



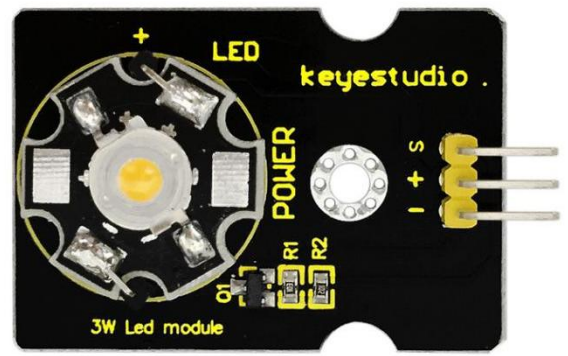
Project 16: LED Blinks and Breathes

Overview

In this project, we combine the project 2 and project 3. You will learn how to control the LED on the module blink for twice, then breath for twice, circularly. This time we use keyestudio 3W LED module, which has high brightness and can be used as illumination.

Component Required:

- Micro:bit main board*1
- Keyestudio Micro bit Sensor V2 Shield*1
- USB Cable*1
- Keyestudio 3W LED Module*1
- Dupont jumper wires
- Premium Battery Holder 6-cell AA*1
- 1.5V AA Battery*6



Component Introduction

Keyestudio 3W LED Module:

This LED module is of high brightness because the lamp beads it carries is 3w. You can apply this module to Arduino or other projects, ideal for Robot or search and rescue application. For example, intelligent robots can use this module for illumination purpose.

Please note that the LED light can't be exposed directly to human eyes for safety concerns.

Test Code

```
on start
  led enable false

forever
  repeat 2 times
    do
      digital write pin P0 to 1
      pause (ms) 1000
      digital write pin P0 to 0
      pause (ms) 1000
  repeat 2 times
    do
      while val < 1024
        do
          set val to val + 1
          analog write pin P0 to val
          pause (ms) 5
      while val > 0
        do
          set val to val - 1
          analog write pin P0 to val
          pause (ms) 5
```

"on start" : command block only runs once to start program.

Turn off LED matrix

The program under the block " forever" runs cyclically

The program under do block repeats twice

Set P9 to high level(1) to turn on red LED

Delay in 1000ms

Set P9 to set low level (0) to turn off red LED

Delay in 1000ms.

The program under do block repeats twice

When val<1024, the program under do block runs

Set variable val to val+1

Set the analog value of P0 to val

Delay in 5ms

When val>0, the program under do block runs

Set variable val to val-1

Set the analog value of P0 to val

Delay in 5ms

Test Results : Done wiring and powered up, send the code to micro:bit, you should see the LED on the module firstly blink twice, then breath twice, circularly.