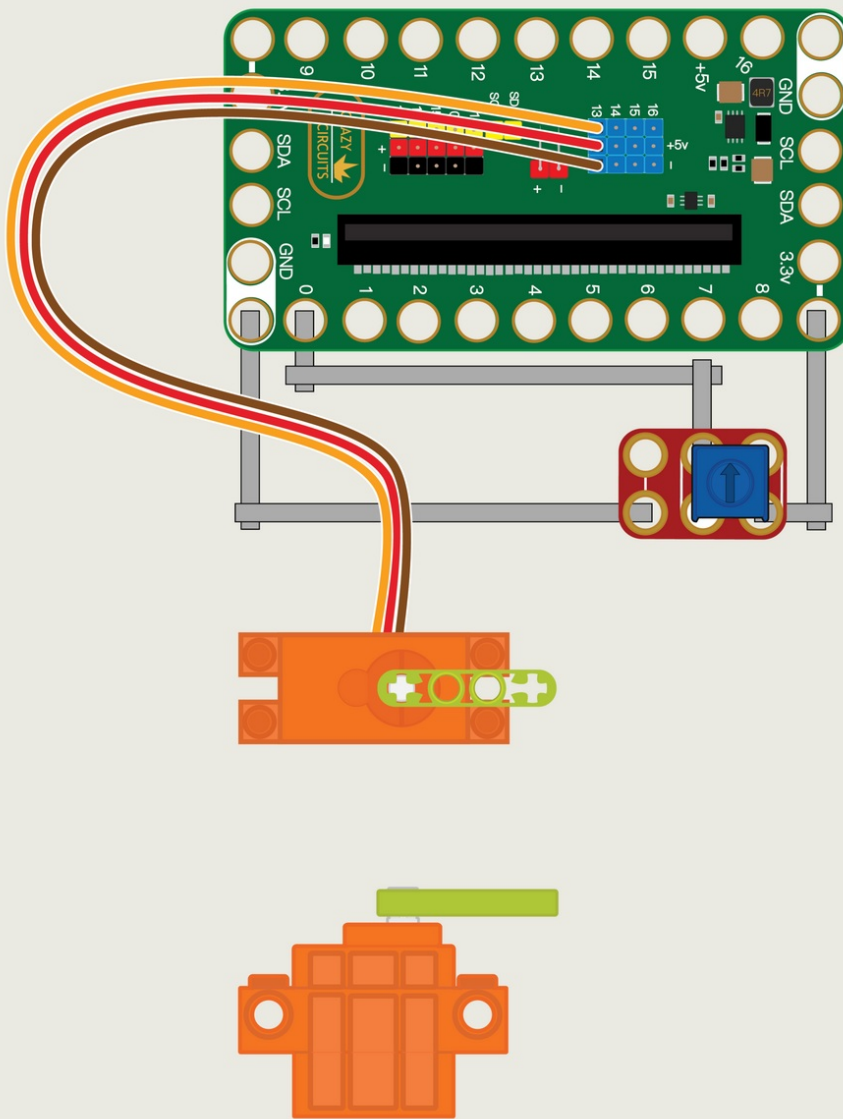




CH29-D - 360 Servo Potentiometer Start Stop

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:

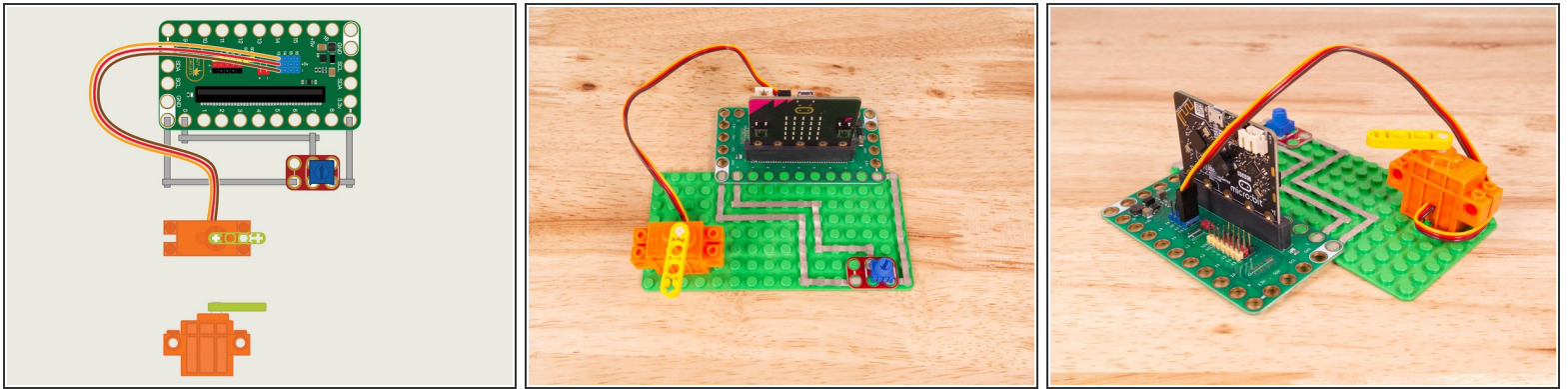
- [Computer](#) (1)
- [Scissors](#) (1)



PARTS:

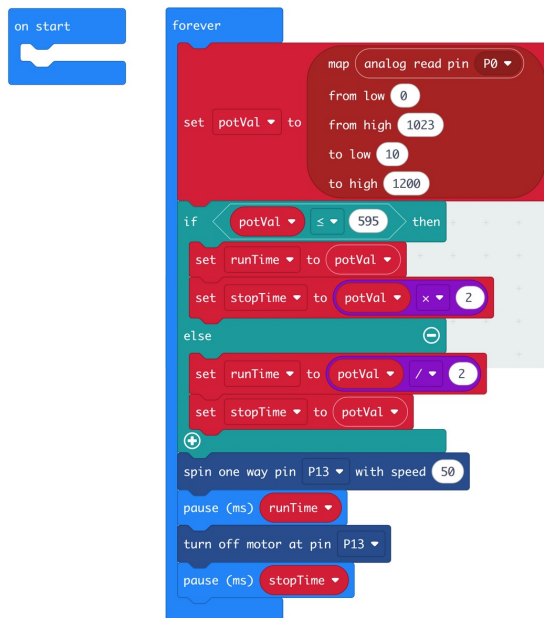
- [Crazy Circuits Bit Board](#) (1)
 - [micro:bit](#) (1)
 - [Brick Compatible 360 Degree Servo](#) (1)
 - [Crazy Circuits Potentiometer Chip](#) (1)
 - [Maker Tape](#) (1)
- 1/8" Wide

Step 1 — Connect the 360° Servo and Potentiometer



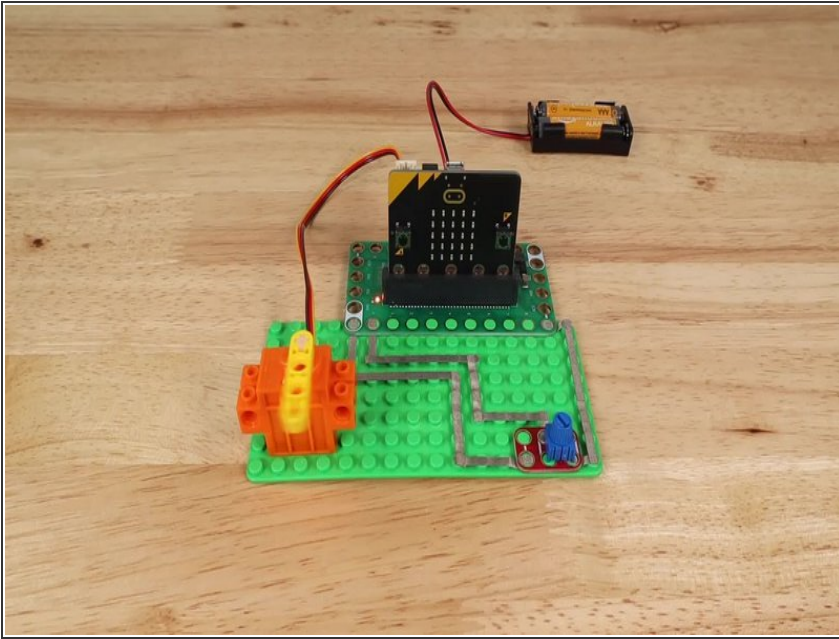
- The **360 Degree Servo Motor** has a 3-wire connector on the end that can plug directly into the pins on the back of the Bit Board.
- Make sure the **Orange Wire** is closest to the number **13** for the **Pin 13** column.
- Then the **Brown Wire** should be closest to the micro:bit (in the - row)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



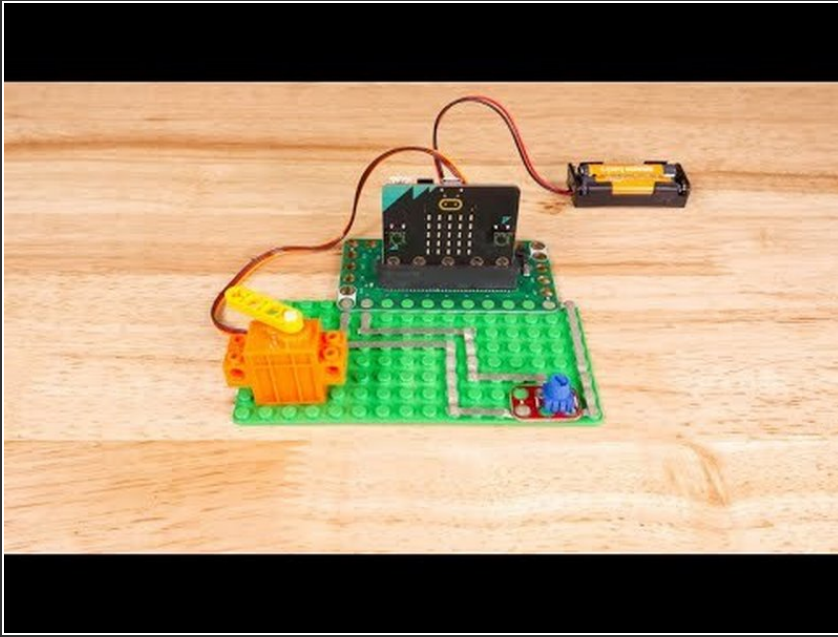
- If you've never used a micro:bit before you'll want to check out this guide: [Bit Board V2 Setup and Use](#)
- We're going to load the following code for our **360 Servo Potentiometer Start Stop** program:
https://makecode.microbit.org/_Eq5MLJ0yY...
- We'll run an analog read pin on **Pin 0** and assign that to a variable named **potVal**.
- We'll check if the **potVal** is **595** or lower or if **potVal** is greater than **595**. We will set some values (and use different math) depending which if/else is true.
- We then spin the motor for the amount of time set in **runTime**, then stop the motor for the amount of time in **stopTime**.

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.
- Turn the Potentiometer knob and watch how the motor reacts.
- Try to compare the motor action to the code and see if it makes sense!

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>