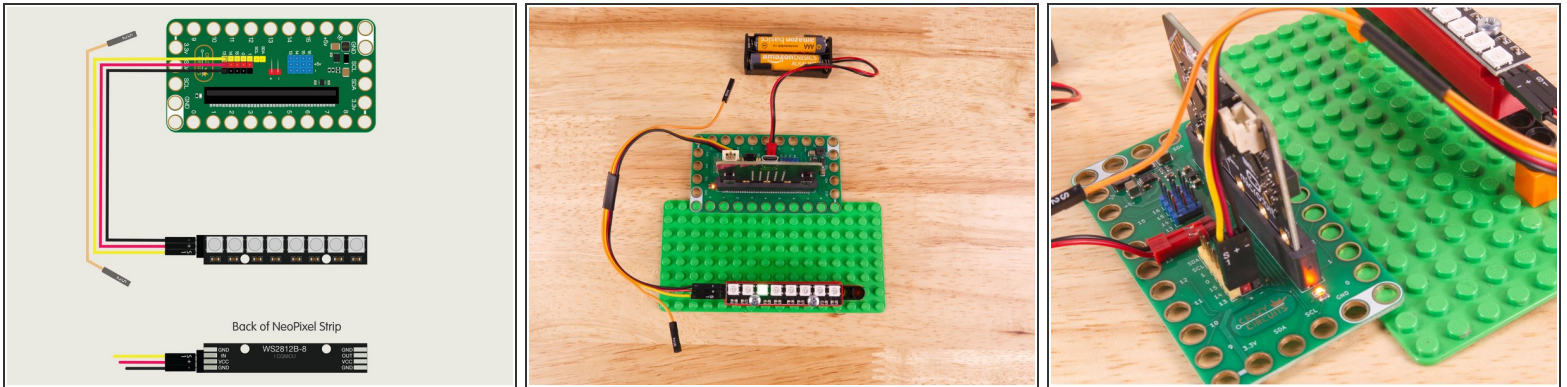
- [Computer](#) (1)
- [Scissors](#) (1)



PARTS:

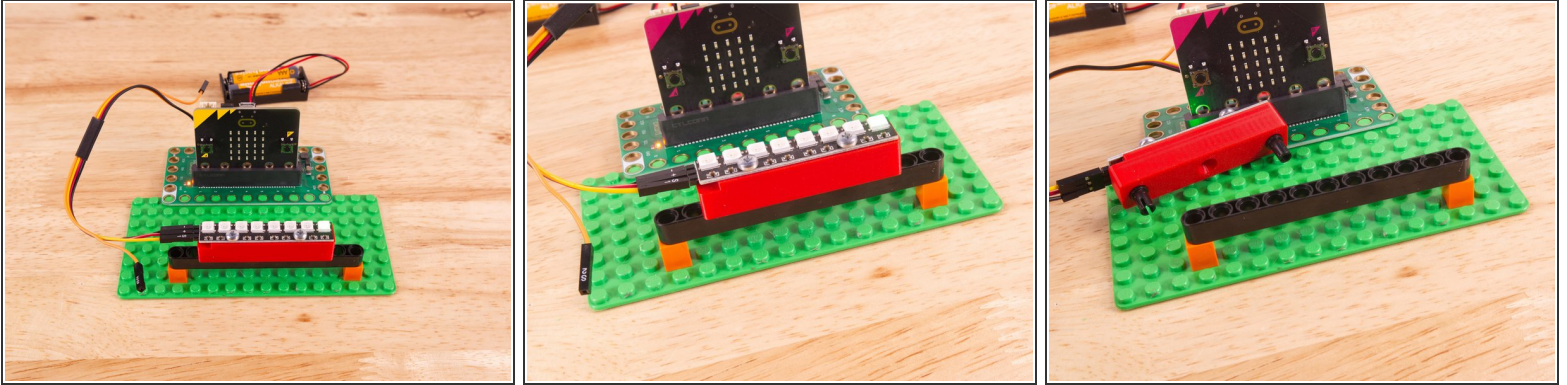
- [Crazy Circuits Bit Board](#) (1)
- [micro:bit](#) (1)
- [Addressable RGB LED Strip](#) (1)
- [Crazy Circuits Ribbon Cable](#) (1)

Step 1 — Connect the NeoPixel Stick



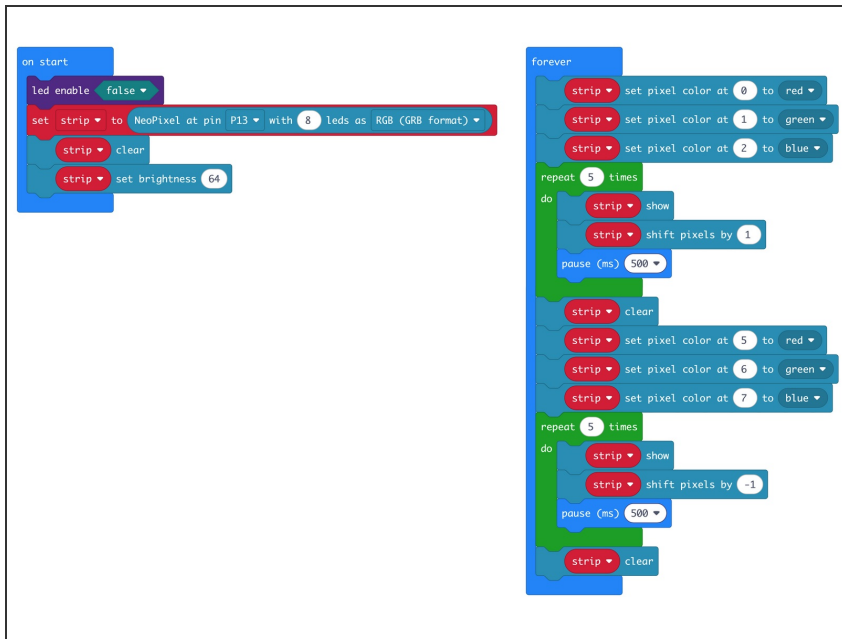
- The magical thing about these “Individually Addressable” LEDs is that you don’t have to connect each LED to an individual pin on your micro:bit, you just need **one signal wire** along with power (**Positive** and **Negative**) to light things up.
- So let's get connected! If you turn the **NeoPixel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



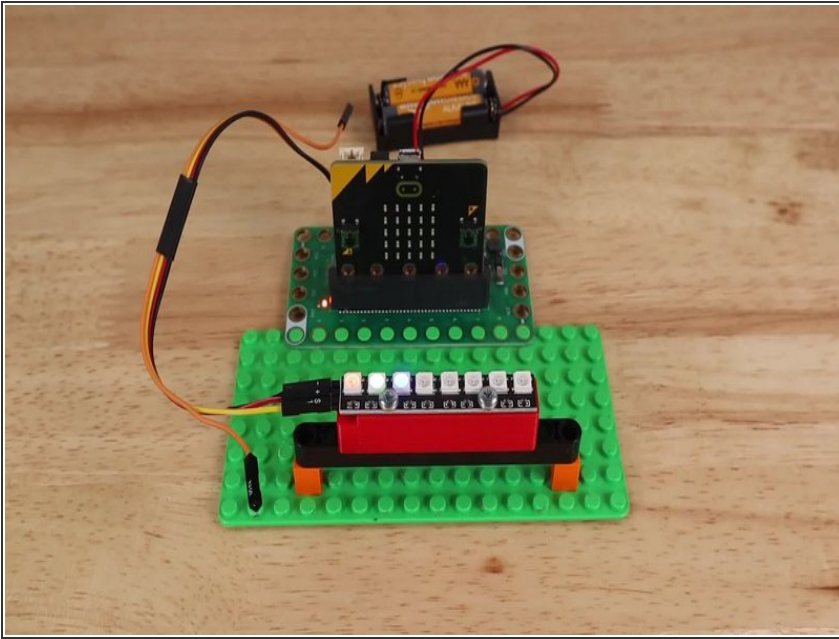
- To mount the NeoPixel Stick in place we used our [NeoPixel Beam Holder](#) with a long Technic Beam and two 1x1 LEGO bricks.
- You can always use rubber bands, tape, or some other method.
- The important thing is to make sure the connector is on the left hand side so the number index for the NeoPixel strip makes sense.

Step 3 — Load the Code



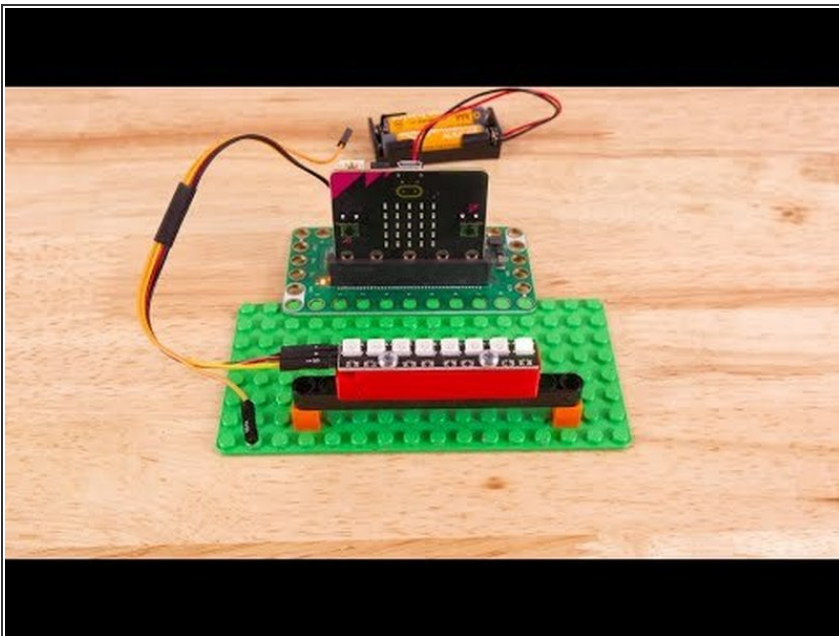
- If you've never used a micro:bit before you'll want to check out this guide: [Bit Board V2 Setup and Use](#)
- We're going to load the following code for our **NeoPixel Shift RGB Back** program:
https://makecode.microbit.org/_ie58JHe0m...
- The shift function sends pixels down a string as the number index keeps increasing.
- In this example we've set our code to **shift 5 times**, then clear and do another shift sequence, but this time we shift **negative** (using **-1**) to send the pixels back the other direction.
- ☑ The shift function (as well as the rotate function, which we'll see in other guides) can be a bit complex, but we'll explore them in the next few chapters.

Step 4 — Test it Out!



- Once the code is loaded it should start running immediately.
- ❗ You can power the micro:bit via the USB cable you used to load the code or you can use a battery pack plugged into the Bit Board.
- You should see red, green, and blue pixels shift all the way to the right (5 positions) and then shift back all the way to the left (5 positions.)
- Why do we shift 5 positions? Because with 3 lit up pixels we then fill the 8 pixel wide strip!

Step 5 — Follow Along



- Follow along with our recorded Live Stream!
- ❗ You can watch the full video of us walking through this project, along with explaining and exploring the code:
<https://youtube.com/live/0AHEZyJg4M0>

