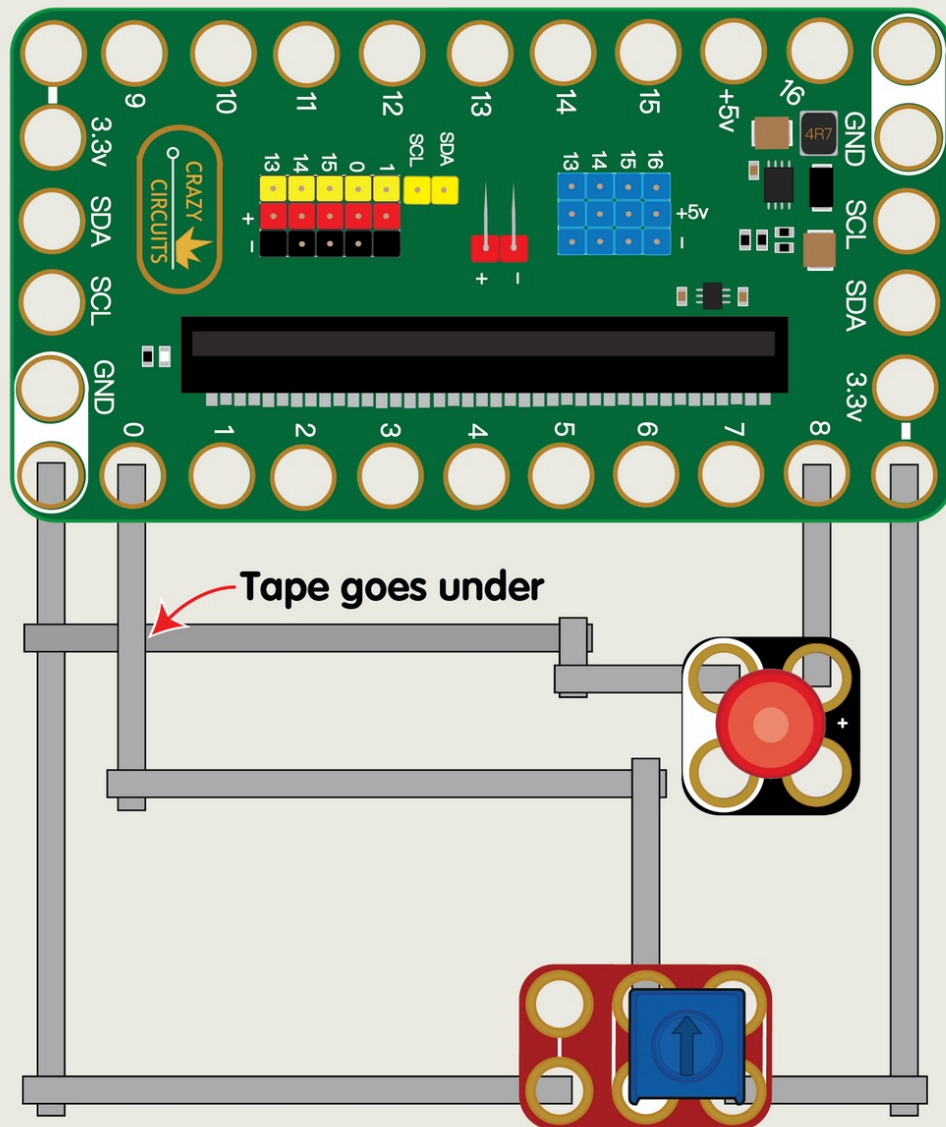




CH12-C - Potentiometer LED Blink

Connect a potentiometer to a Bit Board and control an LED.

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INTRODUCTION

Connect a potentiometer to a Bit Board and control an LED.

We'll explore how we can use a potentiometer as an input for the micro:bit and control the output of an LED.



TOOLS:

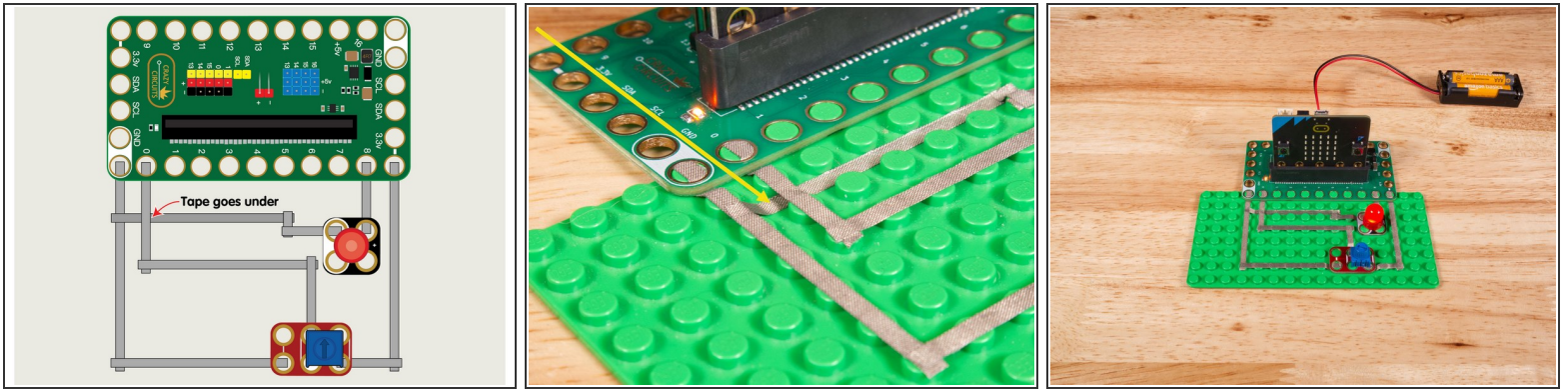
- [Computer](#) (1)
- [Scissors](#) (1)



PARTS:

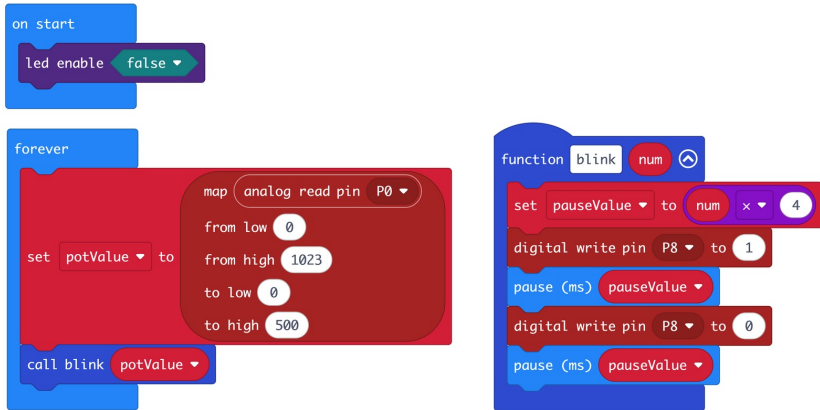
- [Crazy Circuits Bit Board](#) (1)
- [micro:bit](#) (1)
- [Maker Tape](#) (1)
1/8" Wide
- [Crazy Circuits Potentiometer Chip](#) (1)
- [Crazy Circuits LED Chip](#) (1)

Step 1 — Connect the Potentiometer



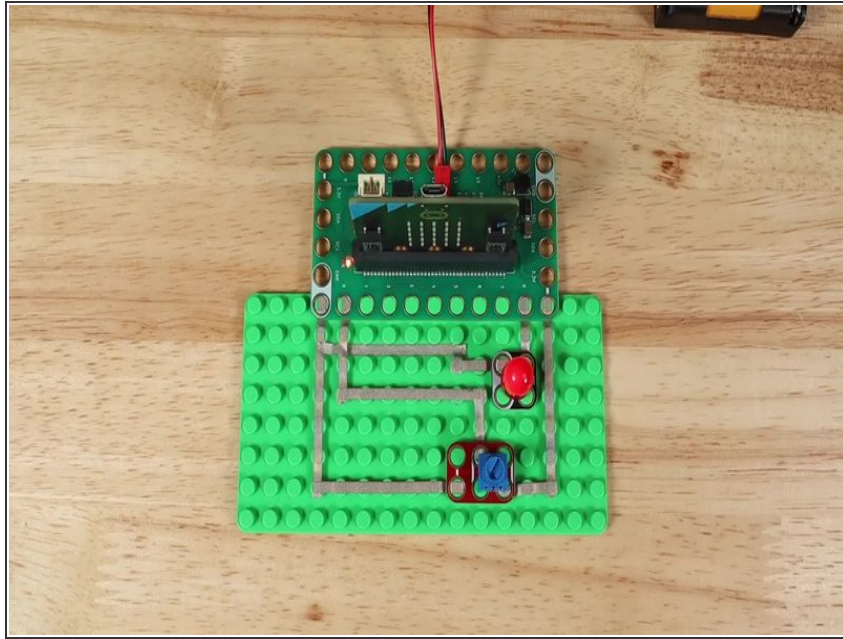
- We'll use **Maker Tape** to connect the Potentiometer and LED to the Bit Board on a LEGO baseplate.
- The LED will connect to **Pin 8** and to **Ground** (GND) **BUT!** We're going to use the "gutter" between the LEGO baseplate studs so we can have **two layers of tape** that do not touch.
 - See the photos to show how this works. It's a technique we'll use for certain projects. It can also be used when you're tight on space for tape paths.
- Once the LED is connected we'll need to connect the Potentiometer. One side goes 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.)
- ☑ 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



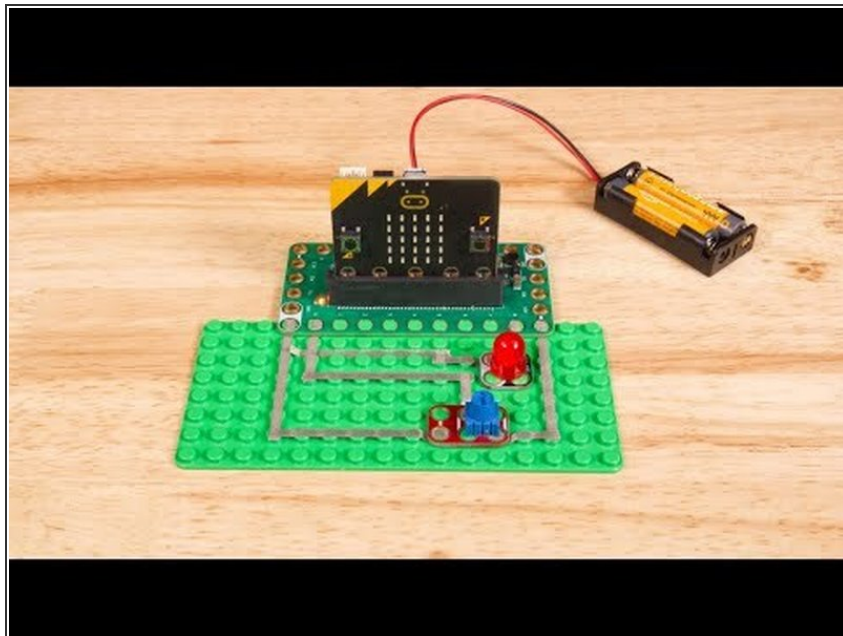
- If you've never used a micro:bit before you'll want to check out this guide: [Bit Board V2 Setup and Use](#)
- We're going to load the following code for our **Potentiometer LED Blink** program: https://makecode.microbit.org/_6XFgiq1Co...
- Our code will use a function we created named blink to drive **Pin 8** high and low which will make the LED turn on and off. We're also going to pass a **number** (the variable num) to the function.
- You'll notice we're also doing some math to set our **pauseValue**. Remember, anywhere a number is expected you can do math on the number.
- In the forever loop we'll actually use the Potentiometer (along with the map function) to set **potValue** and then pass that into the blink function.
- ☞ Note that we aren't using the Potentiometer to adjust the brightness this time, but to change the rate at which the LED blinks on and off.

Step 3 — Test it Out!



- Once the code is loaded it should start running immediately.
- ① 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'll see the LED blink and the rate of blinking change as you turn the dial.

Step 4 — Follow Along



- Follow along with our recorded Live Stream!
- ① You can watch the full video of us walking through this project, along with explaining and exploring the code:
<https://youtube.com/live/1FlnatERZ94>