Tone



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
start 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 below game 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?
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
set winner → to YOUR_NAME
                           comment wait before sending to make sure all are finished
wait 5000 millisecs
radio send pair YOUR_NAME = steps-taken
```



2 - Motion Detection Alert

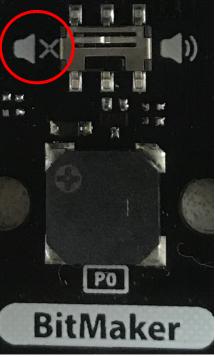
The Motion library senses movement by averaging tilt sensor values. Program the micro:bit + BitMaker to trigger an alarm when motion is detected. Put them in your backpack to scare anyone who moves it!

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

turn off the tinv

speaker switch.

Challenge: Make the alarm even better. For example, blink the LED Display and the colored LEDs. If you have a second micro:bit board, send a radio message from the alarm in your backpack to a micro:bit in your pocket, to remotely alert you if the alarm has been triggered!



play midi key (75) for (10) ms

wait 10 millisecs