



1 - Remote Control via Flashlight

Libraries: Libraries **+** Tone LED Display Basic Sensors

To use a flashlight as a remote, sweep back and forth across the micro:bit. Based on the number of flashes, trigger different actions.

```

when started
  forever
    set flashes to flash_count
    clear display
    if flashes = 1
      display
    else if flashes = 2
      display
    else if flashes <= 9
      display character flashes
    else if
      display character +
    for i in min flashes 10
      play midi key 45 + i x 5 for 100 ms
    say flashes
  
```

The “flash_count” reporter block detects flashes until there’s a pause greater than one second. It then returns the count to the main loop.

```

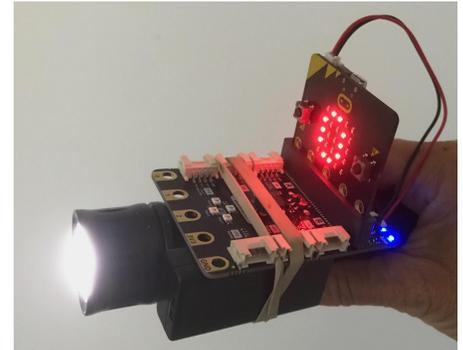
define flash_count
  set threshold to light level + 100
  wait until light level > threshold
  set flashes to 1
  forever
    wait until light level < threshold
    set timer to milliseconds
    comment Wait for the next flash or for a long pause,
    indicating that the message has ended.
    repeat until light level > threshold
      if milliseconds - timer > 1000
        comment If light stays off > 1 second, return count.
        return flashes
    change flashes by 1
  
```

Challenge: Change the actions to play different tunes or do something fancier in response to your remote control commands.



2 - Flashlight Tag

For this game, attach the micro:bit to a flashlight, with the LED display and light pointed in the same direction. Your goal is to “tag” (flash) others before getting tagged out!



Adjust “delta” for day/night play.

```

when go! received
  set delta to 100
  set_threshold
  set max-tags to 5
  set flashes to 0
  display character 0
  wait until flashes > max-tags
  comment you're tagged out :(
  display
  play note G octave 0 for 200 ms
  play note F octave 0 for 200 ms
  play note E octave 0 for 200 ms
  play note D octave 0 for 200 ms
  play note C octave 0 for 200 ms

```

```

when started
  attach buzzer to pin 0
  play note C octave -1 for 400 ms
  broadcast go!

```

```

when button A+B pressed
  play note C octave -1 for 400 ms
  set flashes to max-tags + 1
  clear display
  wait 1500 milliseconds
  broadcast go!

```

Challenge: Add radio code to broadcast a start time and the “winner”.

```

define set_threshold
  set threshold to light level
  repeat 9
    change threshold by light level
    wait 50 milliseconds
  set threshold to threshold / 10 + delta
  say light level threshold

```

```

when light level > threshold
  wait until light level < threshold
  change flashes by 1
  if flashes <= max-tags
    repeat flashes
      display character #
      play note C octave 1 for 50 ms
      display character @
      play note D octave 1 for 50 ms
      display character %
      play note E octave 1 for 50 ms
    display character flashes

```