Lesson 1 Blinking LED

Introduction

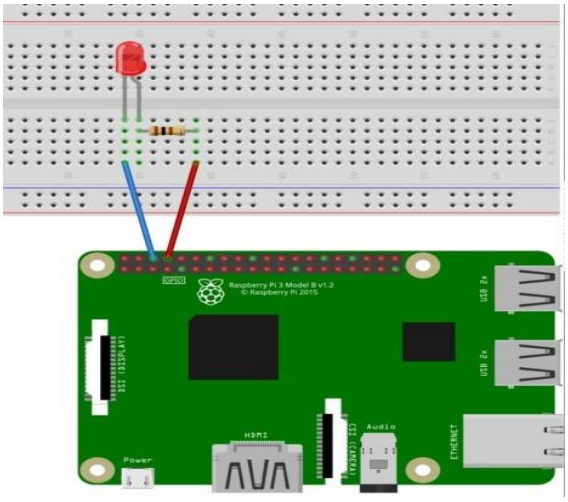
In this lesson, we will learn how to program your Raspberry Pi to make an LED blink. You can play numerous tricks with an LED as long as your imagination is rich enough. Now follow me to learn, and you will enjoy the fun of DIY at once.

Components Required

- 1 Raspberry Pi
- 1 Breadboard
- 1 Network cable (or USB wireless network adapter)
- 1 LED
- 1 Resistor (220Ω)
- Jumper wires

Hardware Setup

With the value calculated for the current limiting resistor we can now hook the LED and resistor up to GPIO pin 8 on the Raspberry Pi. The resistor and LED need to be in series like the diagram below. To find the right resistor use the resistor color code – for a 100-ohm resistor it needs to be brown-black-brown. You can use your multimeter to double check the resistor value.



Python Coding

```
import RPi.GPIO as GPIO # Import Raspberry Pi GPIO library

from time import sleep # Import the sleep function from the time module

GPIO.setwarnings(False) # Ignore warning for now

GPIO.setmode(GPIO.BOARD) # Use physical pin numbering
```

```
GPIO.setup(8, GPIO.OUT, initial=GPIO.LOW) # Set pin 8 to be an output pin and set ini
tial value to low (off)
while True: # Run forever
        GPIO.output(8, GPIO.HIGH) # Turn on
        sleep(1) # Sleep for 1 second
        print('LED ON')
        GPIO.output(8, GPIO.LOW) # Turn off
        sleep(1) # Sleep for 1 second
        print('LED OFF')
```

Click **Run** ->**Run Module** in the window and the following contents will appear.
To stop it from running, just click the X button on the top right to close it and then you'll back to the code details. If you modify the code, before clicking **Run Module (F5)** you need to save it first. Then you can see the results.
If you want to **log into the Raspberry Pi remotely, type in the command**:
Run the code:

$ python blinking_led.py
Note: Here sudo – superuser do, and python means to run the file by Python.

Output

After wiring and running the python code your LED will start blinking and at same time LED ON and LED off is printed.

Application

- Fire Alarm System
- Water Label Indicator
- Fault Alarm