

ASSIGNMENT-3

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Project Name	Real Time River Water Quality Monitoring and Control System

1. PYTHON CODE FOR BLINKING LED FOR RASPBERRY PI.

```
import RPi.GPIO as GPIO
import time
GPIO.setmode(GPIO.BCM)
cnt = 0
MAIL_CHECK_FREQ = 1 # change LED status every 1 seconds
RED_LED = 4
GPIO.setup(RED_LED, GPIO.OUT)
while True:
    if cnt == 0 :
        GPIO.output(RED_LED, False)
        cnt = 1
    else:
        GPIO.output(RED_LED, True)
        cnt = 0
    time.sleep(MAIL_CHECK_FREQ)
GPIO.cleanup()
```

2. PYTHON CODE FOR TRAFFIC LIGHTS FOR RASPBERRY PI

```
import RPi.GPIO as GPIO
```

```
import time
```

```
try:
```

```
    def lightTraffic(led1, led2, led3, delay):
```

```
        GPIO.output(led1, 1)
```

```
        time.sleep(delay)
```

```
        GPIO.output(led1, 0)
```

```
        GPIO.output(led2, 1)
```

```
        time.sleep(delay)
```

```
        GPIO.output(led2, 0)
```

```
        GPIO.output(led3, 1)
```

```
        time.sleep(delay)
```

```
        GPIO.output(led3, 0)
```

```
GPIO.setmode(GPIO.BCM)
```

```
button = 19
```

```
GPIO.setup(button, GPIO.IN, pull_up_down=GPIO.PUD_UP)
```

```
ledGreen = 15
```

```
ledYellow = 12
```

```
ledRed = 23
```

```
GPIO.setup(ledGreen, GPIO.OUT)
```

```
GPIO.setup(ledYellow, GPIO.OUT)
```

```
GPIO.setup(ledRed, GPIO.OUT)
```

```
while True:
```

```
    input_state = GPIO.input(button)
```

```
    if input_state == False:
```

```
    print('You pressed the button')
    lightTraffic(ledGreen, ledYellow, ledRed, 1)
else:
    GPIO.output(ledGreen, 0)
    GPIO.output(ledYellow, 0)
    GPIO.output(ledRed, 0)
except KeyboardInterrupt:
    print
    "Exited the program"
finally:
    GPIO.cleanup()
```