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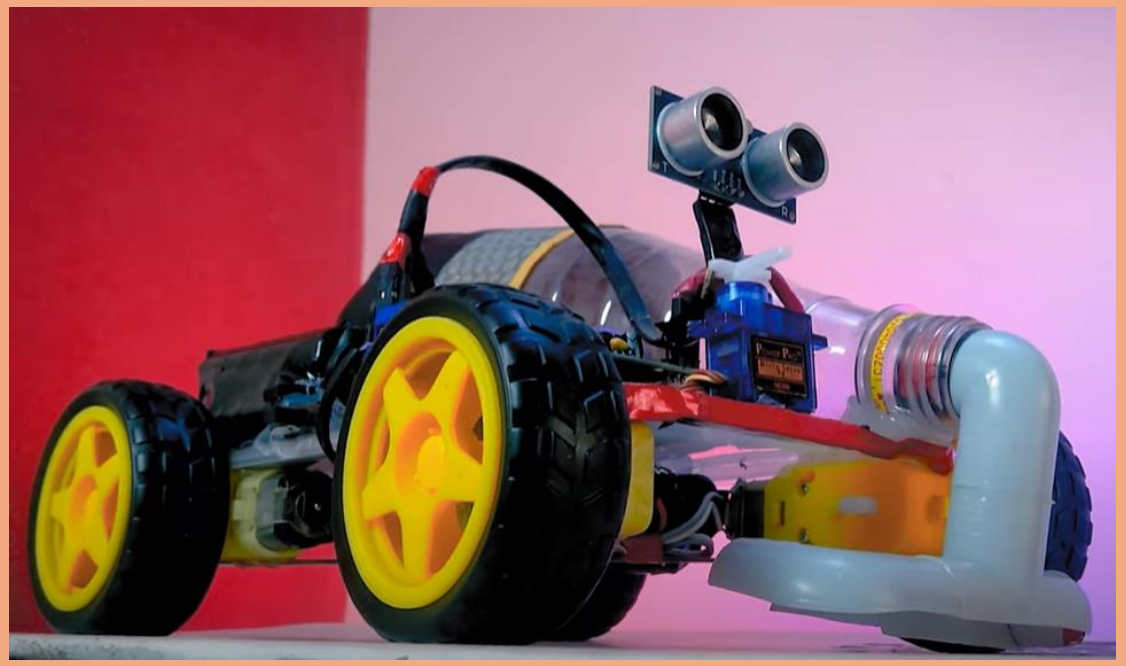
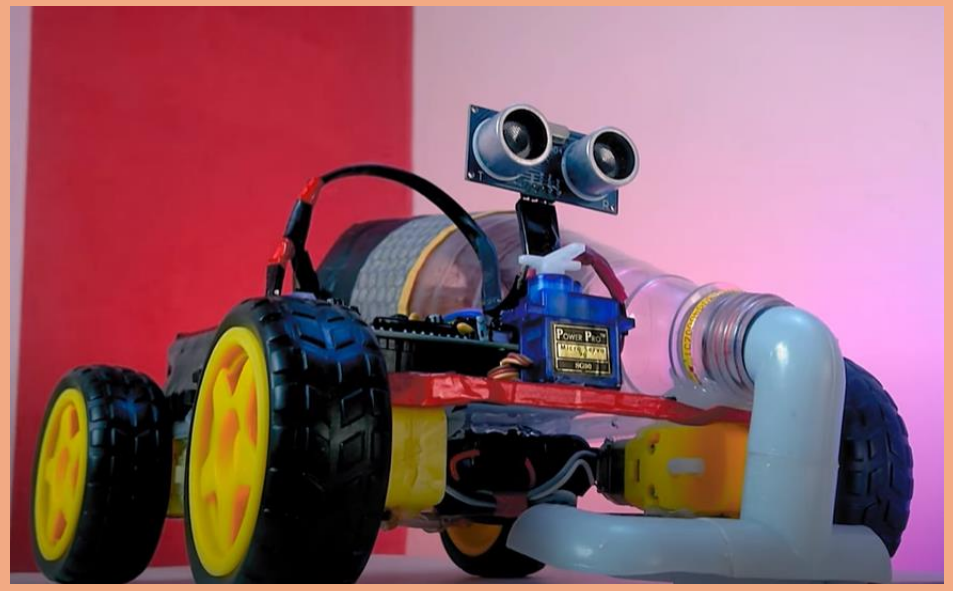
Obstacle- Avoiding Robotic Car by nodeMCU?

IoT Project Semester - 4

Using NodedeMcu(ESP2866)





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Component required:-

1) .NodeMCU Board
2) .L298N Motor Driver Module
3) 12v DC Gear Motor
4) 12v (1.3Amp) Lithium Ion Battery
5) HC-SR04
6) Micro Servo Motor
7) Arduino Jumper wire
8) Chassis

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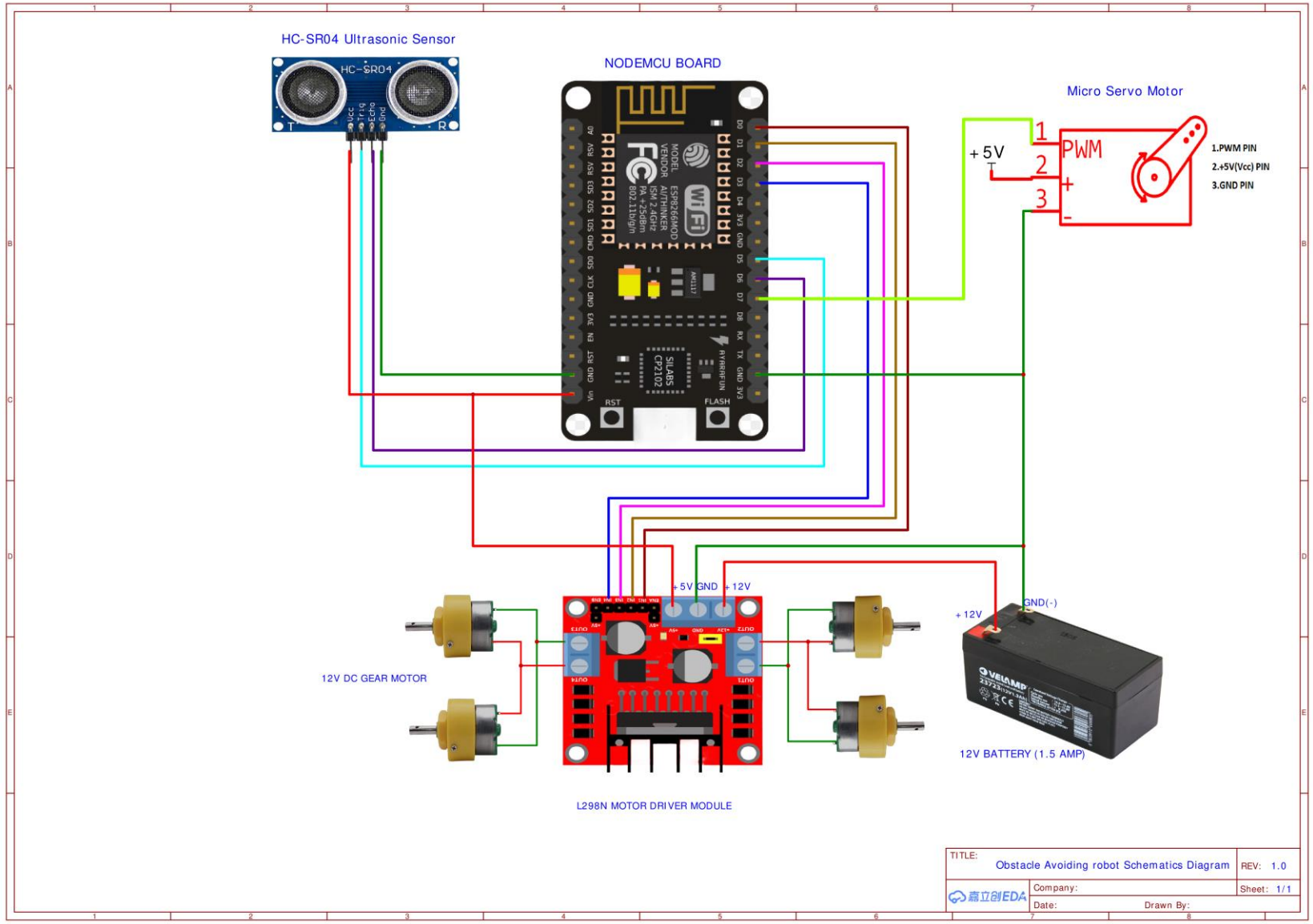
Schematic Diagram:-



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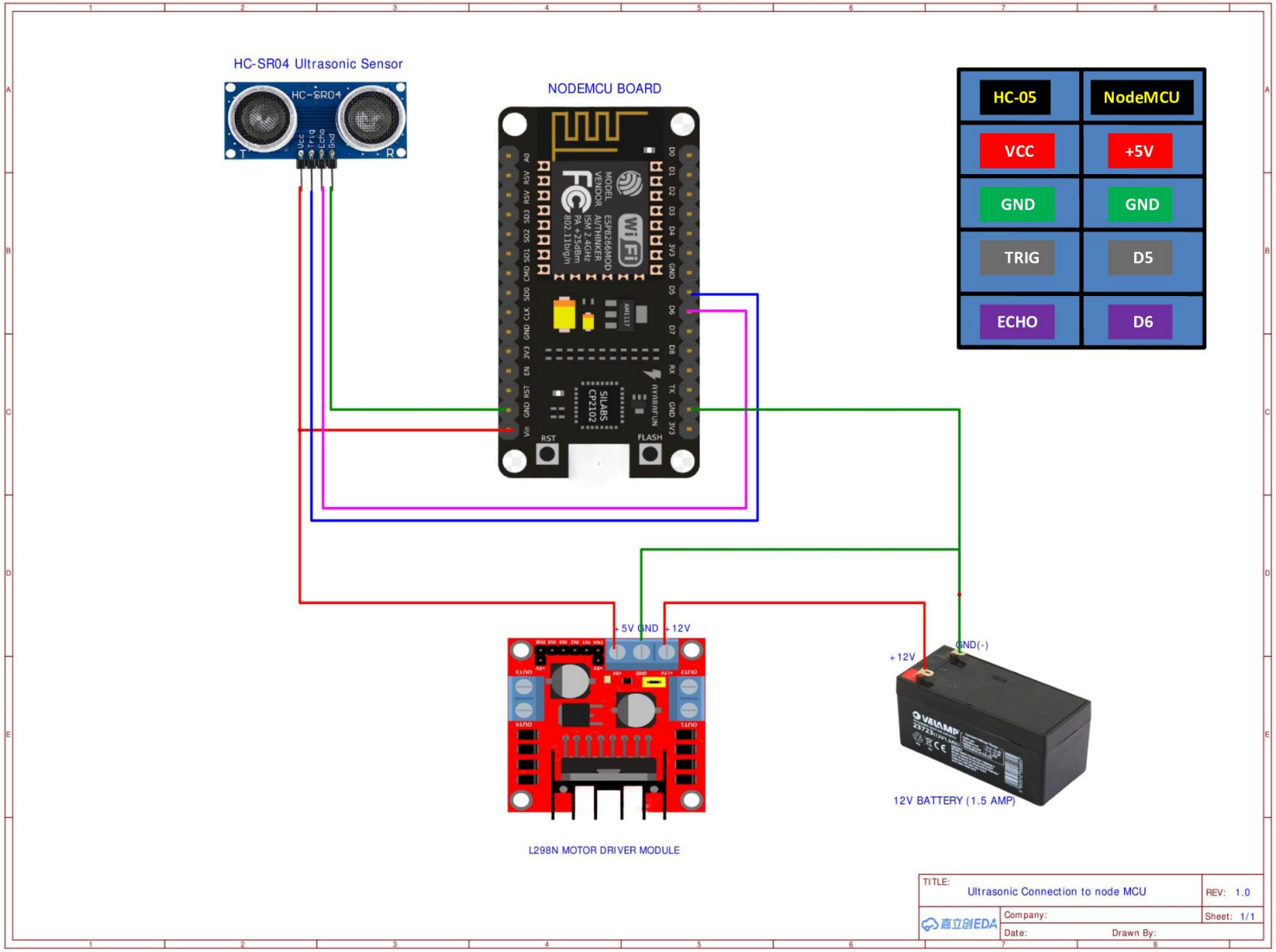
1.HC-SR04 Ultrasonic sensor Connection to Nodemcu:-



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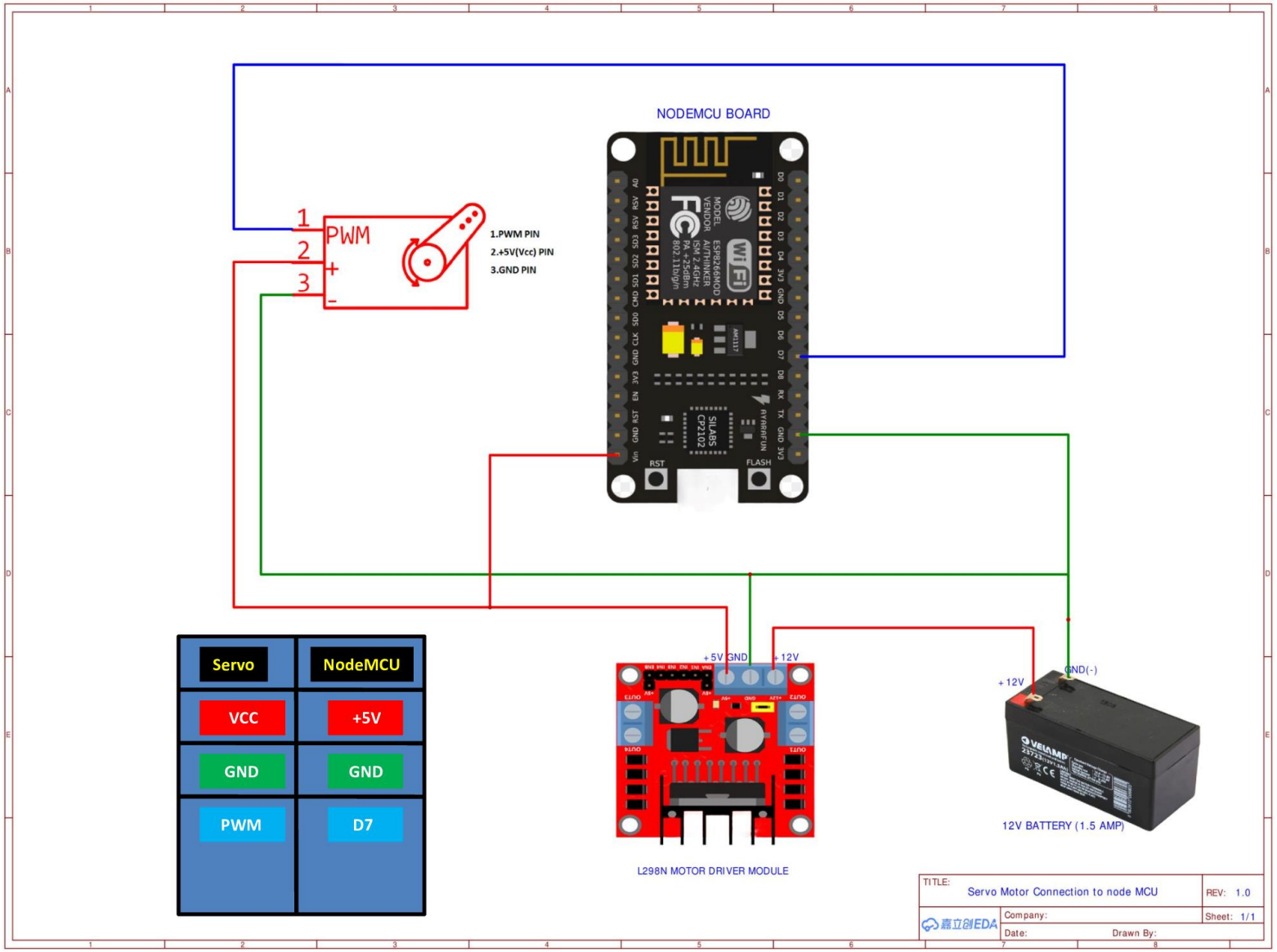
2. Servo Motor Connection to Nodemcu:-



Code:-

```
/Obstacle Avoiding Robot
#include <Servo.h>
#define In1 16  //D0
#define In2 5   //D1
#define In3 4   //D2
#define In4 0   //D3
#define TrigPin 14 //D5
#define EchoPin 12 //D6
#define servoPin 13 //D7
Servo myservo;
void setup()
{
Serial.begin(9600);
pinMode(In1,OUTPUT);
pinMode(In2,OUTPUT);
pinMode(In3,OUTPUT);
pinMode(In4,OUTPUT);
pinMode(TrigPin, OUTPUT);
pinMode(EchoPin, INPUT);
myservo.attach(servoPin);
myservo.write(115);
delay(2000);
}


void loop()
{
long duration, distance;
digitalWrite(TrigPin, LOW);
delayMicroseconds(2);
digitalWrite(TrigPin, HIGH);
delayMicroseconds(10);
```

Code:-

```
digitalWrite(TrigPin, LOW);
duration = pulseIn(EchoPin, HIGH);
distance = (duration / 2) / 29.1;
Serial.print("CM=");
Serial.println(distance);
if(distance<=15)
 {
  Stop();
  delay(100);
  Backward();
  delay(300);
  Stop();
  delay(200);
  lookRight();
  delay(200);
  lookLeft();
  delay(200);
  TurnRight();
  delay(850);
  Stop();
  delay(300);
 }
 else
 {
  Forward();
 }
}
void lookRight()
{
    myservo.write(50);
    delay(500);
    myservo.write(115);
}
```

Code:-

```
void lookLeft()
{
    myservo.write(170);
    delay(500);
    myservo.write(115);
}


void moveStop()
{
  digitalWrite(In1, LOW);
  digitalWrite(In2,LOW);
  digitalWrite(In3, LOW);
  digitalWrite(In4, LOW);
  }

void Forward()
{
  digitalWrite(In1,LOW);
  digitalWrite(In2,HIGH);
  digitalWrite(In3,LOW);
  digitalWrite(In4,HIGH);
}
void Backward()
{
  digitalWrite(In1,HIGH);
  digitalWrite(In2,LOW);
  digitalWrite(In3,HIGH);
  digitalWrite(In4,LOW);
}
```