

```
#define IR_SENSOR_RIGHT 13
#define IR_SENSOR_LEFT 12
#define MOTOR_SPEED 180

//Right motor
int enableRightMotor=10;
int rightMotorPin1=4;
int rightMotorPin2=5;

//Left motor
int enableLeftMotor=11;
int leftMotorPin1=6;
int leftMotorPin2=7;

void setup()
{

    TCCR0B = TCCR0B & B11111000 | B00000010 ;    //This sets PWM
    frequency as 7812.5 hz.

    pinMode(enableRightMotor, OUTPUT);
    pinMode(rightMotorPin1, OUTPUT);
    pinMode(rightMotorPin2, OUTPUT);

    pinMode(enableLeftMotor, OUTPUT);
    pinMode(leftMotorPin1, OUTPUT);
```

```

pinMode(leftMotorPin2, OUTPUT);

pinMode(IR_SENSOR_RIGHT, INPUT);
pinMode(IR_SENSOR_LEFT, INPUT);
rotateMotor(0,0);
}

void loop()
{

int rightIRSensorValue = digitalRead(IR_SENSOR_RIGHT);
int leftIRSensorValue = digitalRead(IR_SENSOR_LEFT);

//If none of the sensors detects black line, then go straight
if (rightIRSensorValue == LOW && leftIRSensorValue == LOW)
{
rotateMotor(MOTOR_SPEED, MOTOR_SPEED);
}
//If right sensor detects black line, then turn right
else if (rightIRSensorValue == HIGH && leftIRSensorValue ==
LOW )
{
rotateMotor(-MOTOR_SPEED, MOTOR_SPEED);
}
//If left sensor detects black line, then turn left
else if (rightIRSensorValue == LOW && leftIRSensorValue ==
HIGH )

```

```
{
    rotateMotor(MOTOR_SPEED, -MOTOR_SPEED);
}
//If both the sensors detect black line, then stop
else
{
    rotateMotor(0, 0);
}
}

void rotateMotor(int rightMotorSpeed, int leftMotorSpeed)
{

    if (rightMotorSpeed < 0)
    {
        digitalWrite(rightMotorPin1, LOW);
        digitalWrite(rightMotorPin2, HIGH);
    }
    else if (rightMotorSpeed > 0)
    {
        digitalWrite(rightMotorPin1, HIGH);
        digitalWrite(rightMotorPin2, LOW);
    }
    else
    {
        digitalWrite(rightMotorPin1, LOW);
```

```
        digitalWrite(rightMotorPin2, LOW);
    }

    if (leftMotorSpeed < 0)
    {
        digitalWrite(leftMotorPin1, LOW);
        digitalWrite(leftMotorPin2, HIGH);
    }
    else if (leftMotorSpeed > 0)
    {
        digitalWrite(leftMotorPin1, HIGH);
        digitalWrite(leftMotorPin2, LOW);
    }
    else
    {
        digitalWrite(leftMotorPin1, LOW);
        digitalWrite(leftMotorPin2, LOW);
    }

    analogWrite(enableRightMotor, abs(rightMotorSpeed));
    analogWrite(enableLeftMotor, abs(leftMotorSpeed));
}
```