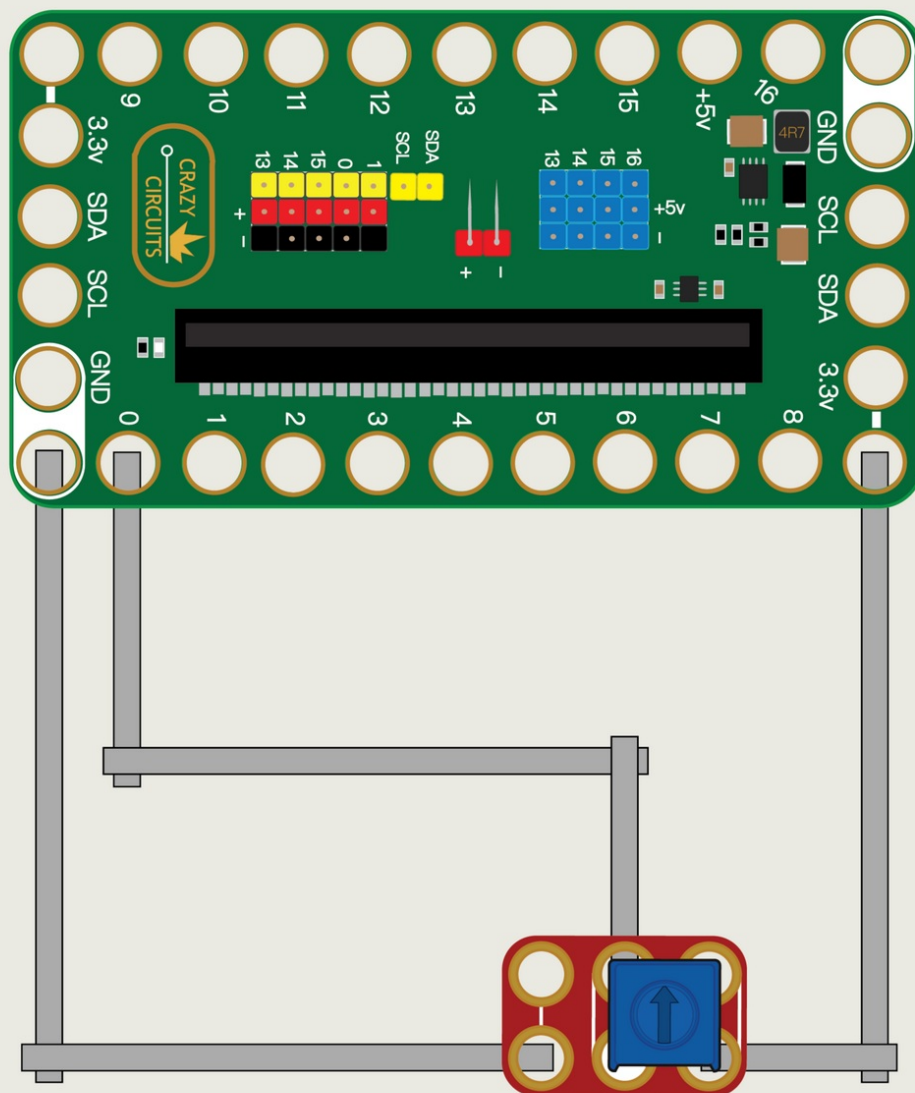




CH11-D - Potentiometer Pixel Smooth

Connect a potentiometer to a Bit Board and control the micro:bit's built-in LED matrix.

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INTRODUCTION

Connect a potentiometer to a Bit Board and control the micro:bit's built-in LED matrix.

We'll explore how we can use a potentiometer as an input for the micro:bit



TOOLS:

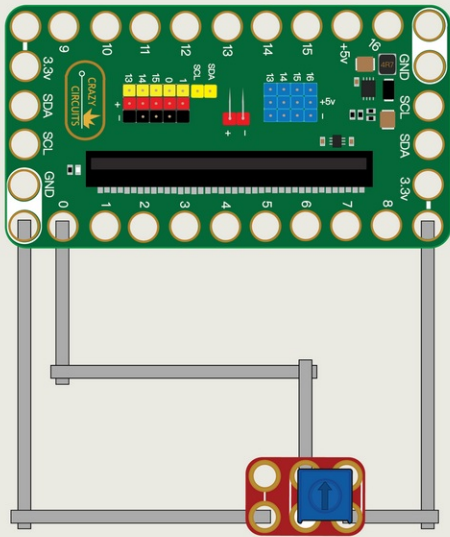
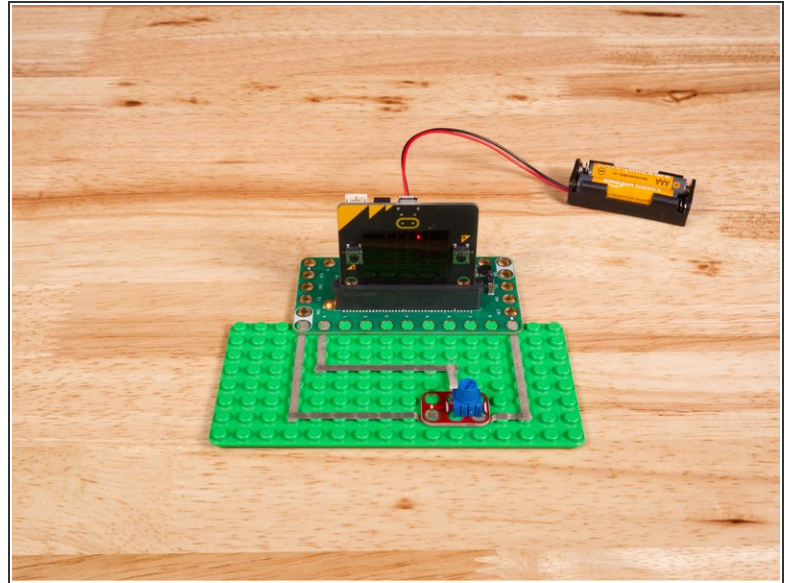
- [Computer](#) (1)
- [Scissors](#) (1)



PARTS:

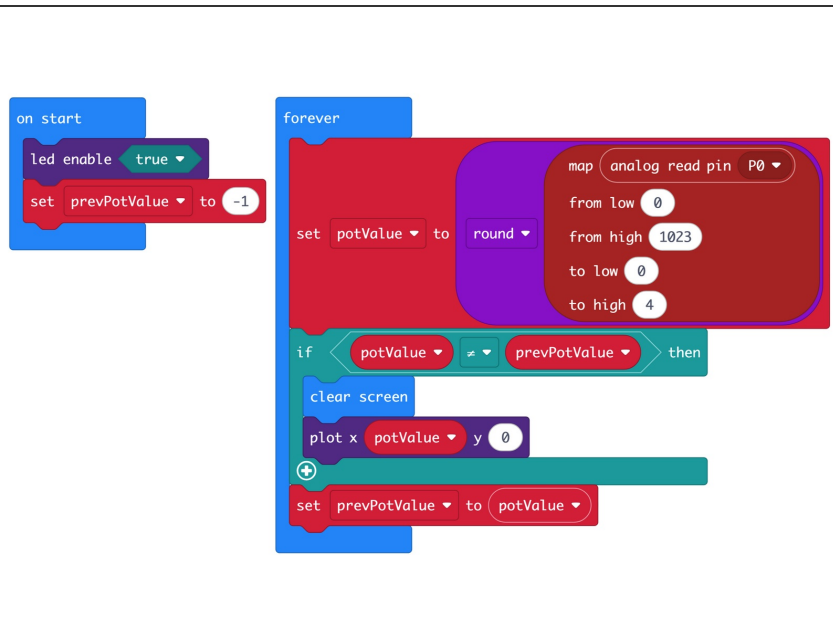
- [Crazy Circuits Bit Board](#) (1)
- [micro:bit](#) (1)
- [Maker Tape](#) (1)
1/8" Wide
- [Crazy Circuits Potentiometer Chip](#) (1)

Step 1 — Connect the Potentiometer



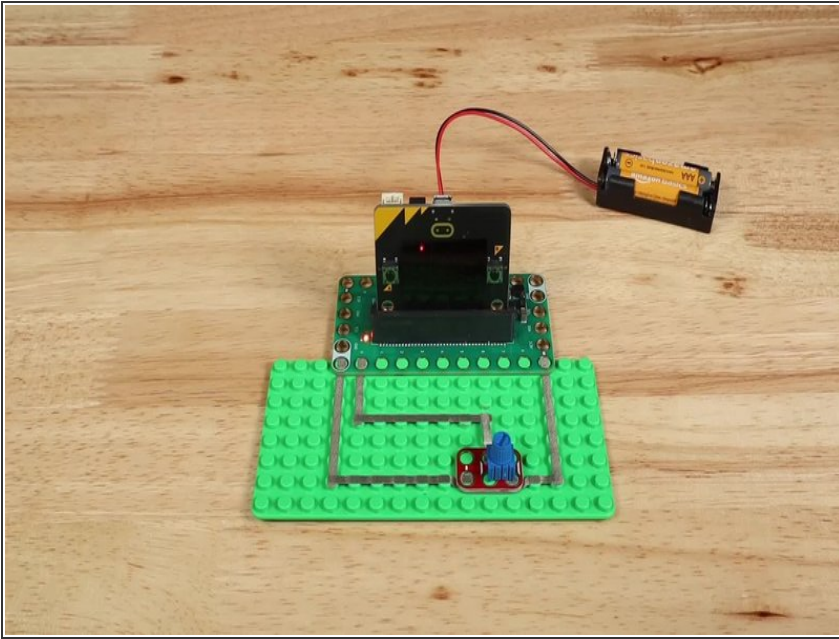
- We'll use **Maker Tape** to connect the Potentiometer to the Bit Board on a LEGO baseplate.
- We'll need to connect one side of the Potentiometer to **Ground** (GND) and the other side to **3.3v**
- We will then connect the center of the Potentiometer to **Pin 0**. (Note that **Pin 0** is an **analog** pin, which we'll need for the Potentiometer.)
 - The other analog pins are **1, 2, 3, 4, and 10**. See this chart for a pinout diagram: <https://makecode.microbit.org/device/pin...>
- ☑ You'll notice the **Ground** on the Bit Board is color coded **White**.
- The **3.3v** hole on the Bit Board is labeled and is actually two holes right next to each other on the Bit Board. (There is a small line showing the connection between them.)

Step 2 — Load the Code



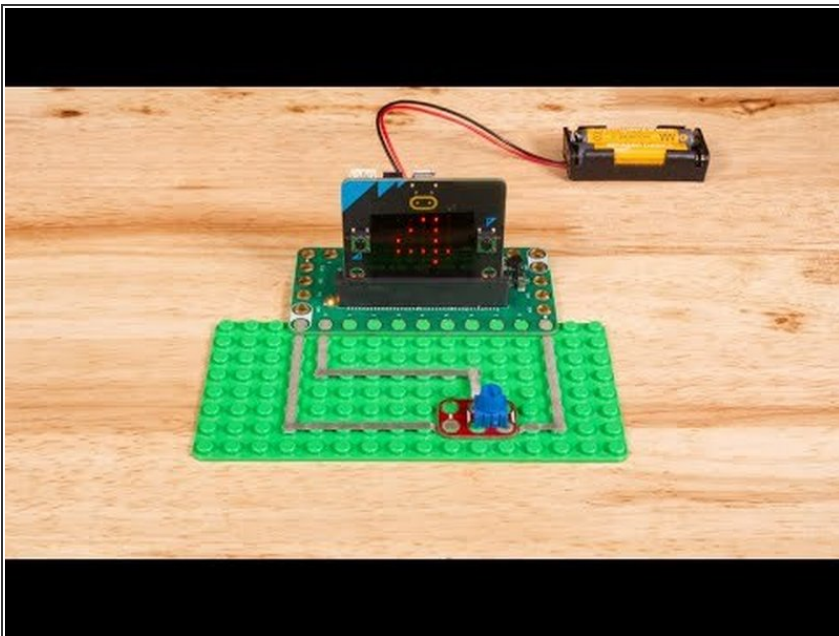
- If you've never used a micro:bit before you'll want to check out this guide: [Bit Board V2 Setup and Use](#)
- We're going to load the following code for our **Potentiometer Pixel Smooth** program: https://makecode.microbit.org/_gutWHvAia...
- For this code we've added a variable to track the previous value of the Potentiometer. This allows us to compare it to the current value, and only clear the screen and plot a new pixel if the value has changed.
- While our code is a little more complicated, it becomes more efficient, and only executes certain commands based on conditions.

Step 3 — 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.
- Turn the small blue knob on the Potentiometer and you should see a single pixel move left or right.
- ✦ This time we plot the pixel (after clearing the screen) only after we check if the value from the Potentiometer has changed from what its previous value was.

Step 4 — 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/jN7oP8TrU8k>

