How to build WiFi Controlled RC DIY Car Chassis PCB

Contents

Introduction

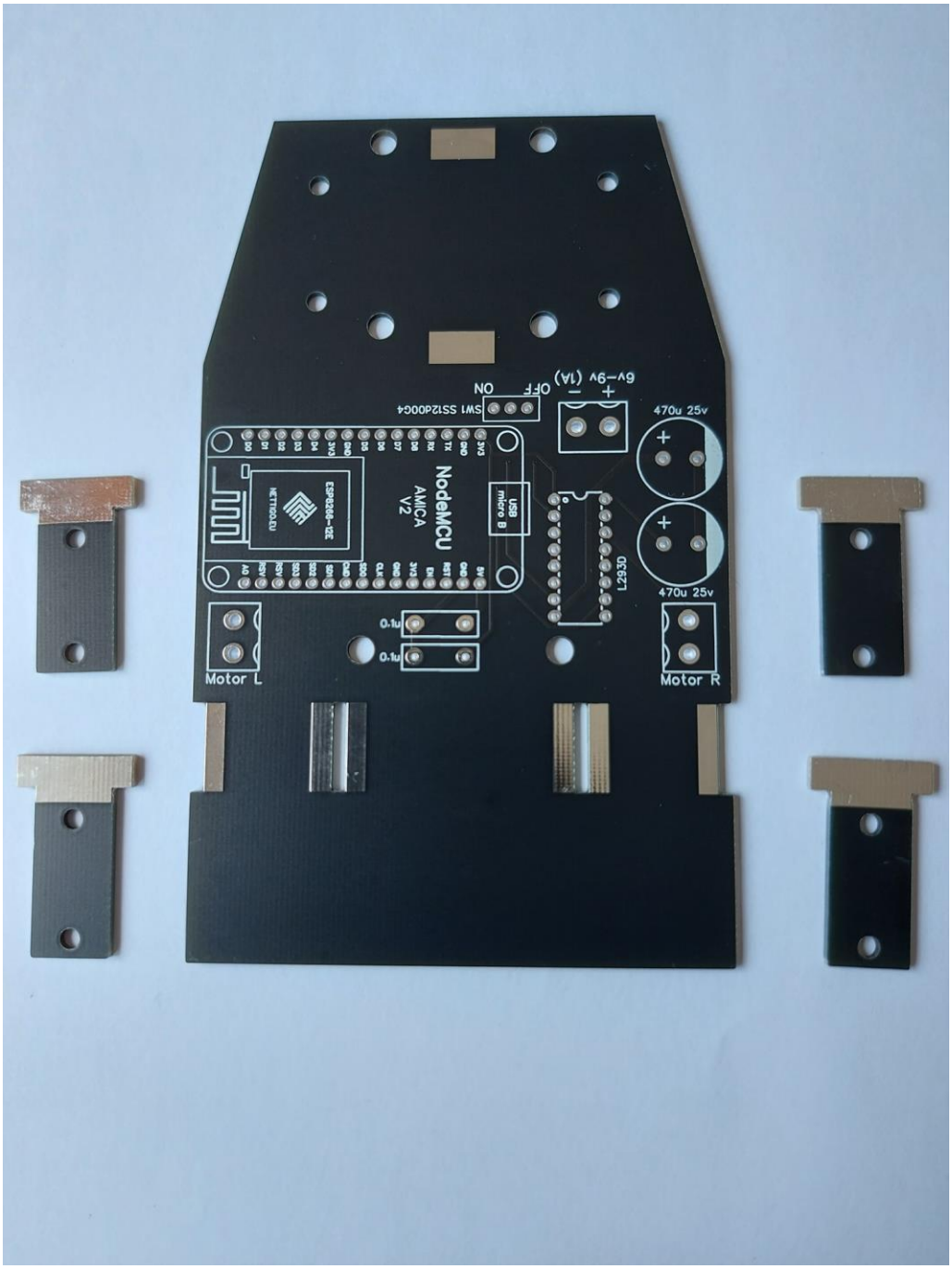
This document describes how to build the **WiFi Controlled RC DIY Car Chassis PCB** and program NodeMCU using Arduino IDE.

Parts List

- 3mm x 10mm spacer - 4
- 3mm x 20mm nut n screw - 4
- 3mm x 6mm nut n screw - 2
- 3mm x 30mm nut n screw - 4
- 18650 battery holder x2 - 1
- 18650 battery - 2
- Cart wheels 38mm x 32mm - 1
- Tt gear motor with wheel - 2
- 40pin female header - 1
- 16 pin IC base - 1
- 0.1uf 100v (ceramic) - 2
- 470uf 25v - 2
- Slide switch 3pin through hole pcb - 1
- Wire Terminals - 3
- L293D - 1
- NodeMCU - 1

Chassis Content

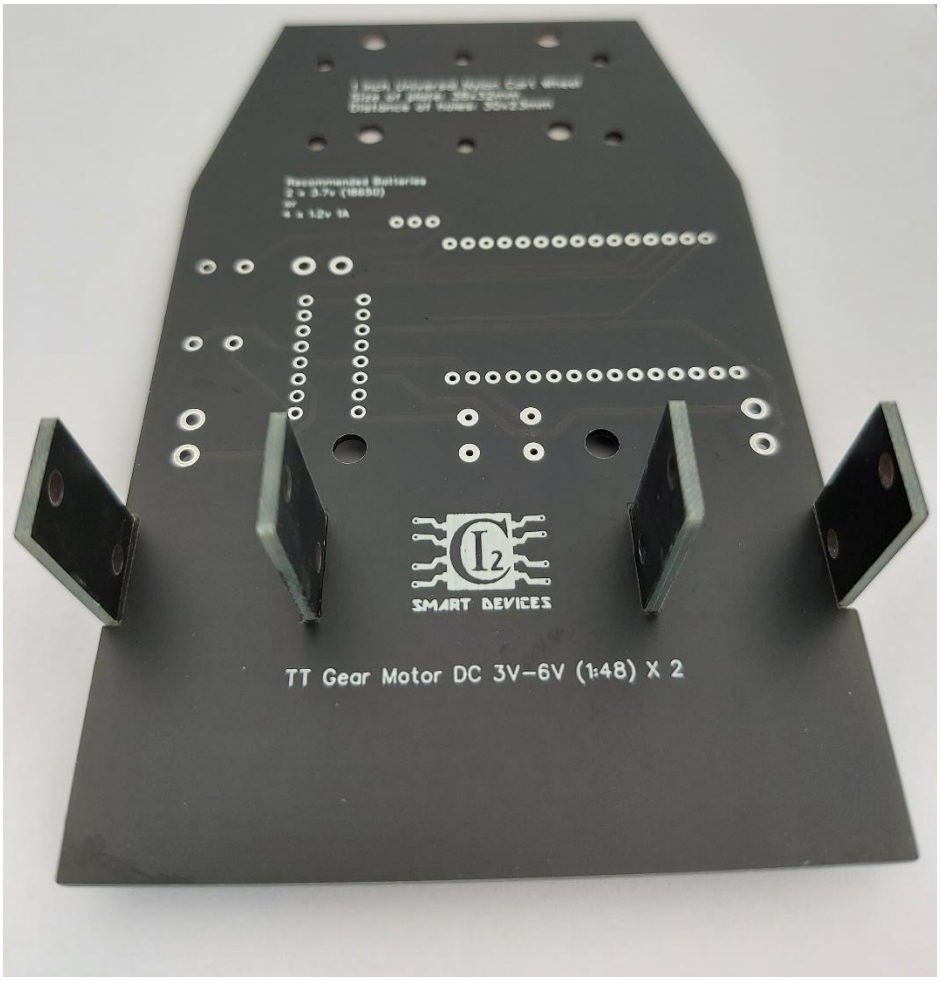
- Main Chassis PCB
- Gear motors mounting supporters



Setup Gear Motors

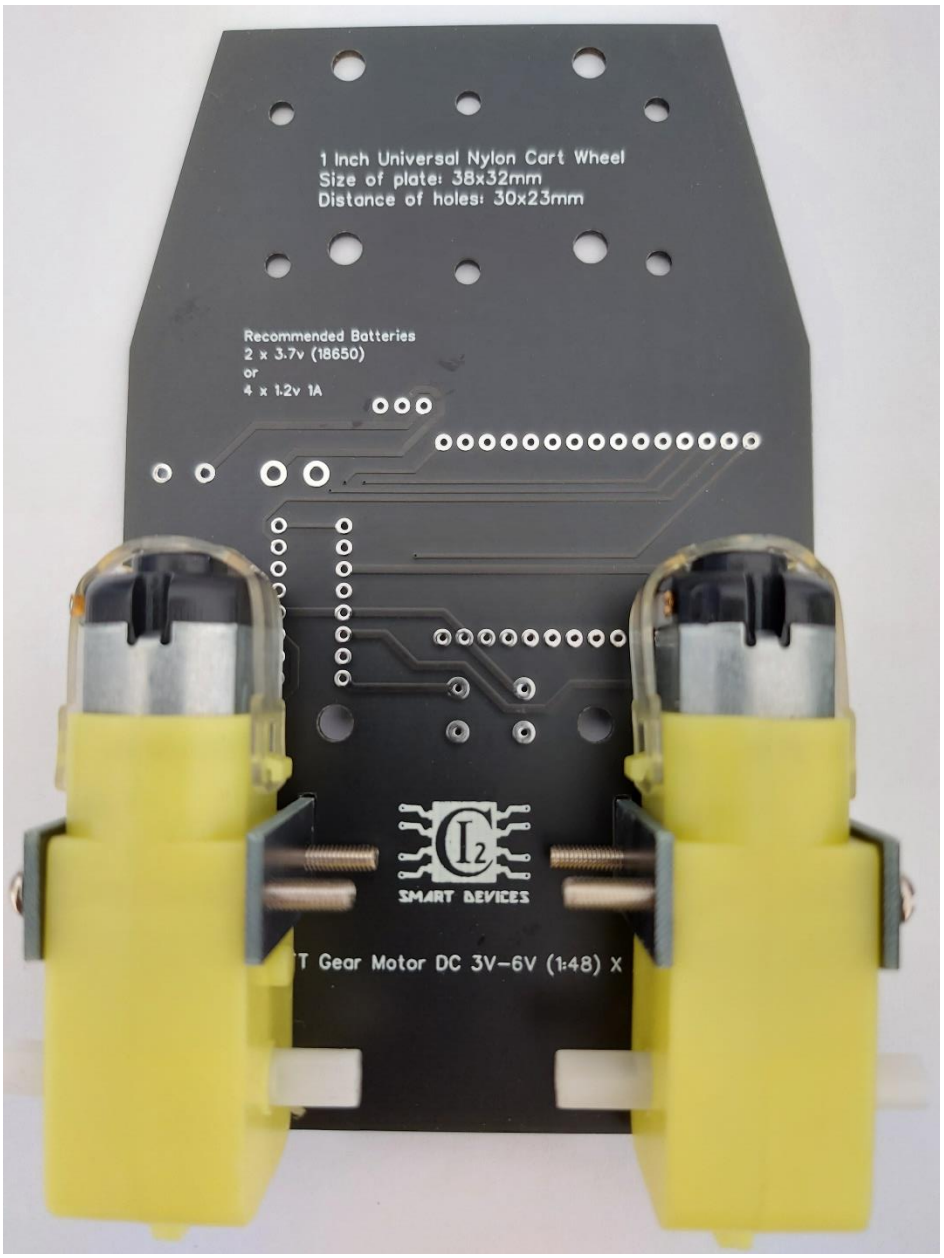
Note: Before you install motors and wheels make sure to solder all components and complete soldering.

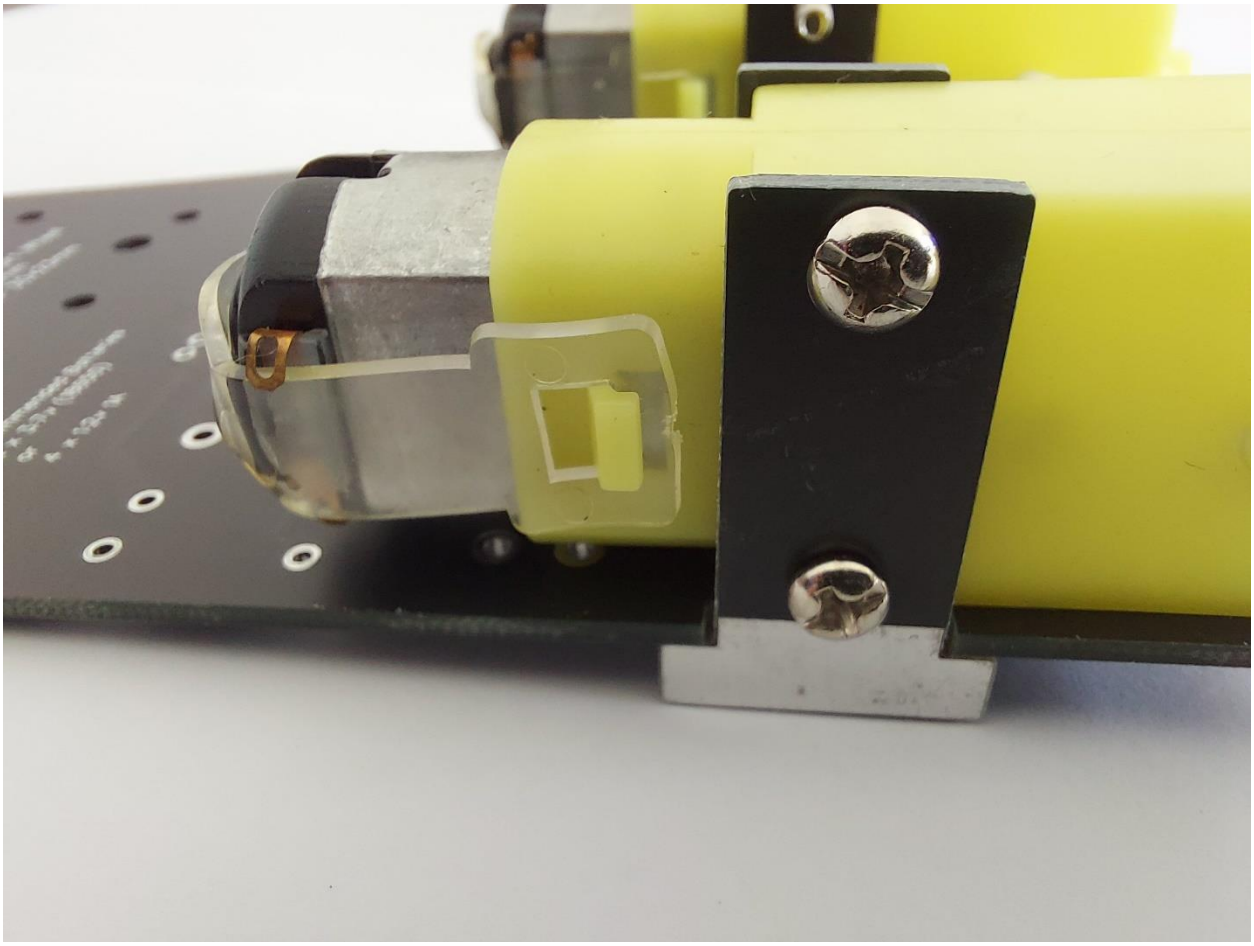
Install Gear Motor Mounting Supporters



Install Gear Motors

Use 3mm x 30mm screws and bolts to mount gear motors with supporters.





Setup Cart Wheel

Install Mounting Screws

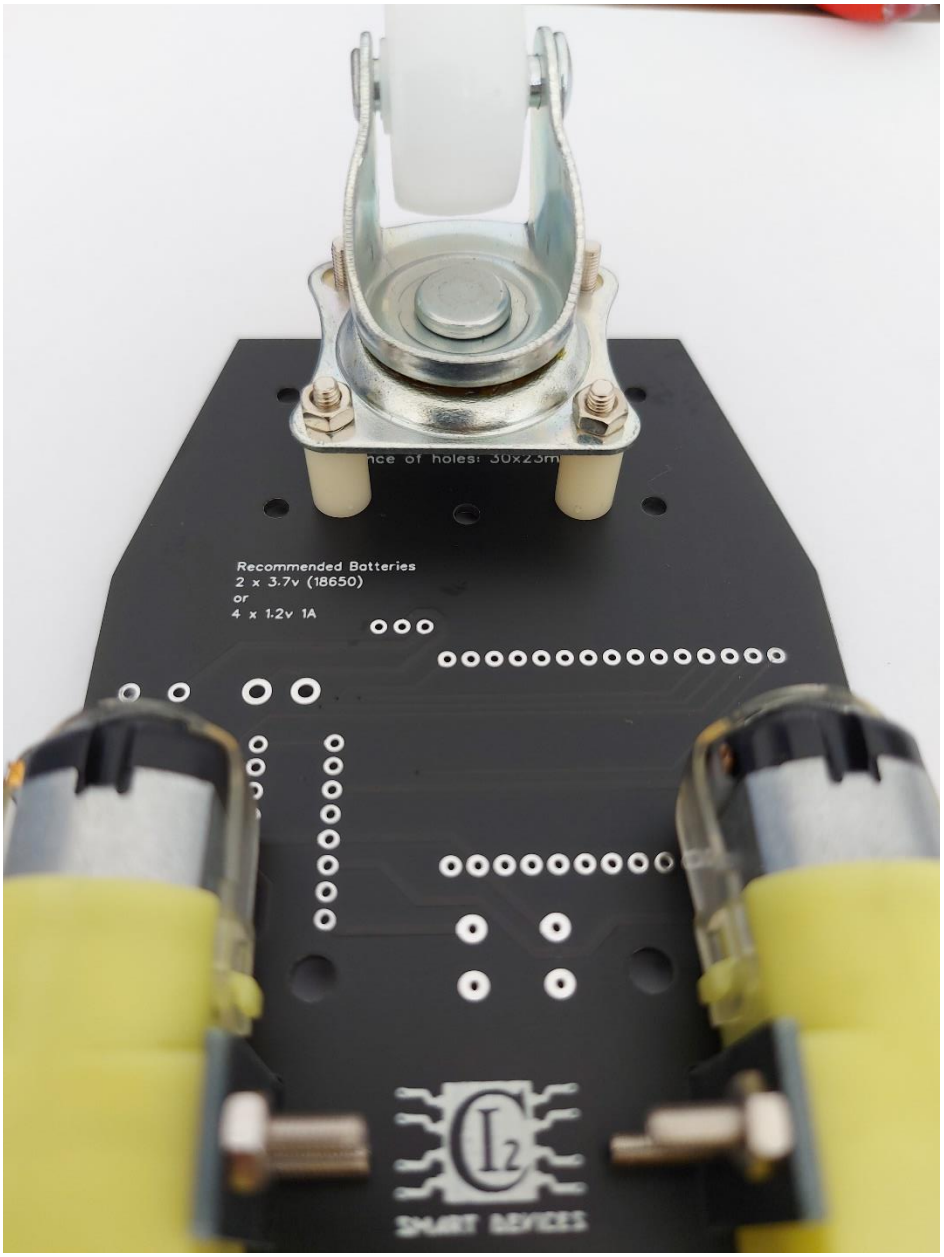
Use 3mm x 20mm screws and bolts.

Install Spaces

Use 3mm x 12mm spaces

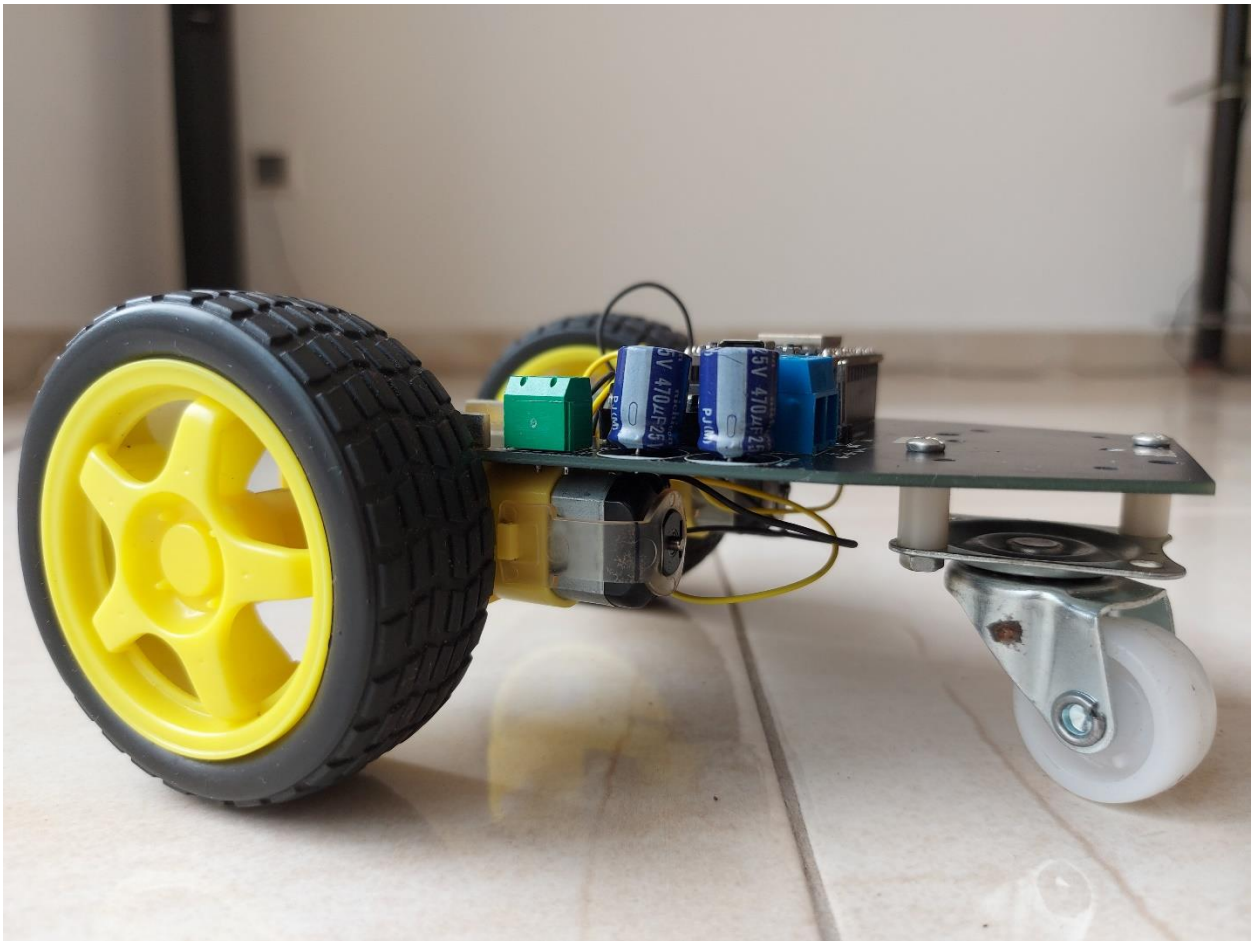
Install Cart Wheel

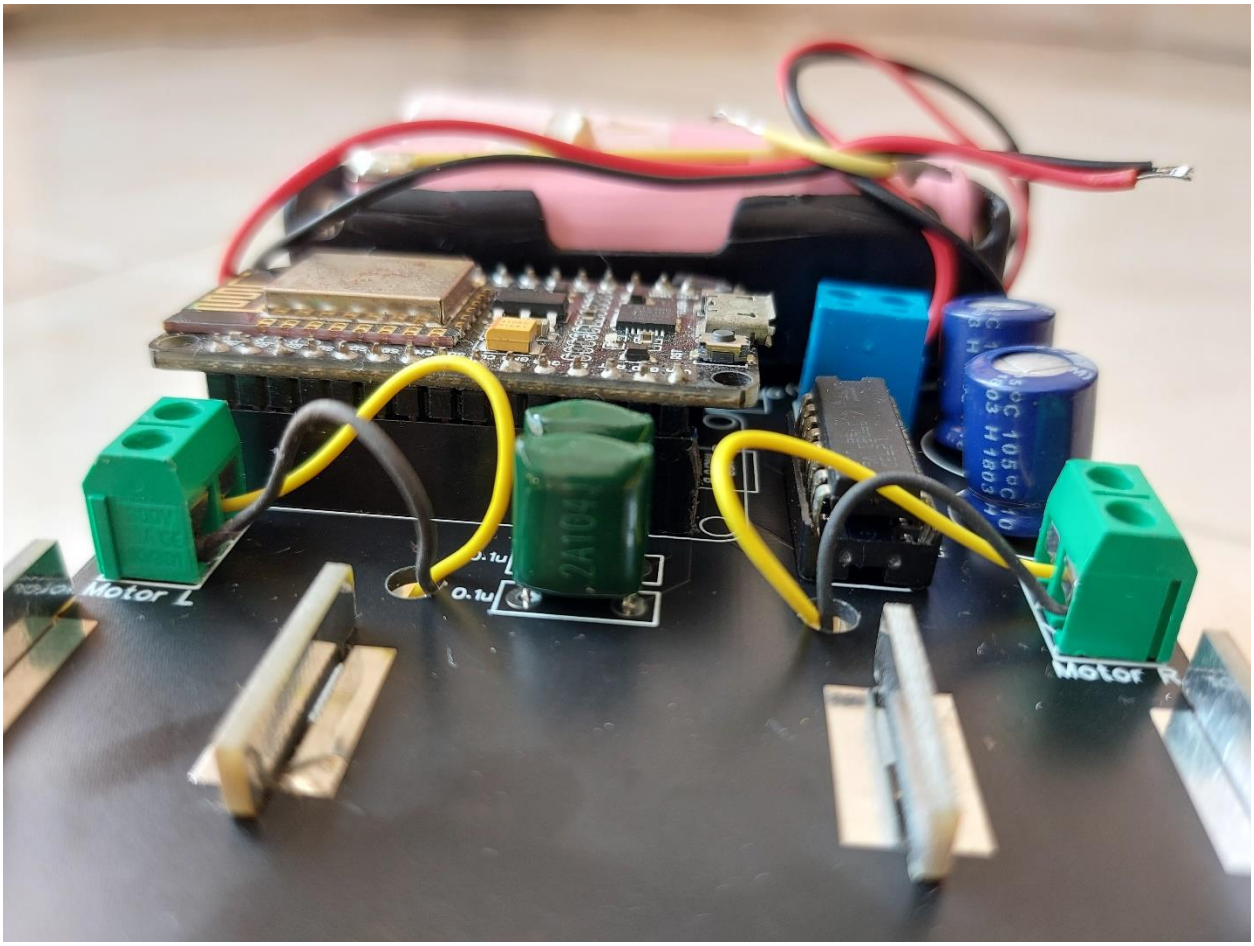
Tight the wheel using bolts

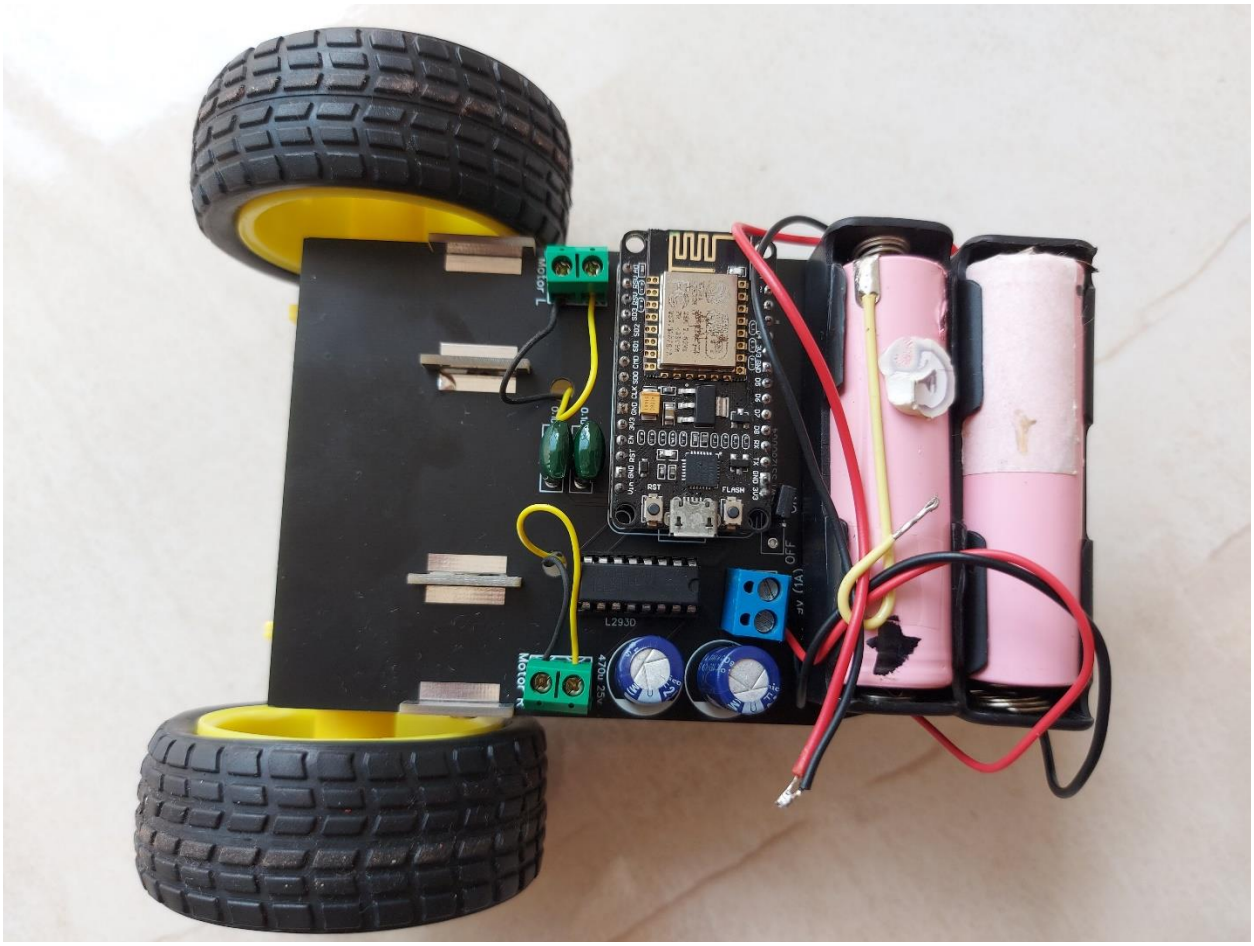


Completed Car

After soldering all the components to the PCB chassis the car will looks like below.




Motor L
0.1u
0.1u
105°C
Motor R


L293D
RST
FLASH
OFF
ON
Motor L
Motor R

Program NodeMCU

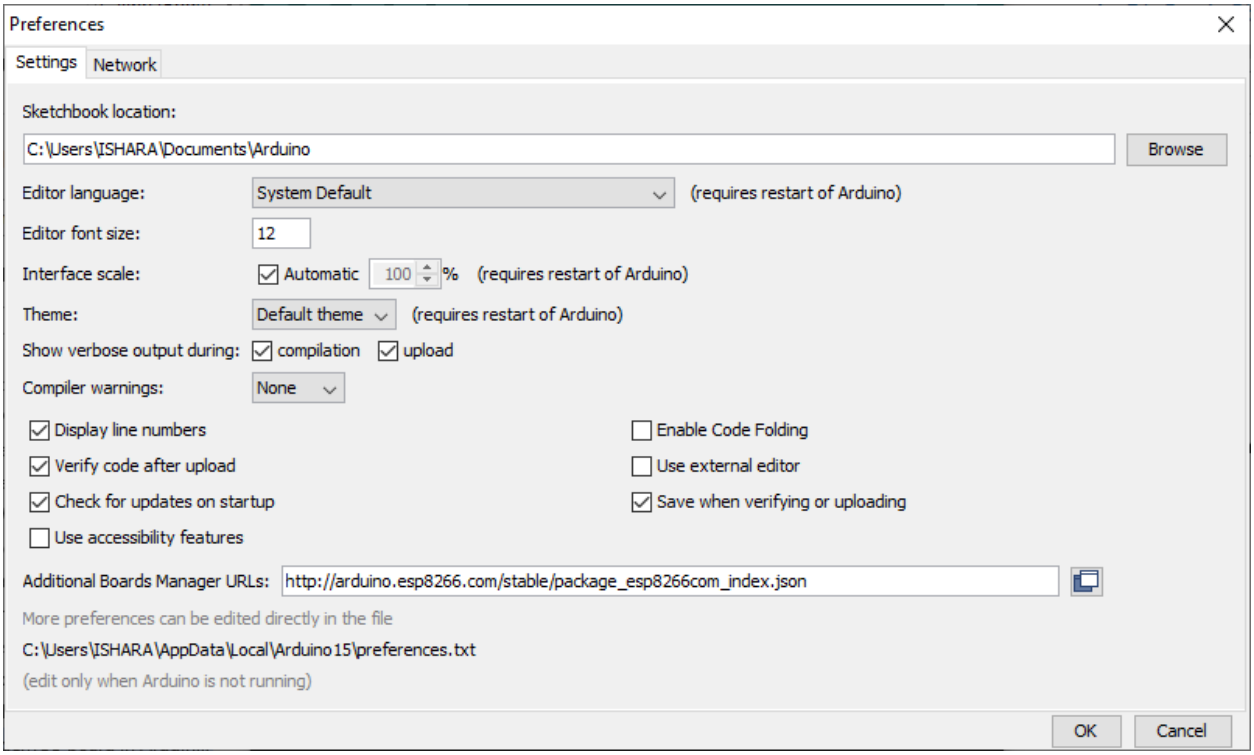
Install Arduino IDE

Download and install the Arduino IDE (If you don't have) from the link
https://www.arduino.cc/en/software

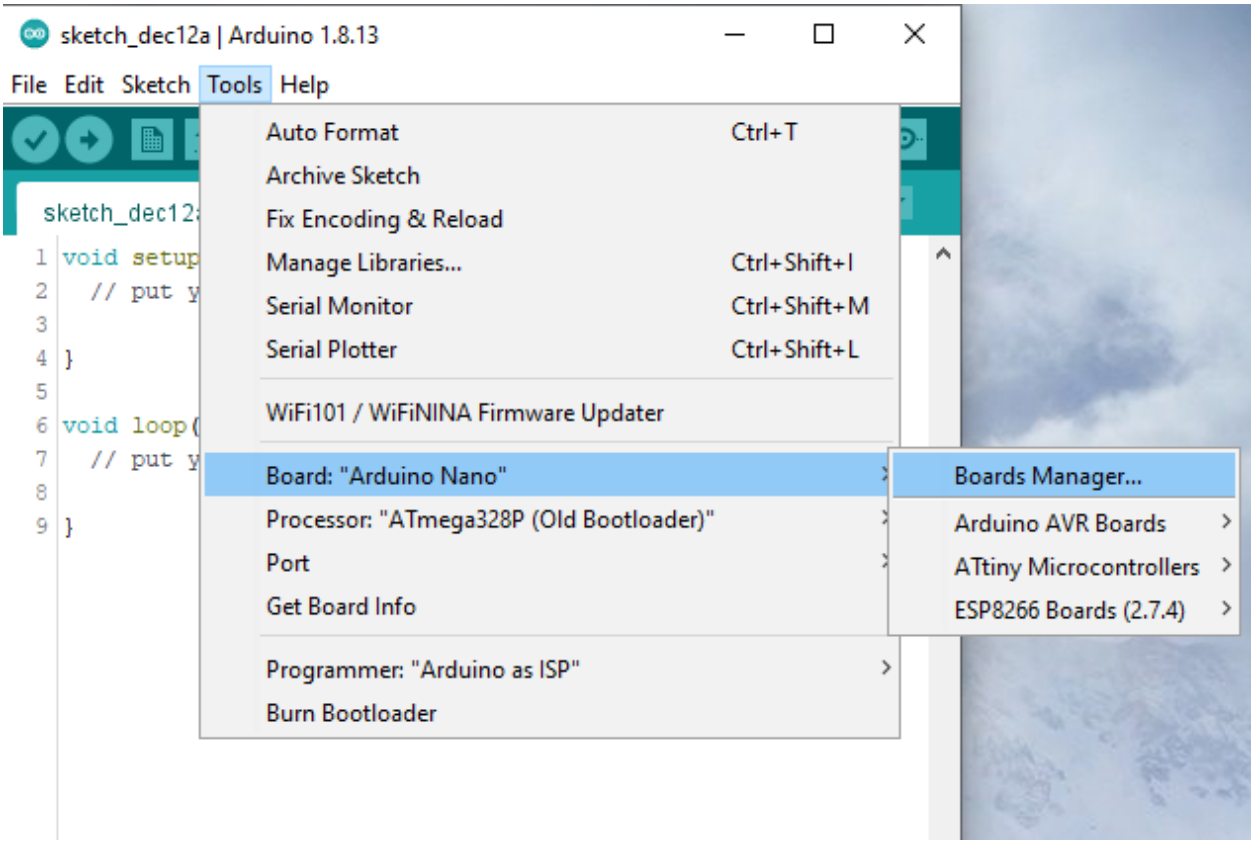
Setup NodeMCU board in Arduino IDE

Copy and paste bellow link to the **Additional Boards Manager URLs** as shown in the image

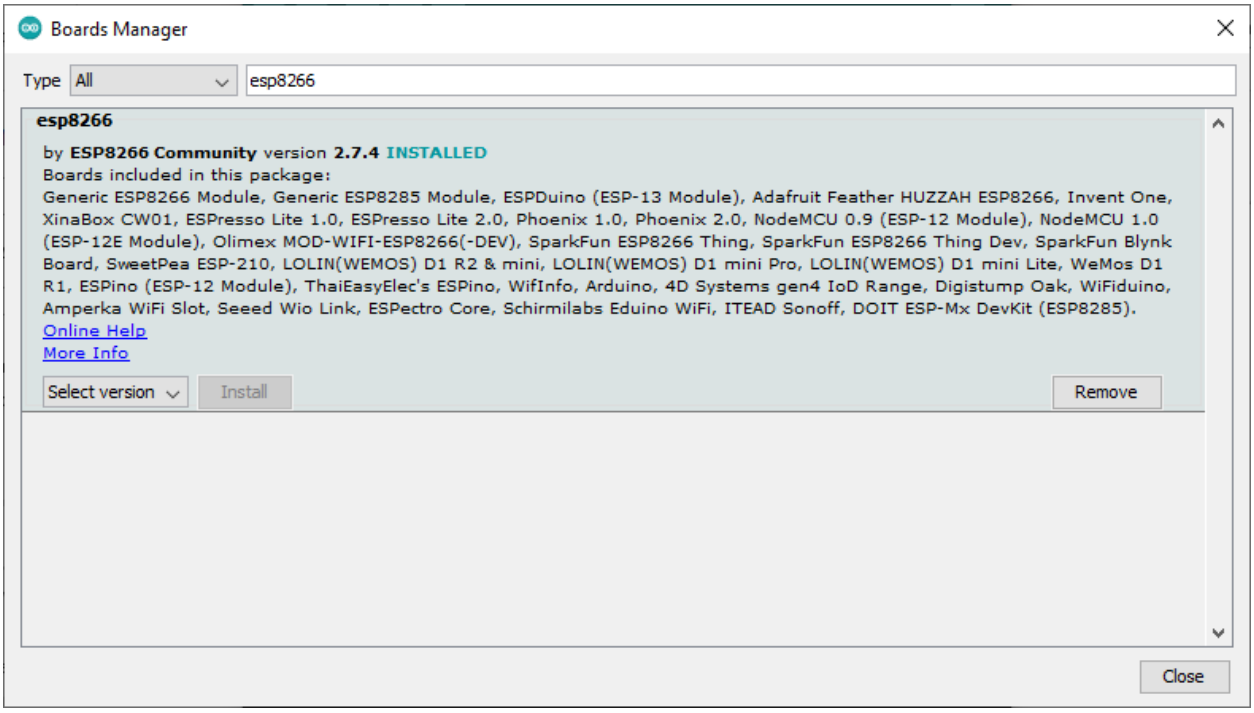
http://arduino.esp8266.com/stable/package_esp8266com_index.json



Go to Board Manager



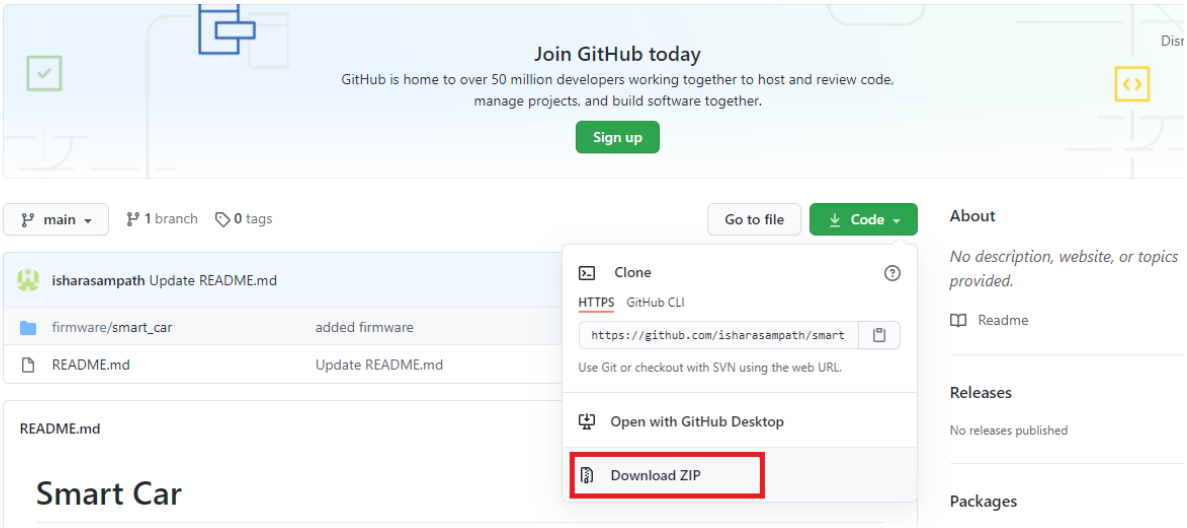
Search ESP8266 in the board manager and install the board as shown in the image



Download Sample Code

Go to the link https://github.com/isharasampath/smart_car

Download the sample code by clicking on Download as ZIP



Install Dependencies

There are two dependencies to be downloaded before proceed

https://github.com/me-no-dev/ESPAsyncWebServer

https://github.com/me-no-dev/ESPAsyncTCP

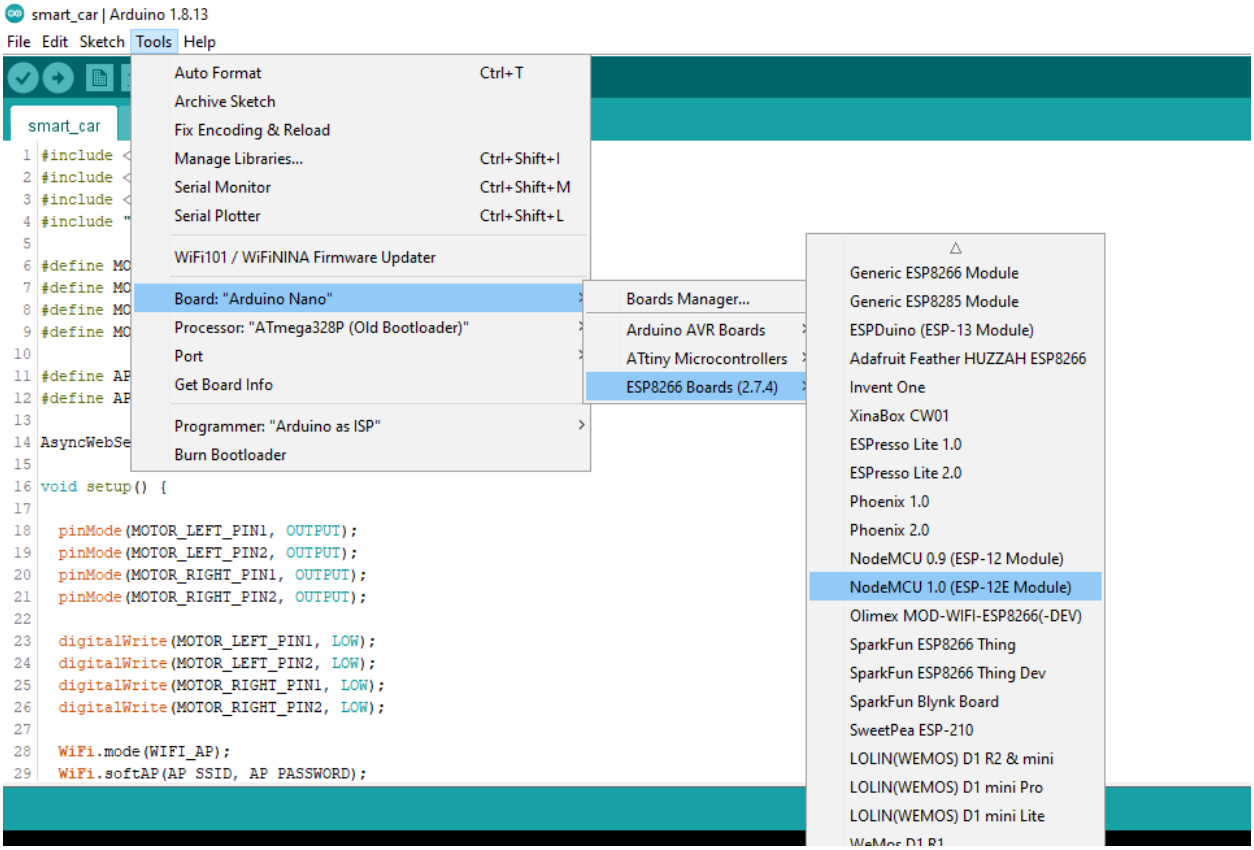
Download and extract those to the **C:\Users\{User}\Documents\Arduino\libraries**

Upload the Code to NodeMCU

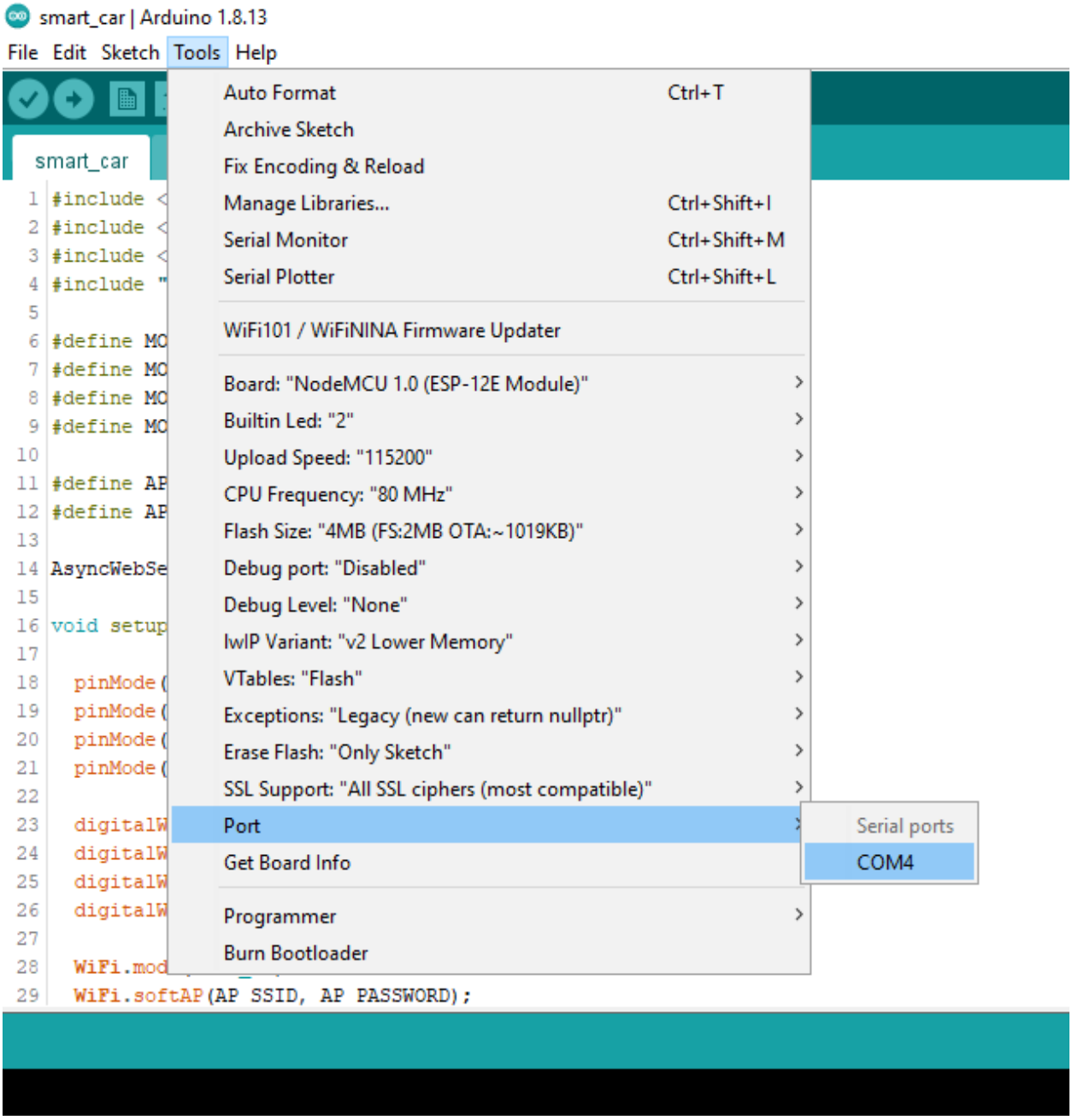
Extract the downloaded ZIP file

Open the **smart_car.ino** which is in **smart_car-main\firmware\smart_car** location (The zip extracted location)

Select the board as NodeMCU 1.0 (ESP-12E Module)

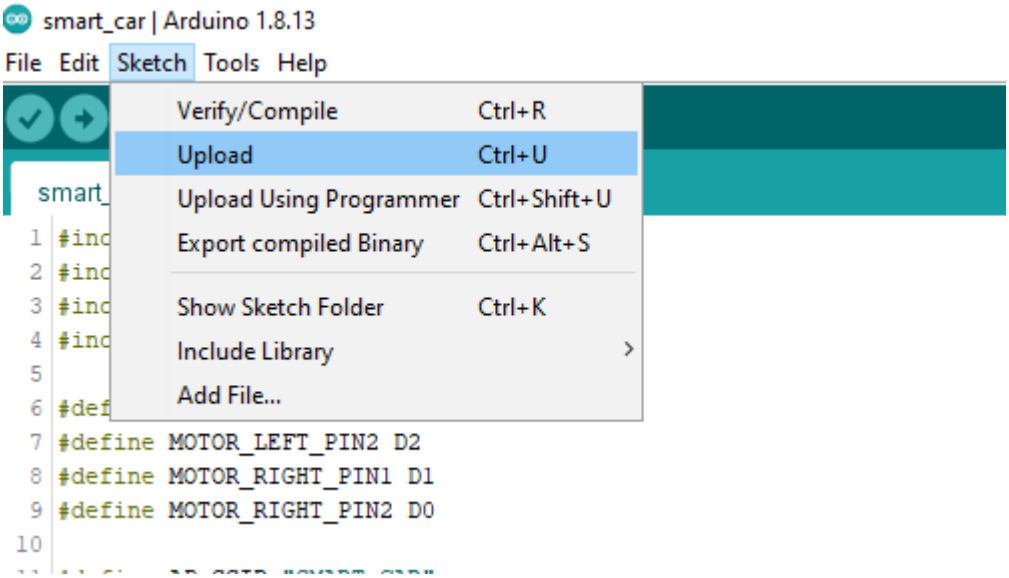


Select port where the NodeMCU is connected. (Port number maybe differ in your computer)



Click on Upload button to program the NodeMCU

Note: Do not program the NodeMCU while is connected to the PCB chassis



Power the Car

Use 2 x 18650 batteries to power the car

How to Play

Connect to wifi network 'SMART CAR' using password 'admin123' from your mobile device, PC or Laptop

Open a web browser

Go to http://192.168.4.1

You will get the navigation keys to operate the car