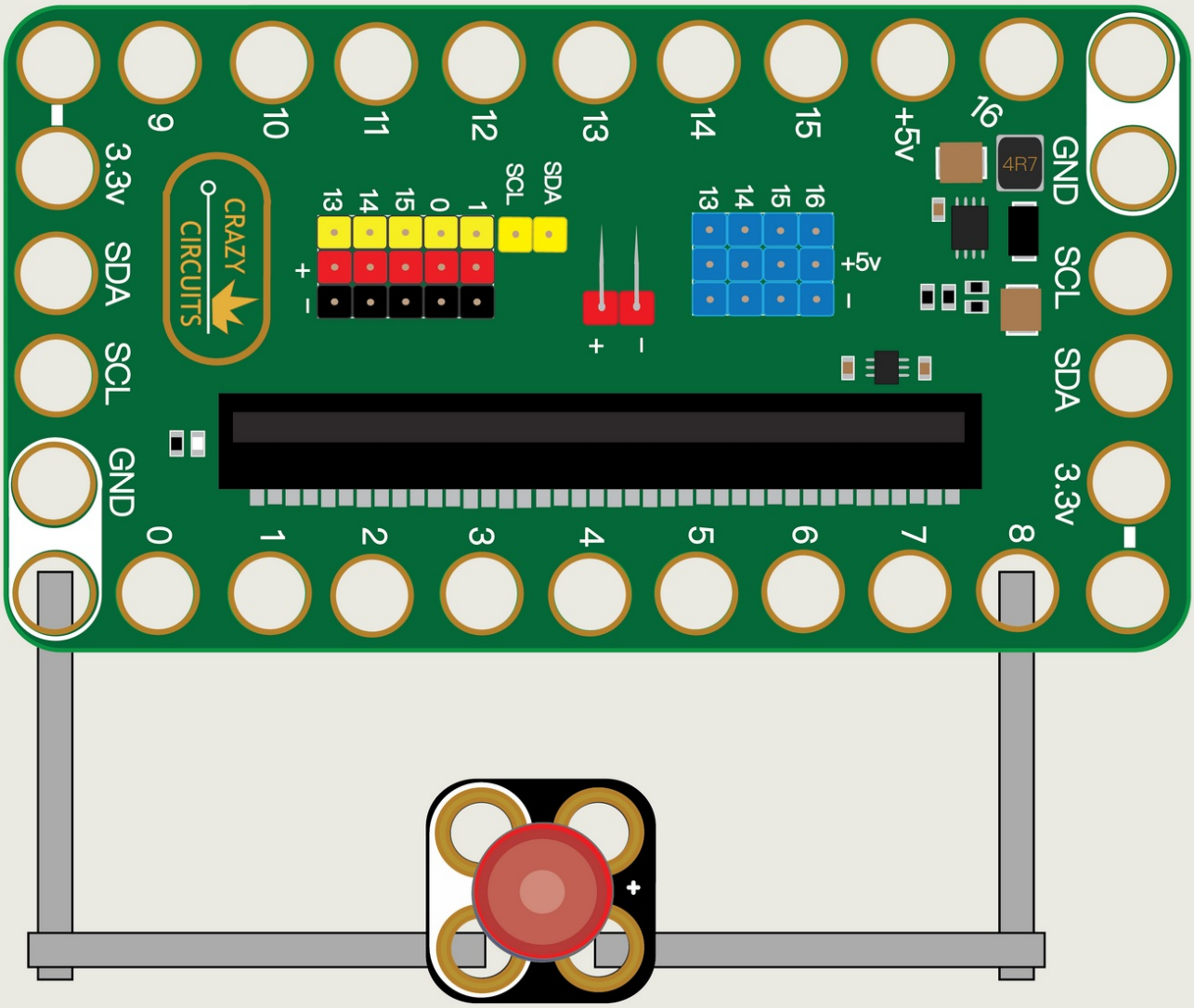
# CH1-C - LED Fade Loop

Connect an LED to a Bit Board and control it with a micro:bit

Written By: Pete Prodoehl



# INTRODUCTION

Connect an LED to a Bit Board and control it with a micro:bit

We'll make the LED fade from off to one quarter brightness using a loop.

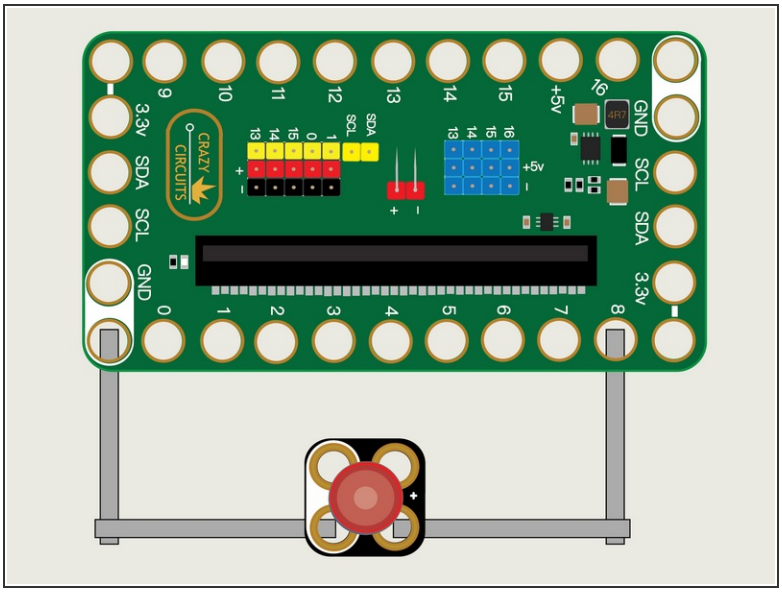
## TOOLS:

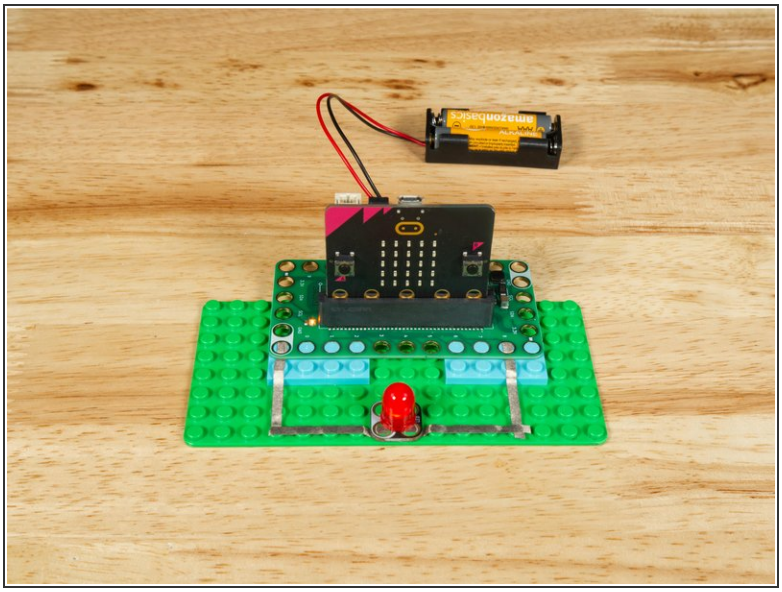
- Computer (1)
- Scissors (1)

## PARTS:

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

## Step 1 — Connect the LED

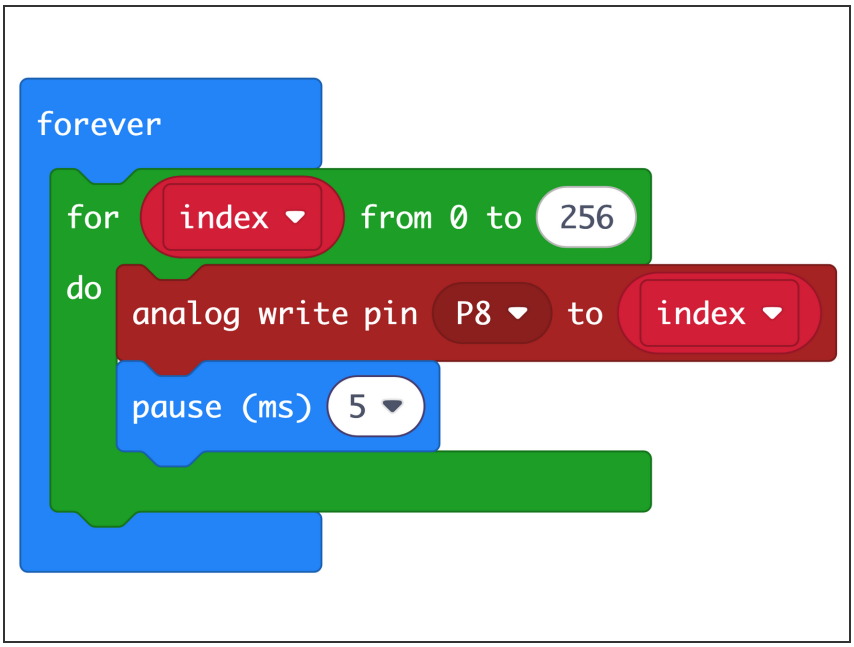


- We'll use **Maker Tape** to connect the LED to the Bit Board on a LEGO baseplate.
- Connect the **Negative** (-) side of the LED to a **Ground** (GND) hole on the Bit Board.
- Connect the **Positive** (+) side of the LED to **Pin 8** on the Bit Board.

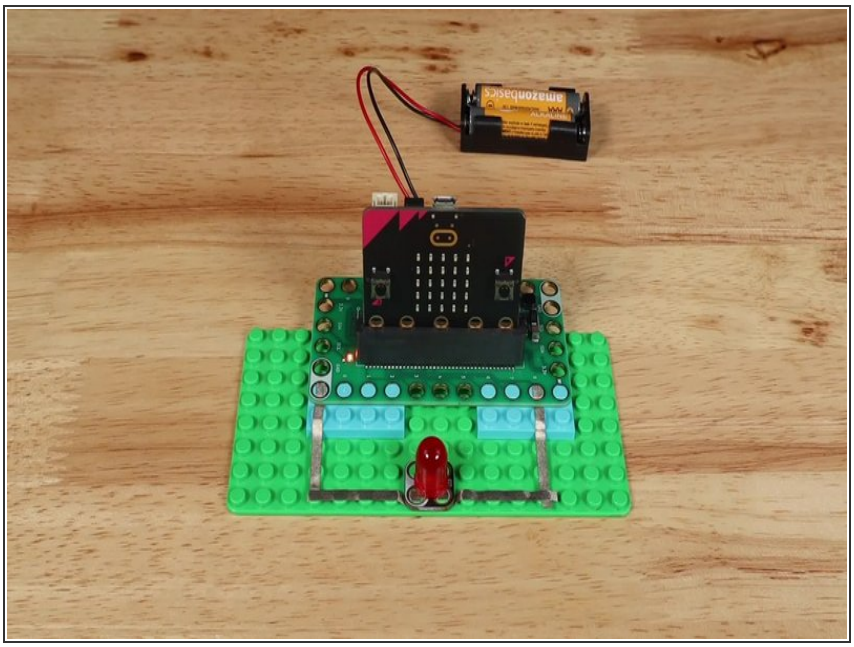
☑ You'll notice the **Ground** on the Bit Board (as well as the LED and other Crazy Circuits components we'll use) is color coded **White**.

## Step 2 — Load the Code



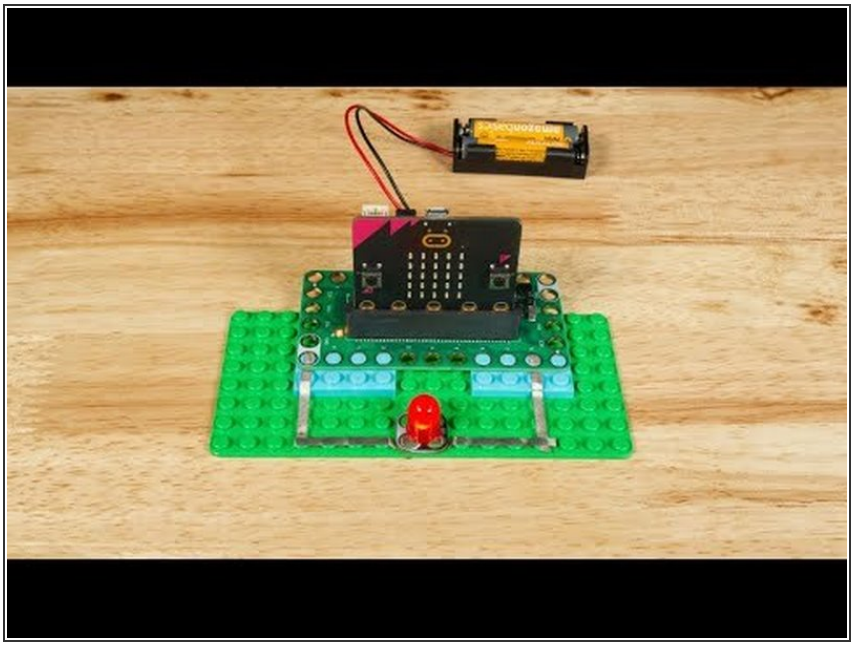

- If you've never used a micro:bit before you'll want to check out this guide: Bit Board V2 Setup and Use
- We're going to load the following code for our **LED Fade Loop** program: https://makecode.microbit.org/_ePaF4fYHr...
- This code will make the LED gradually get brighter waiting a 5 milliseconds between each step. We'll use a *for loop* to do this.
- We'll us the analog write command but instead of typing in a number we'll use a **variable** that changes with each iteration of the loop.
- Our loop will save us a lot of typing since we don't have to add 256 analog write commands all with a different number.
- We've also added the pause command because the micro:bit can run so fast that without you might not even see the LED slowly fade up from 0 to 256.

## 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.
- The LED should start off then get gradually brighter in smooth steps.

## 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/z8ONp1Q9ZV0