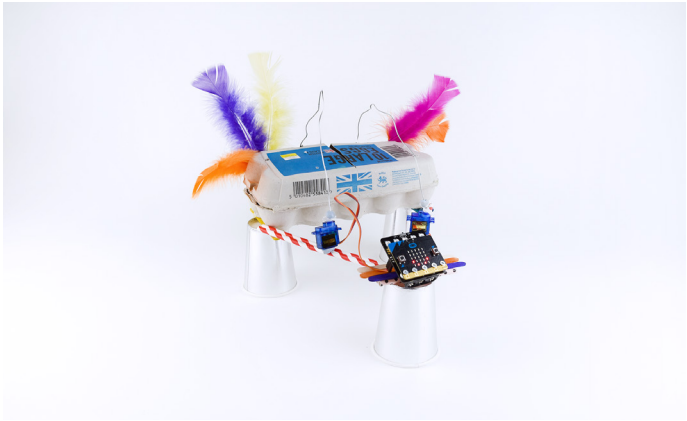
WILD ECO BUILDERS

Coding Eco Places

iOi Challenge: Invent eco-friendly ideas for places of the future using movement, the BBC micro:bit computer and servo board and motor to bring them to life!



YOU WILL NEED

- Computer or a tablet
- The BBC micro:bit and battery pack
- Simple Servo Control board
- Servo motor
- 2x AAA batteries
- 3x AA batteries
- Craft materials: wool, lollypop sticks, kebab sticks, coloured card
- Junk materials: boxes, bottles, egg cartons, toilet rolls
- Scissors
- Tape
- Velcro
- My Invention Idea Resource
- micro:bit Coding Resource

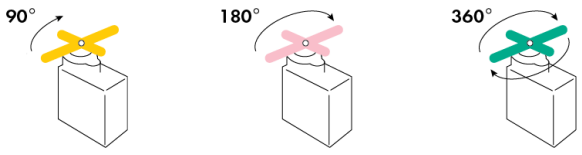
Getting started

Think of all the places and spaces in your community such as libraries, schools, hospitals, playgrounds or sports pitches.

Imagine who uses those spaces and what challenges or problems they might encounter.

For this activity you will be using a micro:bit, a small computer which you can code, and a servo motor which can move in different directions.

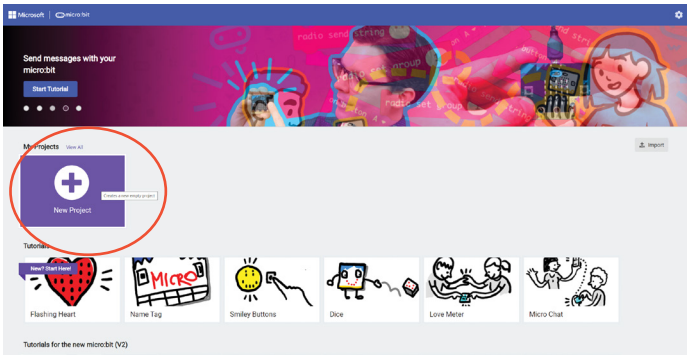
Using the 'My Invention Idea' resource, design a solution that uses movement (open and close, move side to side or turn around). Maybe your design is a greenhouse door that automatically opens when it is hot or a roof that turns slowly with the movement of the sun to provide shade. The posibilities are endless!



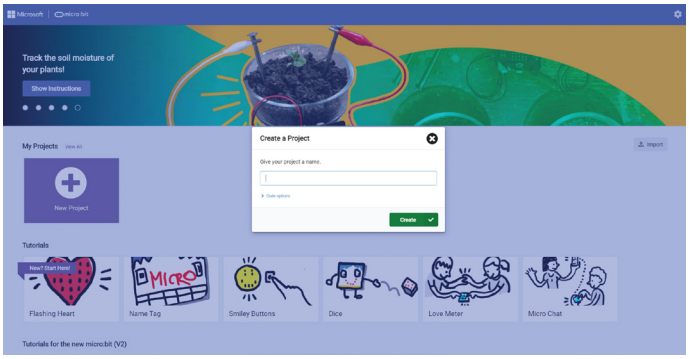
Building with micro:bit

Follow these steps if you are using a computer

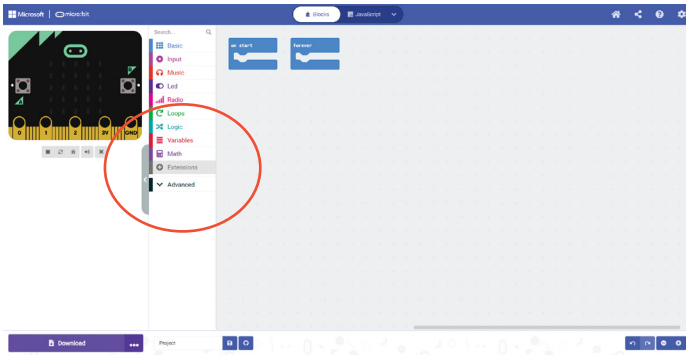
1. Go to makecode.microbit.org and click on 'New Project'



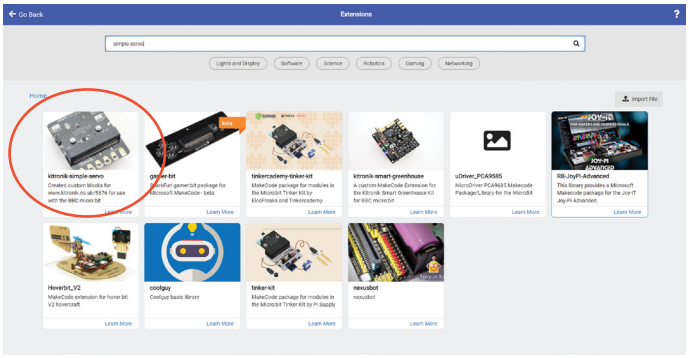
2. Name your project



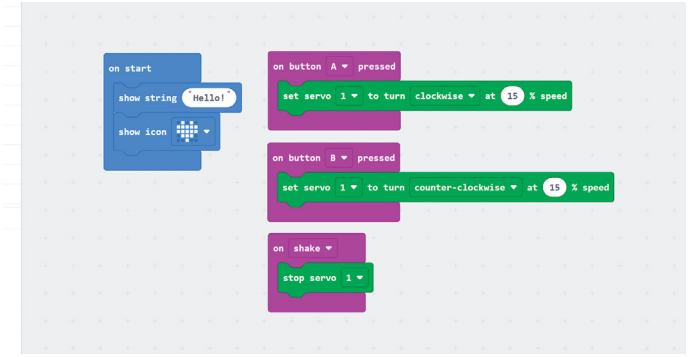
3. Click on 'Extensions'



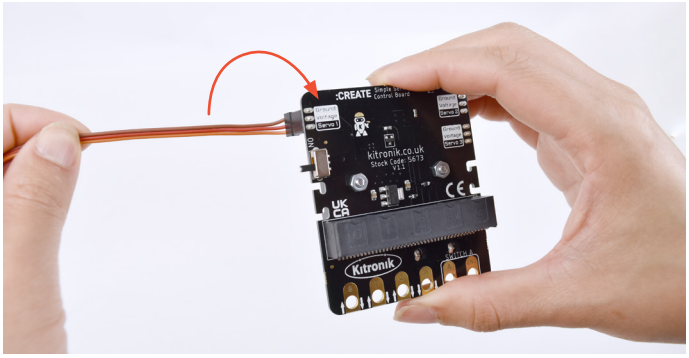
4. Search 'kitronik-simple-servo'



5. From 'Basic' choose blocks to get your micro:bit to do something when it starts. Add commands from 'Input' and 'Servo' to make your motor move. You can play and test with this code!



6. Put the batteries in the Simple Servo Control board and connect the Servo motor to pin 1 on the board. Make sure the brown wire is in 'GND' (ground). Then, connect the micro:bit to the board



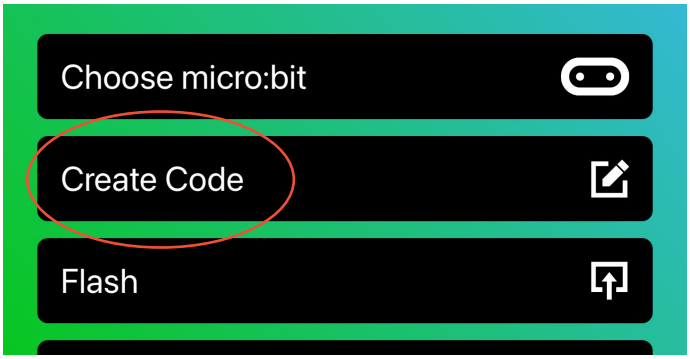
7. Connect the micro:bit to your computer via USB and transfer the code by clicking 'Download'. Once micro:bit stops flashing the code has been transferred. Disconnect your micro:bit from the computer and test your code!

8. Now build your Eco Place using craft and junk materials!

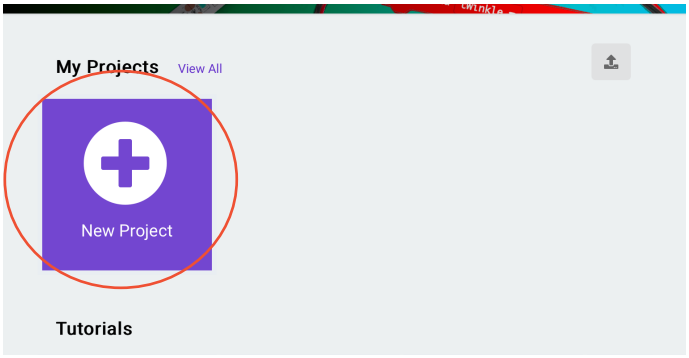
Building with micro:bit

Follow these steps if you are using a tablet

1. Download the micro:bit app on your tablet. Open the app and tap on 'Create Code'



2. Tap on 'New Project' and name your project



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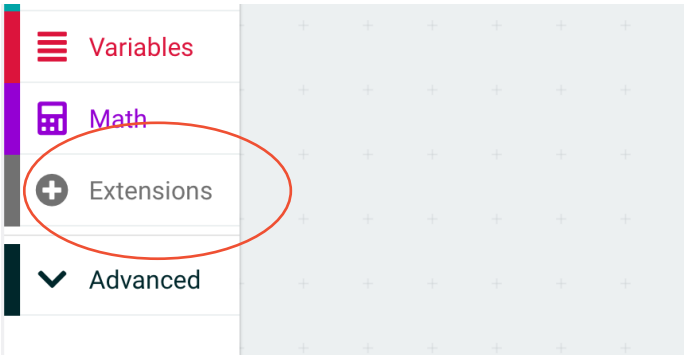

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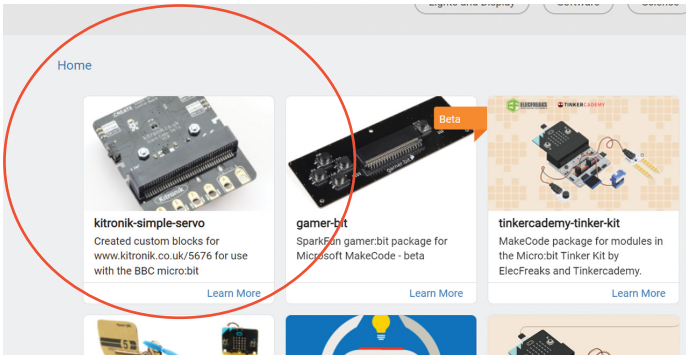

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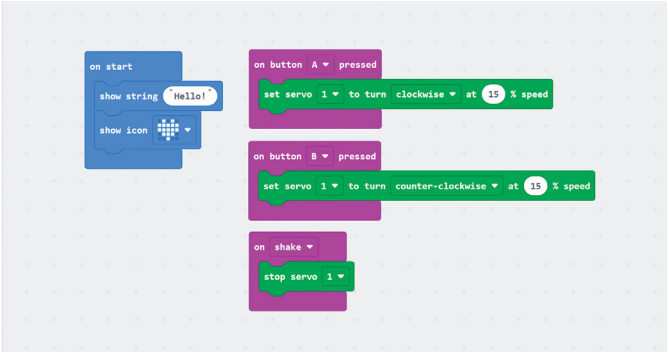
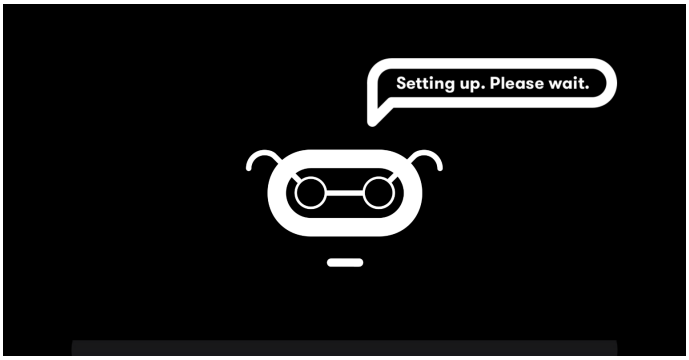


6. Connect your micro:bit to the battery pack. To pair your micro:bit with your tablet go back to the 'Menu' amd tap 'Choose micro:bit' then 'Pair a new micro:bit' and follow the steps on the app



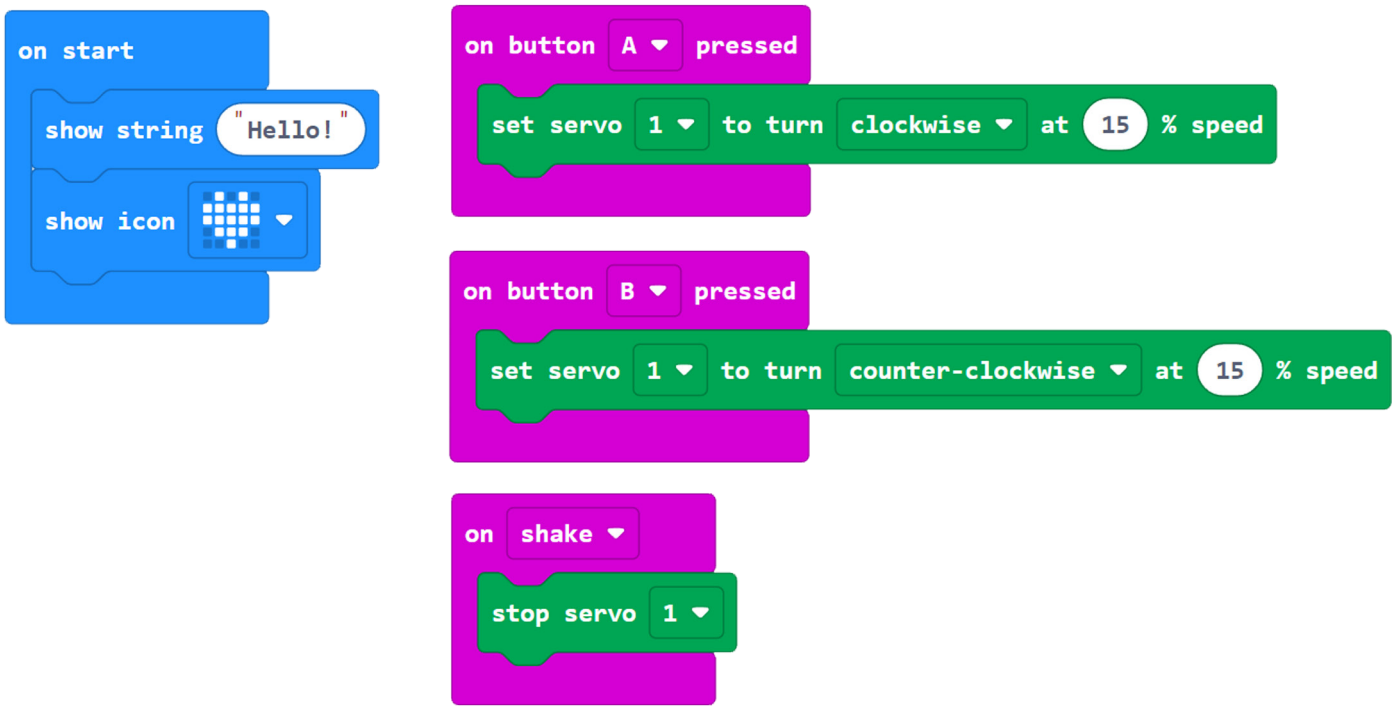
7. Once paired, go back to 'Create Code', tap 'Download' and follow the instructions to upload your code onto the micro:bit. Once it is done, disconnect it from the battery pack. Connect the Servo motor to the Simple Servo Control board pin 1. Make sure the brown wire is in 'GND' (ground)

8. Now connect the micro:bit to the Simple Servo Control board and insert the batteries into the board. Your micro:bit will light up and you can test your code!

Discover more ideas here

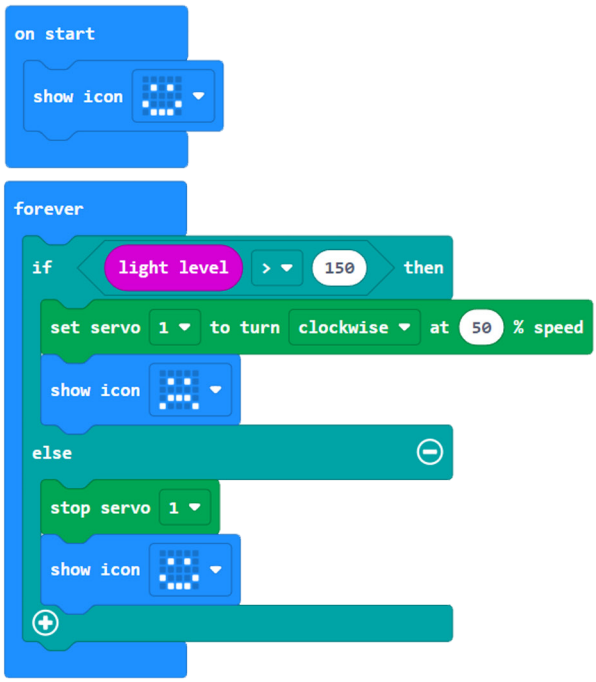
micro:bit Coding Resource

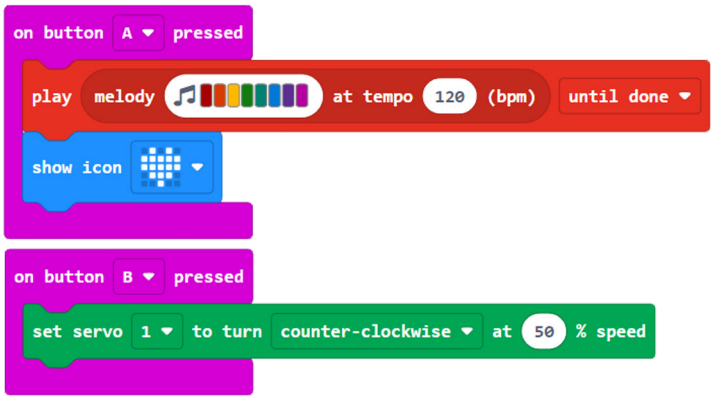
Example 1



micro:bit Coding Resource

Example 2





micro:bit Coding Resource

Example 3