

산업인공지능학과

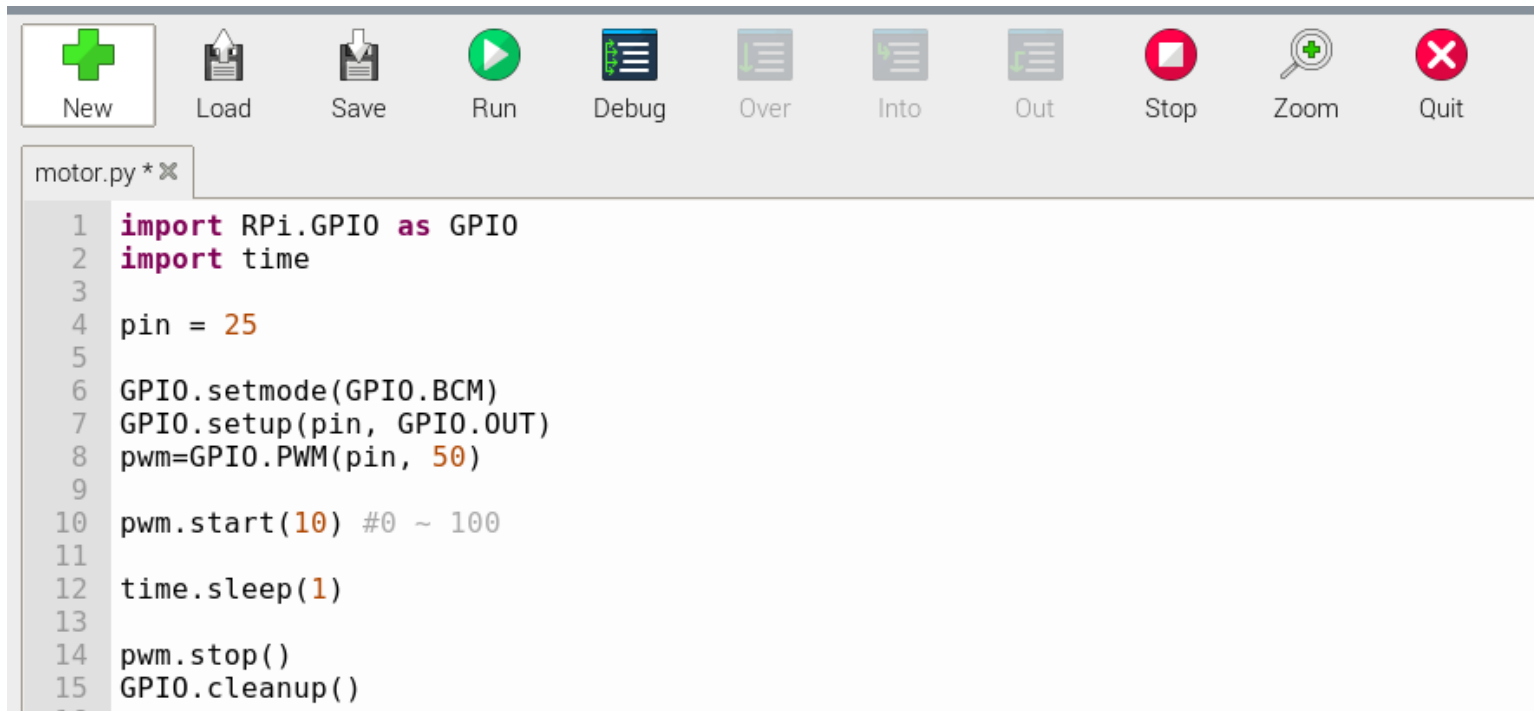
# 조도조절 센서 프로그래밍

지능형 IoT네트워크

2020254003

원형일

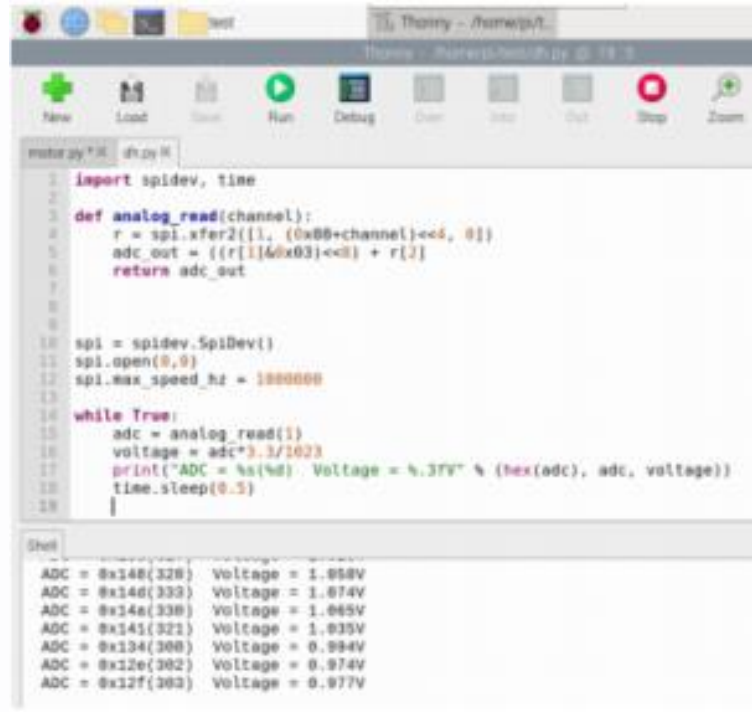
## ○ LED 밝기 제어(LED.py) - Python



The image shows a Python IDE window with a toolbar at the top containing icons for New, Load, Save, Run, Debug, Over, Into, Out, Stop, Zoom, and Quit. Below the toolbar, a tab labeled 'motor.py \*' is open. The code in the editor is as follows:

```
1 import RPi.GPIO as GPIO
2 import time
3
4 pin = 25
5
6 GPIO.setmode(GPIO.BCM)
7 GPIO.setup(pin, GPIO.OUT)
8 pwm=GPIO.PWM(pin, 50)
9
10 pwm.start(10) #0 ~ 100
11
12 time.sleep(1)
13
14 pwm.stop()
15 GPIO.cleanup()
```

## ○ 조도센서(출력값저하, PR.py) - Python



```
1 import spidev, time
2
3 def analog_read(channel):
4     r = spi.xfer2([1, (0x00+channel)<<4, 0])
5     adc_out = ((r[1]&0x03)<<8) + r[2]
6     return adc_out
7
8
9
10 spi = spidev.SpiDev()
11 spi.open(0,0)
12 spi.max_speed_hz = 1000000
13
14 while True:
15     adc = analog_read(1)
16     voltage = adc*3.3/1023
17     print("ADC = %s(%d) Voltage = %.3fV" % (hex(adc), adc, voltage))
18     time.sleep(0.5)
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```

Shell

ADC = 0x140(320)	Voltage = 1.058V
ADC = 0x140(320)	Voltage = 1.074V
ADC = 0x14e(338)	Voltage = 1.085V
ADC = 0x141(321)	Voltage = 1.035V
ADC = 0x134(308)	Voltage = 0.994V
ADC = 0x12e(302)	Voltage = 0.974V
ADC = 0x12f(303)	Voltage = 0.977V