2020

LINE FOLLOWER ROBOT

IEEE HIGH TECHNOLOGICAL INSTITUTE

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ABOUT IEEE HTI-SB:

In 1999 IEEE HTI-SB was the first founded IEEE student branch in the Egypt Section. The student branch was considered one of the best branches worldwide, and surely the best in Egypt, the branch made several academic sessions and Events.

Our Vision:

Bridging the gap between academic studies and real productive industry. Since technology leads in every part of the world. Creativity is also required which is why IEEE is very persistent on this event. Allowing students and giving them motivation, advanced skills and materials to meet the requirements of today's market.

About R&D Committee:

Ranked Committee working on bridging the technical problems with academic solutions based on searching, testing, debugging, and enhancing and developing new models & solutions.

Targeting engineering department (Mechatronics, Electrical, Mechanical, Biomedical and computer).

As we are part of the IEEE Global community, we advance technology for humanity.

Our objectives (benefits reflected on members) building experience fulfilled with achievement by simulating corporate tasks & trends helping him hunt jobs related to his activities as a result.

Like a training field to find his technical interests and get prepared for bigger deals.

Our Goals:

- Technical (Papers/Reports/Proposals), about scientific topics for students.
- Online tutorials of project demos & open source technical materials.
- Providing workshops based on new self learnt new technology trends (AI/IoT, etc.)
- Project lab producing technical innovative solutions of new technology trends.
- Technical assistance in Events / Competitions /Graduation projects.
- Participating in YP activities (EED/MIE/Nasa Space apps/FC)
- Calibrating /controlling parts, Eliminating Errors developing products.
- Community educational tracks online course materials & Webinars.
- Supporting the market & Startups as freelancers solving industrial problems.
- write researches/papers for world's professionals.
- publish in the IEEE global using IEEE Spectrum Magazine.

Introduction:

Overview:

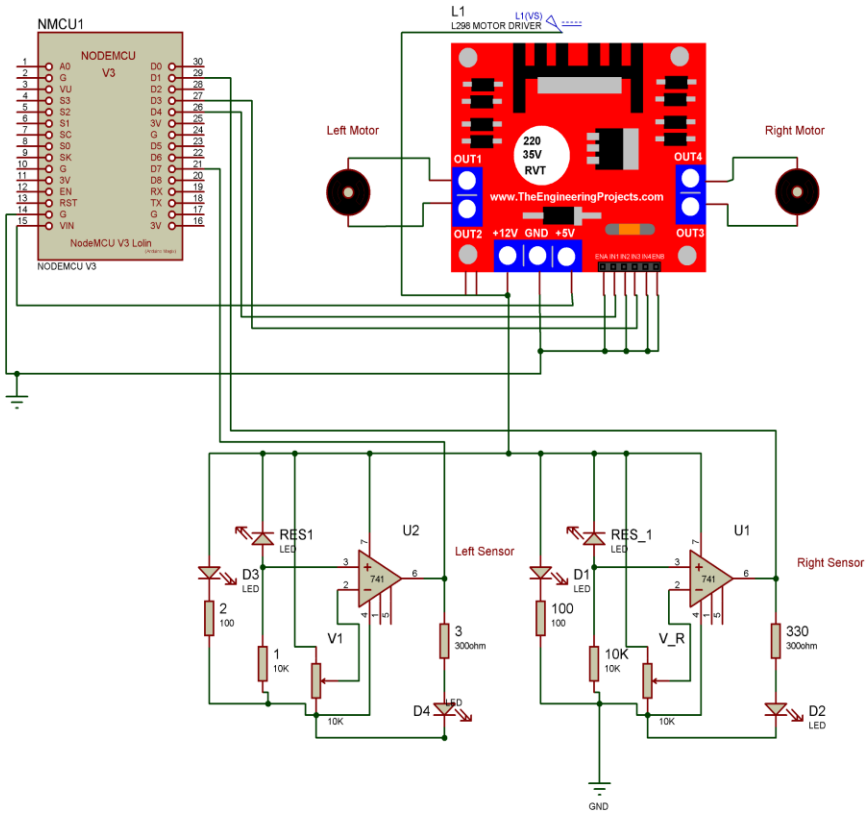
WHY WE DIDN'T USE ARDUINO UNO? WHY WE USE THIS NODE?

If you want to make serial communication like to control the car using Bluetooth or Wi-Fi, you will need another space in your Design for the Bluetooth module or Wi-Fi module and more jumpers and more weight! So, the Advantage of the node it has its Wi-Fi built in and has its microcontroller. So, it's better to use.

Project Objective:

- The Robot to Follow any line
- For our Team to enhance their experience dealing with Node Microcontroller
- Review Their Python Programming Skills

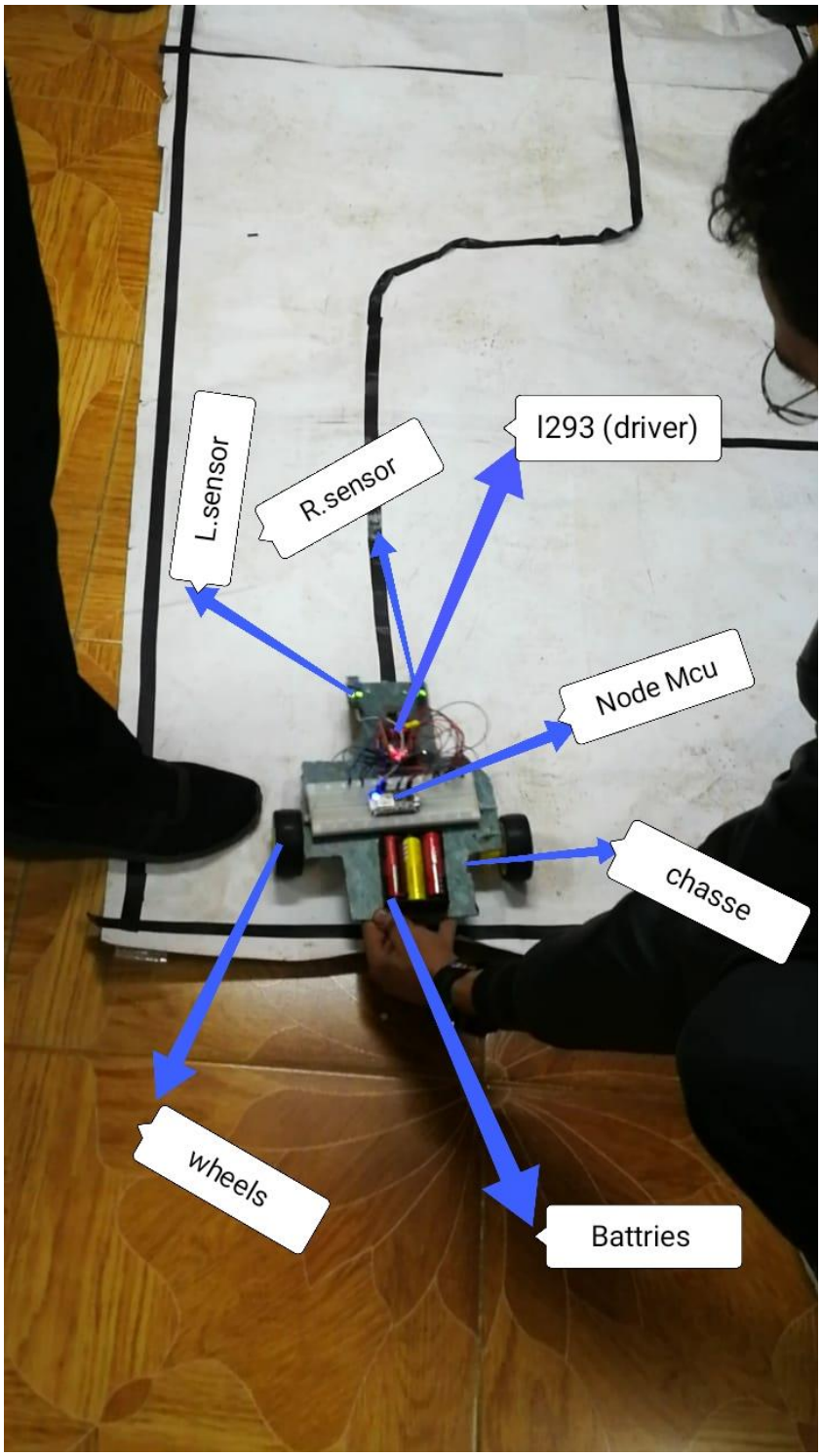
Circuit diagram:



Project Code:

```
import machine
L_sensor = machine.Pin(13, machine.Pin.IN,machine.Pin.PULL_UP) #D7
R_sensor = machine.Pin(5, machine.Pin.IN,machine.Pin.PULL_UP)  #D1
L_F_motor2=machine.PWM(machine.Pin(2),freq=500,duty=300)  #D4
R_F_motor1=machine.PWM(machine.Pin(0),freq=500,duty=300)  #D3
def Forword():
    R_F_motor1.duty(300)
    L_F_motor2.duty(300)
def stop():
    R_F_motor1.duty(0)
    L_F_motor2.duty(0)
def Right():
    R_F_motor1.duty(300)
    L_F_motor2.duty(0)
def Left():
    R_F_motor1.duty(0)
    L_F_motor2.duty(300)

print("Done")
while(1):

    if R_sensor.value() == 0 and L_sensor.value() == 0:
        Forword()
        print("Forword")

    elif R_sensor.value() == 0:
        Left()
        print("Left")

    elif L_sensor.value() == 0:
        Right()
        print("Right")

    elif R_sensor.value() == 1 and L_sensor.value() == 1:
        stop()
        print("Stop")
```

Hardware description:



Project components:

Name	Price	
Node MCU	EGP	135.00
Motor Driver (L298 module)	EGP	65.00
2 Dc gear box	EGP	40.00
2 Wheels	EGP	30.00
1 Caster Wheel	EGP	40.00
Jumpers	EGP	22.00
Chase	EGP	20.00
Total	**EGP**	**352.00**