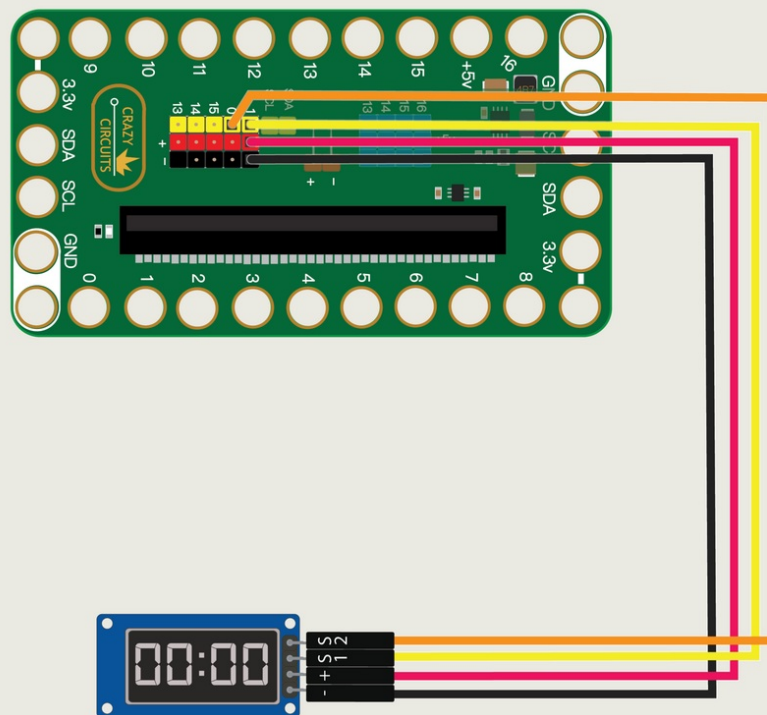




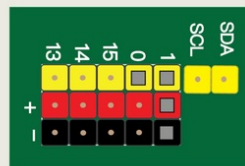
CH30-C - 7 Segment Blink

Connect a 7 Segment Display to a Bit Board and control it with code.

Written By: Pete Prodoehl



7SEG	Bit Board
CLK	-> Pin 0 (S2)
DI0	-> Pin 1 (S1)
VCC	-> + (Positive) Pin
GND	-> - (Negative) Pin



INTRODUCTION

Connect a 7 Segment Display to a Bit Board and control it with code.

We'll explore code to control a 7 Segment Digital Display that can show numbers up to 9999.



TOOLS:

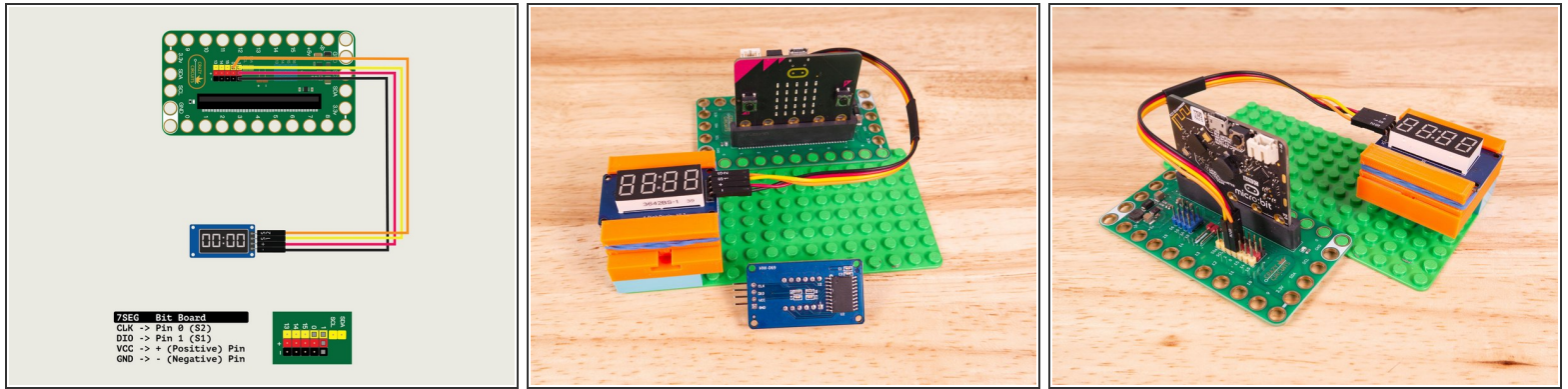
- [Computer](#) (1)



PARTS:

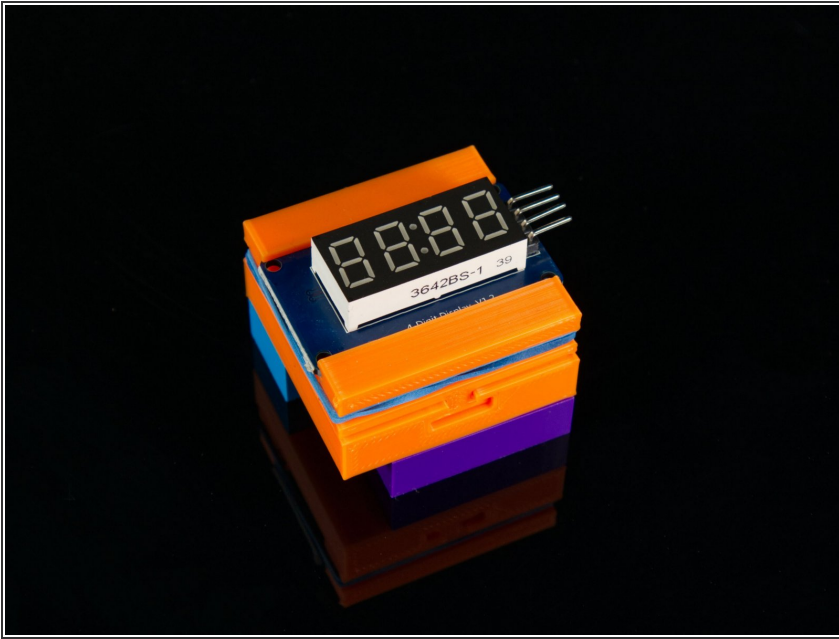
- [Crazy Circuits Bit Board](#) (1)
- [micro:bit](#) (1)
- [7 Segment Display](#) (1)
- [Crazy Circuits Ribbon Cable](#) (1)

Step 1 — Connect the 7 Segment Display



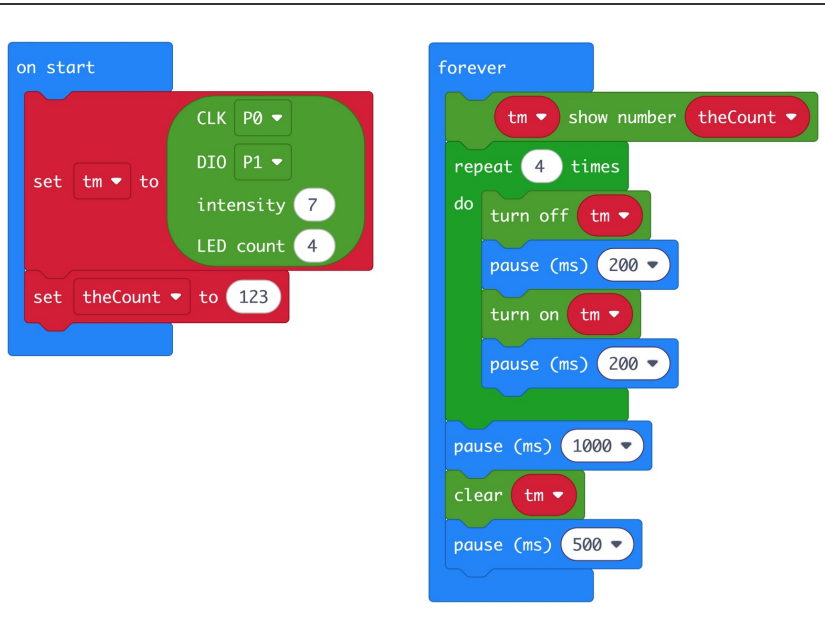
- We'll connect the **7 Segment Display** with a **Crazy Circuits Ribbon Cable** using all four wires.
 - Start by plugging the connector with the three wires in it (Black, Red, Yellow) into the **Pin 1** row of the Bit Board. (Make sure the Black wire is in - and the Yellow wire labeled **S1** is closest to the number **1** on the Bit Board.)
 - We can then plug the Orange wire labeled **S2** into **Pin 0** on the Bit Board.
 - Now we'll connect the other end of the Ribbon Cable to the **7 Segment Display**.
 - The pin labels are on the back of the 7 Segment Display PCB. From top to bottom it's **CLK**, **DIO**, **VCC**, **GND**.
 - **CLK** stands for **Clock** and **DIO** stands for **Data Input/Output**. **VCC** is the **Positive (+)** and **GND** is the **Ground (-)** or **Negative**.
 - **S2** (Orange) goes to **CLK**, **S1** (Yellow) goes to **DIO**, and then **+** (Positive) goes to **VCC** and **-** (Ground or Negative) goes to **GND**.
- ☑ Make sure every wire is connected in the correct place, or our display will not work!

Step 2 — Mounting the Display



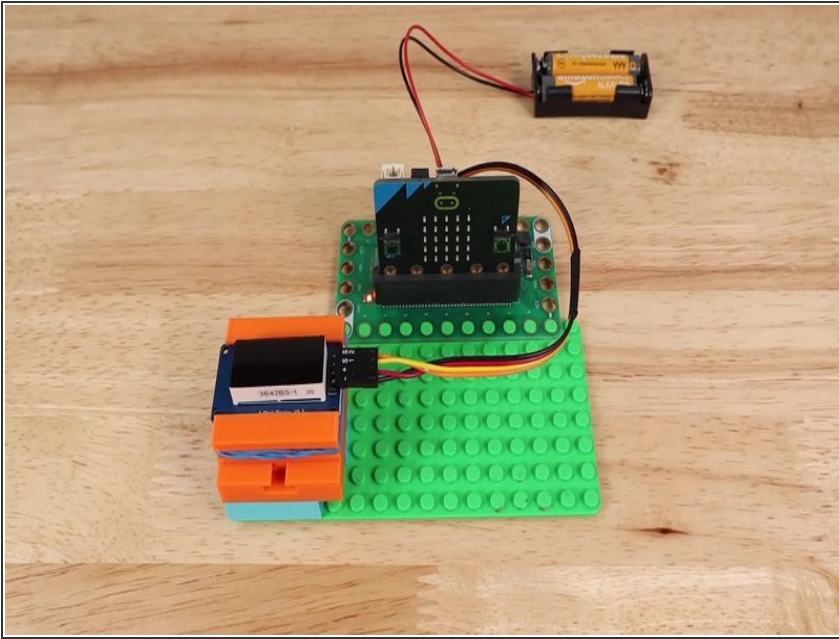
- We used a 3D printed holder we designed to hold the 7 Segment Display in place on the LEGO baseplate.
- You can find the guide for the holder here: [7 Segment Display Holder](#)
- Alternately you can use some LEGO bricks and a rubber band or tape to hold the display in place.

Step 3 — Load the Code



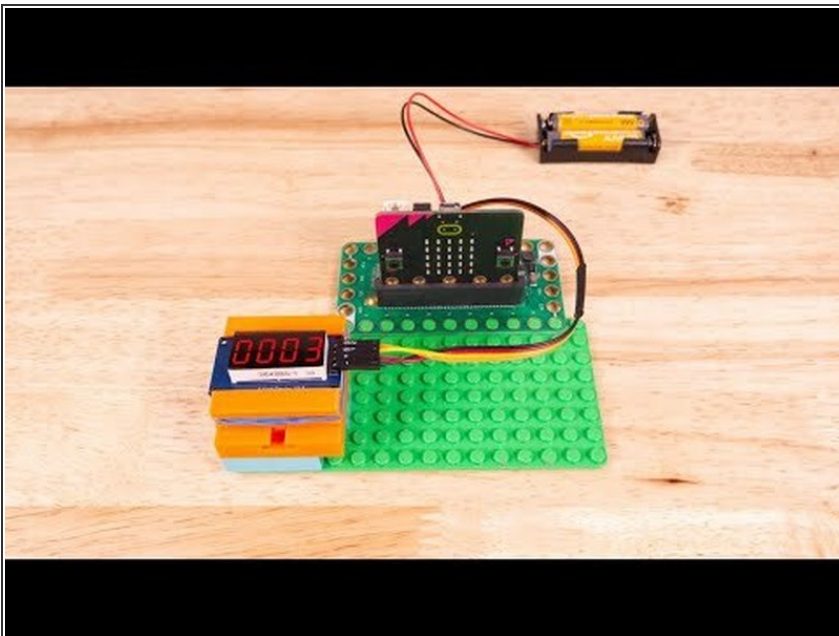
- If you've never used a micro:bit before you'll want to check out this guide: [Bit Board V2 Setup and Use](#)
- We're going to load the following code for our **7 Segment Blink** program:
https://makecode.microbit.org/_EF2gPq514...
- In the on start block we'll set up our display using the pins we've connected. **CLK** to **Pin 0** and **DIO** to **Pin 1**.
- In our forever loop we will use show number with the variable **theCount**, which is set to 123.
- We then do a repeat loop 4 times where we turn off and then turn on the 7 Segment Display, with a short pause between each one. This will give the appearance of blinking a number.
- We'll then clear the display and repeat the process.
- ☒ Note that clear removes or "blanks out" whatever is being displayed while turn off maintains the number that is being displayed, but turns off the illumination while the number is still there.

Step 4 — 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.
- The display will show **0123** and then blink it on and off four times.

Step 5 — 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/DI-rLHZK86g>