

ASSIGNMENT – 3

DATE	6th October 2022
TEAM ID	PNT2022TMID35759
PROJECT NAME	Gas Leakage Monitoring and Alerting System

Write python code for blinking LED and traffic lights for raspberry pi. Only python code is enough no need to execute in raspberry pi. Note your are allowed to web search and complete the assignement.

Blinking LED

```
import RPi.GPIO as GPIO # RPi.GPIO can be referred as GPIO from now
```

```
import time
```

```
ledPin = 22 # pin22
```

```
def setup():
```

```
    GPIO.setmode(GPIO.BOARD) # GPIO Numbering of Pins
```

```
    GPIO.setup(ledPin, GPIO.OUT) # Set ledPin as output
```

```
    GPIO.output(ledPin, GPIO.LOW) # Set ledPin to LOW to turn Off the LED
```

```
def loop():
```

```
    while True:
```

```
        print 'LED on'
```

```
        GPIO.output(ledPin, GPIO.HIGH) # LED On
```

```
        time.sleep(1.0) # wait 1 sec
```

```
        print 'LED off'
```

```
        GPIO.output(ledPin, GPIO.LOW) # LED Off
```

```
        time.sleep(1.0) # wait 1 sec
```

```
def endprogram():
```

```
GPIO.output(ledPin, GPIO.LOW) # LED Off

GPIO.cleanup() # Release resources


if __name__ == '__main__': # Program starts from here
    setup()
    try:
        loop()
    except KeyboardInterrupt: # When 'Ctrl+C' is pressed, the destroy() will be executed.
        endprogram()
```

Traffic Light

```
import RPi.GPIO as GPIO
import time
import signal
import sys

GPIO.setmode(GPIO.BCM)
GPIO.setup(9, GPIO.OUT)
GPIO.setup(10, GPIO.OUT)
GPIO.setup(11, GPIO.OUT)

def allLightsOff(signal, frame):
    GPIO.output(9, False)
    GPIO.output(10, False)
    GPIO.output(11, False)
    GPIO.cleanup()
    sys.exit(0)

signal.signal(signal.SIGINT, allLightsOff)

while True:
    # Red
    GPIO.output(9, True)
    time.sleep(3)
```

```
# Red and amber
GPIO.output(10, True)
time.sleep(1)
# Green
GPIO.output(9, False)
GPIO.output(10, False)
GPIO.output(11, True)
time.sleep(5)
# Amber
GPIO.output(11, False)
GPIO.output(10, True)
time.sleep(2)
# Amber off (red comes on at top of loop)
GPIO.output(10, False)
```