



1 - Step Counter

Added libraries:  **Motion** **Scrolling** **Tone**

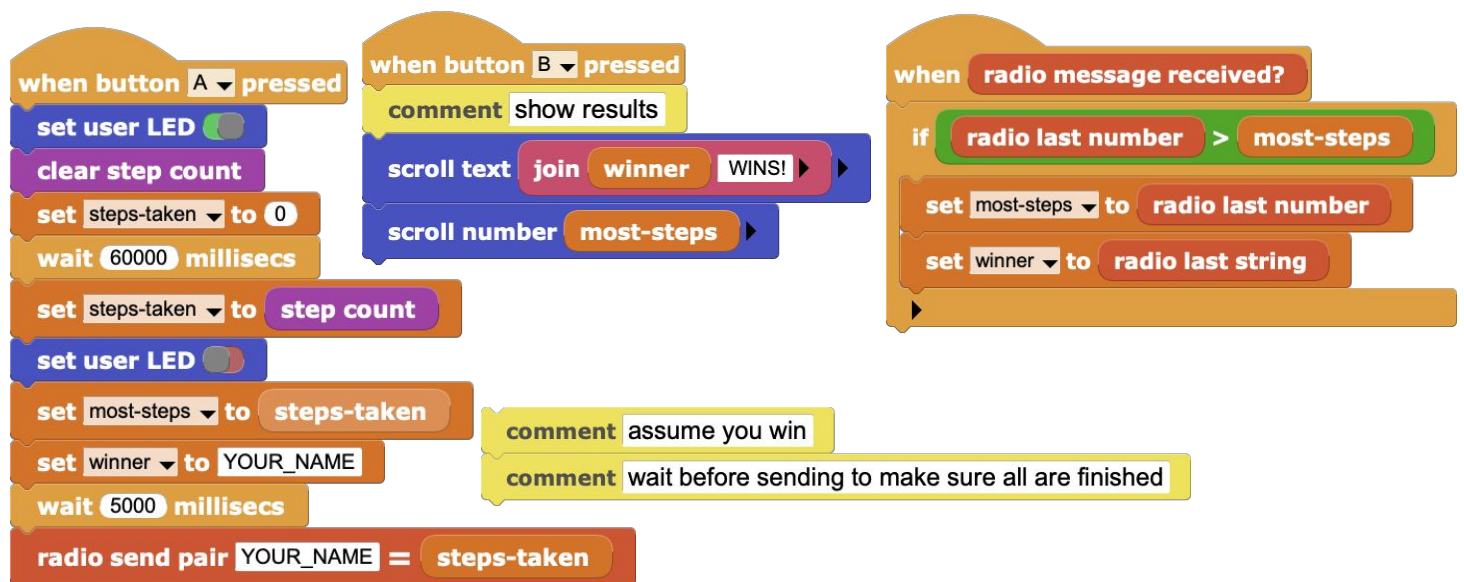
The Motion library (in the Sensing folder) lets you count your steps as you walk or run by detecting your up-down motion. Create these scripts then test by gently shaking your micro:bit. Press button A to see your step count. Press B to reset.



Now, plug in a battery and take your micro:bit for a walk! How well does it work? Reset the count, then take 20 steps. What count did you get? Adjust the sensitivity (lower if you are smaller) using this block.

set step threshold 20 (0-50)

Challenge: Play the game below with your friends to see who can take the most steps in one minute. Everyone should press A at the same time then start running in place. Afterward, press B to see who won!





2 - Motion Detection Alert

The Motion library senses movement by averaging tilt sensor values. Connect an external speaker or piezo if you have one, and set the pin number. An alarm will sound when motion is detected. Put it in your backpack to scare anyone who moves it!

```
when started
  init
  forever
    if abs motion > 20
      alarm
    else if
      wait 10 millisecs
      ↕

define alarm
  repeat 10
    display character !
    for i in 50
      play midi key 50 + i for 5 ms
    clear display
    for i in 50
      play midi key 100 - i for 5 ms

define init
  attach buzzer to pin 0
  comment wait until motion average settles to 0
  repeat until motion = 0
  play midi key 75 for 10 ms
  wait 10 millisecs
```

Challenge: Improve the alarm sound, or attach and blink colored LEDs. Program a second micro:bit board to receive radio messages from the alarming one, to remotely alert you if the alarm has been triggered!