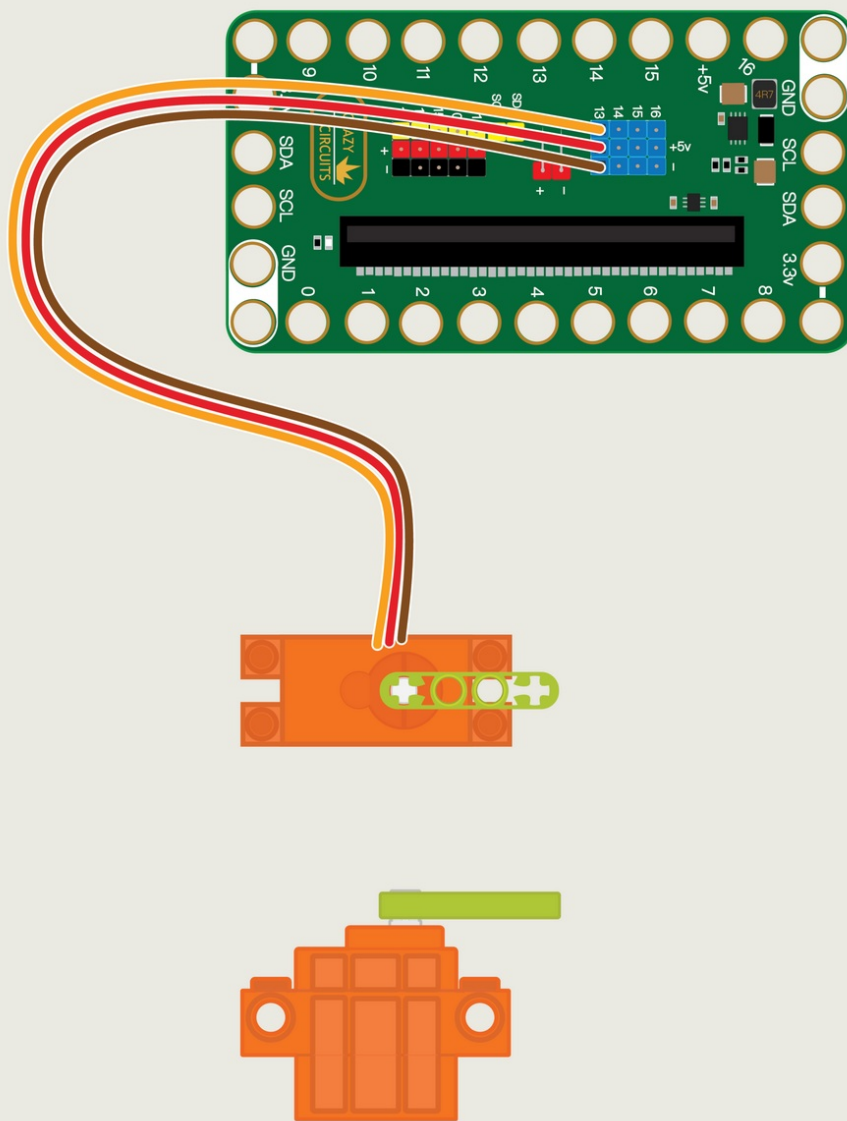




CH27-C - 360 Servo Ramp

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

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INTRODUCTION

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

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



TOOLS:

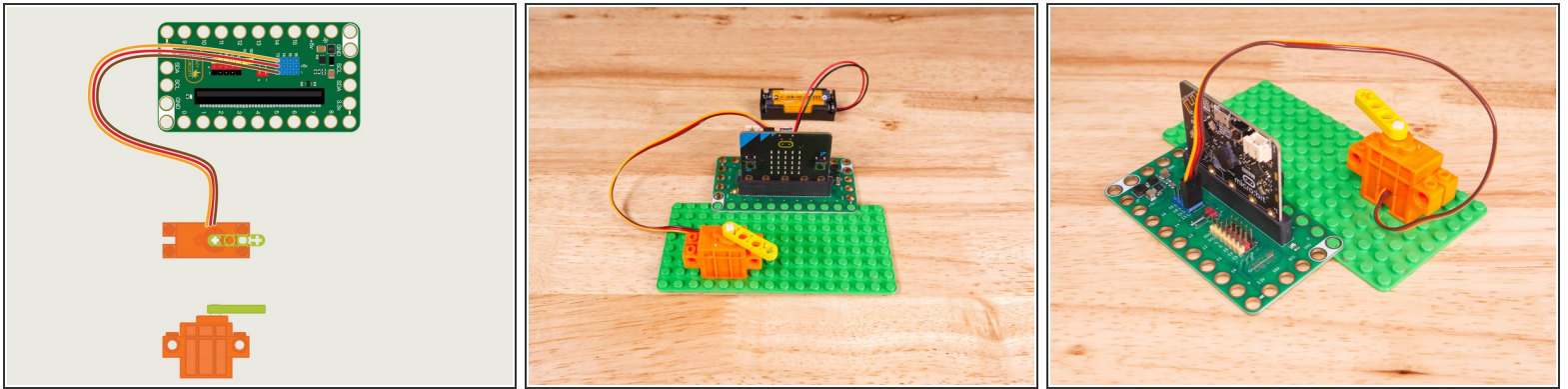
- [Computer](#) (1)



PARTS:

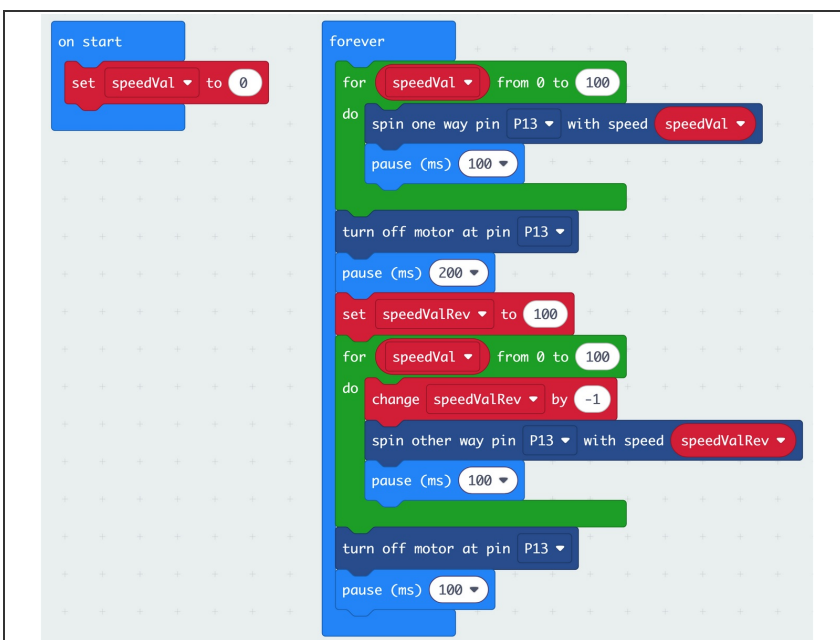
- [Crazy Circuits Bit Board](#) (1)
- [micro:bit](#) (1)
- [Brick Compatible 360 Degree Servo](#) (1)

Step 1 — Connect the 360° Servo



- 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).
- ☑ A 360 Degree Servo is also called a "Continuous Rotation Servo" because it can **spin around continuously** without the hard stops that a 270 Degree Servo has.

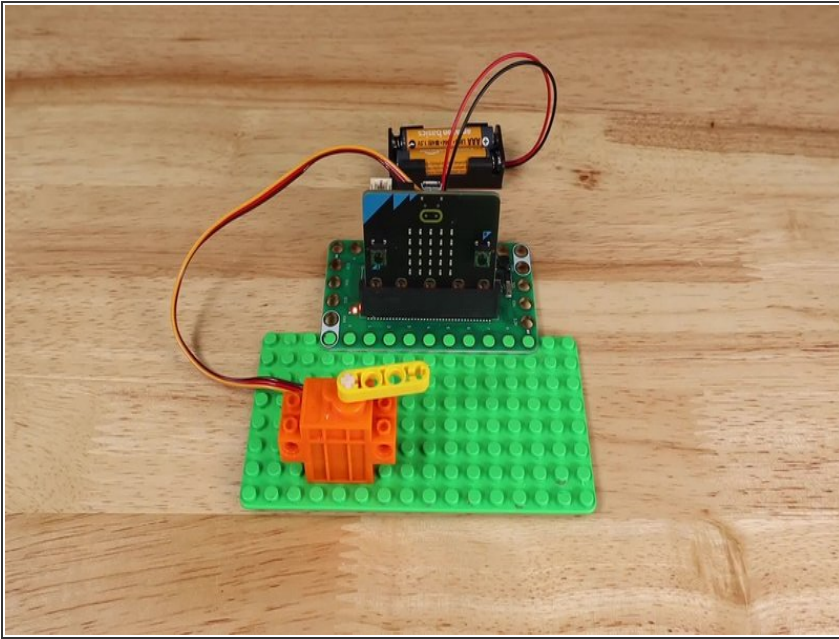
Step 2 — Load the Code



- If you've never used a micro:bit before you'll want to check out this guide: [Bit Board V2 Setup and Use](https://makecode.microbit.org/_PAe52YThq...)
- We're going to load the following code for our **360 Servo Ramp** program:
https://makecode.microbit.org/_PAe52YThq...
- We'll use the **speedVal** variable to set the speed of the servo rotation.

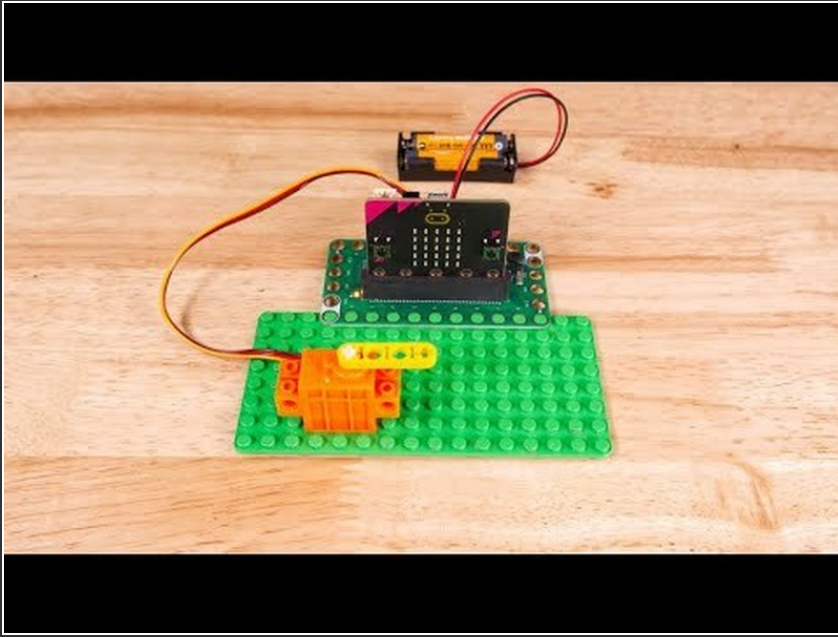
- In the forever block we'll run through two loops. The first loop will make the servo spin one way, and the speed will increase with each iteration of the loop. We pause 100 milliseconds after each change in speed.
- In the second for loop we get a little tricky. Since the for loop always starts at 0 (zero) we'll use it to iterate, but we'll use a second variable named **speedValRev** to hold the value we use to control the speed.
- We start **speedValRev** at 100, and then with each iteration of the loop we **change it by -1** (which decreases it by 1).
- ① We described the method above as "tricky" because while other languages allow for loop iterations to start at any value, MakeCode does not, but it's an easy workaround.

Step 3 — 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, 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 start spinning slowly and gain speed as it spins. It will then stop and spin the opposite direction, this time spinning at full speed and then slowing to a stop.

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/6SM5-RuBkuY>