

1 - Step Counter

Added libraries: Libraries



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.

```
when started
start step counter

when button A → pressed
scroll number step count

when button B → pressed
clear step count
```

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!

```
when button B → pressed
                                                 when radio message received?
when button A → pressed
                    comment show results
set user LED 🧶
                                                    radio last number > most-steps
                    scroll text join winner
                                      WINS!
clear step count
                                                  set steps-taken → to 0
                    scroll number most-steps
wait 60000 millisecs
                                                  set user LED
comment assume you win
comment wait before sending to make sure all are finished
wait 5000 millisecs
radio send pair YOUR_NAME = steps-taken
```

v1.0



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!

```
define alarm
when started
 init
                                    repeat (10)
 forever
                                     display character
                                     for i in 50
                      > 20
      abs motion
                                                                for 5 ms
                                      play midi key
                                                    50 +
   alarm
  else if 🍆
                                     clear display
   wait 10 millisecs
                                     for i in 50
                                      play midi key
                                                    100 —
                                                                 for 5 ms
define init
 attach buzzer to pin 0
 comment wait until motion average settles to 0
               motion = 0
 repeat until
  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!