Assignment 3

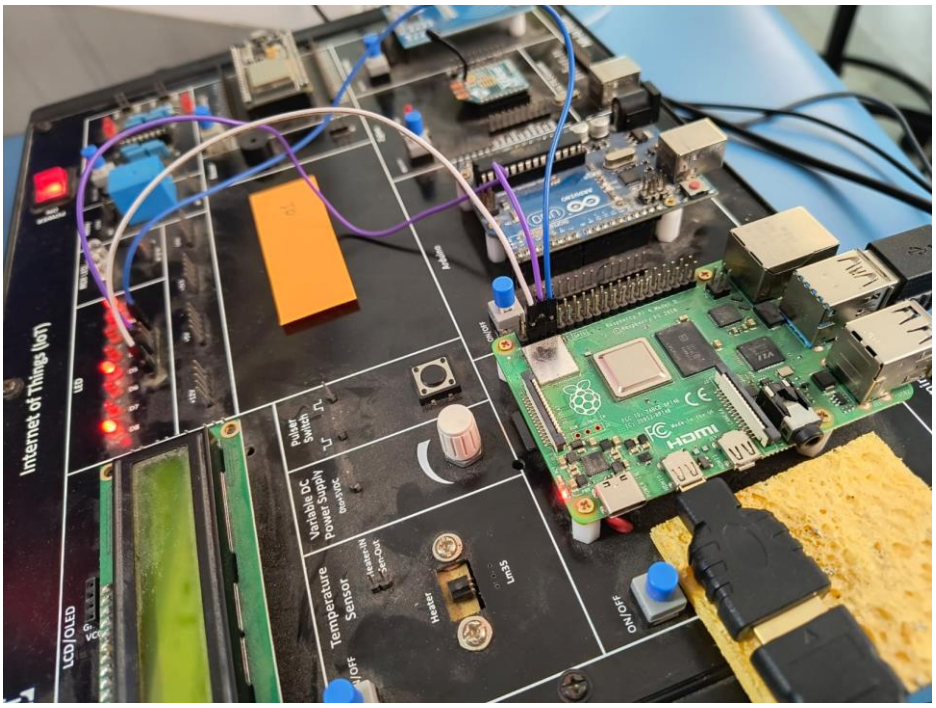
Experiment :- PWM with RPi

Aim:- To create a setup of three LEDs that light up and dim in order with a slow increase and decrease in their intensities using PWM.

Equipment used:-

1. Three LED lights.
2. Raspberry pie 4 micro-controller
3. Female to Female connecting wires
4. Desktop
5. HDMI (ethernet) cables

Methodology:- In below connection shown, GPIO2 pin, GPIO3 pin and GPIO4 pin of raspberry pie are connected to D1, D5 AND D8 pins of LED lights. LED lights are already grounded inside the board. Below is the connection shown:-



Results:- In below output video shown, according to code pushed inside raspberry pie 4 microcontroller, D1 pin LED light is always lighted up for 10 seconds, D8 Led light becomes dimmer (intensity decreases) and its glow

vanishes after 10 seconds, and D5 LED light glows up (intensity increases) achieving its maximum intensity in 10 seconds, this cycle is continously repeated. Below is the output video present in below drive link:-

Drive link:- Link to video

Conclusion:- In this experiment we learned compilation of code to increase and decrease intensities of LED lights using PWM.

Code:- Below is the code that we wrote in THONNY software and pushed it in Raspberry pie 4 microcontroller:-

```
import RPi.GPIO as GPIO
import time

GPIO.setmode(GPIO.BOARD)

GPIO.setup(3,GPIO.OUT) # 1
GPIO.setup(5,GPIO.OUT) # 5
GPIO.setup(7,GPIO.OUT) # 6
a = float(input("TIME LENGTH"))
e = 100000
n = ((a*e)**0.5)
i=1
  while True:
      GPIO.output(7,GPIO.HIGH)

      while i<n:

            GPIO.output(5,GPIO.HIGH)
            GPIO.output(3,GPIO.LOW)

            time.sleep(i/e)

            GPIO.output(5,GPIO.LOW)
            GPIO.output(3,GPIO.HIGH)
            time.sleep((n/e)-(i/e))
            i=i+1
       i=1
```