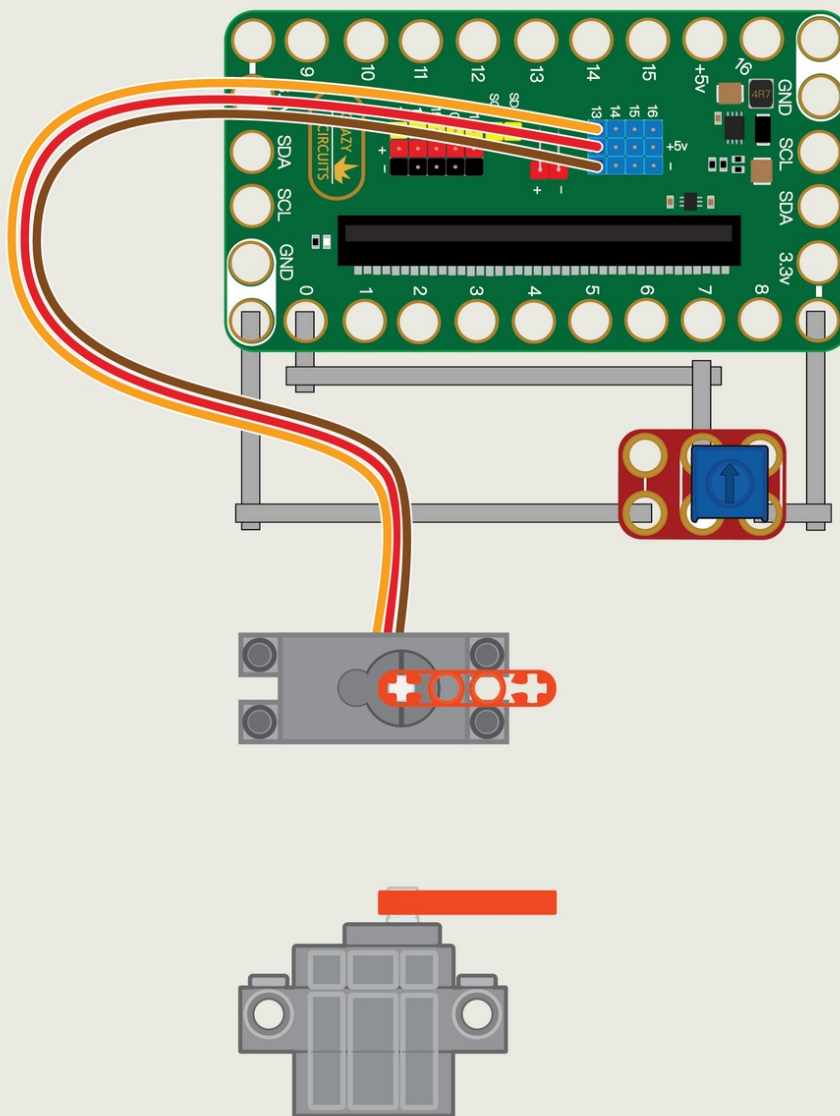




CH26-C - Servo Sweep Speed

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

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INTRODUCTION

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

We'll explore using a potentiometer (and some code) to control the movement of a servo motor.



TOOLS:

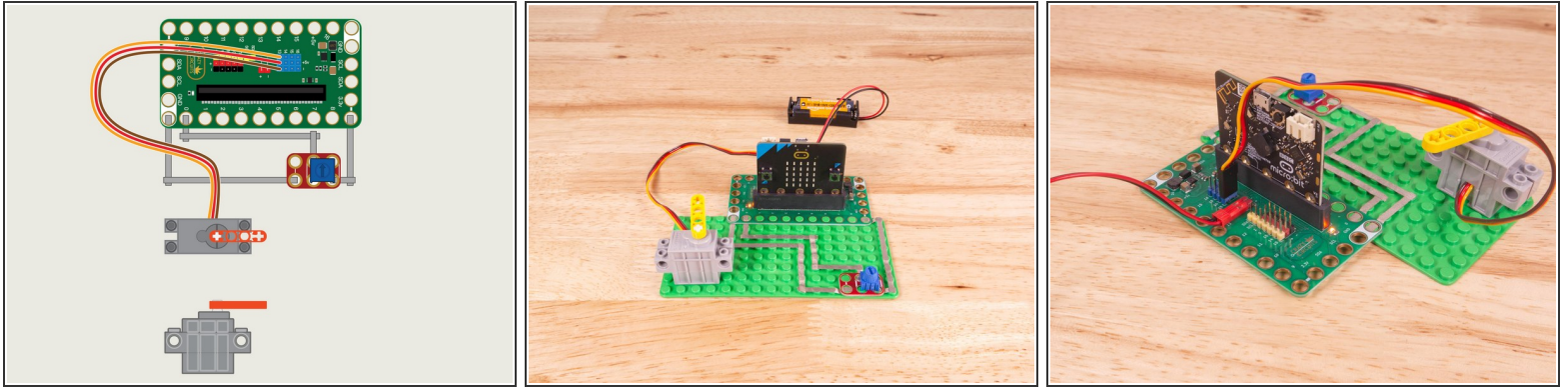
- [Computer](#) (1)
- [Scissors](#) (1)



PARTS:

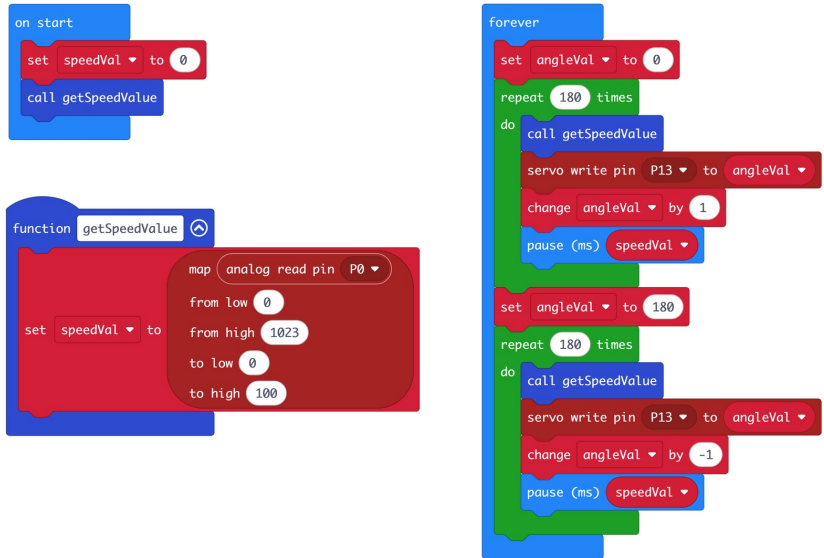
- [Crazy Circuits Bit Board](#) (1)
 - [micro:bit](#) (1)
 - [Brick Compatible 270 Degree Servo](#) (1)
 - [Crazy Circuits Potentiometer Chip](#) (1)
 - [Maker Tape](#) (1)
- 1/8" Wide

Step 1 — Connect the 270° Servo and Potentiometer



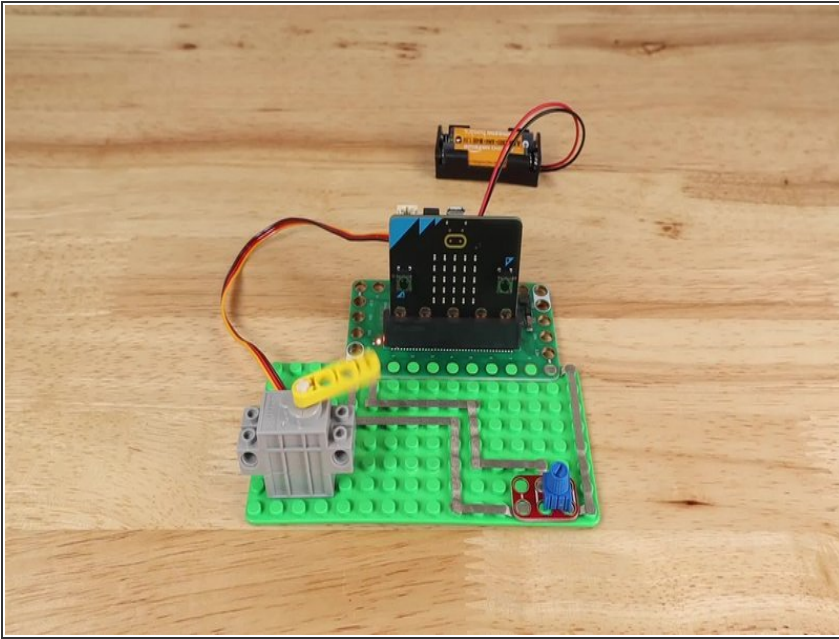
- The **270 Degree Servo Motor** has a 3-wire connector on the end that can plug directly into the pins on the back of the Bit Board.
- Make sure the **Orange Wire** is closest to the number **13** for the **Pin 13** column.
- Then the **Brown Wire** should be closest to the micro:bit (in the - row)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



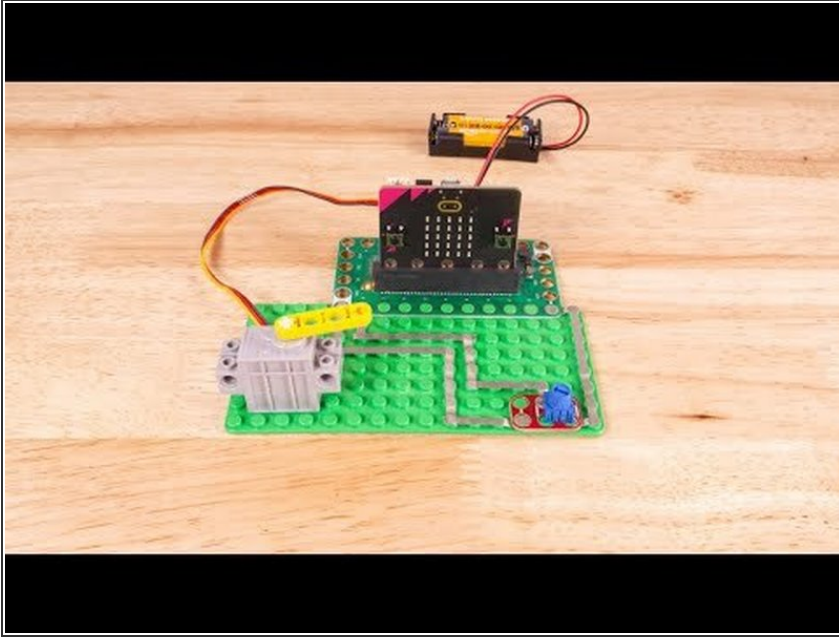
- If you've never used a micro:bit before you'll want to check out this guide: [Bit Board V2 Setup and Use](#)
- We're going to load the following code for our **Servo Sweep Speed** program:
https://makecode.microbit.org/_KLxCMHiyK...
- This time we'll use the Potentiometer to set the amount of time we pause after Servo moves.
- Our Servo will continue to run a sweep in the forever loop (going between 0 and 180) and use the value from the getSpeedVal function to affect the speed of the sweep.

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.
- The Servo will move to the 0 (zero) position and then start sweeping back and forth...
- Turn the Potentiometer to change the speed at which the Servo sweeps.

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/7ulebPcKk2A>