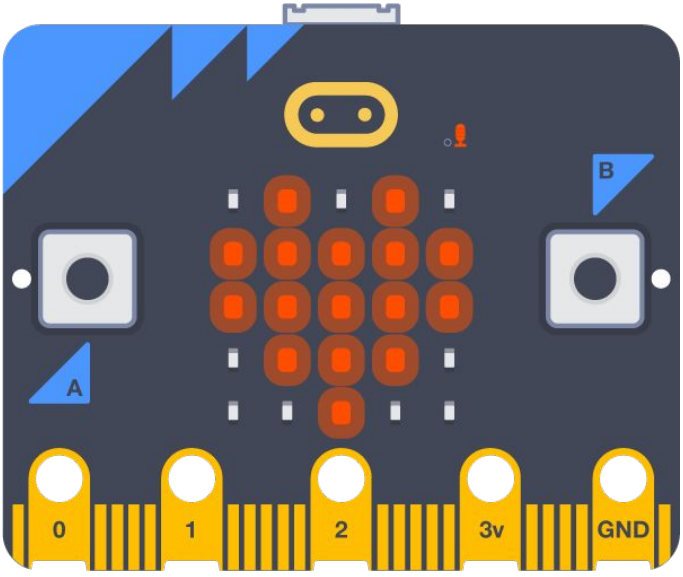
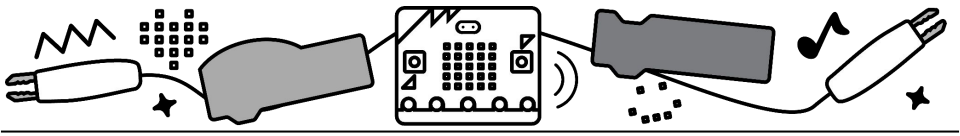
micro:bit Cards



Make projects that connect to the physical world



Cards in This Pack

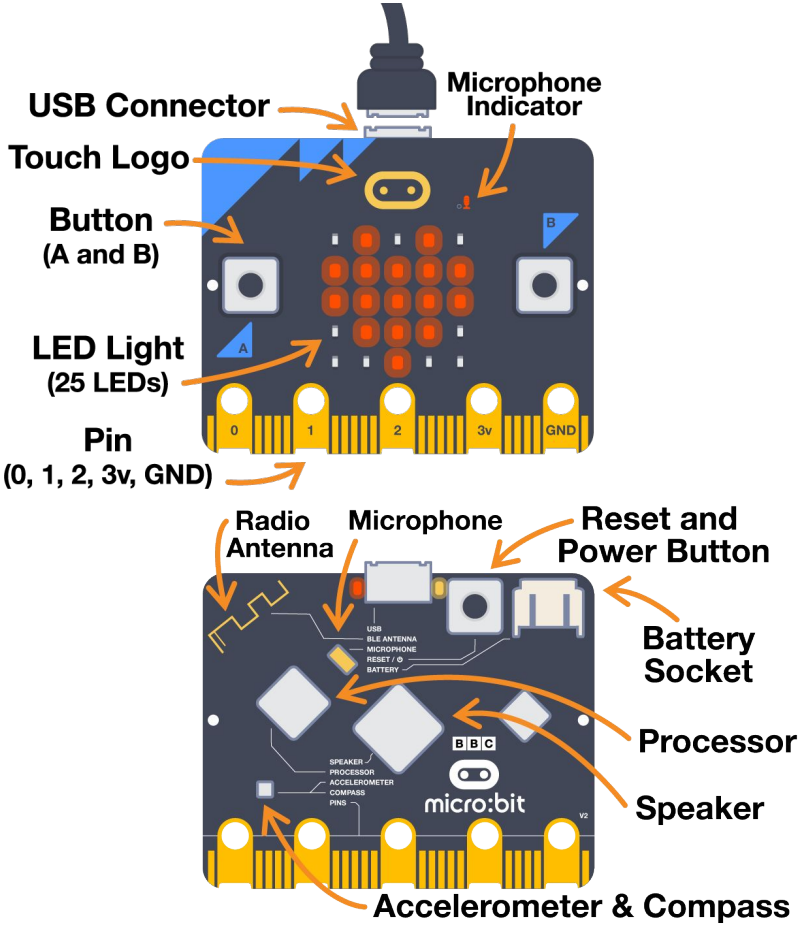
- micro:bit Hardware and Blocks
- Set Up the micro:bit

Try These Project Idea Cards in Any Order:

- Heart Beat
- Tilt Guitar
- Ocean Adventure
- Day and Night
- Magic Wand
- Create Your Own/Remix

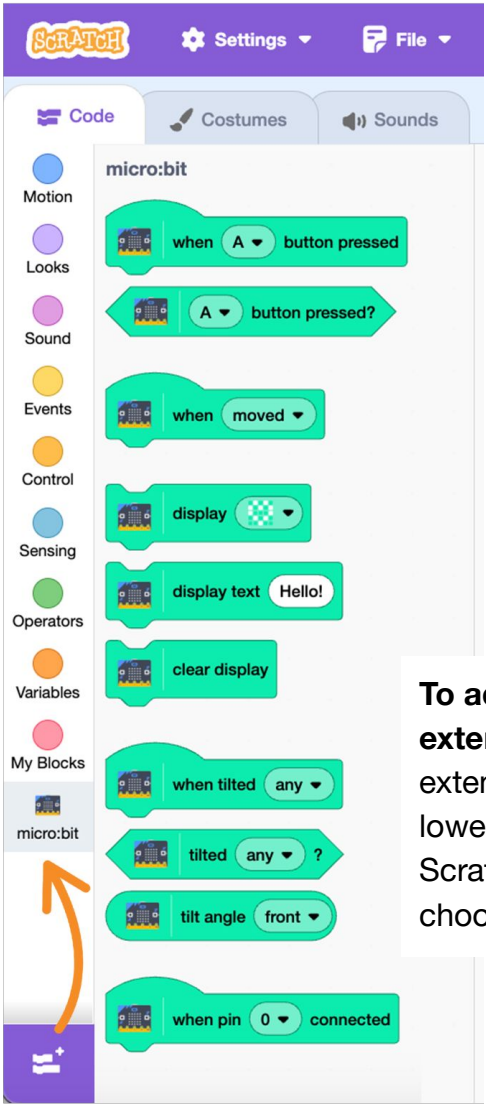
You can also find our original micro:bit Cards set here.

micro:bit Hardware



Scratch works with v1 and v2 (shown) micro:bit versions.

micro:bit Blocks



To add the micro:bit extension, click on the extension menu in the lower-left corner of the Scratch project editor and choose “micro:bit.”

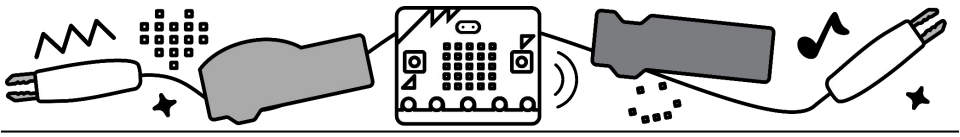
Set Up the micro:bit

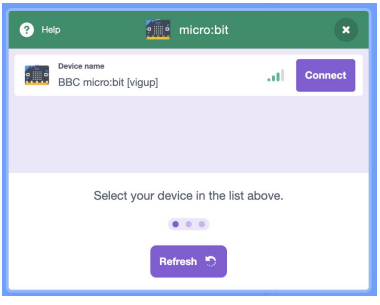
Instructions:

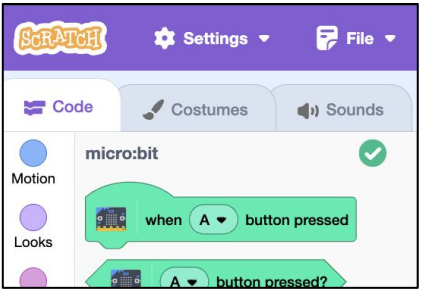
1. Each time you want to use the micro:bit with Scratch, you'll need to start Scratch Link (downloadable on our extension page).

2. Connect a micro:bit to your computer with a USB cable (one micro:bit per computer).

3. Drag and drop the Scratch HEX file (available on our extension page) onto your micro:bit. (Note: When the file is loaded, you will see the micro:bit's letter ID scroll across the LED display.)







4. Head to the Scratch project editor to finish connecting the micro:bit. In the blocks palette under the micro:bit category, you should be prompted to connect.

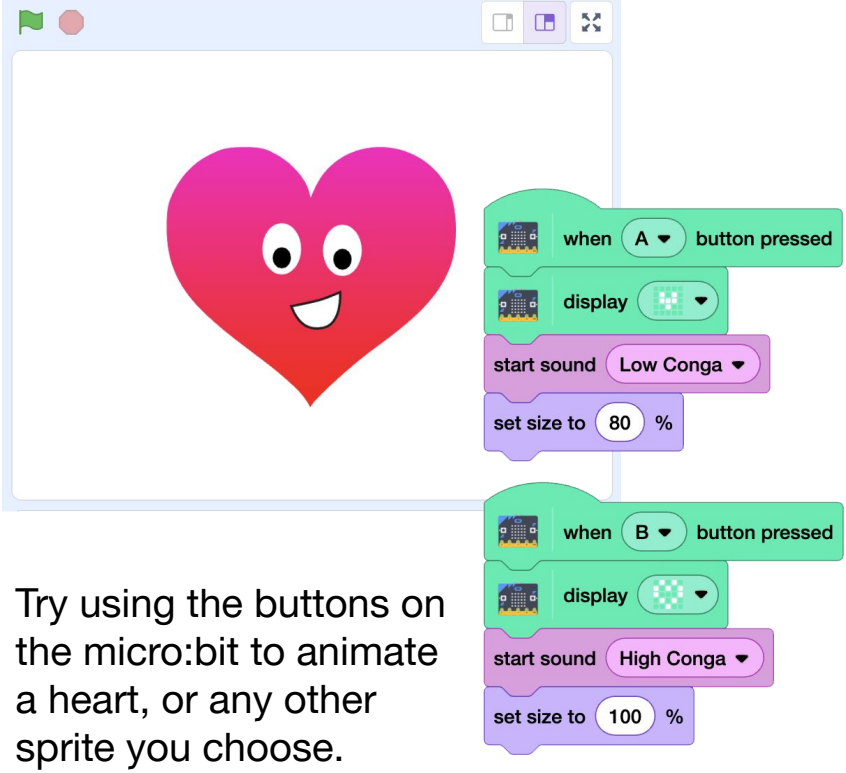
   An orange circle with an exclamation mark at the top of the category signals no connection. Click the orange circle to pull up the connection menu if it does not automatically appear and reconnect. A green check indicates connection.

5. To test, find the “display hello” block and run it. You should see “H E L L O” scroll across the micro:bit LED display.

6. If you unplug your micro:bit to power it with the battery pack, you will be prompted to reconnect.

Project Idea:

Heart Beat



Try using the buttons on the micro:bit to animate a heart, or any other sprite you choose.

What can you add to customize your project?

micro:bit - Heart Beat

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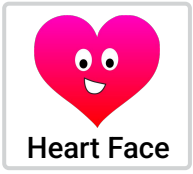
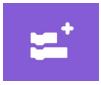
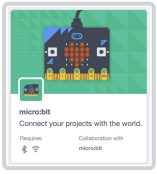
GET READY

Choose a sprite.



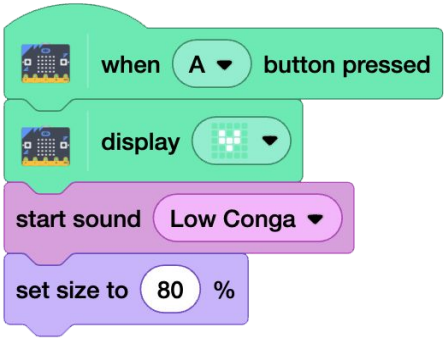


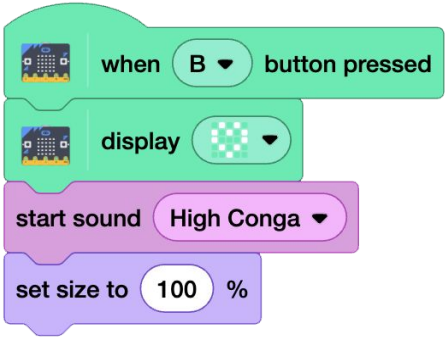
Add the micro:bit Extension.



ADD CODE

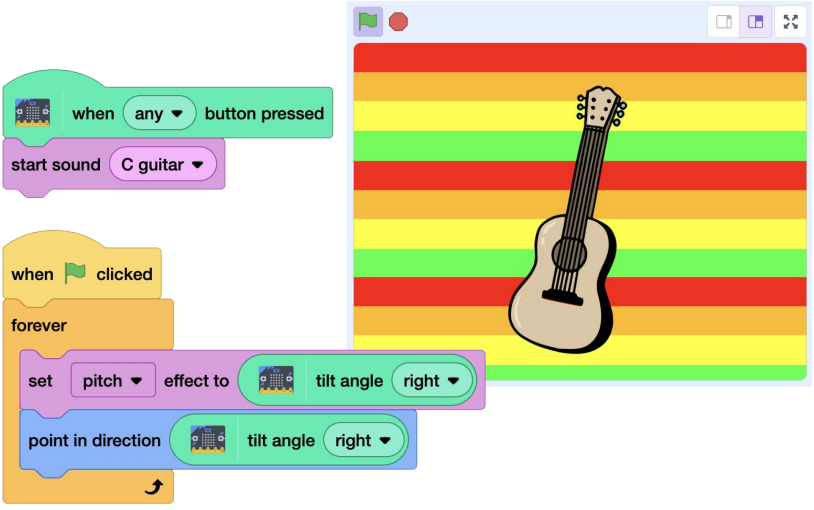
1. Drag a “when _ button pressed” block from the micro:bit category onto the script area.
2. Select the button (A, B, or any) that will trigger the script.
3. Choose blocks from other categories (like Motion, Looks, and Sound) to create an animation that the button(s) will trigger.





Project Idea:

Tilt Guitar



Try making music by tilting your micro:bit. What can you add to customize your project?

For an added challenge: try creating a guitar out of craft materials like cardboard. Then, use a rubber band, pipe cleaners, hair bands, zip ties, adhesive tape, etc., to attach a micro:bit to it (ensure the area where you'll attach is clean and dry).

micro:bit - Tilt Guitar

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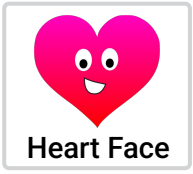
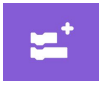
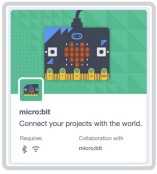
GET READY

Choose a sprite.





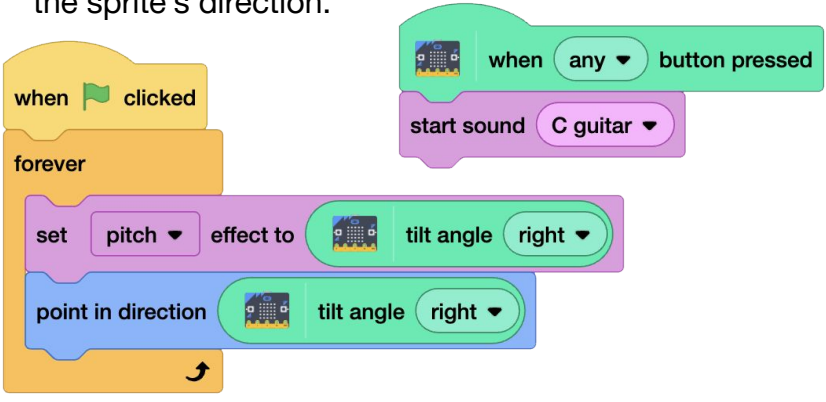
Add the micro:bit Extension.



ADD CODE

1. Under a “when _ button pressed” block add a “start sound” or “play sound until done” block. Choose a sound to play from the Sound Library.

2. To animate your instrument, you can add the “tilt angle” reporter block inside a “point in direction” block. Place this block inside a forever loop to have the program constantly check for the micro:bit’s tilt angle and adjust the sprite’s direction.



Project Idea:

Ocean Adventure

Build a game that uses the micro:bit as a controller.

What else can you add to your project? Try switching a sprite's costume with a button press. Play a sound or use a "change effect" block when the sprites touch. Add a positive or negative score for each collision.

micro:bit - Ocean Adventure

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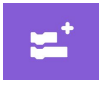
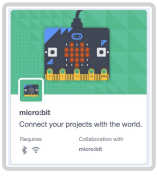
GET READY

Choose 2 sprites.

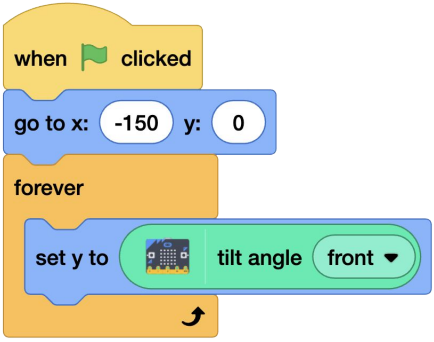


Add the micro:bit Extension.

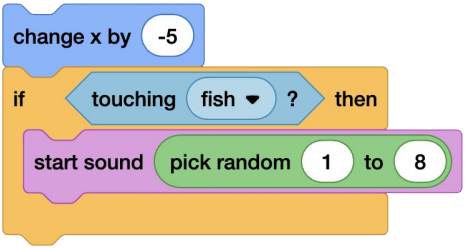


ADD CODE

1. Add the “tilt angle” reporter block inside a “set y to” or “set x to” block. Place this block inside a forever loop to have the program constantly check for the micro:bit’s tilt angle and move the sprite by the amount of the tilt.



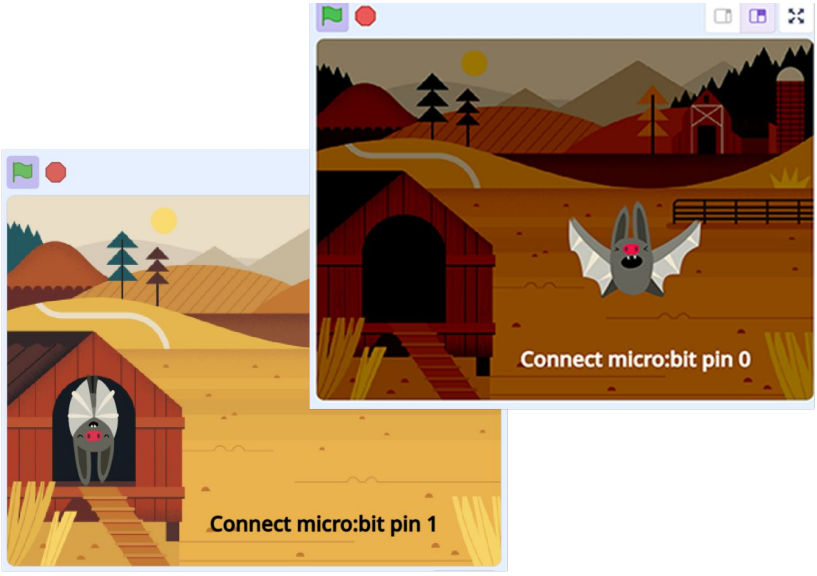
2. Program the second sprite to constantly move across or down the stage. Use a conditional statement to make something happen if they touch.



3. Use your micro:bit to move the first sprite and collide!

Project Idea:

Day and Night



Close the circuit of the micro:bit pins to trigger an animation. What can you add to customize your project? What if you wanted the backdrop to slowly brighten and darken? What if you wanted to add a sprite that would respond to the change in brightness?

micro:bit - Day & Night

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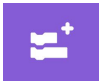
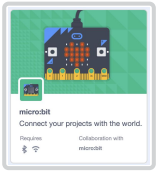
GET READY

Choose any backdrop.

Farm

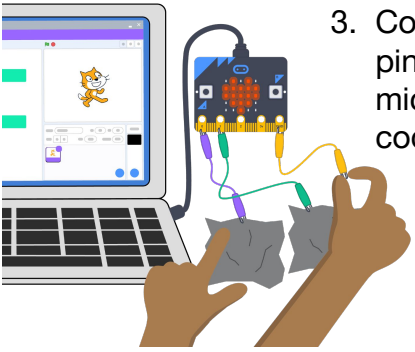


Add the micro:bit Extension.



ADD CODE

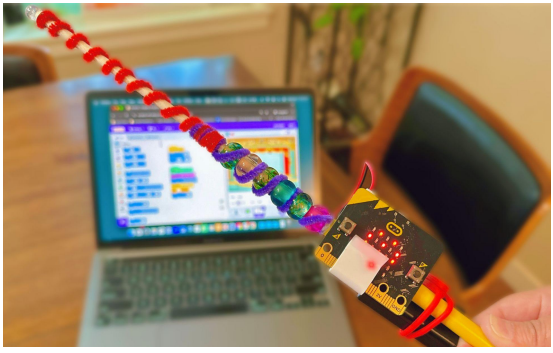
1. While on the Backdrop, select two “when pin connected” hat blocks.
2. Under the Looks category, select a “clear graphic effects” and “set brightness effect” block and add them under the hat blocks. Use a negative number when setting the brightness effect to darken the backdrop. Clear the effect or use a block to set the brightness to a positive number to reset or brighten the backdrop.



3. Connect alligator clips to two pins and GND on the micro:bit. Then, trigger the code by closing the circuit, holding the end of the clips attached to GND and a pin (or attach the clips to conductive materials).

Project Idea:

Magic Wand



Create a physical object you can attach your micro:bit to, in order to blend crafting and code. For instance, you could design a 3D-printed holder for the micro:bit and battery pack. Or try following ceebee's "Elder Wand [DIY]" tutorial project to create a wand. Then, use a rubber band, pipe cleaners, hair bands, zip ties, adhesive tape, etc., to attach a micro:bit to it (ensure the area where you'll attach is clean and dry). Code animation when the wand with your micro:bit is moved, shaken, or jumped.

micro:bit - Magic Wand

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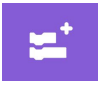
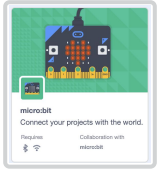
GET READY

Choose 2-3 sprites.

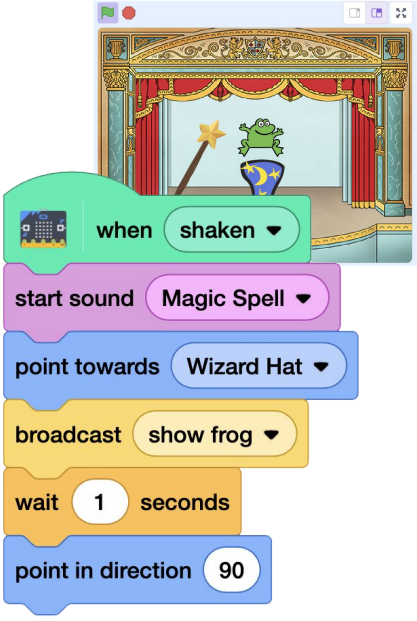


Add the micro:bit Extension.



ADD CODE

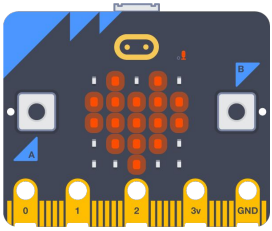
1. Start with a “when shaken” hat block from the micro:bit category.
2. Choose blocks from other categories (like Motion, Looks, and Sound) to create an animation that shaking the micro:bit will trigger. For instance, a magic hat could change color, a frog could appear, and the digital wand could play a noise.



3. Shake your wand with the micro:bit attached to see the result!

Project Idea:

Create Your Own/Remix

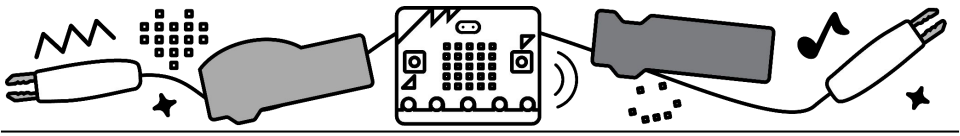


Try creating your own unique project or remix projects to use the micro:bit (versus keyboard keys or the mouse, etc.) to control sprites.

See our Starter Projects page for projects you might remix. Such as:

- Make It Fly
- Maze Starter
- Pong Starter
- Spin Art

How could you use tilt or button presses to control a sprite's direction or movement or to change variable values?



Interested in capturing some of the data the micro:bit is collecting? Try creating a fitness tracker project that uses variables to store readings such as movement and jumping.

Then, you could customize:

- How could you graphically represent when the micro:bit is moved and jumped? (For instance, you could use the Pen extension to stamp colored squares on the stage each time “moved” or “jumped” is recorded.)
- Add a sprite that moves on the stage representing the actions of the player.

Strap the micro:bit to your shoe or ankle and move your feet or jump up and down and see the results!