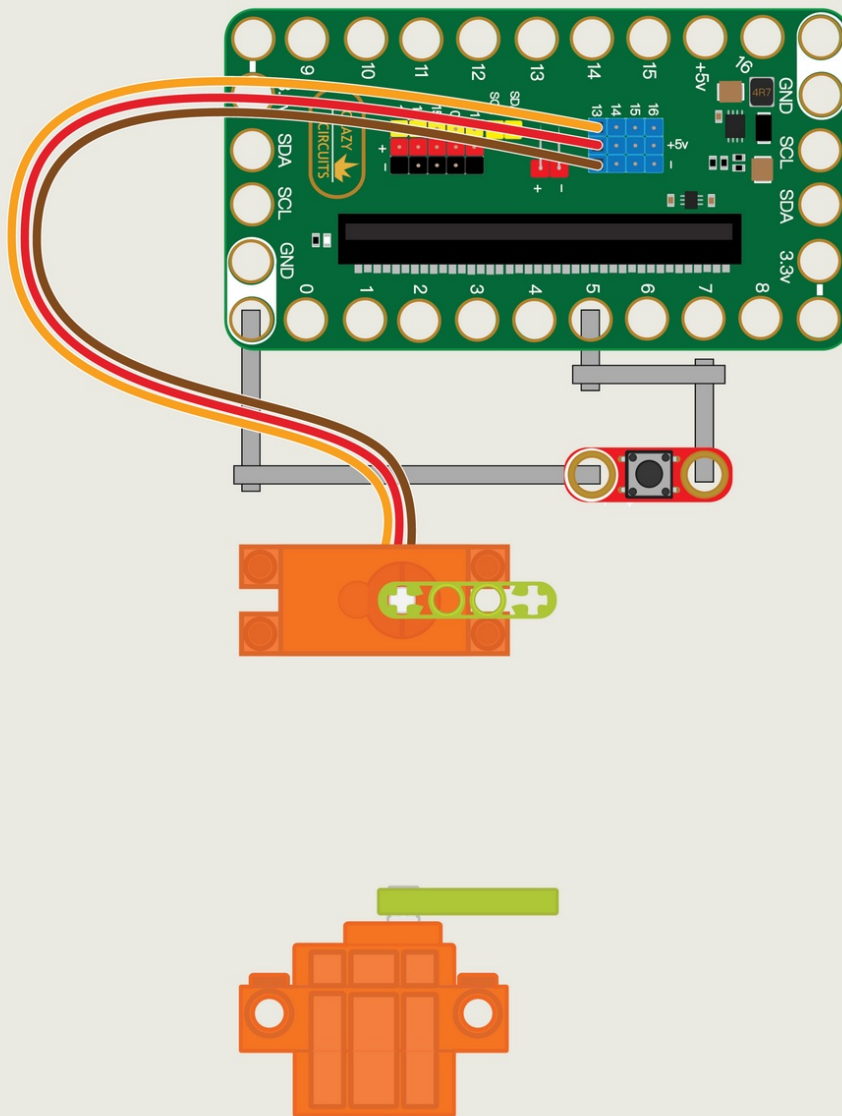




CH28-C - 360 Servo Button Both Ways

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

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INTRODUCTION

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

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



TOOLS:

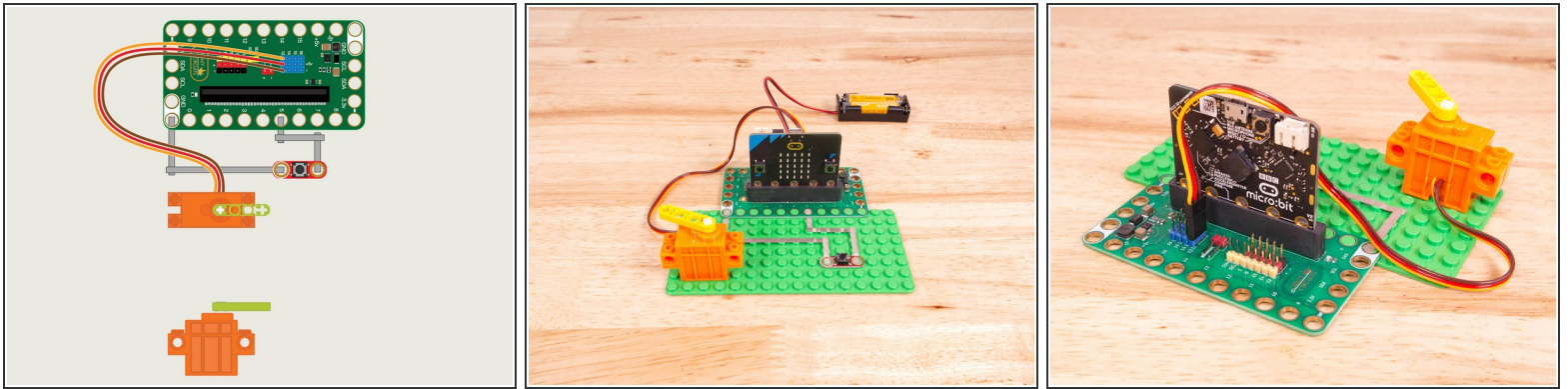
- [Computer](#) (1)
- [Scissors](#) (1)



PARTS:

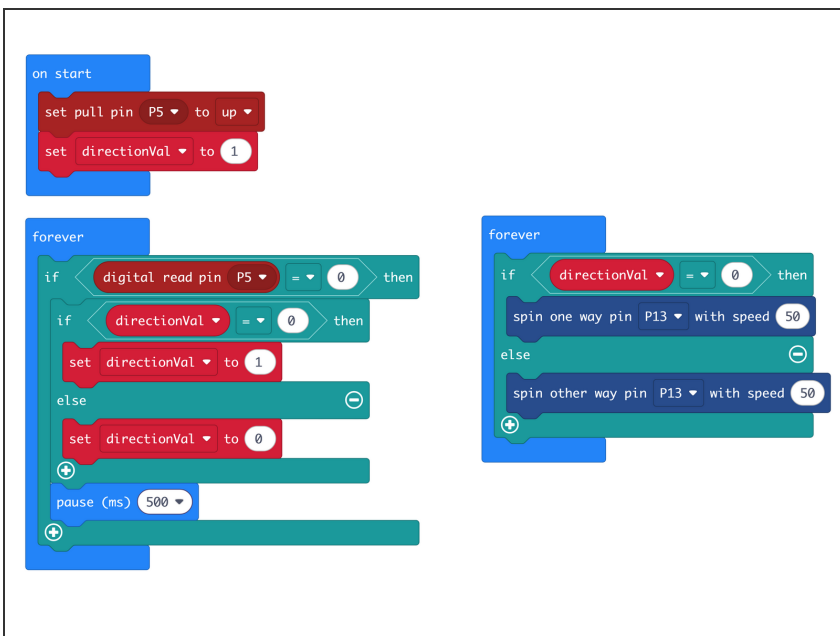
- [Crazy Circuits Bit Board](#) (1)
- [micro:bit](#) (1)
- [Brick Compatible 360 Degree Servo](#) (1)
- [Standard Pushbutton Chip](#) (1)

Step 1 — Connect the 360° Servo and Pushbutton



- 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).
- Connect the Button with **Maker Tape**, with one side to **Pin 5** and the other to **GND**.

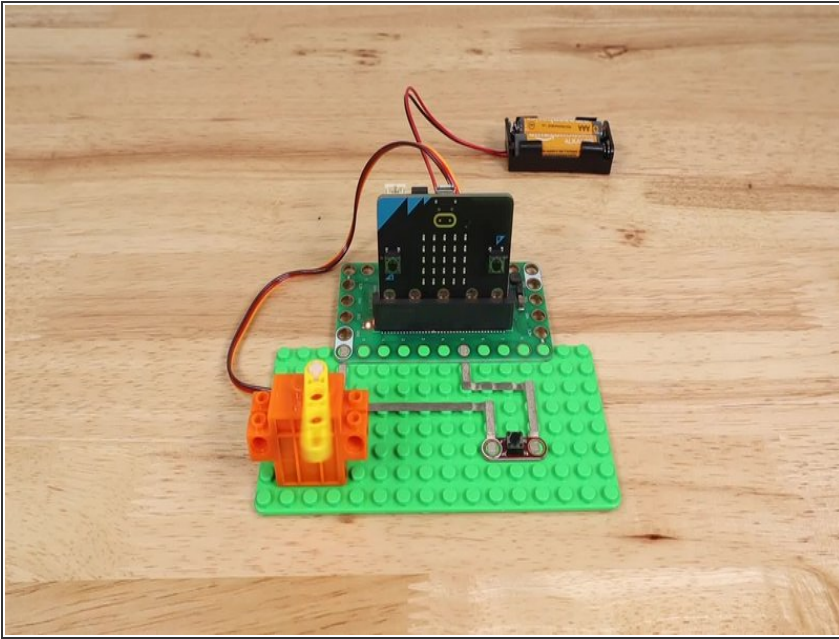
Step 2 — Load the Code



- 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/_RACbXCFTD...)
- We're going to load the following code for our **360 Servo Button Both Ways** program:
https://makecode.microbit.org/_RACbXCFTD...

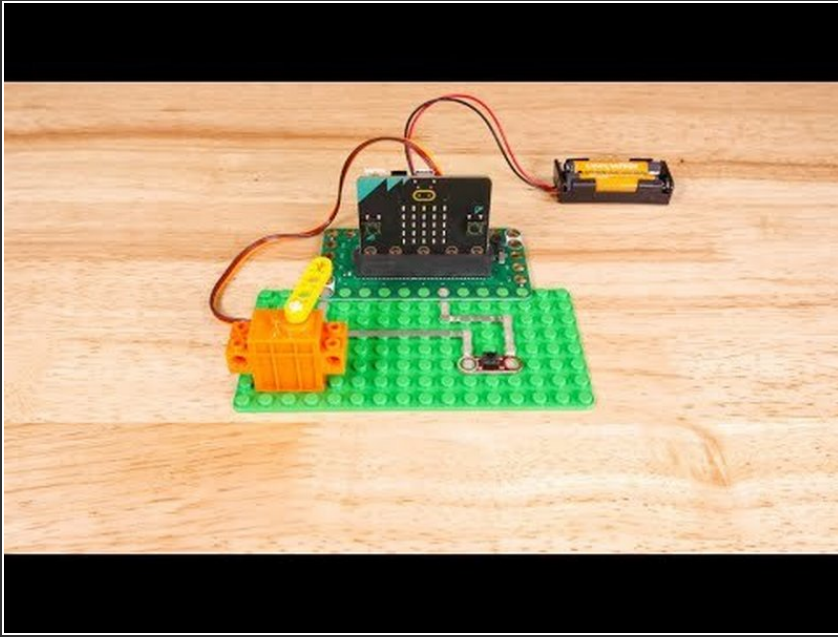
- We'll get our button all set in the start block by setting it to **up** so when the button is shorted to GND (ground) or "pulled down" we can read the state.
- We'll also set our **directionVal** variable to **1**. We'll use this to keep track of which direction the motor is spinning.
- In our first forever block we'll check if the button is pressed, and if so, toggle the **directionVal** value. We do this by checking if it's **0**, and if it is, we set it to **1**.
- And if the **directionVal** value is **1** our if else falls to the else where we set it to **0** instead.
- In our second forever block we are controlling the motor based on the value of **directionVal**. It will spin one way or spin other way based on **directionVal** being either **0** or **1**.

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 start spinning in one direction...
- Press and release the button and the servo will start spinning in the other direction.
- If you **press and hold** the button it will switch directions every 500 milliseconds, as specified in the first forever loop.

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/HcgJJ8a2K>
[I](#)