Obstacle avoiding robot kit (Arduino)

Assembly guideline

V1.1

November , 2015

Introduction:

What is an obstacle avoiding robot? :

An obstacle avoider is such a robot that can detect and avoid any obstacle on its way. It can detect an obstacle and avoid it by altering its way.

Obstacle avoiding robot kit (Arduino) is an arduino based robot kit**.**

The kit consists of the following components:

Arduino Uno R3 (China)	1
M3*10mm M+M Hexa Spacer	4
Bolt M3*4	8
L293 Dual DC Motor Controller	1
M3*10mm M+M Hexa Spacer	4
Bolt M3*4	8
Sonar Sensor (HCSR04)	1
Directional Wheel	1
Bolt M3*8	4
Nut M3*20	4
DC Geared motors(120rpm)	2
Motor Supports	2
Bolt M3*30	4
Bolt M3*8	4
Nut M3*20	4
Robot Chassis (Arcylic, Transparent)	1
Screw Driver (Flat+Star)	1
Rechargeable Battery Unit	1
Male to Female Jumper Wire-Single	12
Male to Male Jumper Wire-Single	2
Yellow Rubber Tire	2
Extra	

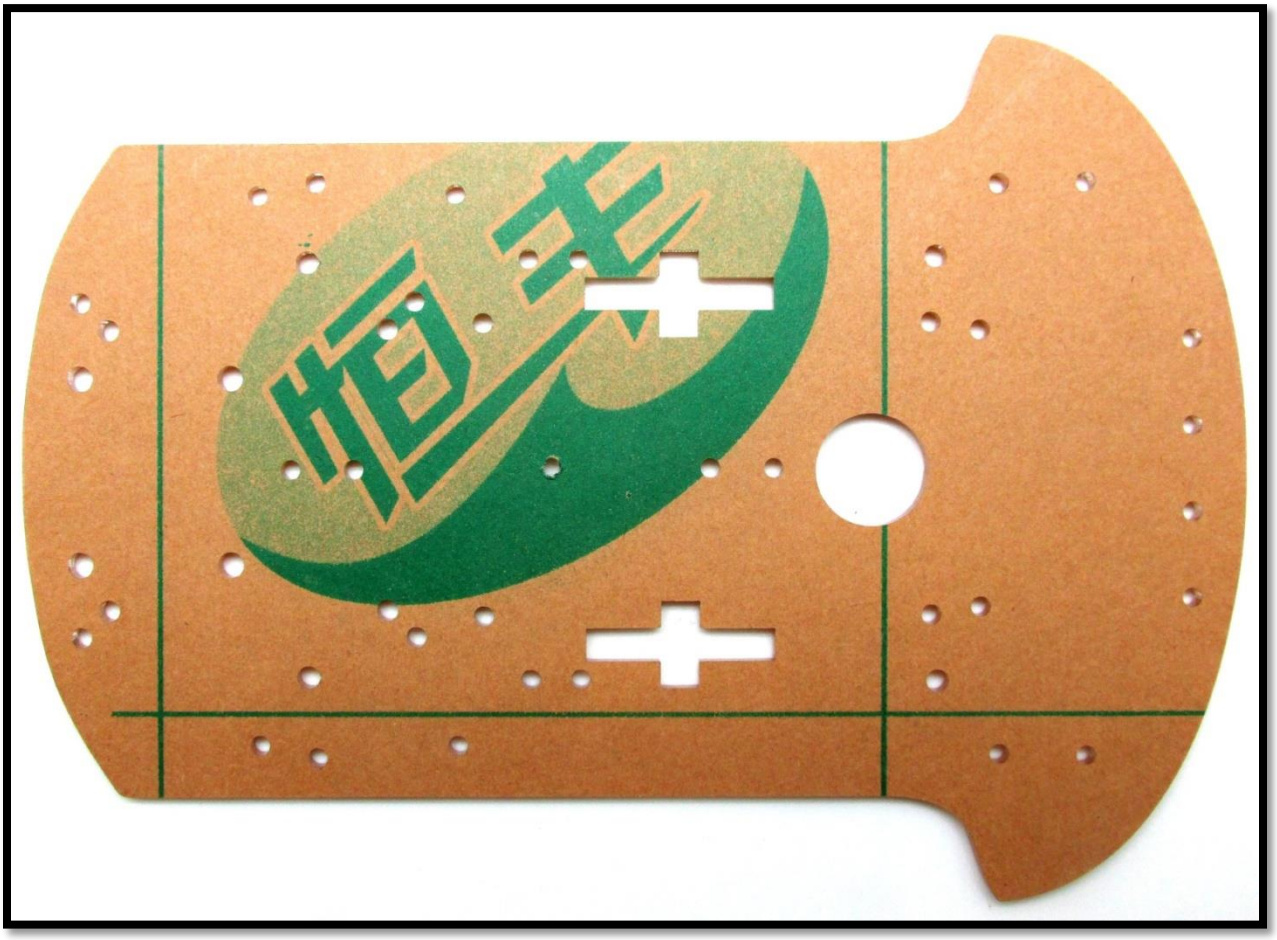
Bolt M3*4	4
Bolt M3*8	4
Nut M3*20	8

The sonar sensor works to measure the distance of the nearest obstacle in front of the robot. Arduino Uno works as the brain of the robot. It takes data from the sonar sensor and makes decision to rotate the motors accordingly. L293D DC motor driver acts as an interface between the arduino board and the motors.

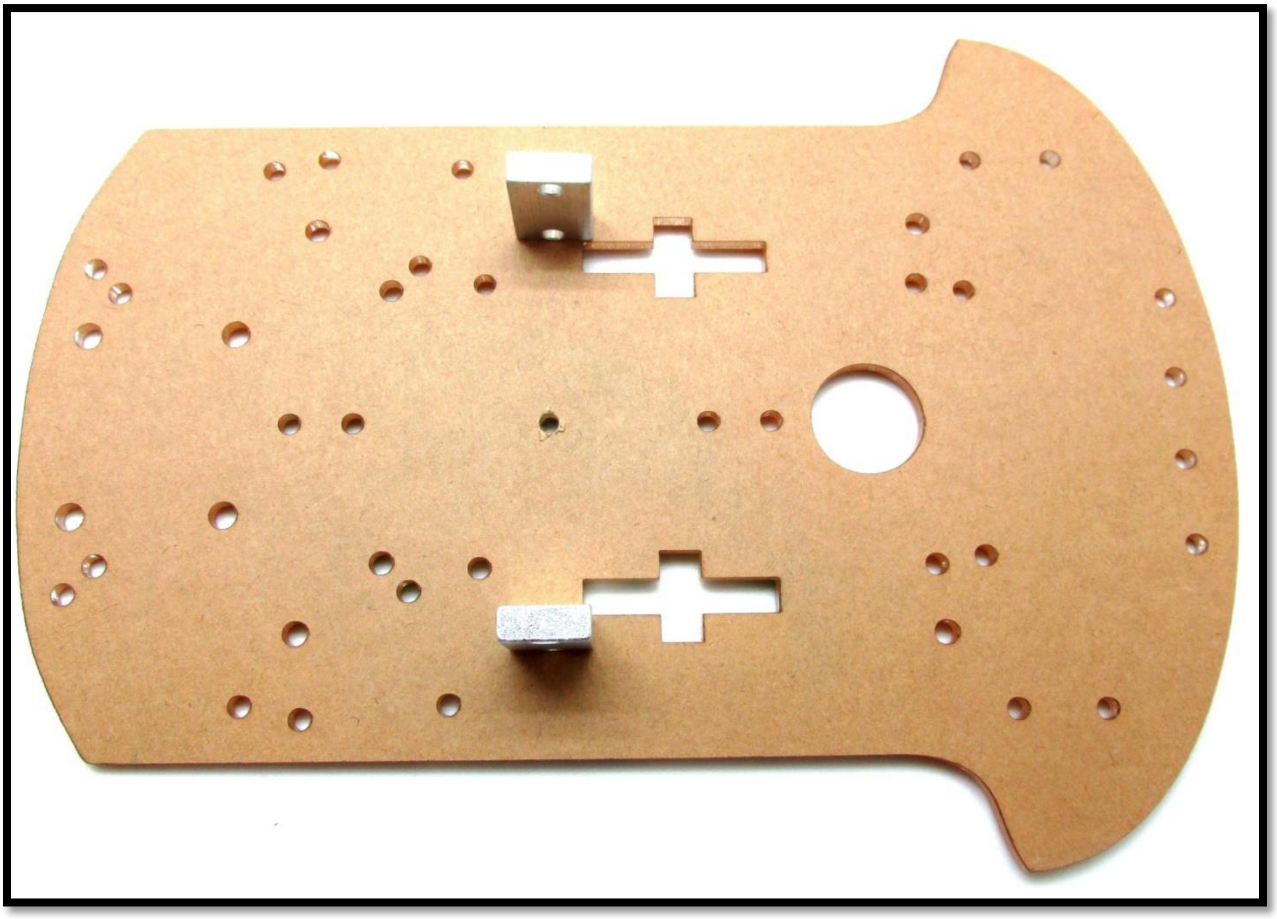
How to assemble the kit?

Step by step assembly guideline for the kit is shown below.

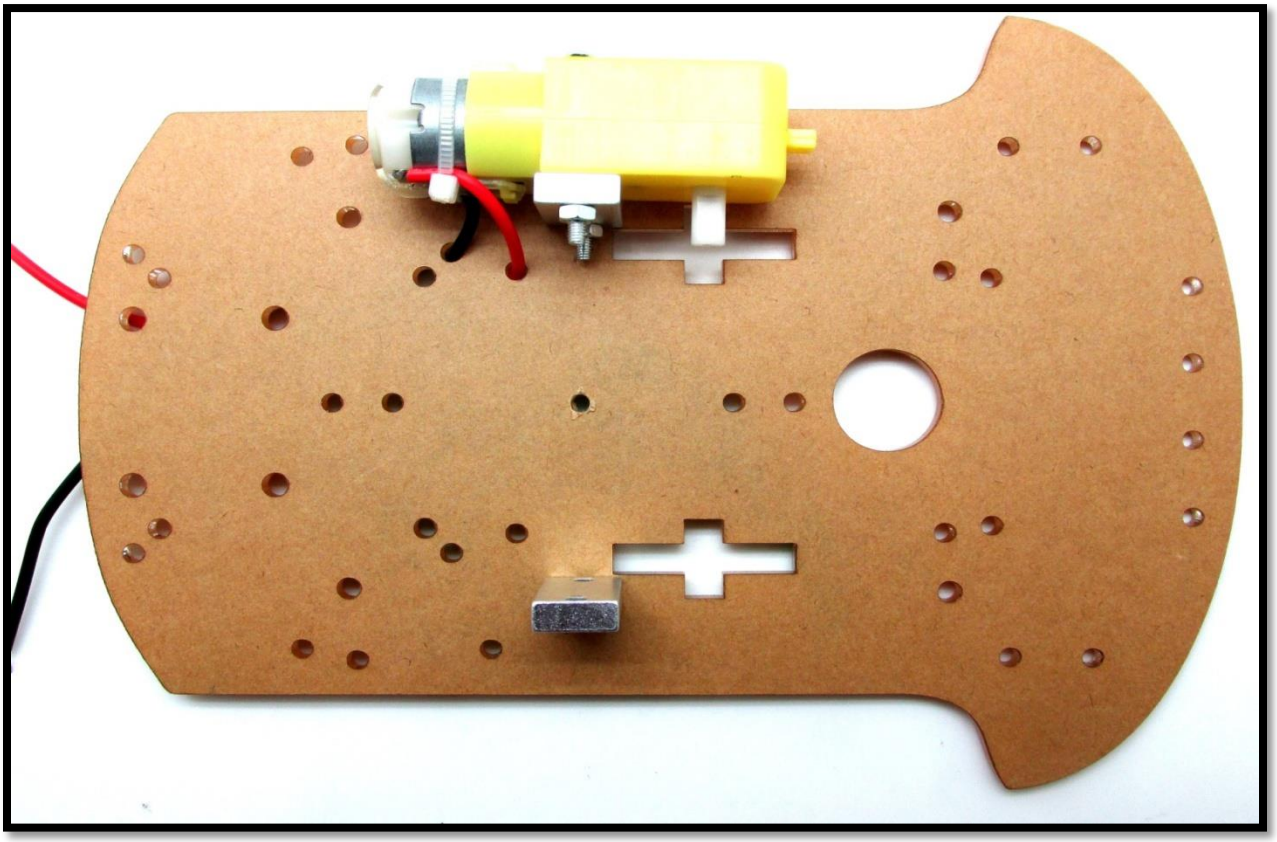
Step 1: Take the acrylic robot base.

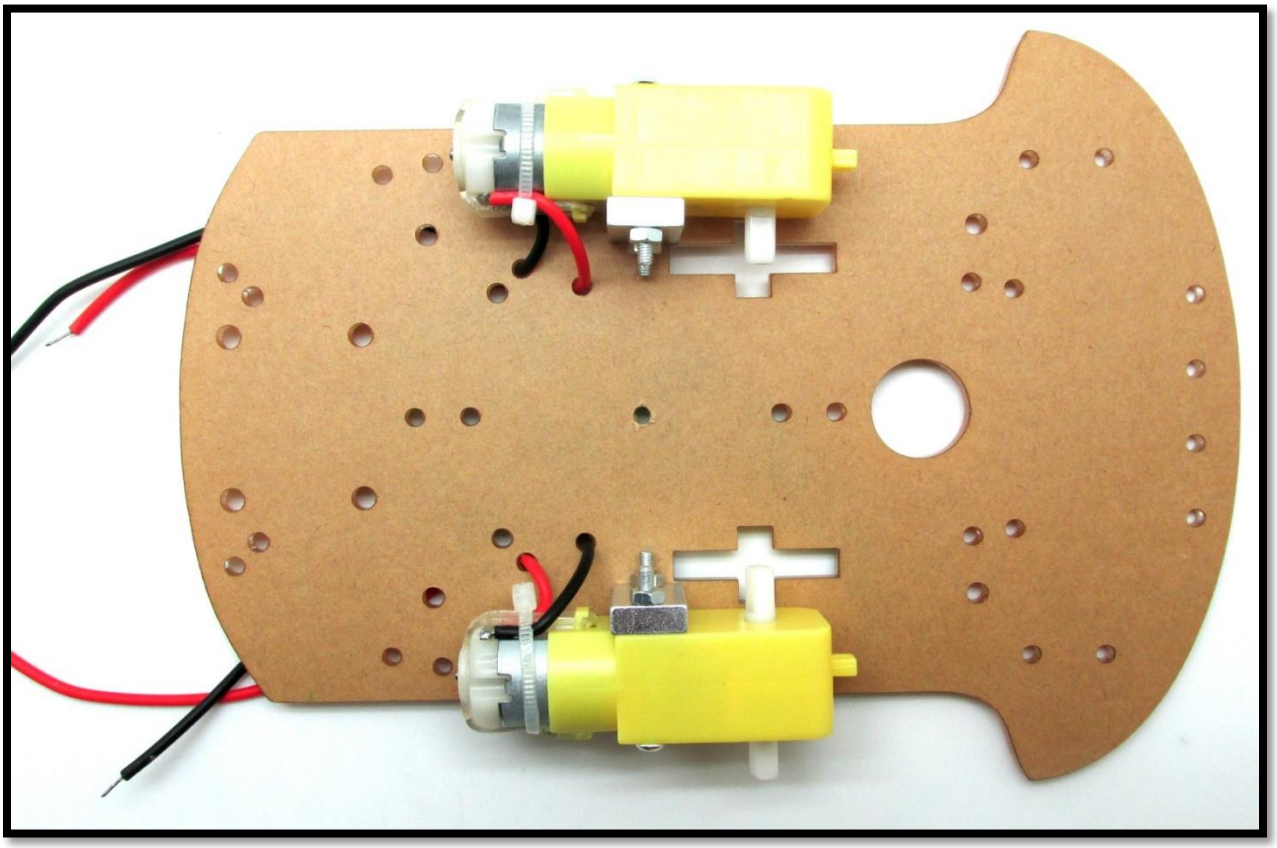


Step 2: Fix the supportive structures for the motors.

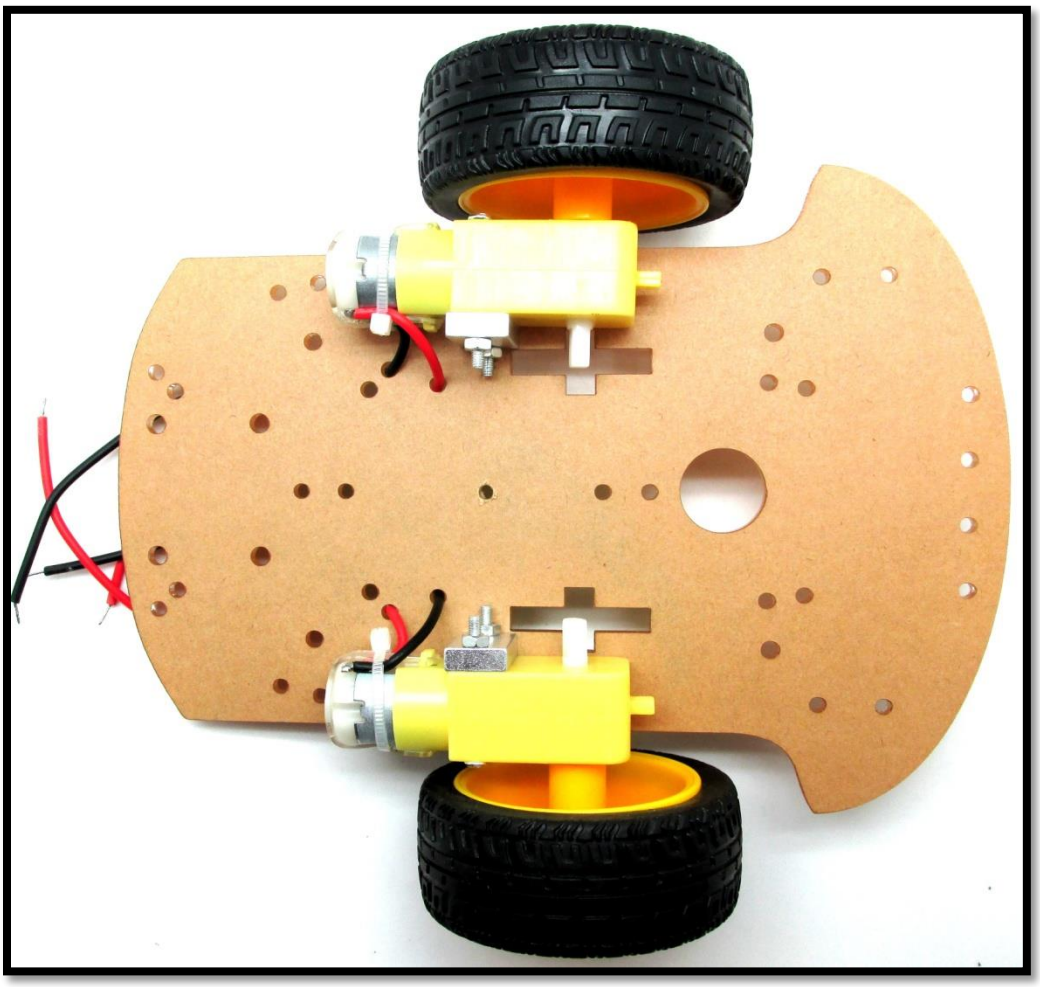


Step 3: Install the motors with the help of supportive screws and nuts.

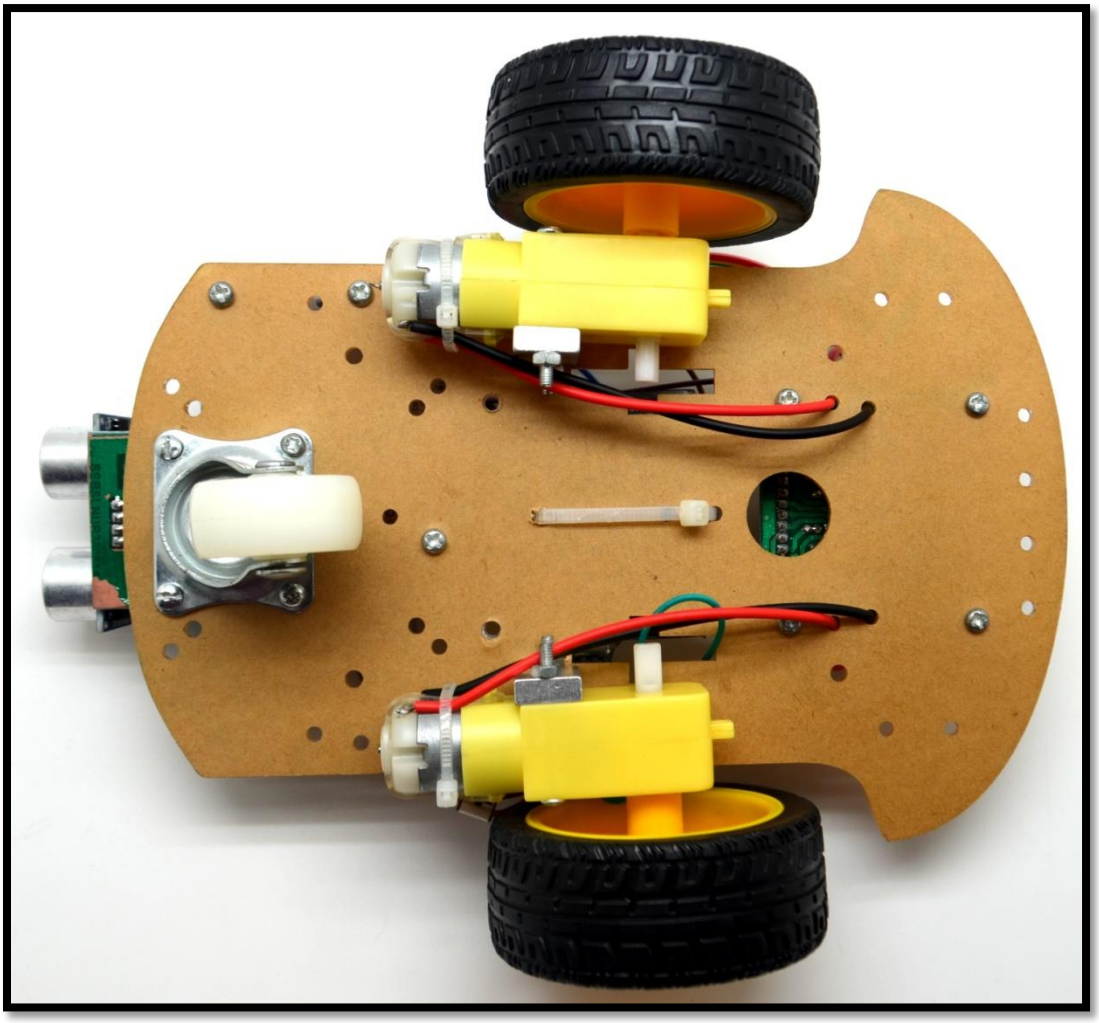


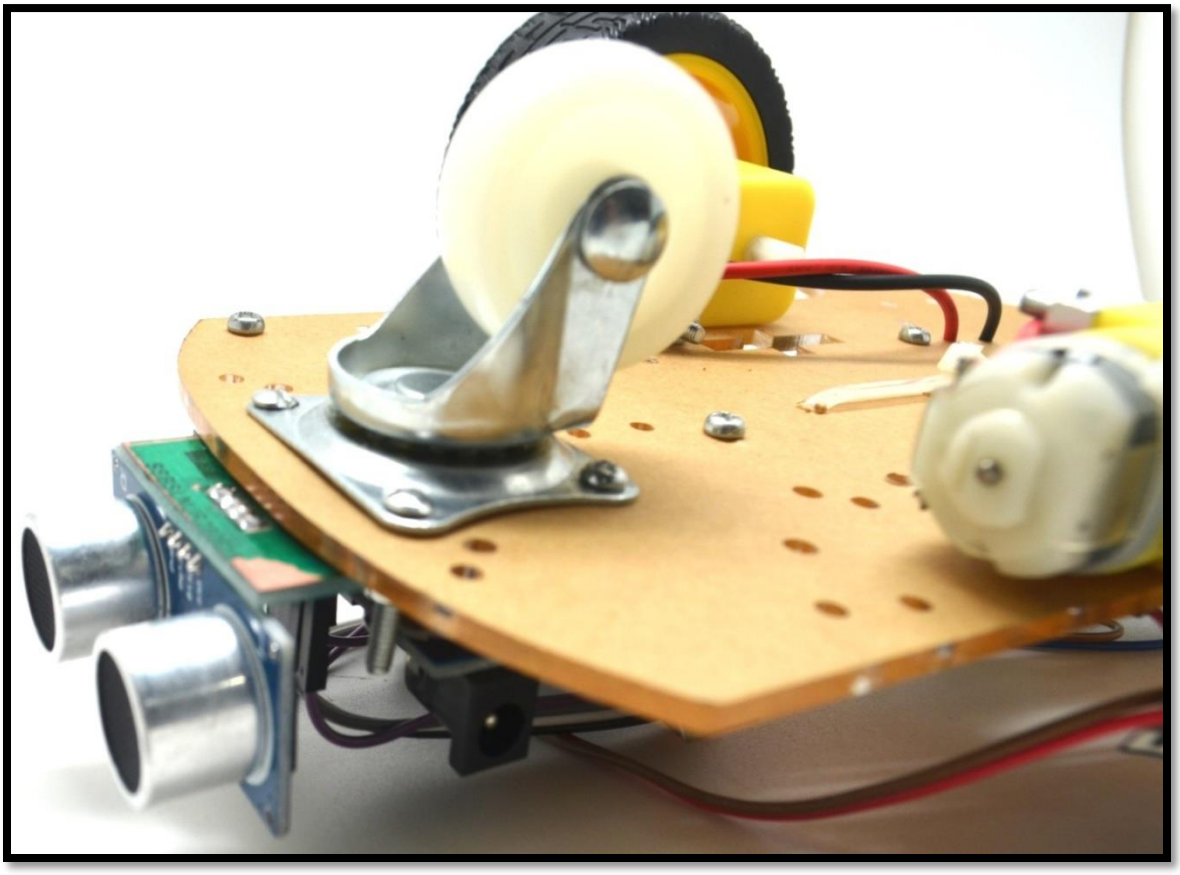


Step 4: Fix the tires with the motors.

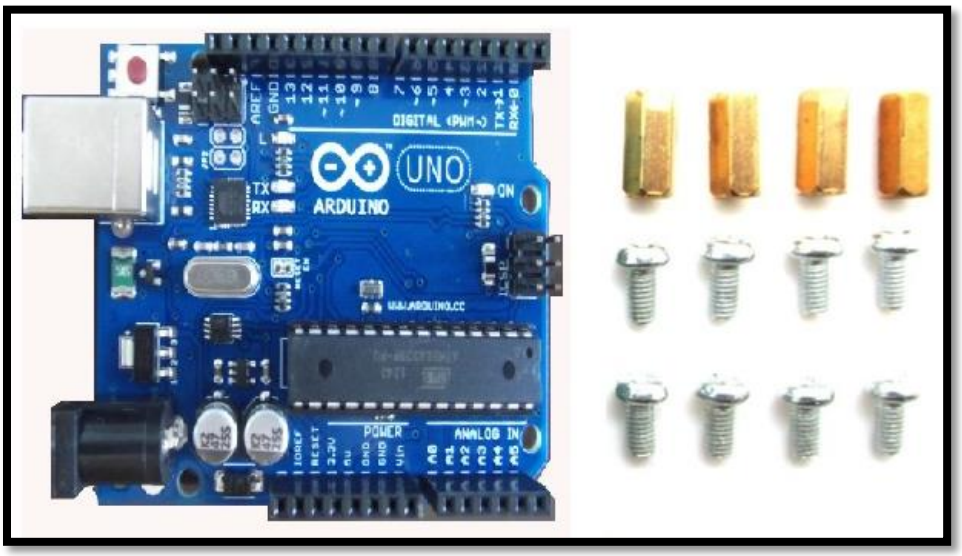


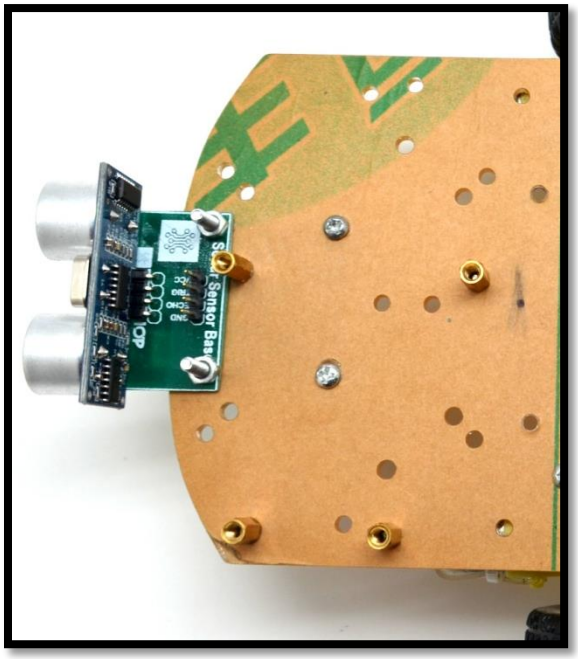
Step 5: Fix the bi-directional wheel and the Sonar sensor with the chassis.

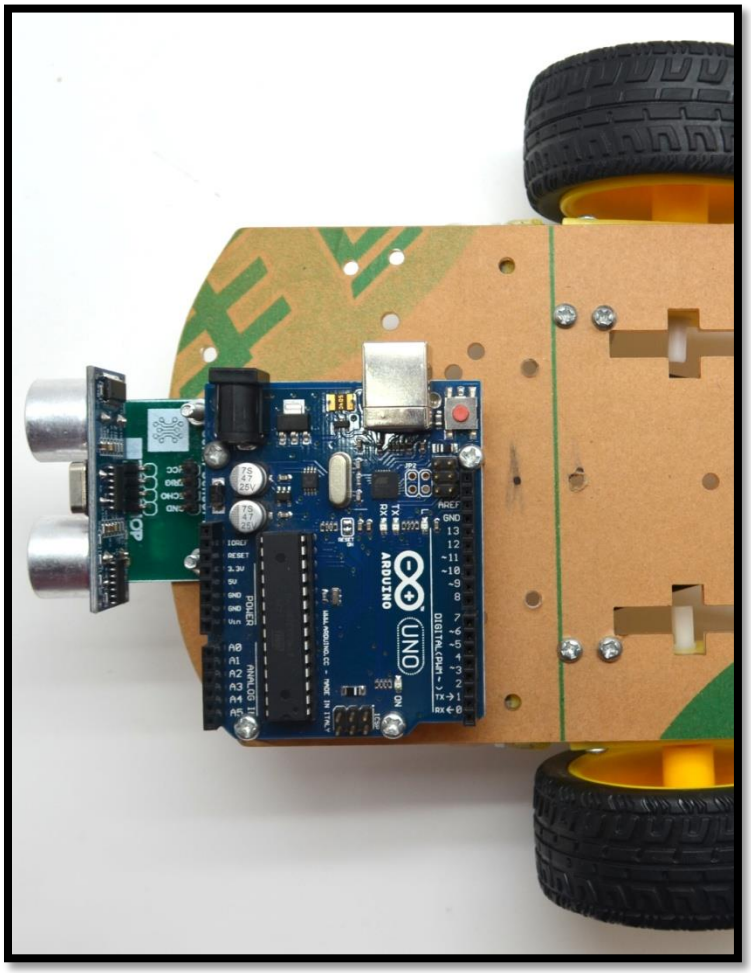




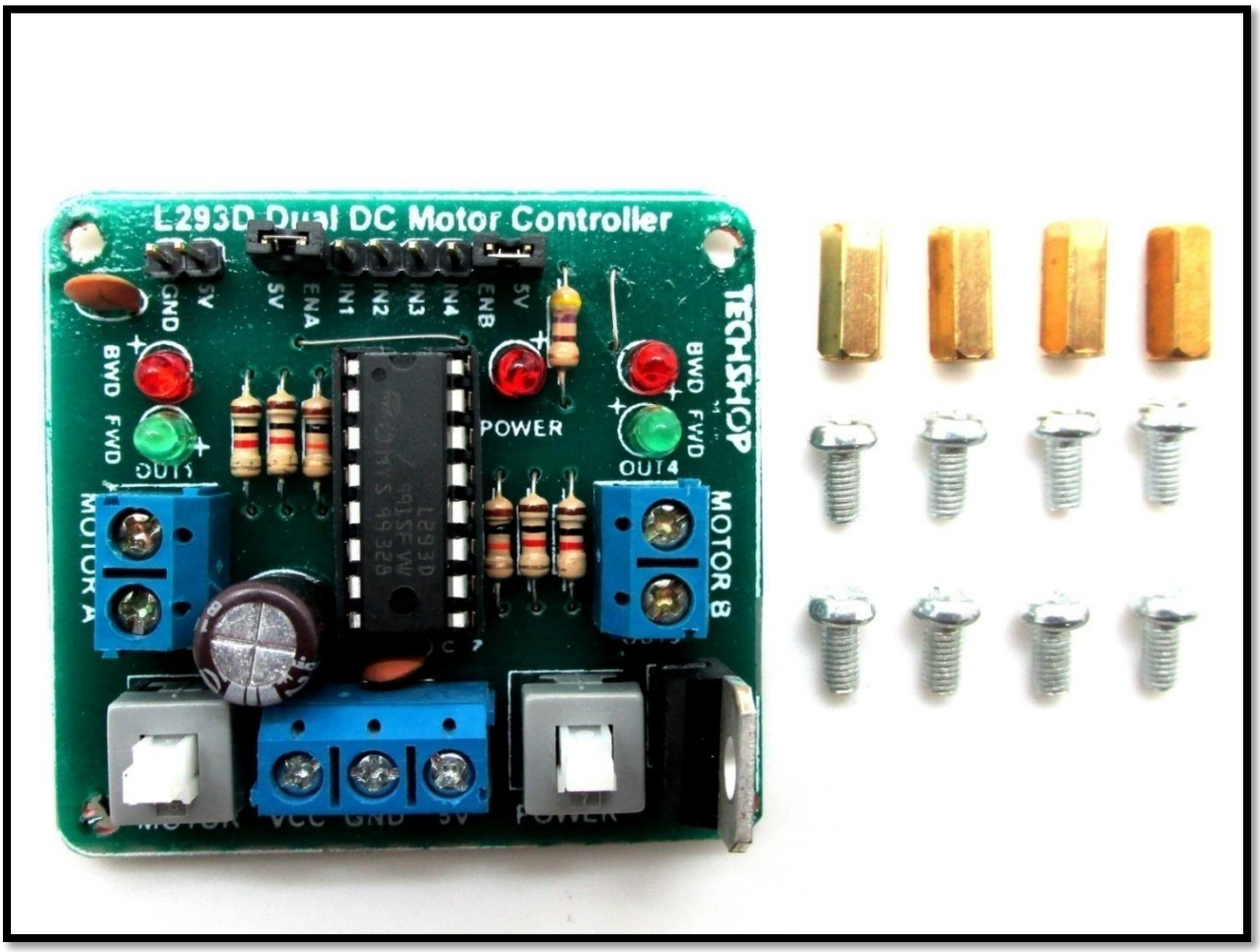
Step 6: Fix the Arduino Uno board with the chassis.



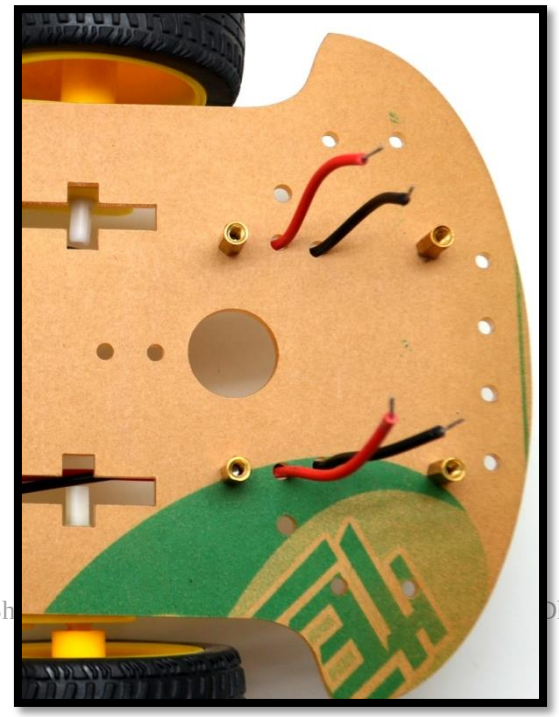


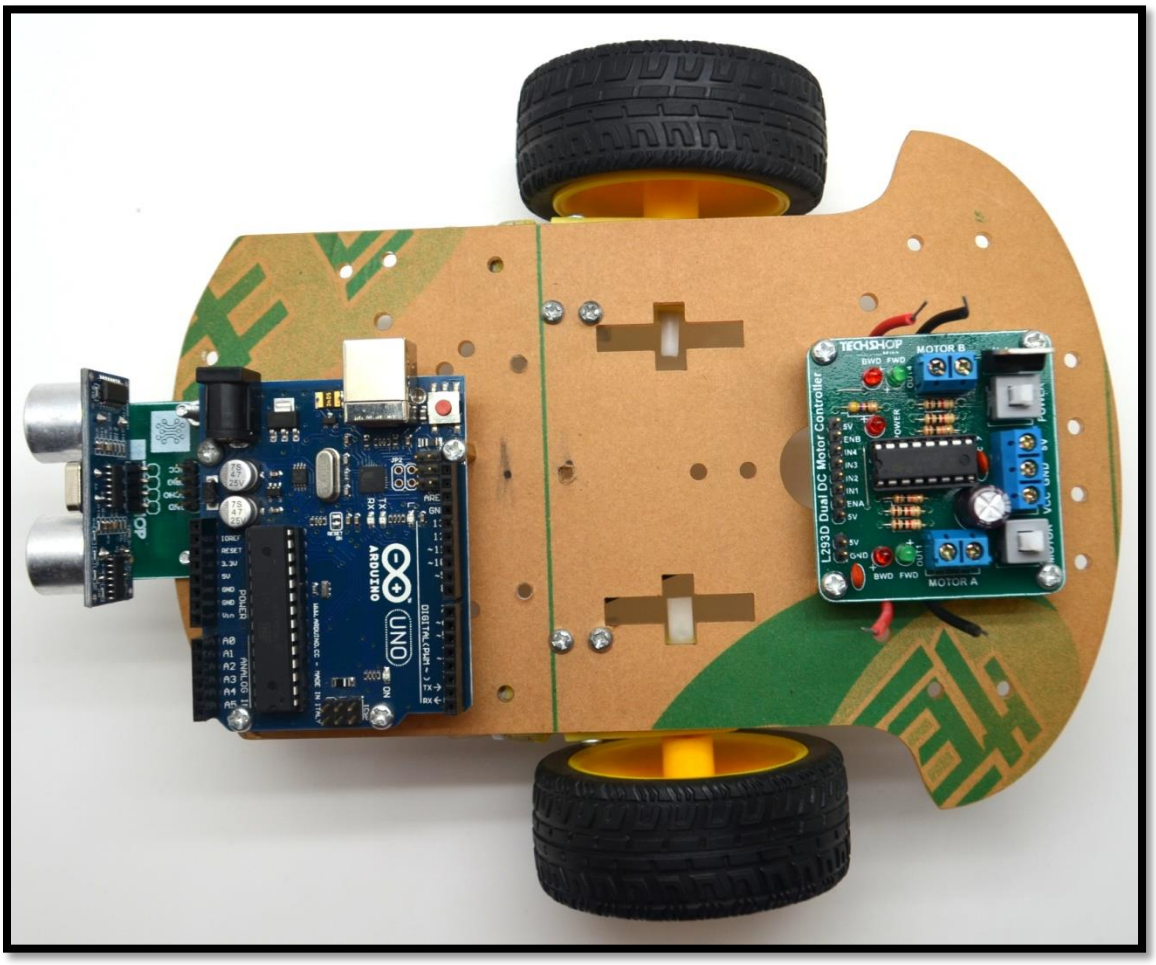


Step 7: Fix the L293D Motor driver.



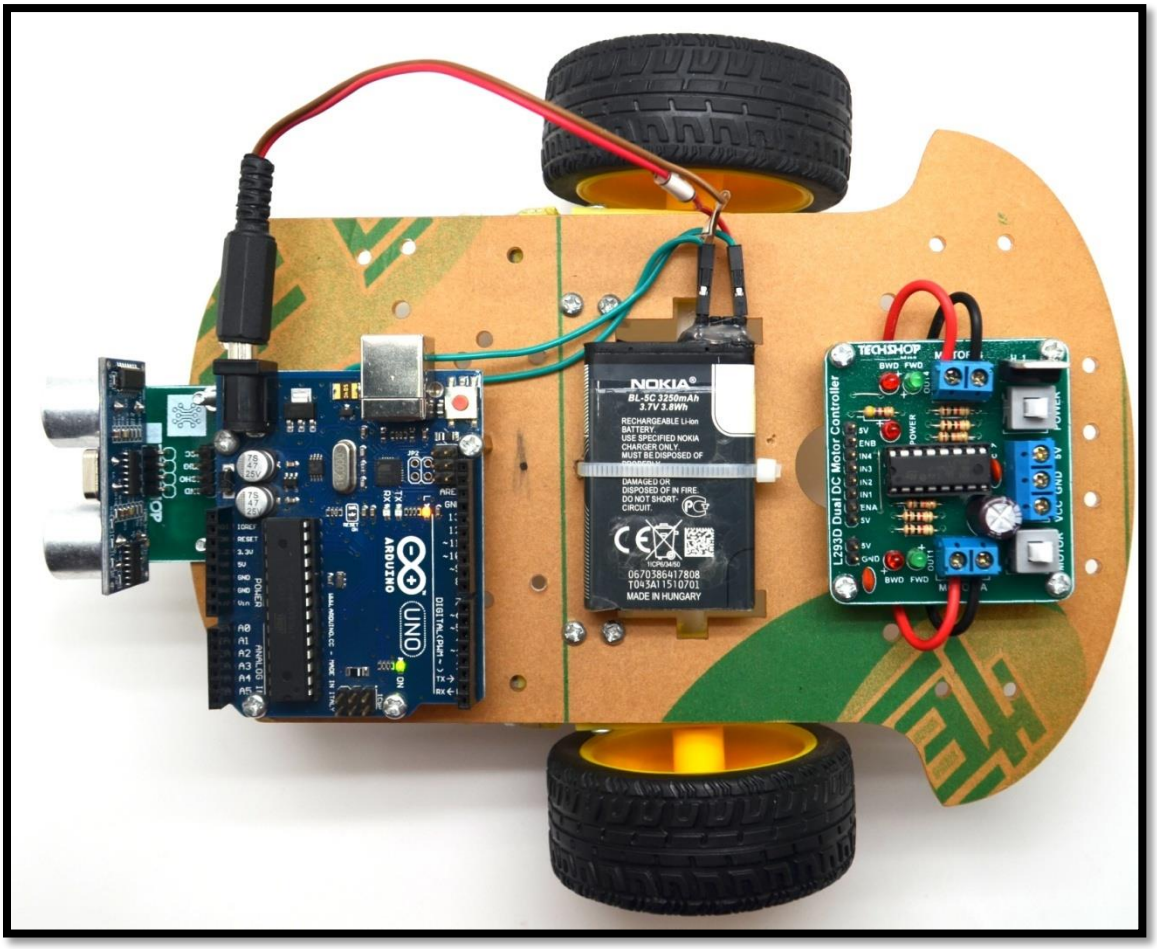
Attach the hexa spacers with the chassis



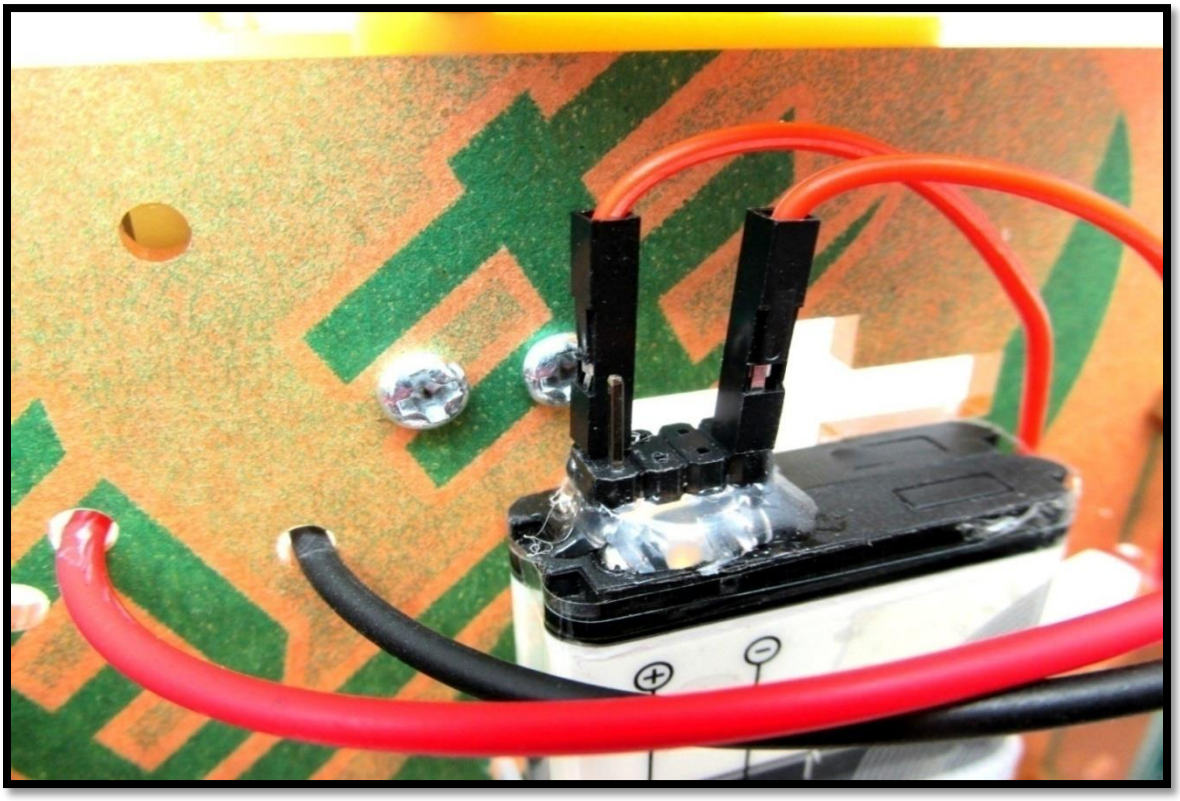


Step 8:Connect the motor wires with the motor driver with screw.

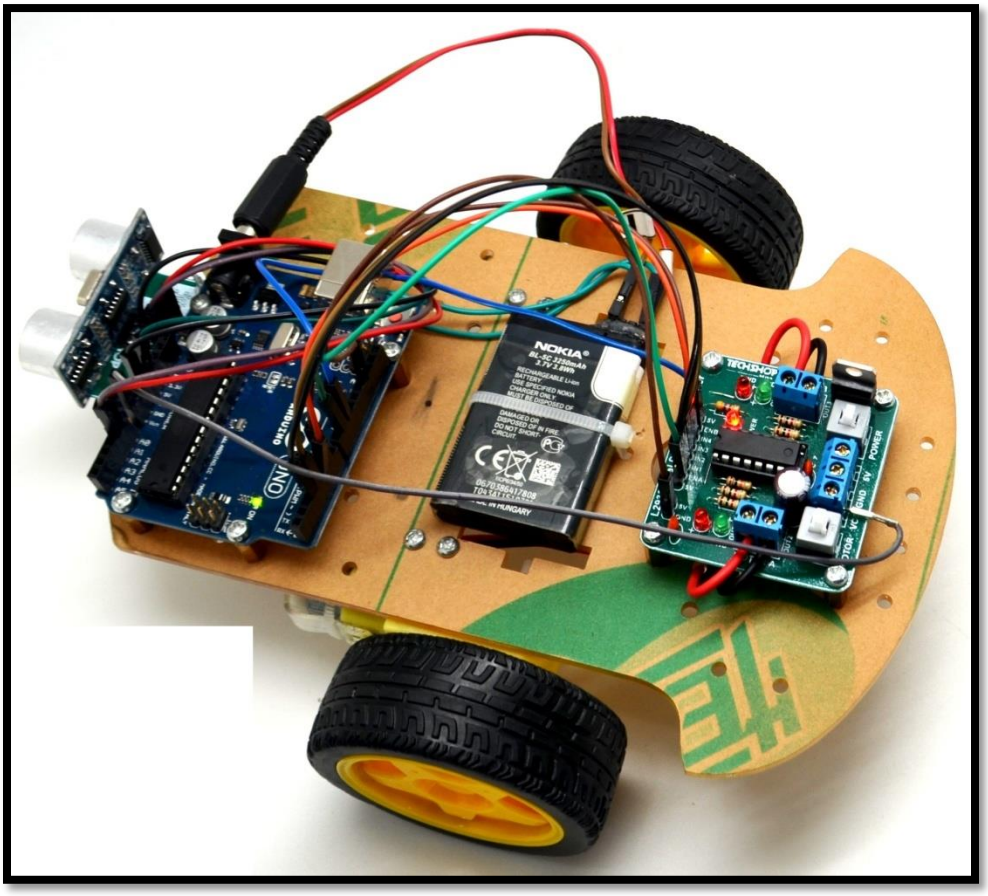
Step 9: Tie the battery with cable tie and connect it to the circuit.



Batteries should be in series like this-

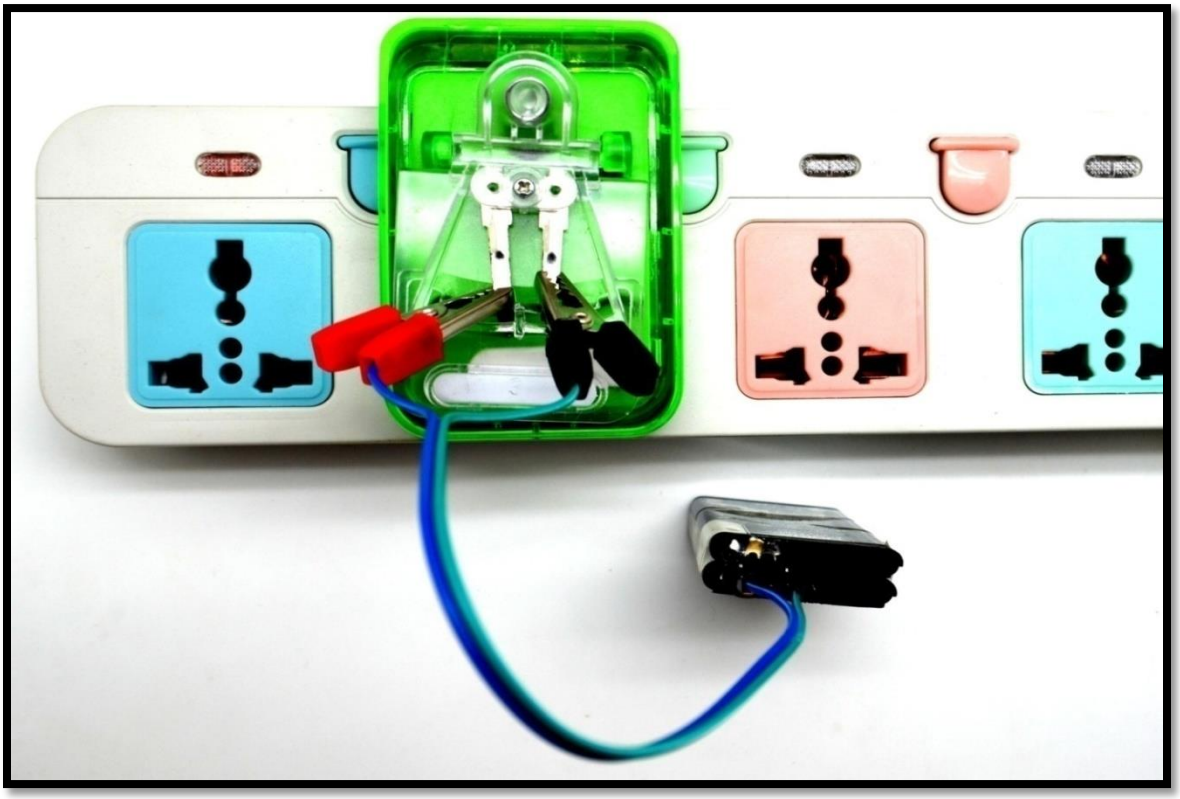


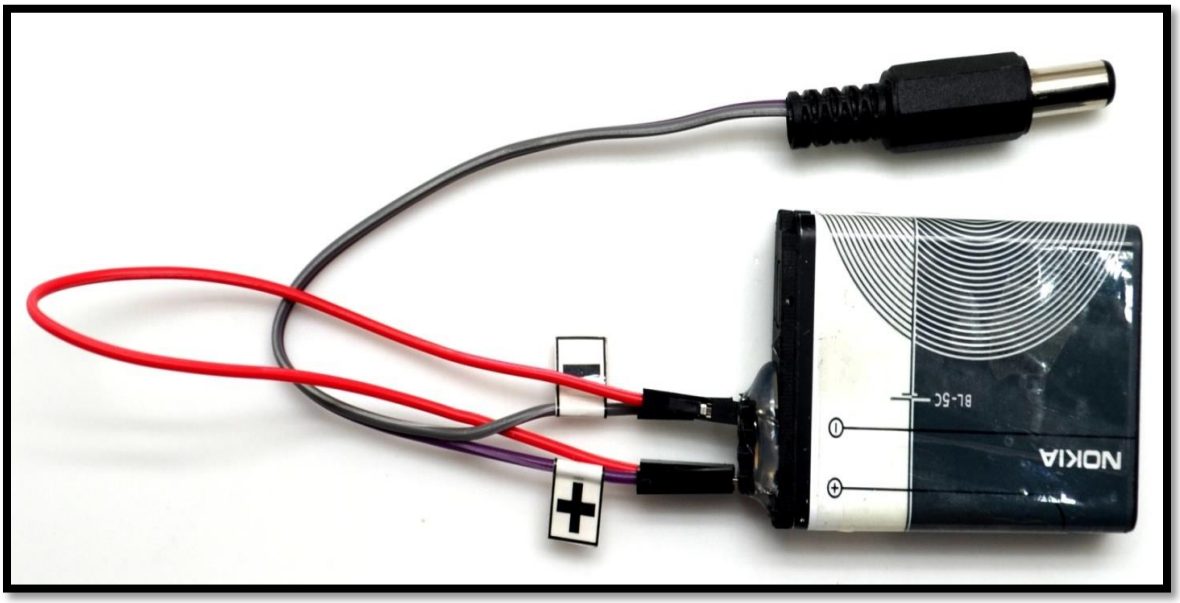
The whole setup will look like the following.



Charging the batteries:

Charge the batteries using auto charger. You have to charge the batteries one by one as shown in the picture below.




NOKIA
BL-5C