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Group No: 02

Section: 07

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Name of the Experiment: Controlling clockwise/anticlockwise rotation of a DC motor using motor driver and Raspberry Pi.

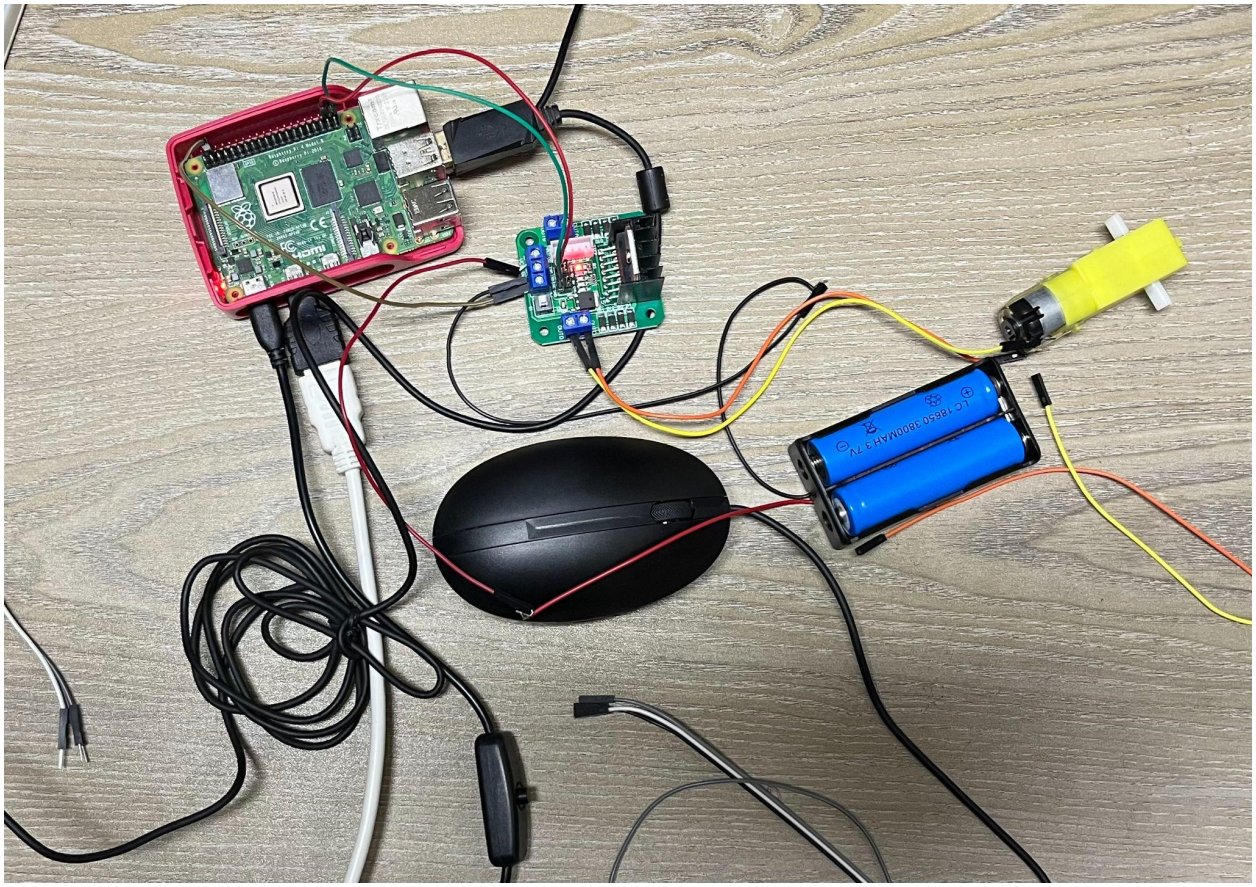
Objective:

The objective of this experiment is to control and program the anticlockwise or clockwise rotation of a DC motor using a motor driver(L298N) and Raspberry Pi.

Equipment:

1. Raspberry Pi
2. DC Motor
3. Motor Driver(L298N)
4. Battery(3.7V)(2 Pieces)
5. Battery Case
6. Jumper Wires
7. Breadboard
8. Monitor, Keyboard, and Mouse (Optional)

Experimental Setup:



Code:

```
import RPi.GPIO as GPIO
from time import sleep

in1 = 20
in2 = 21

GPIO.setmode(GPIO.BCM)
GPIO.setup(in1,GPIO.OUT)
GPIO.setup(in2,GPIO.OUT)
GPIO.output(in1,GPIO.LOW)
GPIO.output(in2,GPIO.LOW)

while(True):


  GPIO.output(in1,GPIO.LOW)
  GPIO.output(in2,GPIO.HIGH)

  sleep(2)

  GPIO.output(in1,GPIO.HIGH)
  GPIO.output(in2,GPIO.LOW)

  sleep(2)
```

Result:

After the experiment is complete we will be able to control the rotation direction of a DC motor using a motor driver and a Raspberry Pi. By

changing the state of the GPIO pins connected to the motor driver, We can control the direction of the motor rotation. This setup is a versatile and flexible way to control the rotation of a DC motor using a Raspberry Pi and a motor driver, with the ability to adjust the speed and direction of the motor rotation through software.

Conclusion & Discussion:

In conclusion, the setup to control the rotation of a DC motor using a motor driver and a Raspberry Pi is a cost-effective and flexible solution for various applications. By using a motor driver, you can control the motor more easily and safely than directly connecting it to the Raspberry Pi. The Raspberry Pi provides an easy way to control the direction and speed of the motor through software, allowing for greater control and automation.The setup also allows for easy integration with other sensors and devices, such as limit switches or encoders, to further enhance the control and feedback of the motor. Additionally, the use of Python programming language and libraries such as RPi.GPIO make it easier to develop and modify the control code for the motor.Overall, the setup to control the rotation of a DC motor using a motor driver and a Raspberry Pi provides a flexible and customizable solution for motor control, with the ability to adjust the direction and speed of the motor through software. Proper selection of components and safety precautions are important when setting up this system.