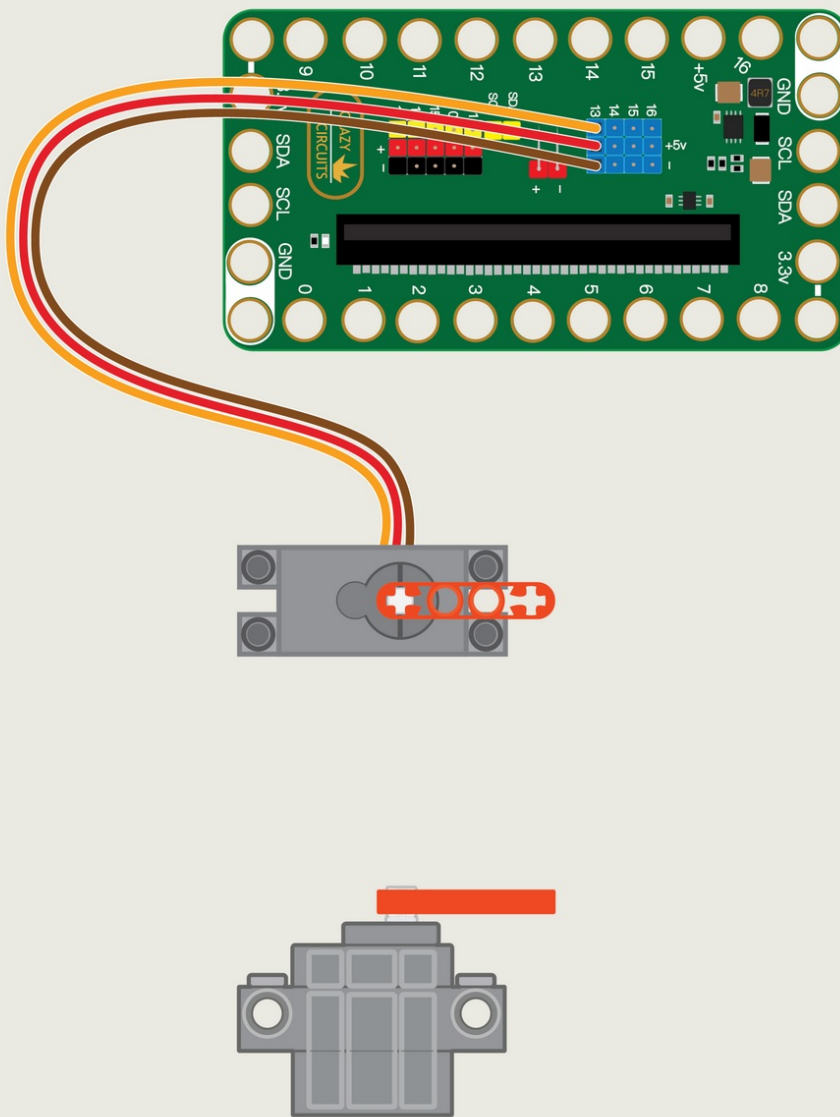




CH24-B - Servo Sweep Step

Connect a 270° Servo to a Bit Board and control it with code.

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INTRODUCTION

Connect a 270° Servo to a Bit Board and control it with code.

We'll explore how to control a servo motor.



TOOLS:

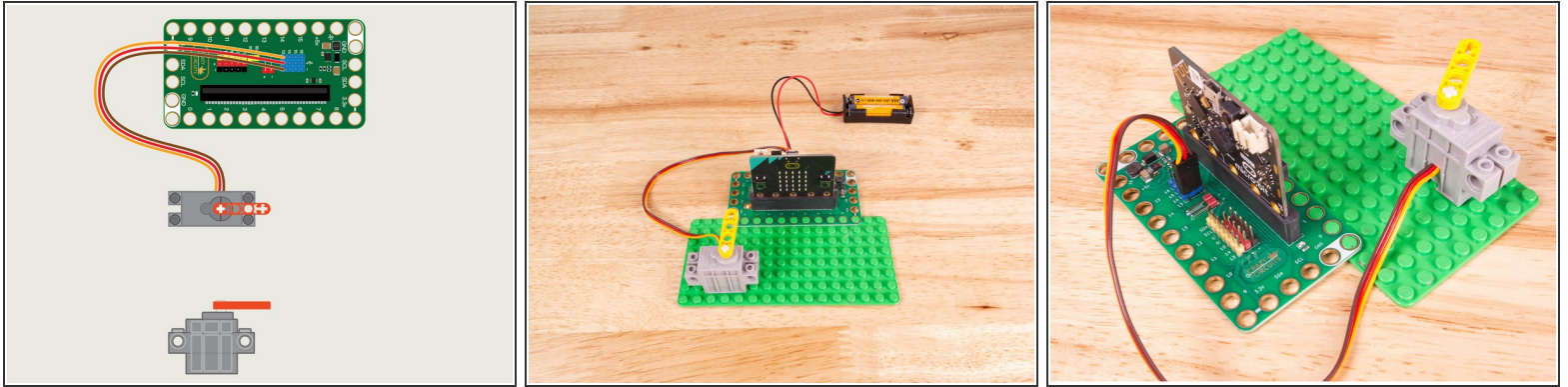
- [Computer](#) (1)



PARTS:

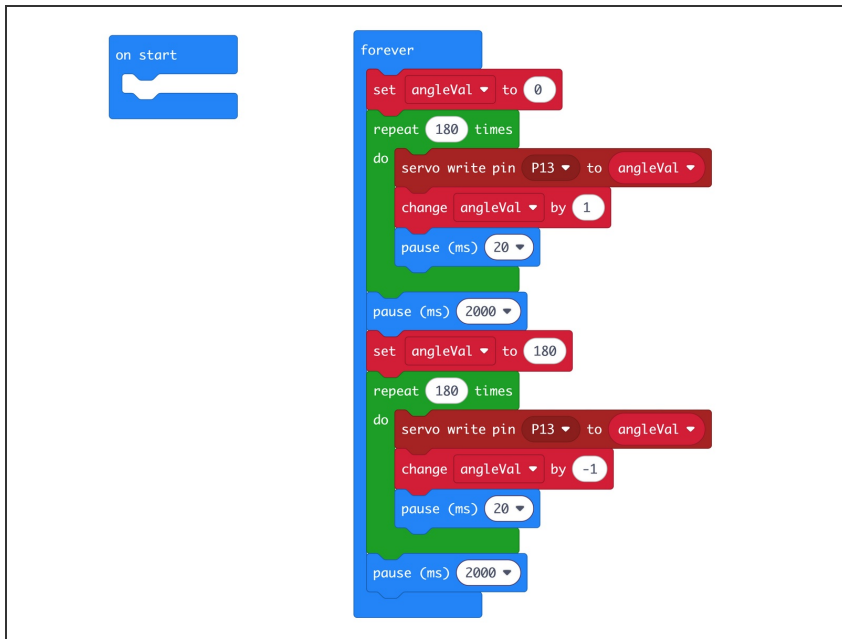
- [Crazy Circuits Bit Board](#) (1)
- [micro:bit](#) (1)
- [Brick Compatible 270 Degree Servo](#) (1)

Step 1 — Connect the 270° Servo



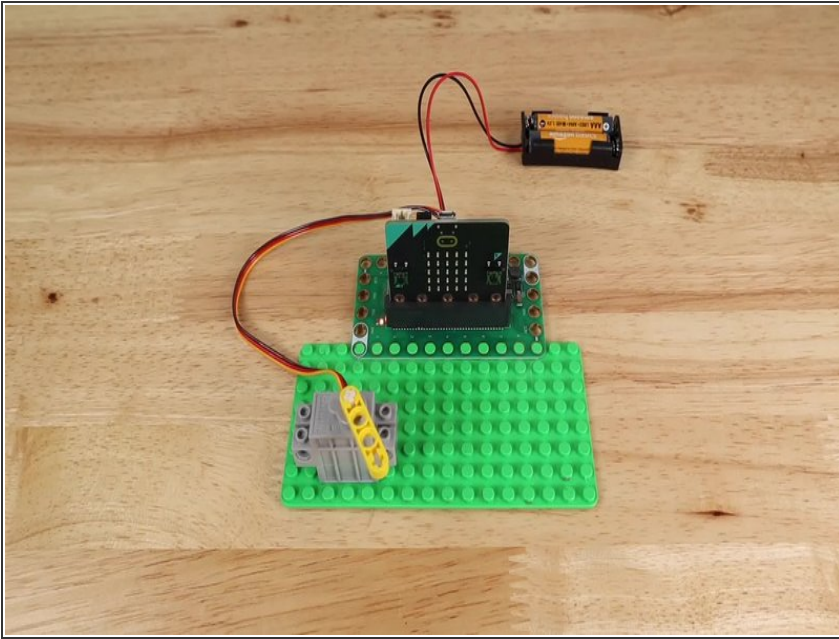
- The **270 Degree Servo Motor** has a 3-wire connector on the end that can plug directly into the pins on the back of the Bit Board.
- Make sure the **Orange Wire** is closest to the number **13** for the **Pin 13** column.
- Then the **Brown Wire** should be closest to the micro:bit (in the - row) and the **Red Wire** will be in the middle (the **+5v** row).

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 **Servo Sweep Step** program:
https://makecode.microbit.org/_1TmAxb5sr...
- This code is a little more complex, but allows us to *slow down* the sweep of the servo.
- We'll start at the **0 position**, then do a repeat loop **180 times**, changing the angle by **1 degree**, with a pause after each move.
- Once done there will be a 2 second pause, then we'll then do the same thing, but in reverse, starting at **180** and going down to **0**.

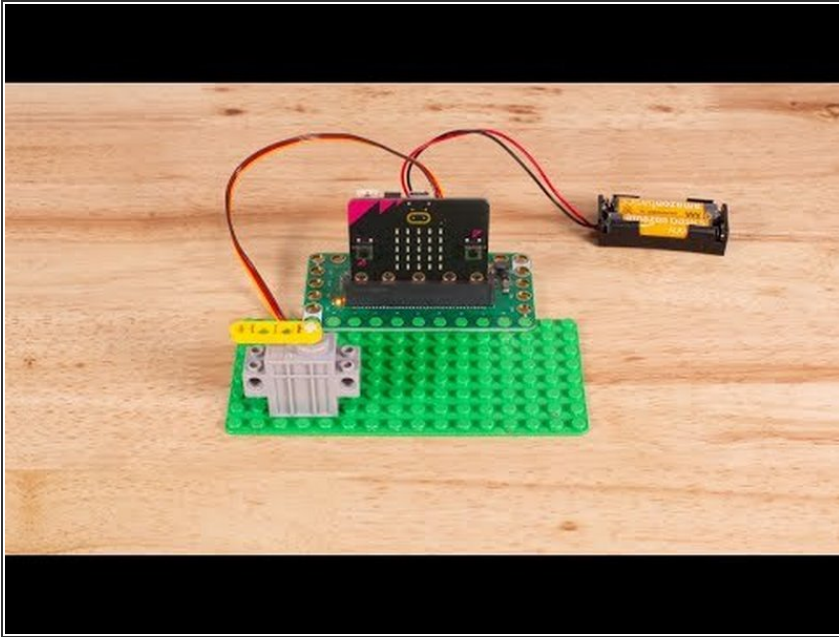
Step 3 — Test it Out!



- 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, but now that we are using servos we recommend using a battery pack plugged into the Bit Board.
- ★ The **Blue Pins** on the Bit Board provide extra power (5 volts instead of 3 volts) by **boosting the voltage** coming from the battery pack. This helps improve servo performance, especially with multiple servos.
- ★ You can see the difference in power and speed by first running the code with just the USB cable powering the micro:bit and then plugging in the battery pack to the Bit Board.
- Just like our last example the servo will "sweep" from one way to the other.
- The difference this time is in how fast the servo moves...
- Since we are moving the servo just **one degree at a time**, and **pausing between each move**, it's a much slower and smoother movement.

- ✦ There may be times you want the servo to move more slowly or smoothly, and this is one method of achieving such movement.

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/T8jrPuhOp_g