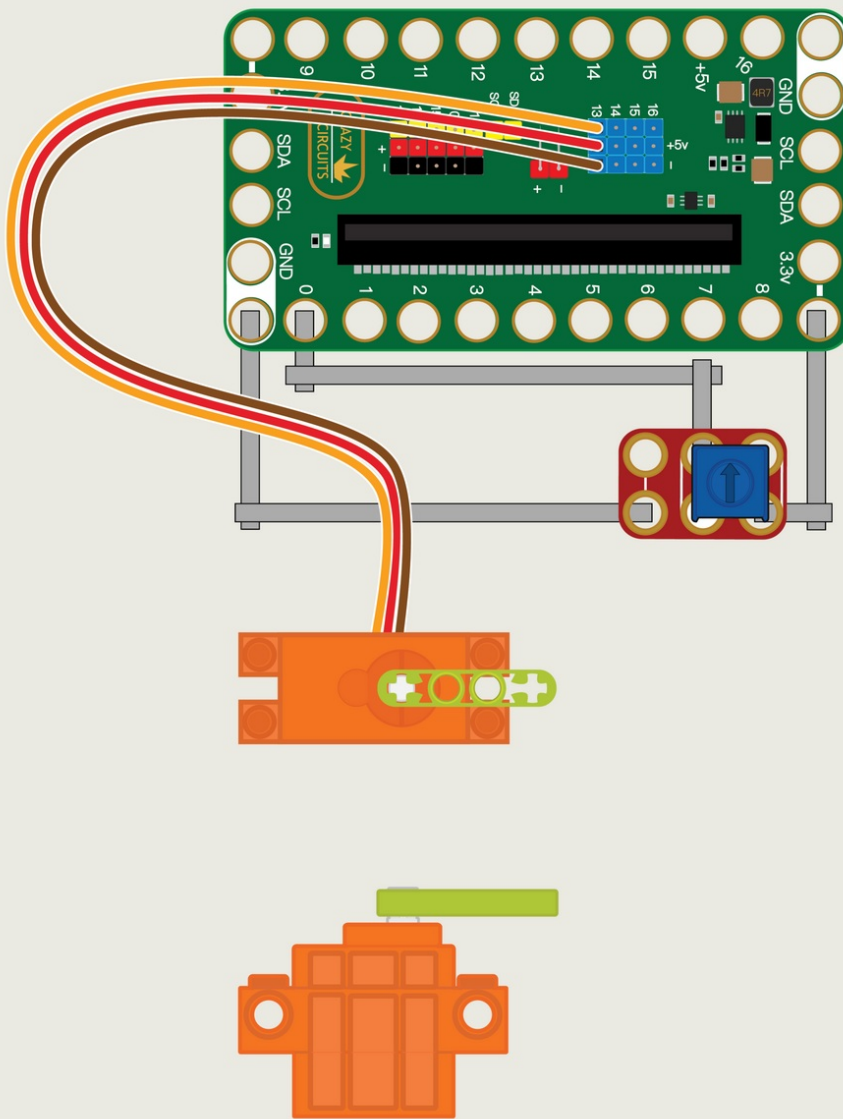




CH29-A - 360 Servo Potentiometer Speed

Connect a 360° Servo to a Bit Board and control it with a Potentiometer and code.

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INTRODUCTION

Connect a 360° Servo to a Bit Board and control it with a Potentiometer and code.

We'll explore code to control the movement of a continuous rotation (360 degree) servo motor using a potentiometer.



TOOLS:

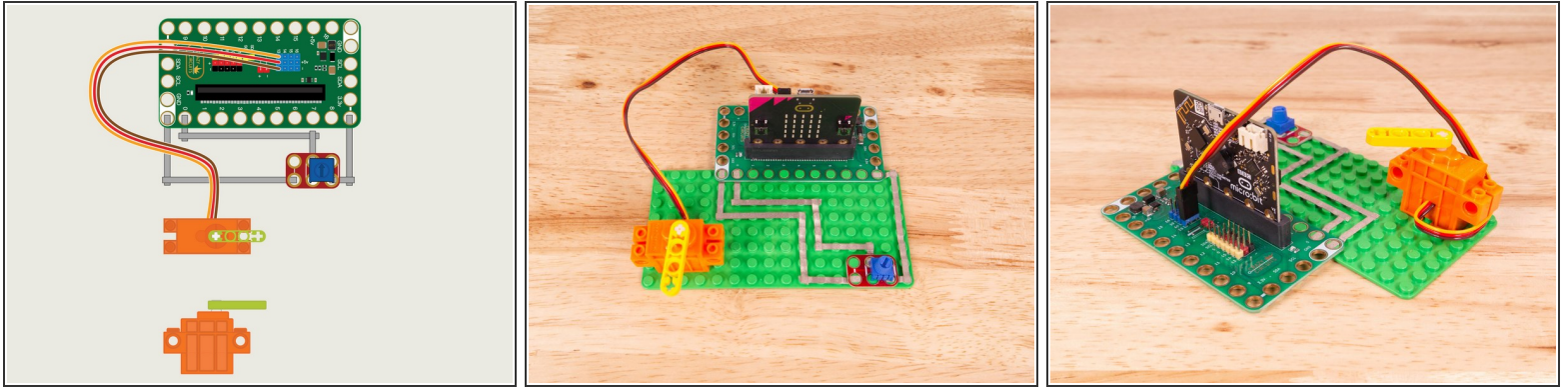
- [Computer](#) (1)
- [Scissors](#) (1)



PARTS:

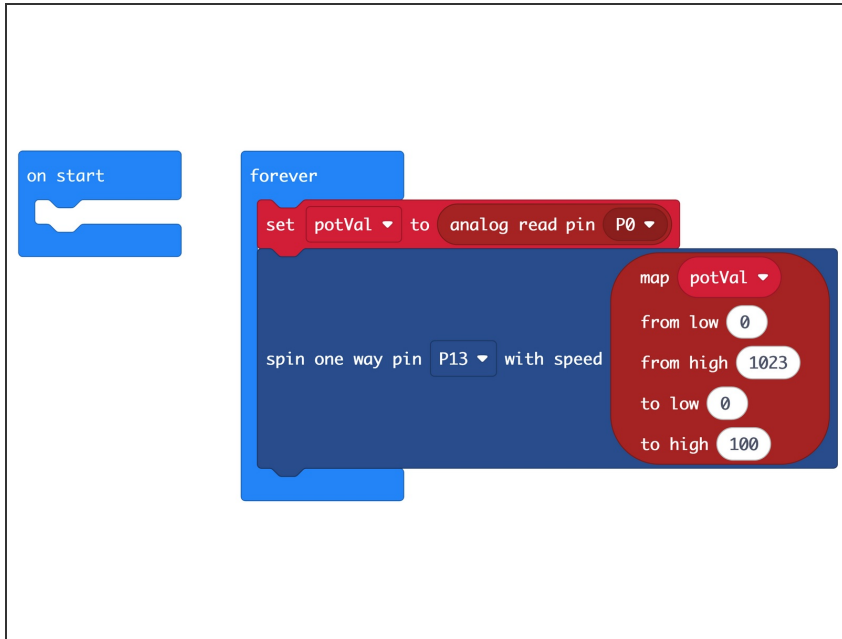
- [Crazy Circuits Bit Board](#) (1)
 - [micro:bit](#) (1)
 - [Brick Compatible 360 Degree Servo](#) (1)
 - [Crazy Circuits Potentiometer Chip](#) (1)
 - [Maker Tape](#) (1)
- 1/8" Wide

Step 1 — Connect the 360° Servo and Potentiometer



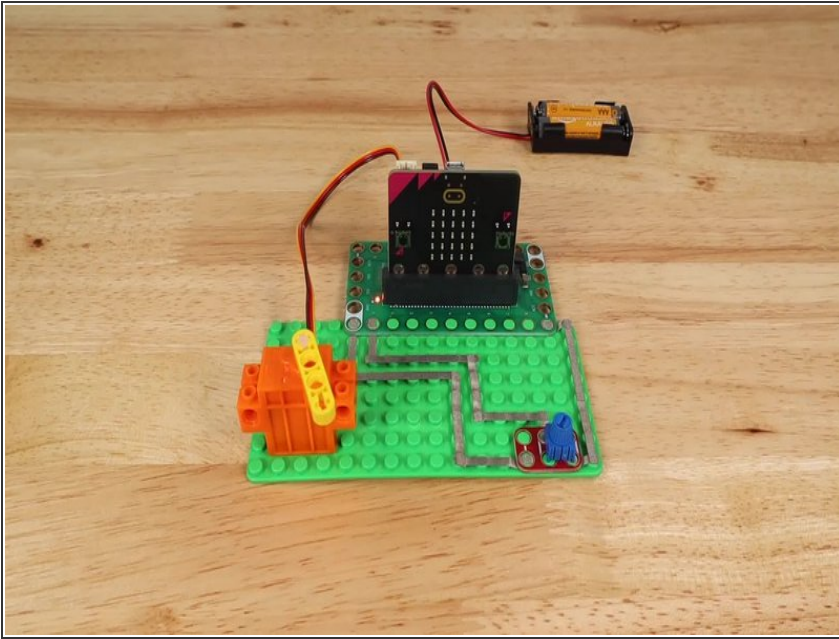
- The **360 Degree Servo Motor** has a 3-wire connector on the end that can plug directly into the pins on the back of the Bit Board.
- Make sure the **Orange Wire** is closest to the number **13** for the **Pin 13** column.
- Then the **Brown Wire** should be closest to the micro:bit (in the - row) 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



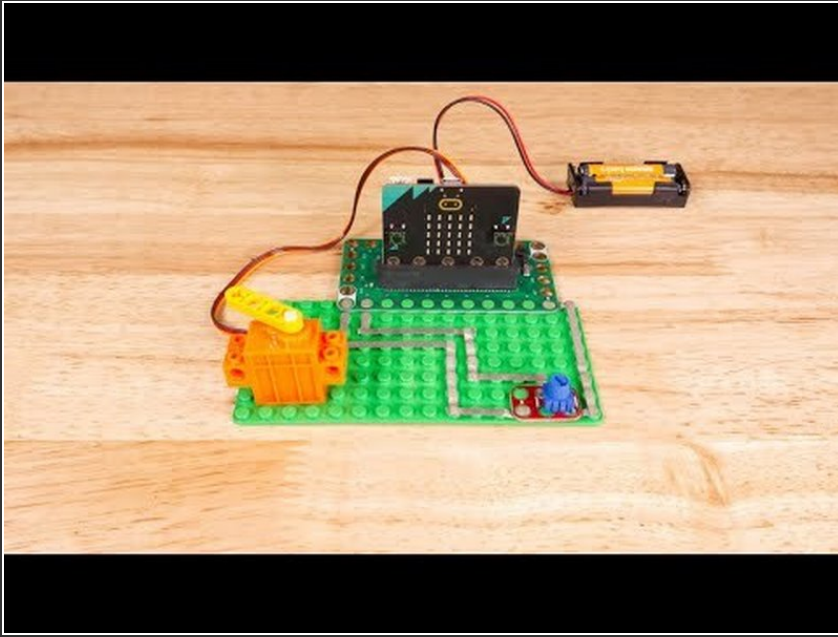
- If you've never used a micro:bit before you'll want to check out this guide: [Bit Board V2 Setup and Use](#)
- We're going to load the following code for our **360 Servo Potentiometer Speed** program: https://makecode.microbit.org/_Rmv8YaPd2...
- We'll assign the input from the Potentiometer to a variable named **potVal**.
- We'll then use the map function to take the value from the potentiometer (0 to 1023) and map it to the scale used to control the speed of the Servo (0 to 100).

Step 3 — Test it Out!



- Once the code is loaded it should start running immediately, but the motor may or may not move depending on the position of the Potentiometer knob.
- ⓘ 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 Potentiometer will act like a "speed control" for the Servo. Spinning the knob one way will speed it up and spinning it the other way will slow it down.
- You can set the Potentiometer knob to a specific location to maintain the turning speed of the Servo.

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/1H9jjAUFHAl>