

# My First Animated Character

I can create a character from a book and add motion by programming a position servo.

# Pretest: What I Already Know

Name:

---

## Robotics Knowledge

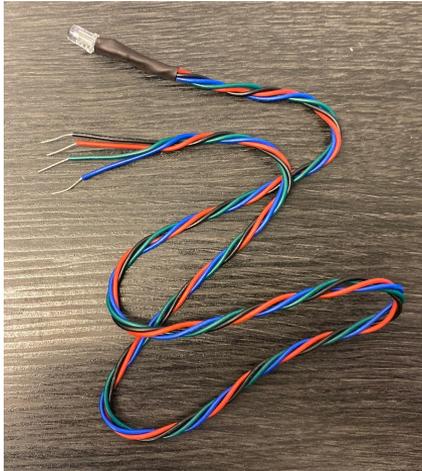
1. What is a servo?
  
  
  
  
  
  
  
  
  
  
2. How do humans and robots communicate?



# LEDs

An LED is a light emitting diode. More simply, it's a light!

An LED looks like:



# Servo Motors

A servo motor is a robot part that moves in a circular motion. These motions are precise.

A servo motor looks like:



# Sensors

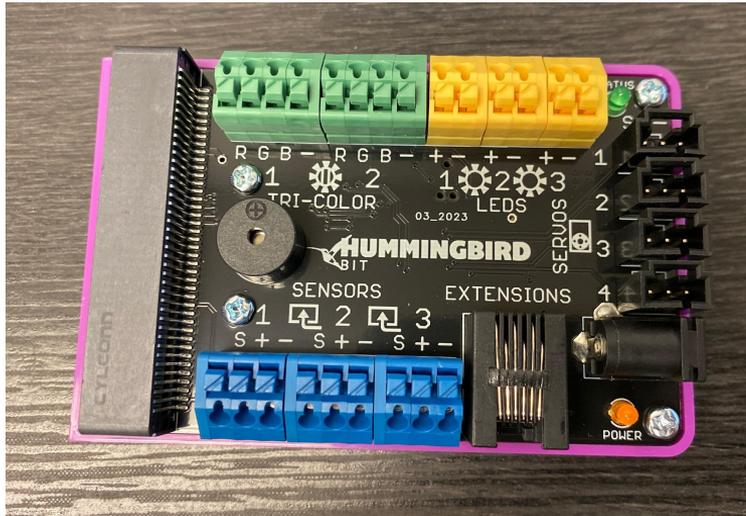
A sensor is a robot part that takes input from the environment. It acts like the robot's eyes, ears, or skin.

A sensor looks like

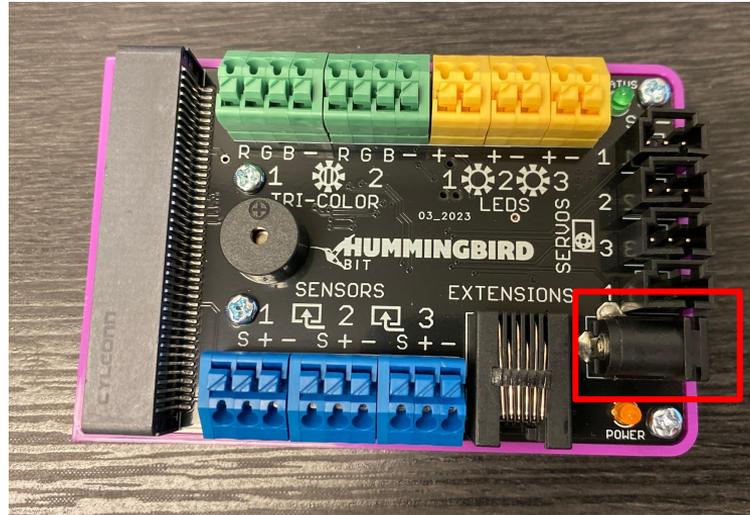


# The Hummingbird Board

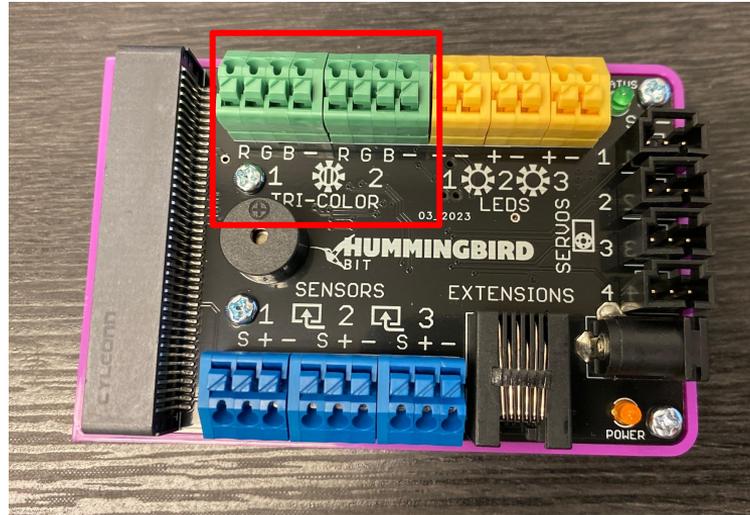
Negative(-) is black



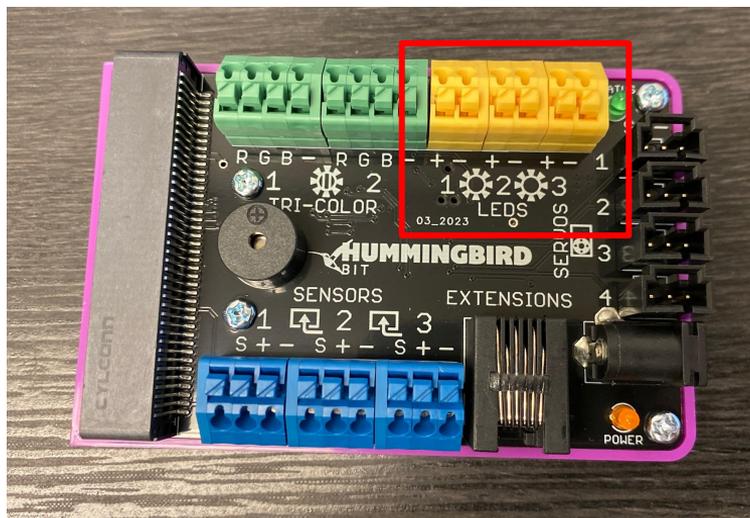
# Battery Connector



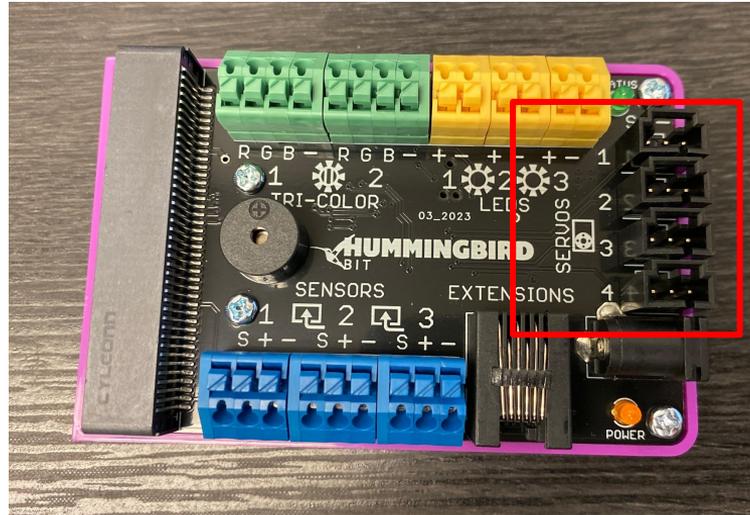
# Tri-Color LED Connectors



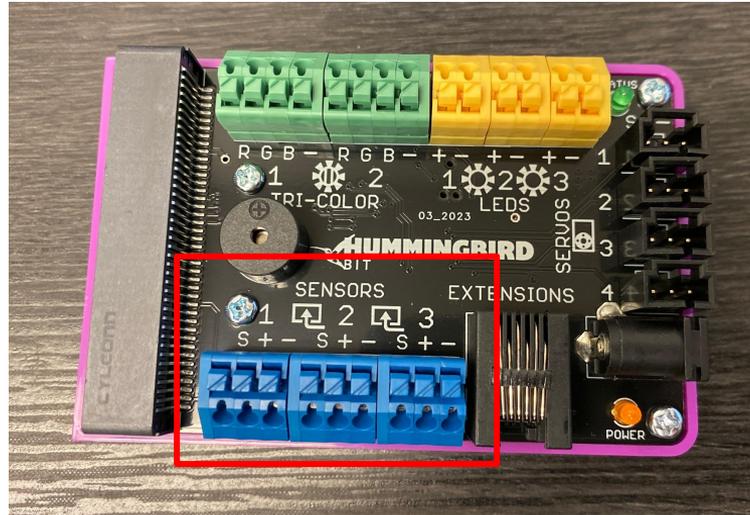
# Single Colored LED Connectors



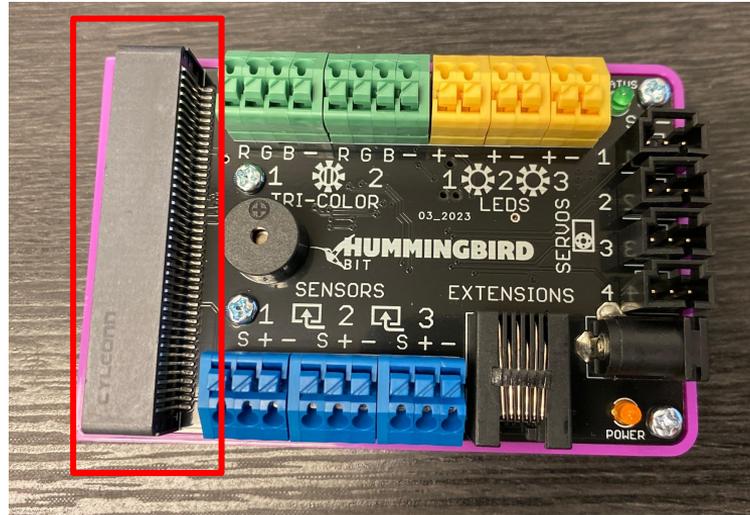
# Server Connectors



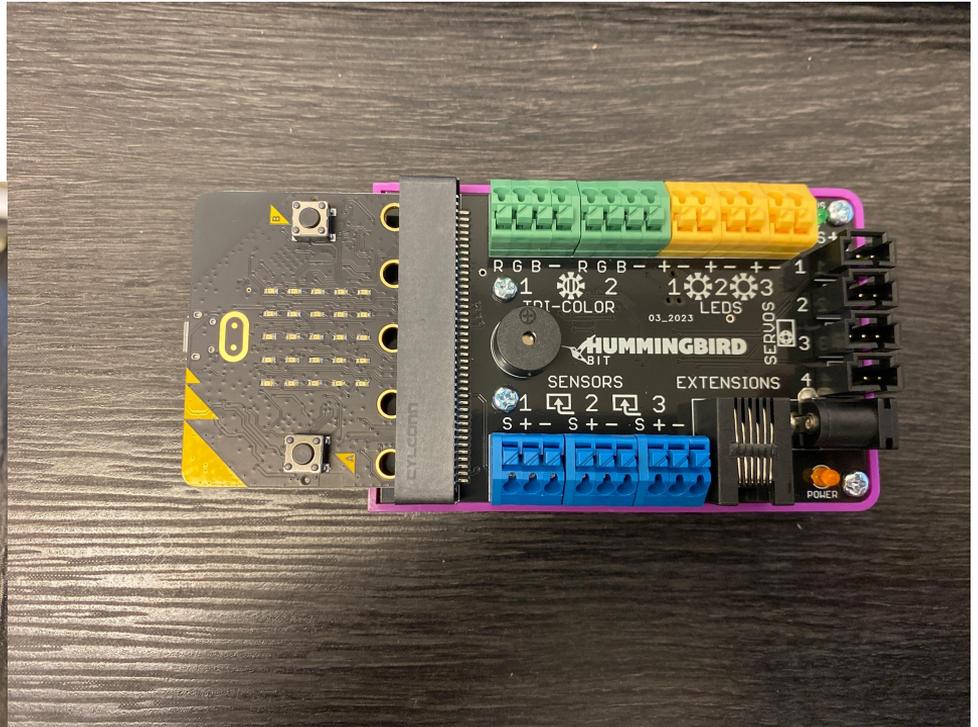
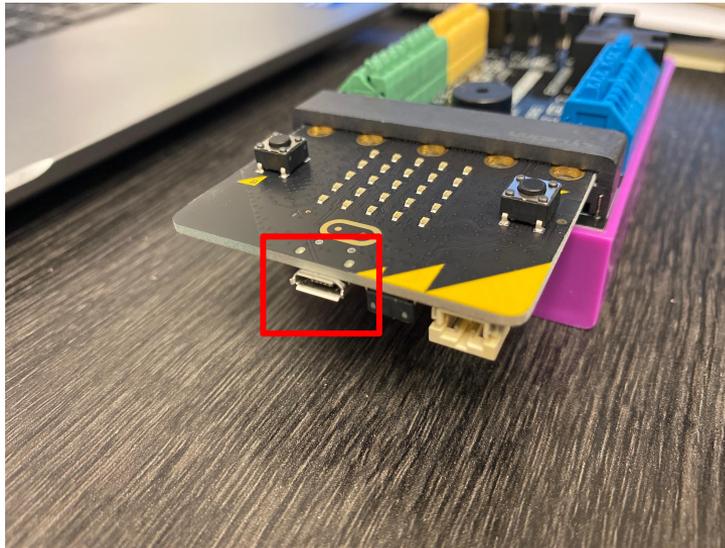
# Sensor Connectors



# Microbit Slot



# USB Connector



# Time to Explore

<https://makecode.microbit.org/>

The screenshot shows the Microsoft MakeCode Micro:bit website. At the top, there is a blue header with the Microsoft logo and 'micro:bit' text on the left, and a settings gear icon and 'Sign In' button on the right. Below the header is a large banner image featuring a Micro:bit board, a USB cable, and a code editor snippet with blocks for 'on shake' and 'show leds'. On the left side of the banner, the text 'Introduction to the BBC micro:bit' is displayed above a 'Show Instructions' button. Below the banner, the 'My Projects' section is visible, including a 'View All' link and an 'Import' button. A prominent purple button with a white plus sign and the text 'New Project' is centered in this section. The 'Tutorials' section at the bottom features a row of six colorful icons with labels: 'Flashing Heart' (with a 'New? Start Here!' badge), 'Name Tag', 'Smiley Buttons', 'Dice', 'Love Meter', and 'Micro Chat'.

# Name Your Project

Create a Project 🤗🤗🤗 ✕

Give your project a name.

[> Code options](#)

**Create** ✓

Microsoft | micro:bit

Blocks JavaScript

Search...

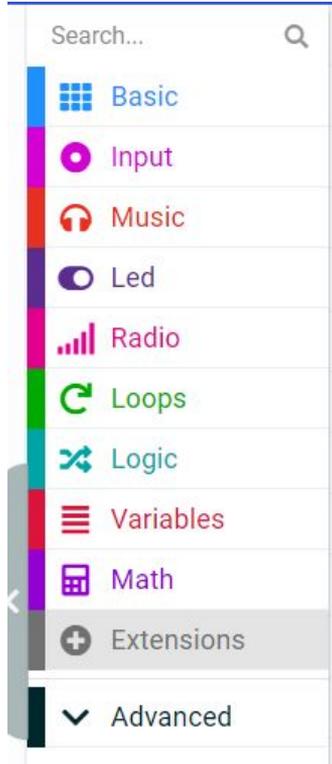
- Basic
- Input
- Music
- Led
- Radio
- Loops
- Logic
- Variables
- Math
- Extensions
- Advanced

on\_start forever

Download ...

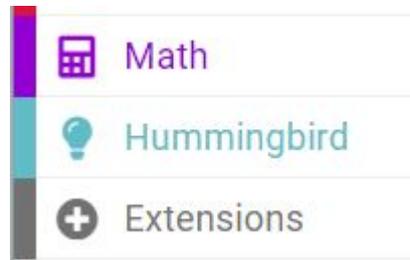
Animated Character

# Add the Hummingbird Kit



Search bird

Click on the hummingbird-bit



**hummingbird-bit**  
A library for Hummingbird Bit in MakeCode

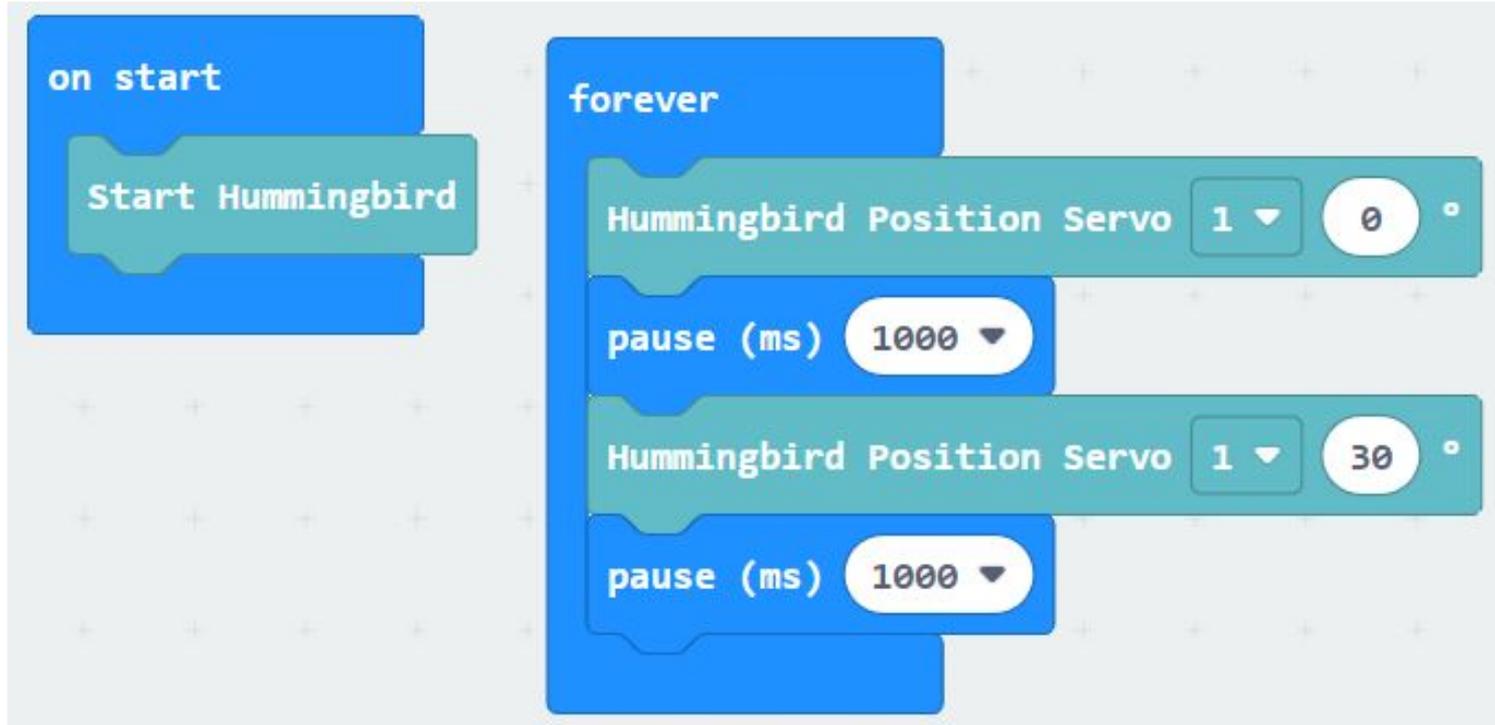
[Learn More](#)

# Project Introduction

Create an animated character. Use robotics and code to make the character move!



# Sample Code



The image shows a Scratch code editor with two main blocks: an 'on start' block and a 'forever' loop block. The 'on start' block contains a 'Start Hummingbird' block. The 'forever' loop block contains a sequence of four blocks: 'Hummingbird Position Servo' (channel 1, 0 degrees), 'pause (ms)' (1000), 'Hummingbird Position Servo' (channel 1, 30 degrees), and 'pause (ms)' (1000).

```
on start
  Start Hummingbird

forever
  Hummingbird Position Servo 1 0°
  pause (ms) 1000
  Hummingbird Position Servo 1 30°
  pause (ms) 1000
```

# Sample Code

The image shows a Scratch code editor with two main sections of code. On the left, an 'on start' block contains a 'Start Hummingbird' block. On the right, a 'forever' loop contains four blocks: 'Hummingbird Position Servo' set to 1 and 60 degrees, 'pause (ms)' set to 1000, 'Hummingbird Position Servo' set to 1 and 120 degrees, and 'pause (ms)' set to 1000.

```
on start
  Start Hummingbird

forever
  Hummingbird Position Servo 1 60 °
  pause (ms) 1000
  Hummingbird Position Servo 1 120 °
  pause (ms) 1000
```

# Clean Up

