Servo motor guide

Learn how to connect and control servo motors with your micro:bit, ready to design your own fairground ride model.

What is a Servo Motor?

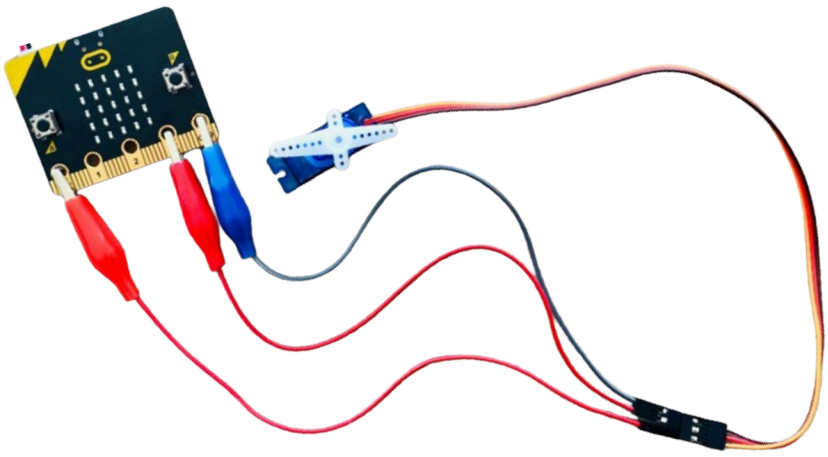
A servo is a tiny motor that can be controlled precisely using code. It uses signals (pulses) from the micro:bit to tell it how far or how fast to move.

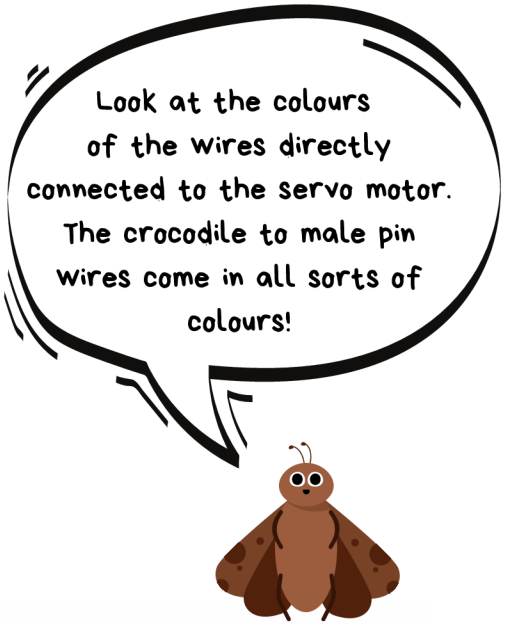
Type	Movement	Best for	Example
180° Servo	Turns from 0° to 180°	Moving parts that swing or tilt	Pirate ship
360° Servo	Spins all the way round (continuous)	Rides that spin or rotate	Carousel, Ferris Wheel

How to Connect Your Servo

Option 1: Connect directly to the micro:bit

1. Plug in your micro:bit to your computer
2. Connect the male pin to crocodile clip wires to the servo
3. Connect your crocodile clips to the micro:bit
    - Brown or black → GND (Ground)
    - Red → 3V
    - Orange or yellow → Pin 0

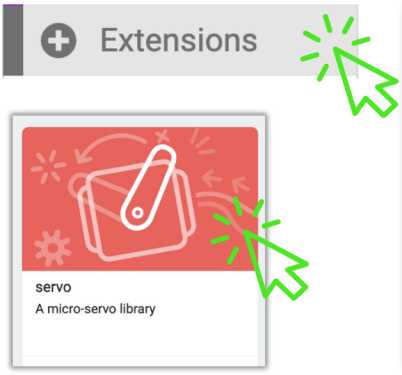


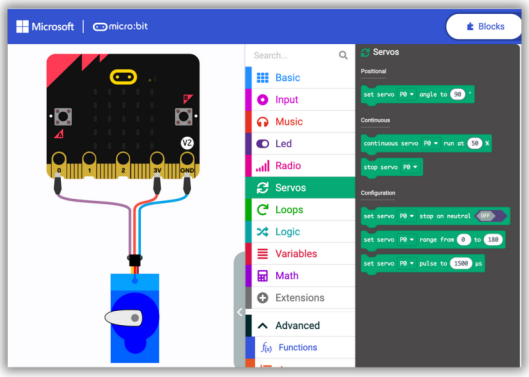


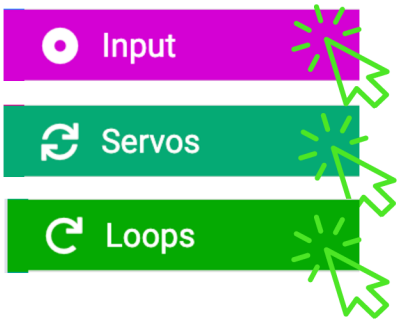
Servo motor guide continued...

Log into MakeCode and let's get coding!
https://makecode.microbit.org/

Click on the 'Extensions' button and search for 'Servo'.

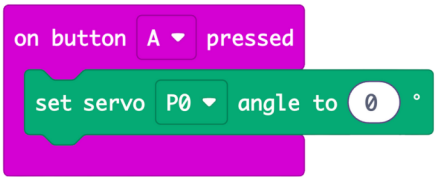


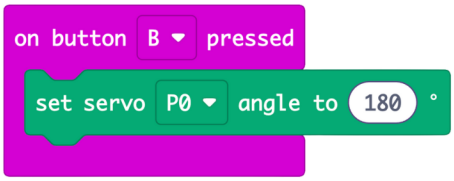




This gives you extra block code to control servo motors.

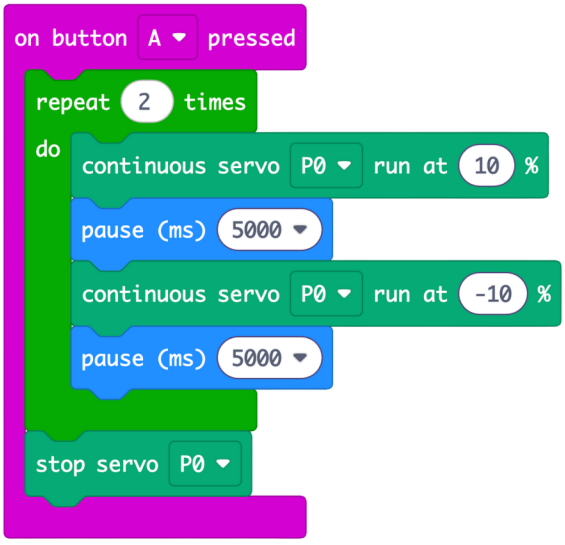
Let's code the 180° servo.

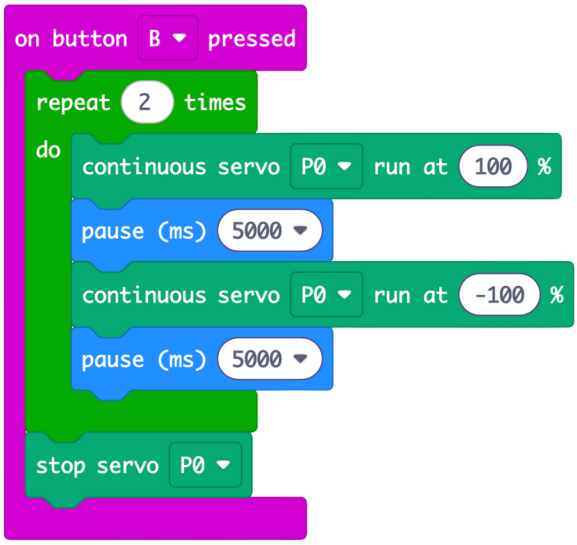




Watch the servo arm (the plastic piece that turns). Try out different angles between 0 - 180°.

Now connect the 360° continuous servo to your micro:bit..





Watch the servo arm (the plastic piece that turns). You can make it spin at different speeds using percentages (%). Try out different values.

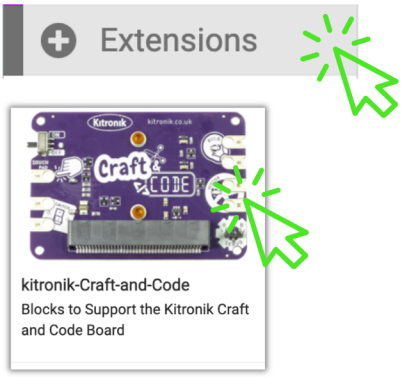
100% fastest speed one way, 0% = stopped

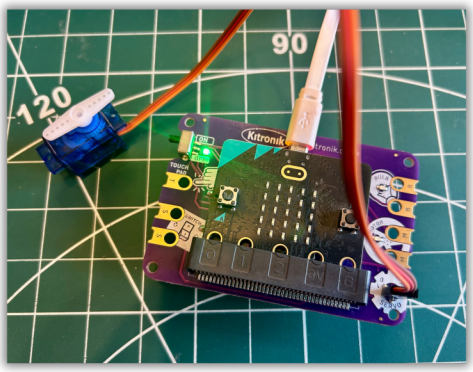
The - (minus) sign makes the servo turn in the opposite direction.

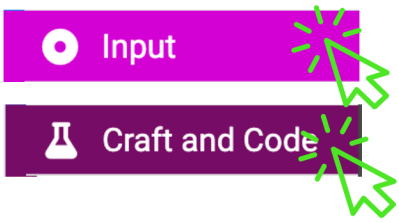
the Craft and Code board

Log into MakeCode and let's get coding!
https://makecode.microbit.org/

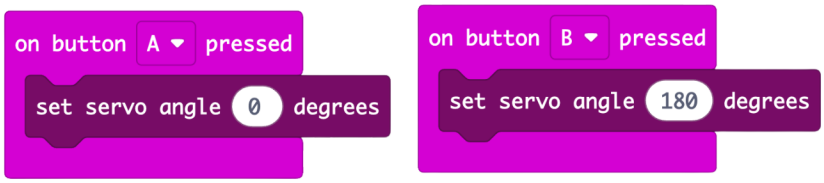
Click on the 'Extensions' button and search for 'Craft and Code'.







Connect your micro:bit and the 180° servo to the Craft and Code board.



Watch the servo arm (the plastic piece that turns). Try out different angles between 0 - 180°.

Now connect the 360° continuous servo to the Craft and Code board.

The craft and Code board isn't designed for 360° continuous servos, but this code works!

Watch the servo arm (the plastic piece that turns). The A button makes it turn clockwise, and the B button makes it turn anti-clockwise! Press the A+B buttons together to stop the servo.

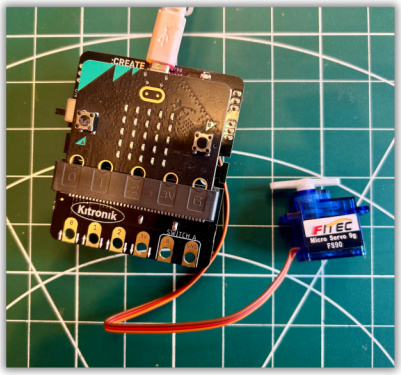
Tip for experimenting

- Try numbers between 0° and 90° for a slower clockwise speed
- Try numbers between 110° and 170° for a slower anticlockwise speed
- Always keep values within 0–180 when using the Craft and Code board.

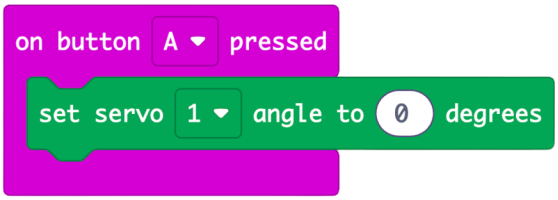
The Simple Servo Control board

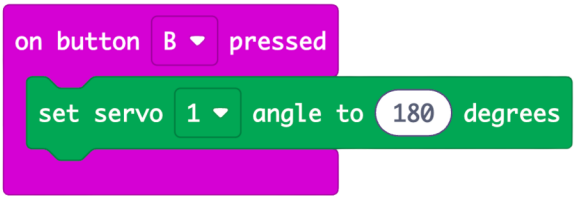
Log into MakeCode and let's get coding!
https://makecode.microbit.org/

Click on the 'Extensions' button and search for 'Simple servo'.



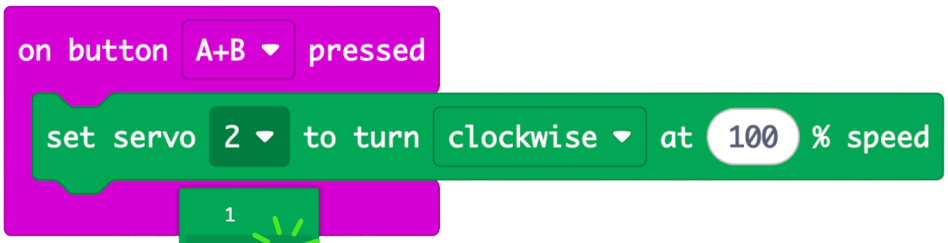
Connect your micro:bit and the 180° servo to the Simple Servo board - port 1.





Watch the servo arm (the plastic piece that turns). Try out different angles between 0 - 180°.

Now connect the 360° continuous servo to port 2 of the simple servo board.



Be sure to select the correct servo port number!

Watch the servo arm (the plastic piece that turns) when you press the A and B button at the same time. You can tell it when you want it to stop!

Tip for experimenting

- Try numbers between 10 and 350 for a slower speed. Select 'counter-clockwise' to make it turn in the opposite direction.