

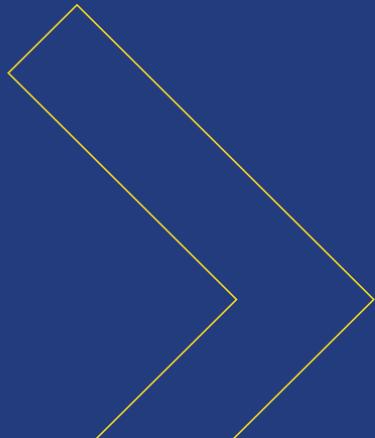


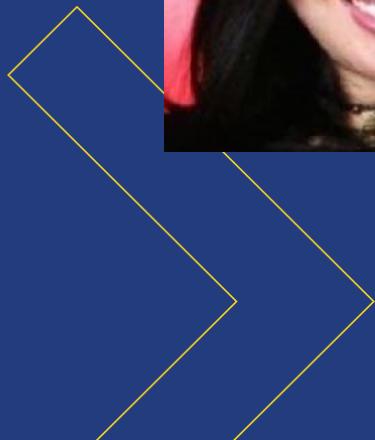
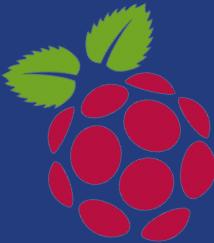
라즈베리파이 3/Raspberry Pi 3

패션, 음악, 미술 프로그래밍

2017년 8월 13일

Ria Baldevia
@riabaldevia

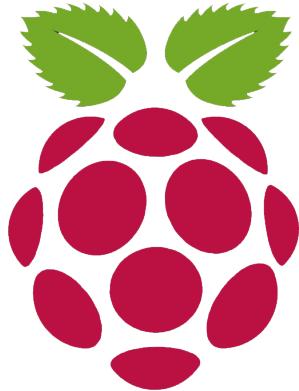
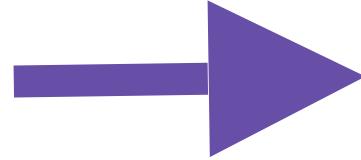
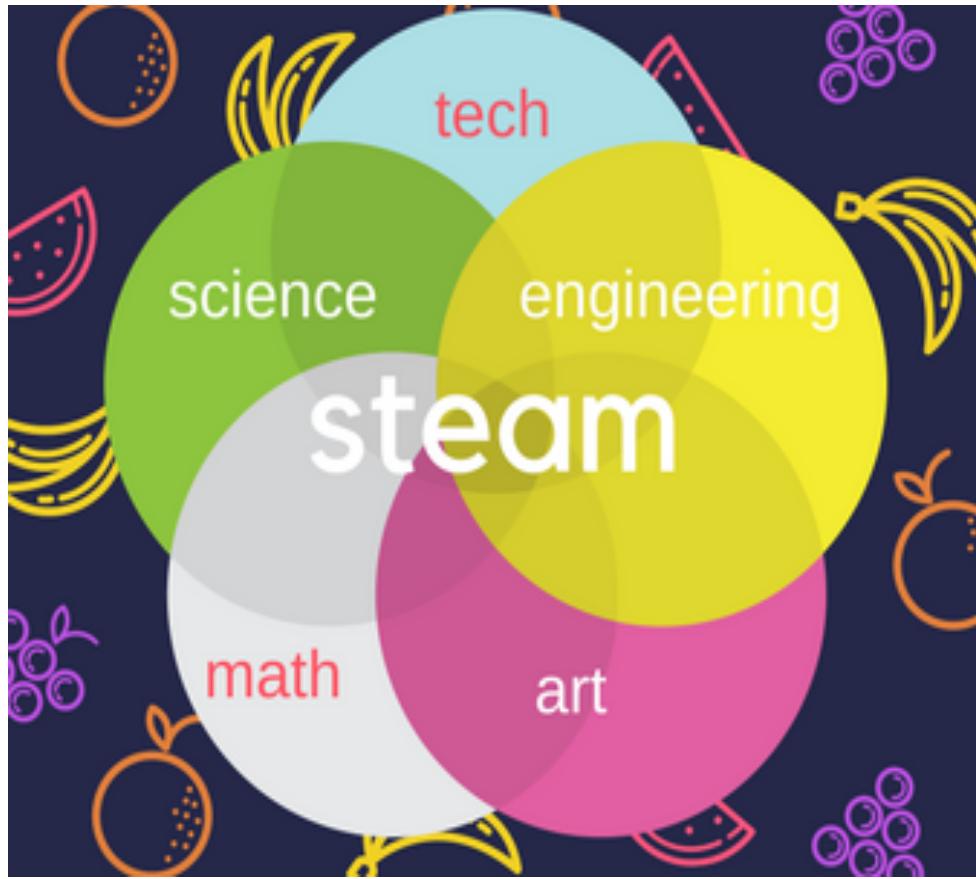




I am a creative developer. Focused on integrating Art with Science, Technology, Engineering, and Mathematics (STEM). Turning STEM into STEAM.

I enjoy studying 16th century Mediterranean history, music, dance, and languages. For programming, I like to focus on fashion and music.

I am committed to growing the Python community and presenting ways to incorporate computational thinking to random ideas. I <3 과학, 기술, 공학, 미술, 수학 (STEAM).



사양

3 모델 B

CPU

1.2GHz ARM Cortex-A53 MP4
GPU Broadcom VideoCore IV

메모리

1 GB LPDDR2

네트워크

10/100 Mbps 이더넷
Wi-Fi 내장 802.11n + 블루투스 4.1

영상 출력

컴포지트
HDMI(rev 1.3 & 1.4)
DSI

USB지원

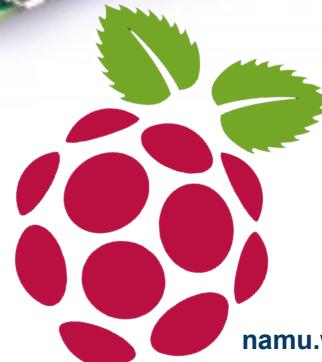
USB 2.0 4포트

GPIO

40핀

SD카드 슬롯

Micro SD, push-pull type



[namu.wiki/w/라즈베리%20파이\(컴퓨터\)](https://namu.wiki/w/라즈베리%20파이(컴퓨터))

GETTING STARTED

LET'S BOOT UP YOUR RPI3



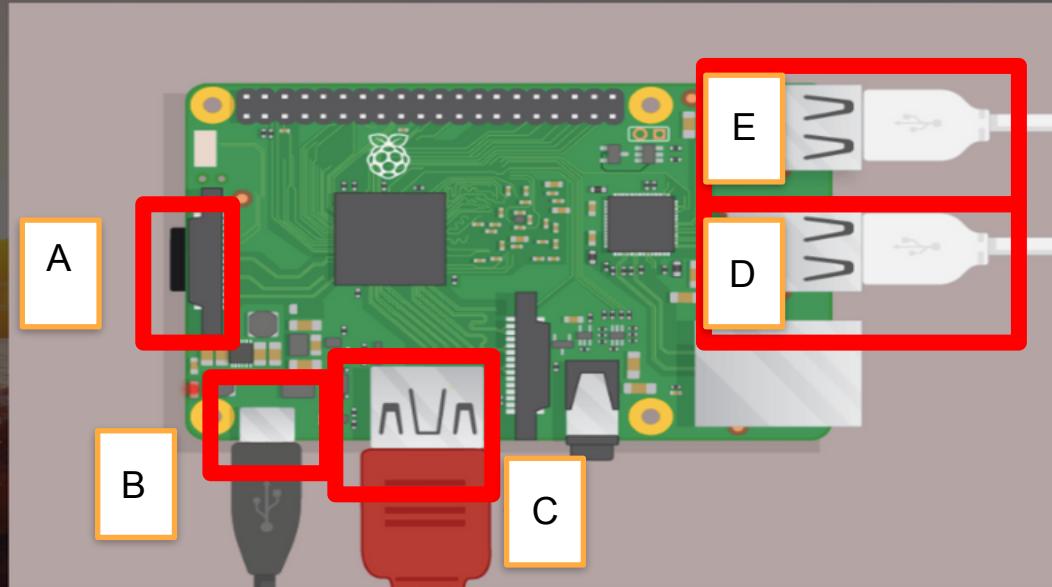
01

WHAT YOU'LL NEED

- POWER SOURCE
- MONITOR
- USB MOUSE
- USB KEYBOARD
- HDMI CABLE



02: POWER UP & GET CONNECTED



A:SD 카드 슬롯
B: 전원
C: HDMI
D: USB
E: USB

Picture source: RaspberryPi.org

03: NETWORK OUT OF A BOX SOFTWARE (NOOBS)

NOOBS is an easy operating system installer which contains Raspbian. It also provides a selection of alternative operating systems which are then downloaded from the internet and installed.

NOOBS Lite contains the same operating system installer without Raspbian pre-loaded. It provides the same operating system selection menu allowing Raspbian and other images to be downloaded and installed.



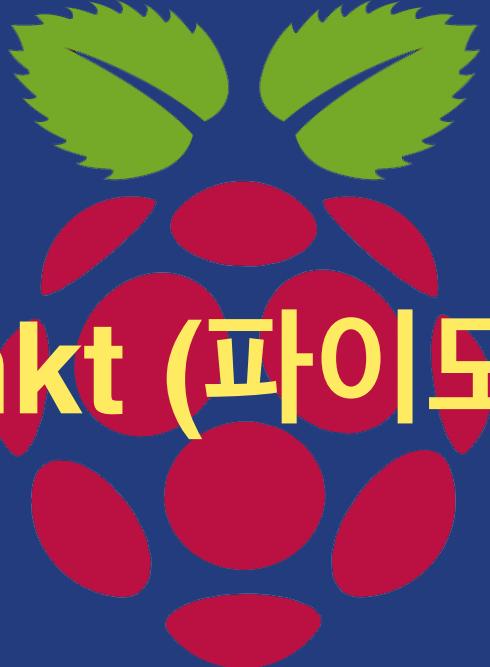
You can download

<https://www.raspberrypi.org/downloads/noobs/>

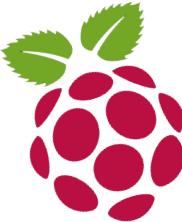
Raspbian Jessie



라즈비안의 경우 구형버전인 Wheezy와 신형버전인 Jessie가 있으며, 현재 Jessie Lite 버전도 있다.



Blinkt (파이모로니)

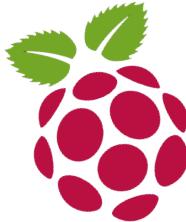


Blinkt (파이모로니)

- Eight RGB LED indicators that can be utilized for visual notifications with the Raspberry Pi.
- Easy to install with pip.
- No soldering needed; can fit nicely on top of Raspberry Pi 3 GPIO.
- Easy to use with the Pimoroni Dashboard easily accessible on the Pi menu tab.
- You can program various colors, sequence, and brightness



<https://github.com/pimoroni/blinkt>



Blinkt (파이모로니)

Easy to install.

With Raspbian:

- `sudo apt-get install pimoroni`
 - You can look for blinkt! Pimoroni Dashboard and install it.

--OR--

- `sudo apt-get install python3-blinkt` (For Python 3)



Wastebasket



cheer.py



romantic.py



rainbow.py



Essentials_Sonic_Pi-v1.pdf

Chromium
Web Browser

```
pi@raspberrypi: ~
File Edit Tabs Help
pi@raspberrypi: $ scrot
pi@raspberrypi: $ scrot
```

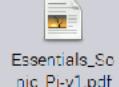
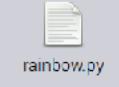
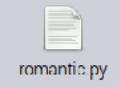
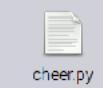
Pimoroni Dashboard

Choose a Pimoroni product from the list below.

Description
My Pimoroni product is a PI !
My Pimoroni product is a pHAT
My product is something else
Pimoroni kits and projects
Update all installed libraries
View product documentation
I have a problem and need help
Take me to the Pimoroni shop

3
4
5
6
7
8

Quit Select



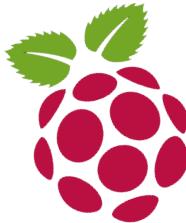
A terminal window titled 'pi@raspberrypi: ~'. The window contains the following text:

```
File Edit Tabs Help  
pi@raspberrypi:~$ scroll  
pi@raspberrypi:~$ scroll  
pi@raspberrypi:~$ scroll
```

A window titled 'Pimoroni Dashboard' containing a table with two columns: 'Option' and 'Description'.

Option	Description
1	Blinkt!
2	Display-o-Tron 3000
3	I lotilla
4	HyperPixel
5	Mote
6	OnOff SI IIM
7	Pibrella
8	Picade PCB
9	Piglow
10	Skywriter
11	Zero LiPo

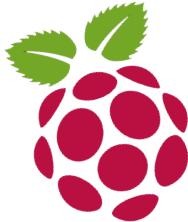
At the bottom of the window are 'Back' and 'Select' buttons.



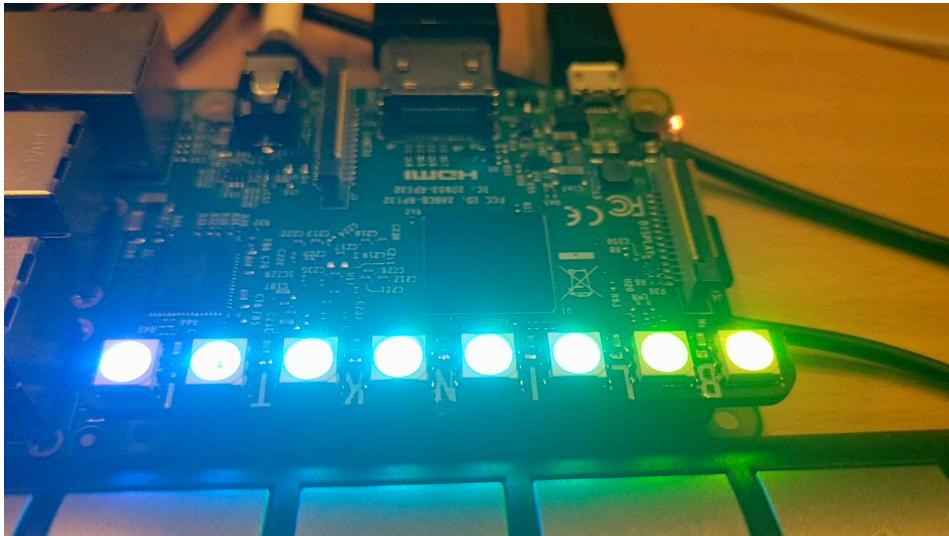
Blinkt (파이모로니)



```
from blinkt import set_pixel,  
set_brightness, show, clear  
set_brightness(0.1)  
clear()  
set_pixel(0, 255, 255, 255)  
show()
```



Blinkt (파이모로니)



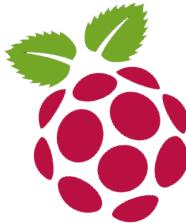
8 LED (indexed values from 0-7)
Respond to RGB values from 0-255

`set_pixel()` identifies which light will be what color

For example:

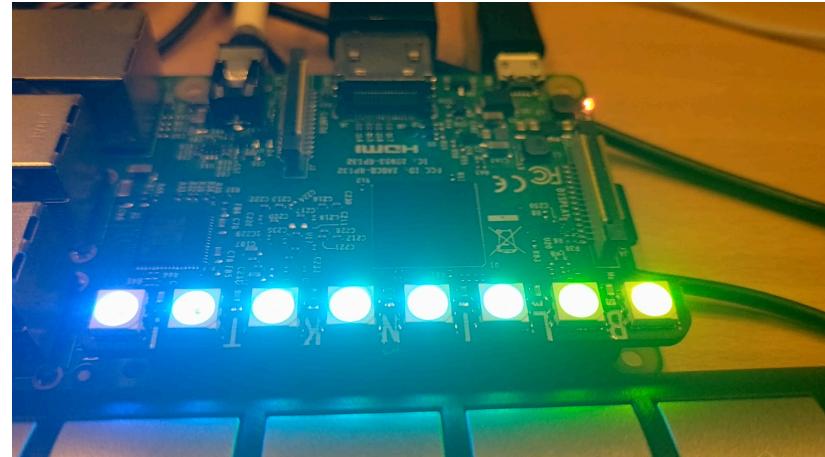
```
set_pixel(0, 255, 255)  
show()
```

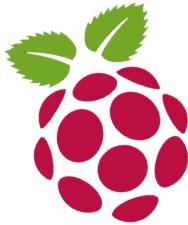
will light up the first light and it will be white



Blinkt (파이모로니)

```
import colorsys  
import time  
  
from blinkt import set_brightness, set_pixel, show  
  
spacing = 360.0 / 16.0  
hue = 0  
  
set_brightness(0.1)  
  
while True:  
    hue = int(time.time() * 100) % 360  
    for x in range (8):  
        offset = x * spacing  
        h = ((hue + offset) % 360)/ 360  
        r, g, b = [int(c*255) for c in colorsys.hsv_to_rgb(h, 1.0,  
1.0)]  
        set_pixel(x, r, g, b)  
    show()  
    time.sleep(0.001)
```





Blinkt (파이모로니)

```
import colorsys
import time
from sys import exit

try:
    import numpy as np
except ImportError:
    exit("This script requires the numpy module\nInstall with: sudo pip install numpy")

import blinkt

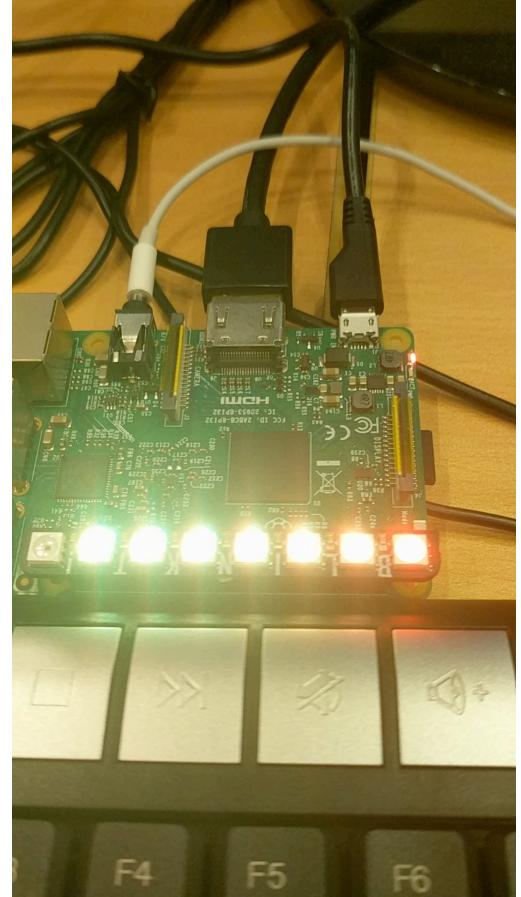
blinkt.clear()
start = 0
end = 60

while True:
    wait = np.random.choice(np.random.noncentral_chisquare(5, 1, 1000), 1)[0] / 50
    n = np.random.choice(np.random.noncentral_chisquare(5, 0.1, 1000), 1)
    limit = int(n[0])

    if limit > blinkt.NUM_PIXELS:
        limit = blinkt.NUM_PIXELS

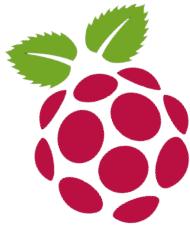
    for pixel in range(limit):
        hue = start + (((end - start) / float(blinkt.NUM_PIXELS)) * pixel)
        r, g, b = [int(c * 255) for c in colorsys.hsv_to_rgb(hue/360.0, 1.0, 1.0)]
        blinkt.set_pixel(pixel, r, g, b)
    blinkt.show()
    time.sleep(0.05 / (pixel + 1))

    time.sleep(wait)
    blinkt.clear()
```





Sonic Pi(소닉파이)



Sonic Pi(서닉파이)

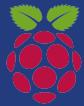
Sonic Pi is an open-source programming environment developed by Dr Sam Aaron, designed to explore and teach programming concepts through the process of creating new sounds.





파션 (w/LIGHTS)

패션 (w/LIGHTS)



Resources available online at AdaFruit for LED light projects.

1) Adafruit GEMMA

<https://www.adafruit.com/product/3501>

2) NeoPixels

3) 3.7V Battery

4) Arduino IDE for the RPi



