Laboratory Report Cover Sheet

SRM Institute of Science and Technology
College of Engineering and Technology
Department of Electronics and Communication Engineering

18ECO109J Embedded System Design using

Raspberry Pi

Sixth Semester, 2022-23 (Even semester)

Name :

Register Number :

Day Order :

Venue :

Title of the Experiment :

Date of conduction :

Date of Submission :

Particulars	Max. Marks	Marks Obtained
Pre-lab / Algorithm	10	
Lab Performance	20	
Post-lab	10	
Total	**40**	

REPORT VERIFICATION

Date :

Faculty Name :

Signature :

LAB-5- LED Blinking and Brightness Control

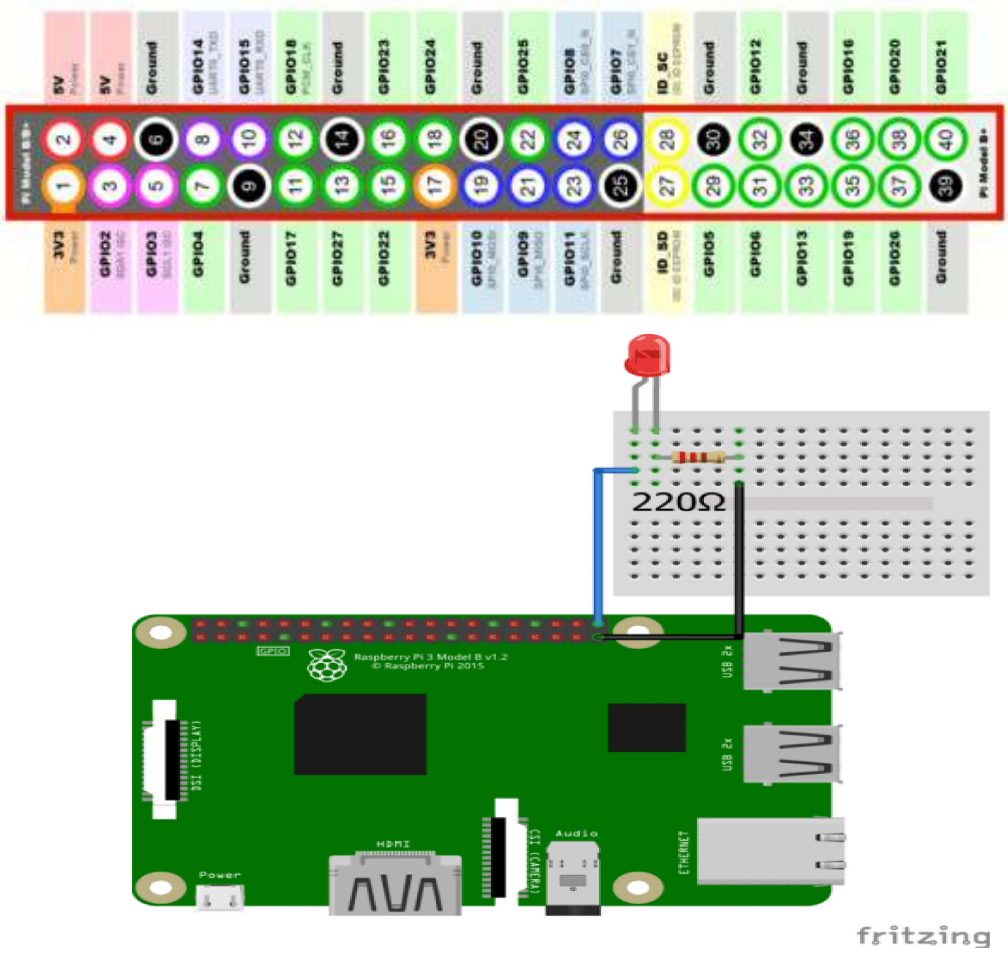
Aim:

To write python code for LED blinking and brightness control using PWM in Raspberry Pi and test it

Task:

1. Write a Python Program to generate LED Blinking and Brightness Control using PWM in Raspberry Pi and test it.

Pin and Ciruit Diagaram :



Algorithms:

1. GPIO was imported and the pin to be used was setup using setmode() and setup().

2. GPIO.output() command was used to blink the light.

3. pwm.ChangeDutyCycle() command was used to change the brightness of the LED respectively.

Programs:

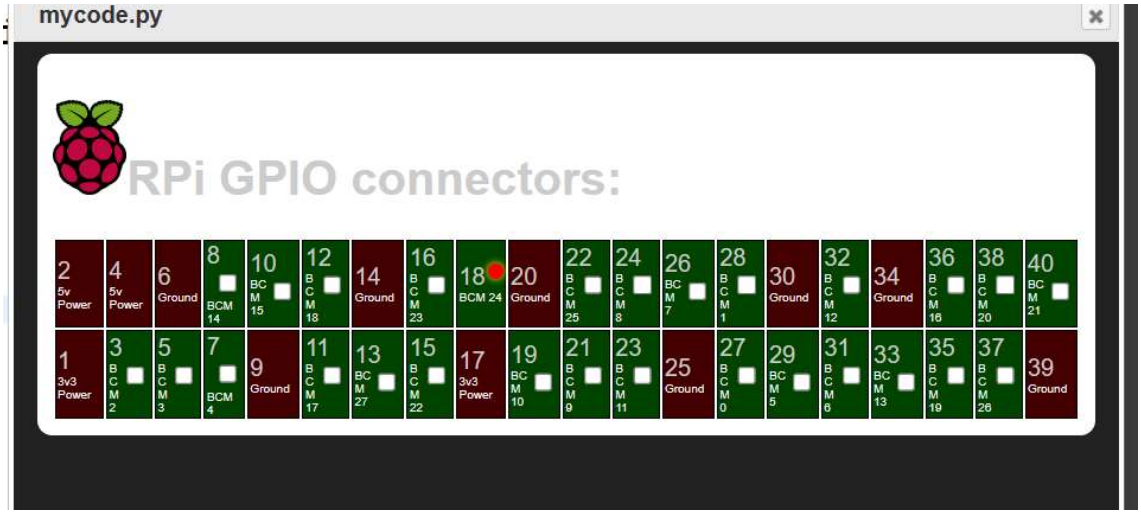
mycode.py

```
1  import time
2  import RPi.GPIO as GPIO
3  GPIO.setmode(GPIO.BOARD)
4  GPIO.setup(18, GPIO.OUT)
5  while True:
6      GPIO.output(18,True)
7      time.sleep(2)
8      GPIO.output(18,False)
9      time.sleep(2)
```

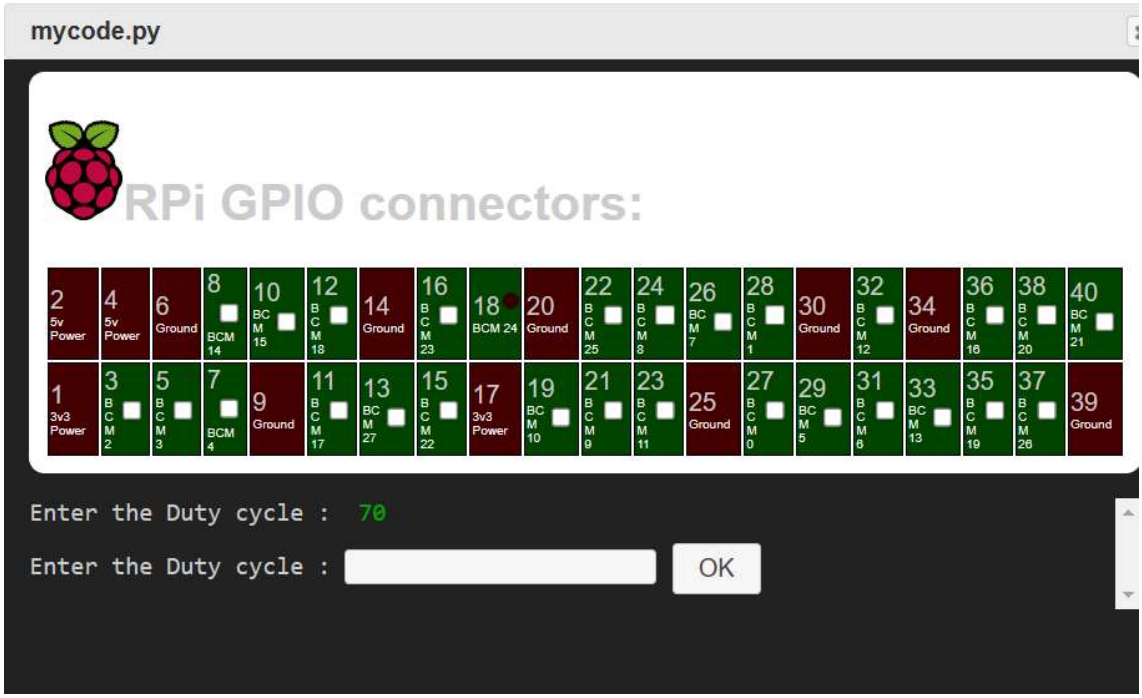
mycode.py

```python
import time
import RPi.GPIO as GPIO

GPIO.setmode(GPIO.BOARD)
GPIO.setup(18, GPIO.OUT)

pwm = GPIO.PWM(18, 100)
pwm.start(0)

try:
    while True:
        duty_cycle = float(input("Enter the Duty cycle : " ))
        pwm.ChangeDutyCycle(duty_cycle)

except KeyboardInterrupt:
    pass

pwm.stop()
GPIO.cleanup()
```

Output:



mycode.py




```
Enter the Duty cycle :  70
Enter the Duty cycle :
```

OK

Post Lab Questions:

1. What is the impact of the change of frequency PWM on the blinking effect of the LED?

Ans.) The brightness of the LED varies according to the frequency of PWM.

2. Write python code in which LED only make blinking with medium and highest brightness

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mycode.py

```
import RPi.GPIO as GPIO
led_pin = 18
GPIO.setmode(GPIO.BCM)
GPIO.setup(led_pin, GPIO.OUT)
pwm_led = GPIO.PWM(led_pin, 500)
pwm_led.start(100)

while True:
    duty_s = input("Enter Brightness (Low, Medium, High): ")
    if duty_s == "Low":
      duty = 10
    elif duty_s == "Medium":
      duty = 1000
    elif duty_s == "High":
      duty = 10000
      pwm_led.ChangeDutyCycle(duty)
```

Result: