



raspikidd



Internet
Required

**USING A LIGHT
DEPENDANT RESISTOR**

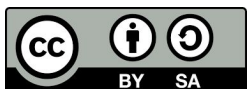
WITH

KITRONIK INVENTOR'S KIT

AND



python™

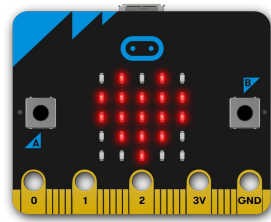


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USING A LIGHT DEPENDANT RESISTOR



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OBJECTIVE

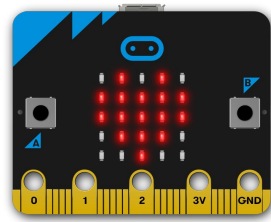
We are going to use an LDR (Light Dependant Resistor) to make the micro:bit LED matrix change depending on whether it is light or dark by reading the analog voltage which allows the micro:bit to react depending on the amount of light.

WHAT YOU WILL NEED

- A micro:bit
- Kitronik Inventor's Kit
- Micro USB cable
- A Computer to Program the micro:bit
- Battery pack for micro:bit (optional)



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GETTING STARTED

1. Open your favourite python editor. Whether it's mu or the online Python editor
2. The online version can be found at the link below:

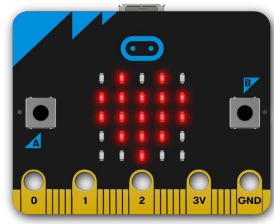
<http://python.microbit.org/v/1>

CREATING THE CIRCUIT

From the Kitronik inventor's kit you will need:
1 x LDR (Light Dependent Resistor)
1 x 10k ohm resistor
3 x Male to Female Jumper wires



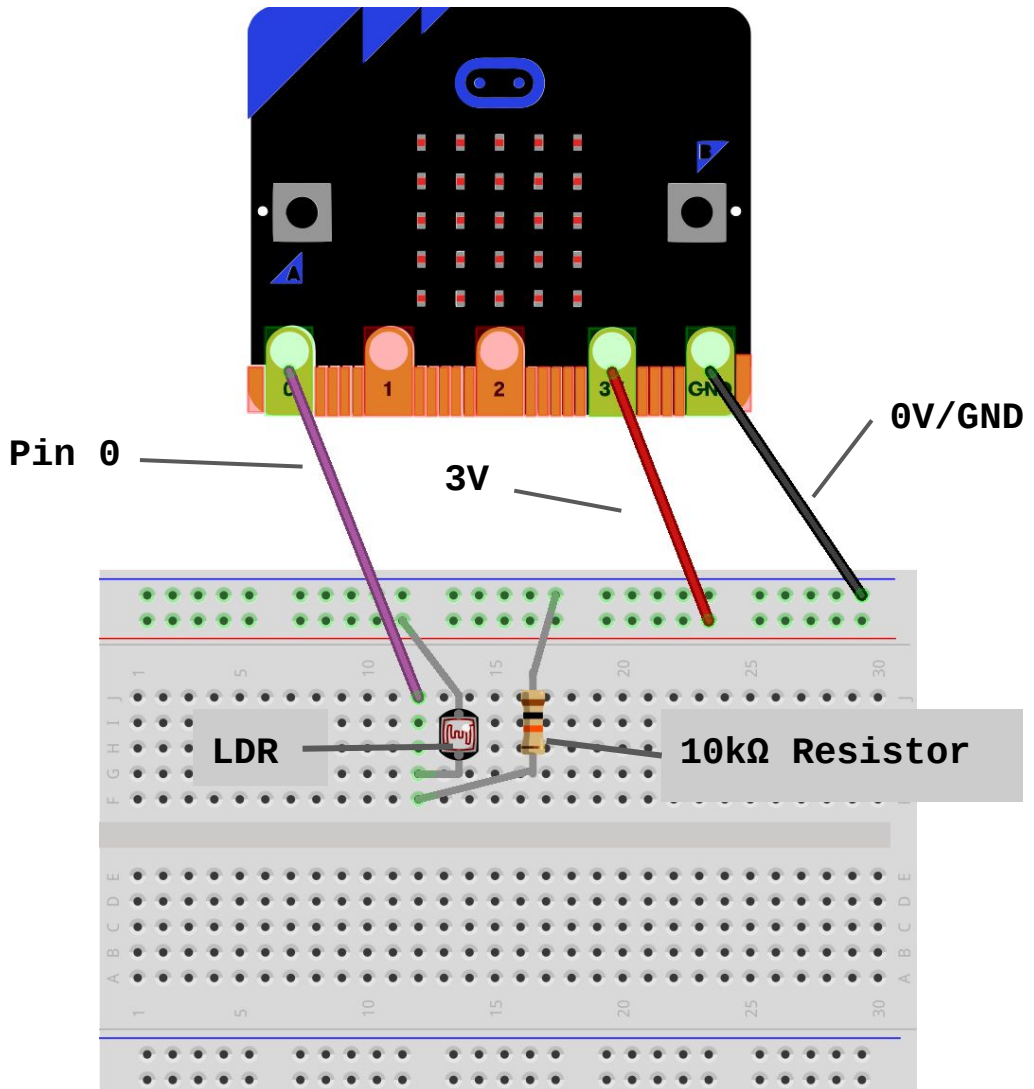
USING A LIGHT DEPENDANT RESISTOR



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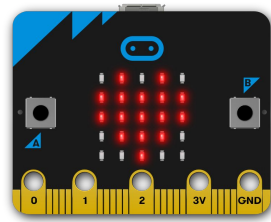
CREATING THE CIRCUIT

Your circuit should look like the image below, but with the edge connector attached to the micro:bit





USING A LIGHT DEPENDANT RESISTOR



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CODING

Now to create some code.

```
from microbit import *

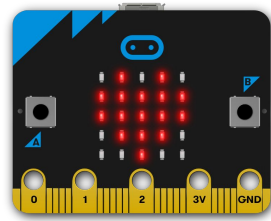
sun = Image ("90909:"
             "09990:"
             "99999:"
             "09990:"
             "90909:")

moon = Image ("99900:"
             "09990:"
             "00990:"
             "09990:"
             "99900:")

while True:
    light = pin0.read_analog()
    if light > 512:
        display.show(sun)
    else:
        display.show(moon)
```




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RUNNING THE CODE WITH MU

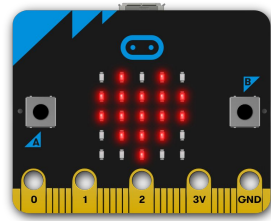
1. Plug your micro:bit into your computer using the Micro USB cable.
2. Click on Flash The 'Flash' button icon, which is a yellow circle containing a blue robot head and a downward arrow, with the word 'Flash' written below it.
3. Wait for the light on the back of the micro:bit to stop flashing.
4. Put your finger over the LDR to see the image change.

RUNNING THE CODE WITH ONLINE EDITOR

1. Click on the download button. This will download the .hex file to your computer.
2. Plug your micro:bit into your computer using the Micro USB cable.
3. Copy the .hex file to your micro:bit.
4. Wait for the light on the back of the micro:bit to stop flashing.
5. Put your finger over the LDR to see the image change.



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WHAT WILL HAPPEN

Once the LED on the back of the micro:bit has stopped flashing, you should see an image of a sun displayed on the LED matrix. Cover the LDR with your finger and you should see an image of a moon appear on the LED matrix.

FINAL WORDS

Well done you have completed the second project in the Kitronik inventor's kit. Continue with the next project for more electronics and Python fun.