




Multi-function Arduino robot

Adam Kamal

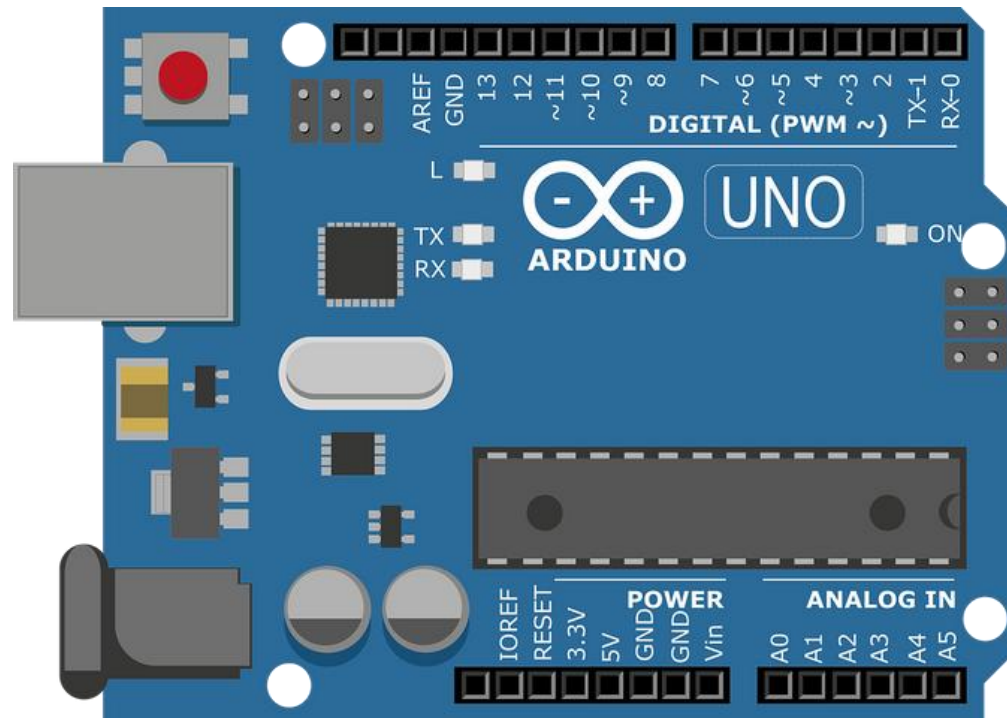
A stylized illustration of a woman with dark skin and hair in a bun, wearing a white lab coat over a yellow shirt and safety glasses. She is pointing her right index finger towards a yellow rectangular box containing the title 'Project Aims'.

Project Aims

- Obstacle avoidance
 - Bluetooth control
 - Voice control
 - Lights & horn
- 
- Two small decorative icons are located in the bottom right corner of the white content area. The first is a blue horizontal bar with a yellow circle at its left end. The second is a blue cylindrical object with a black top and vertical lines, resembling a brush or a small robot component.

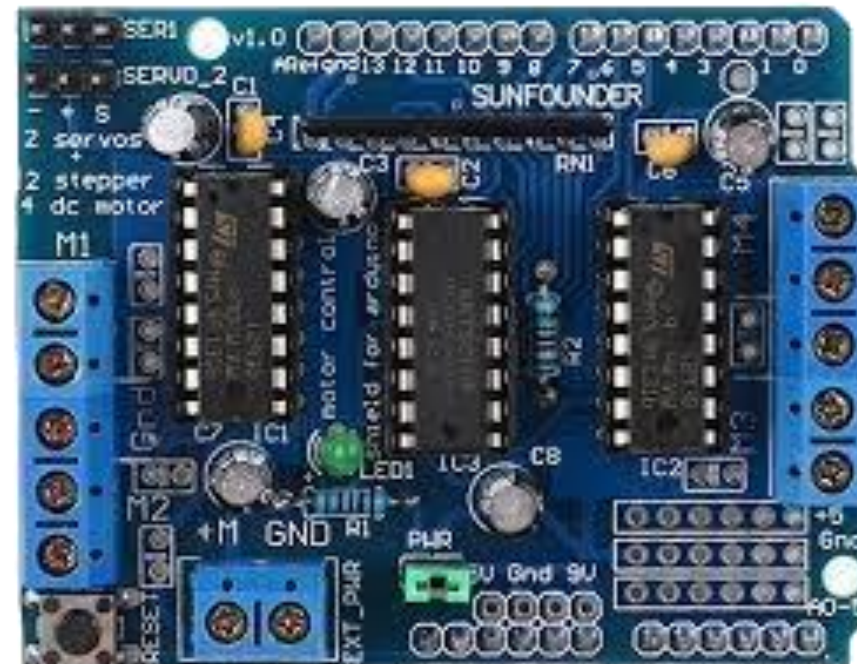
Components?

Components we used to make the project.



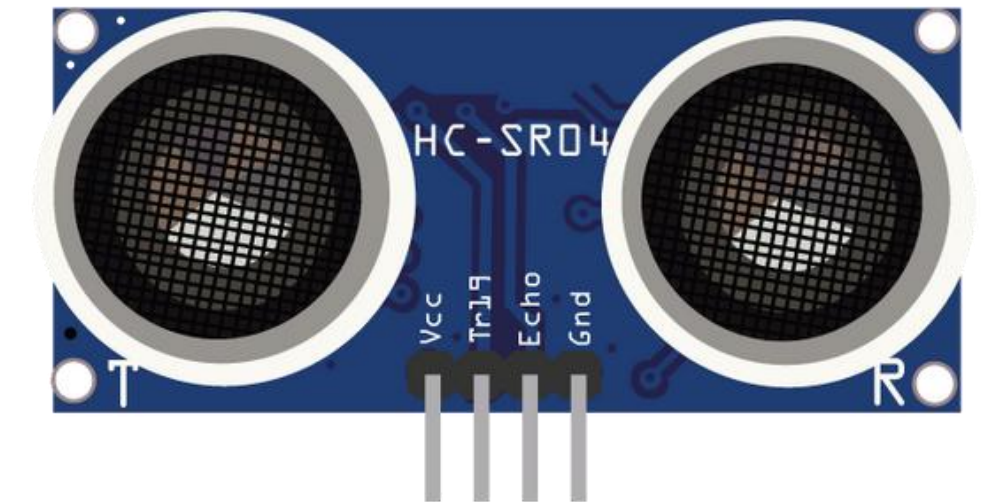
Arduino Uno

A



L239d Motor driver shield

B



Ultrasonic Sensor hc-sr04

C

Components?

Components we used to make the project.



Jumper wires

D



SG90 Servo Motor

E



Bluetooth Module HC-05

F

Components?

Components we used to make the project.



2X 18650 Li-ion Battery
(3.7V , 6800mAh)

G



Battery Holder (2 x 18650)

H



Boat Rocker Switch

I

Components?

Components we used to make the project.



4X Wheels

J



4X DC Geared Motors

K

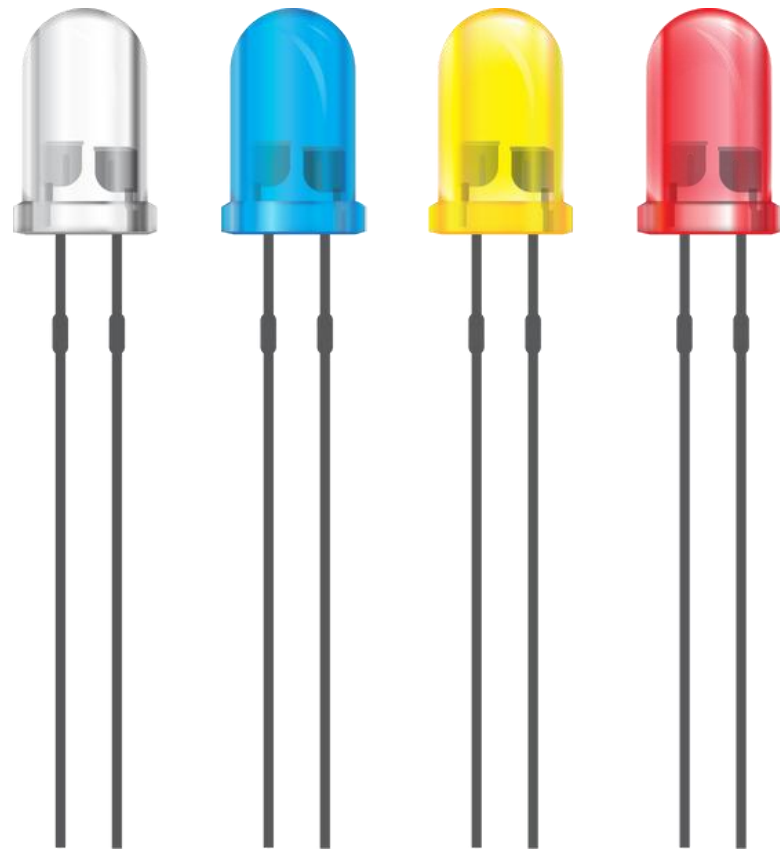


Acrylic Plate Panel

L

Components?

Components we used to make the project.



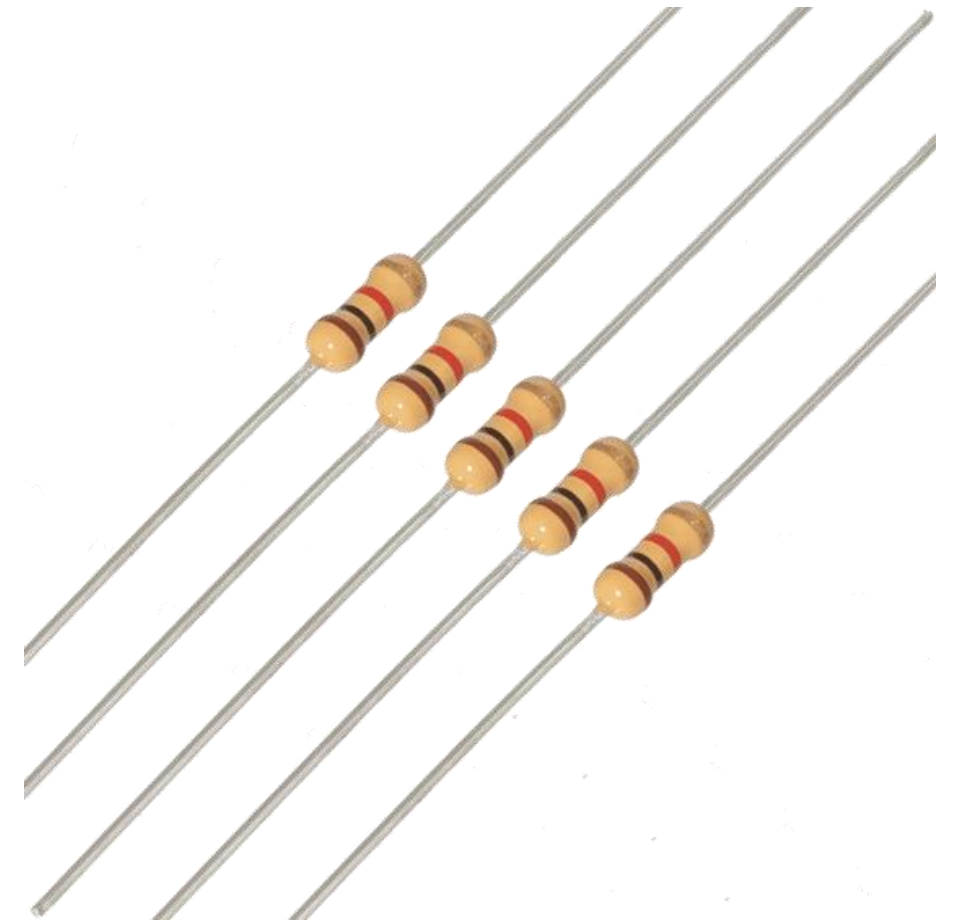
2X Leds

M



Buzzer

N



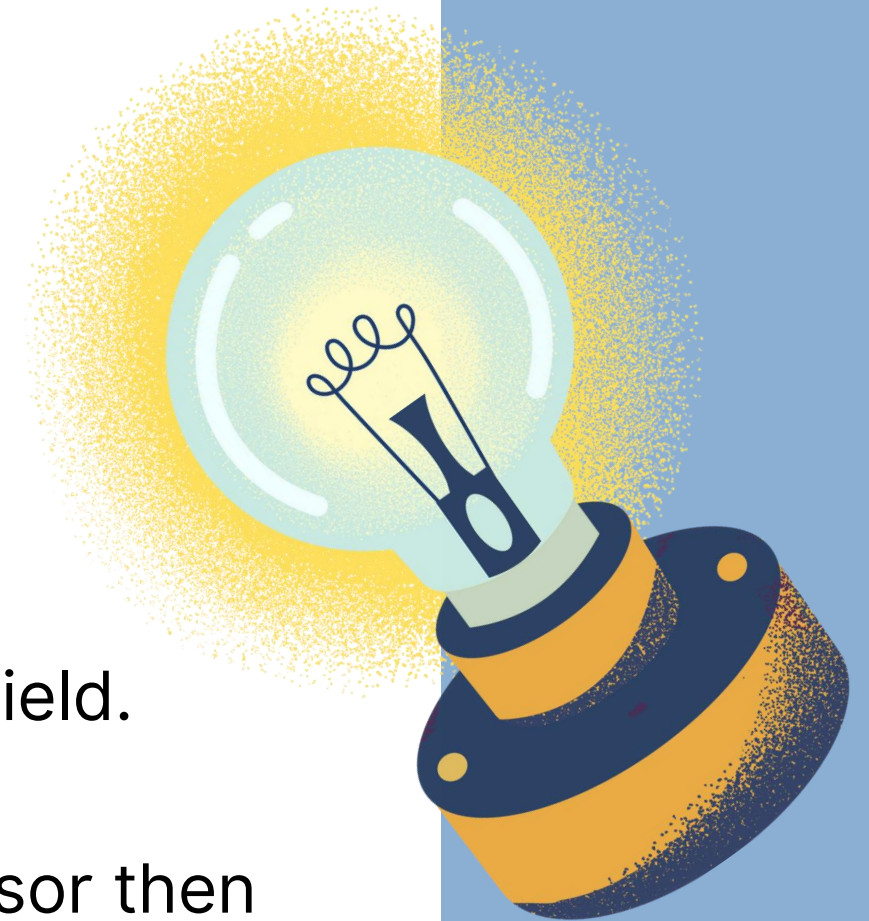
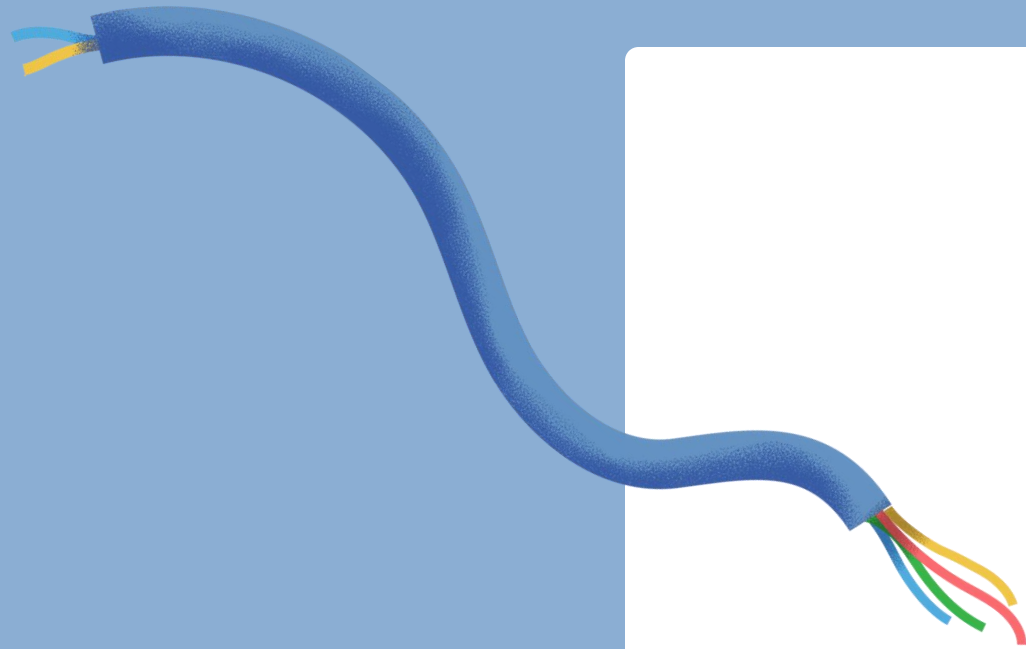
3X 220 ohm resistors

O

Now follow the steps

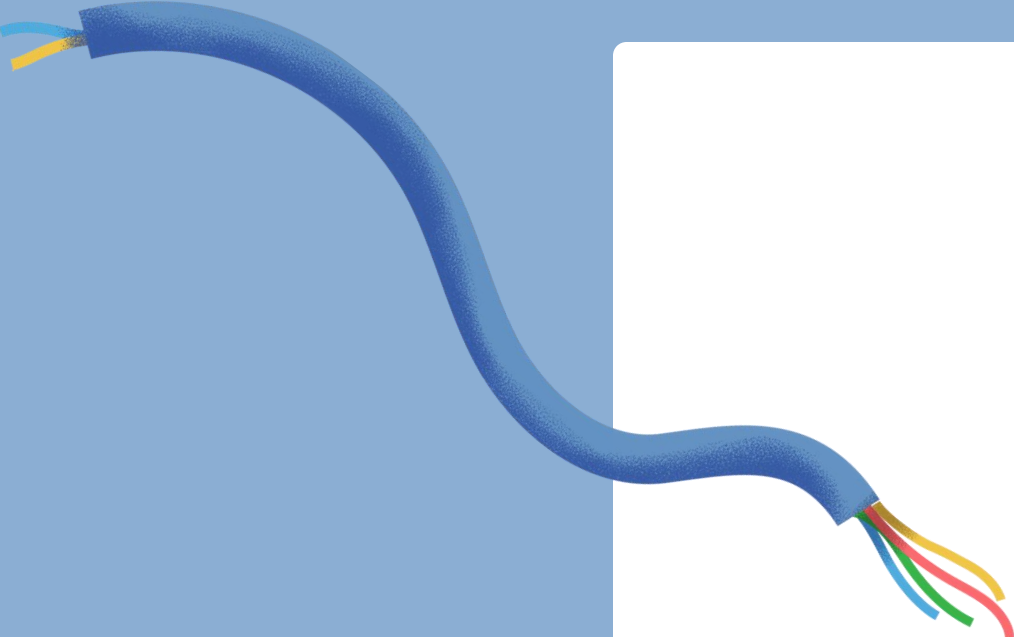

Take a
look at
the circuit
diagram

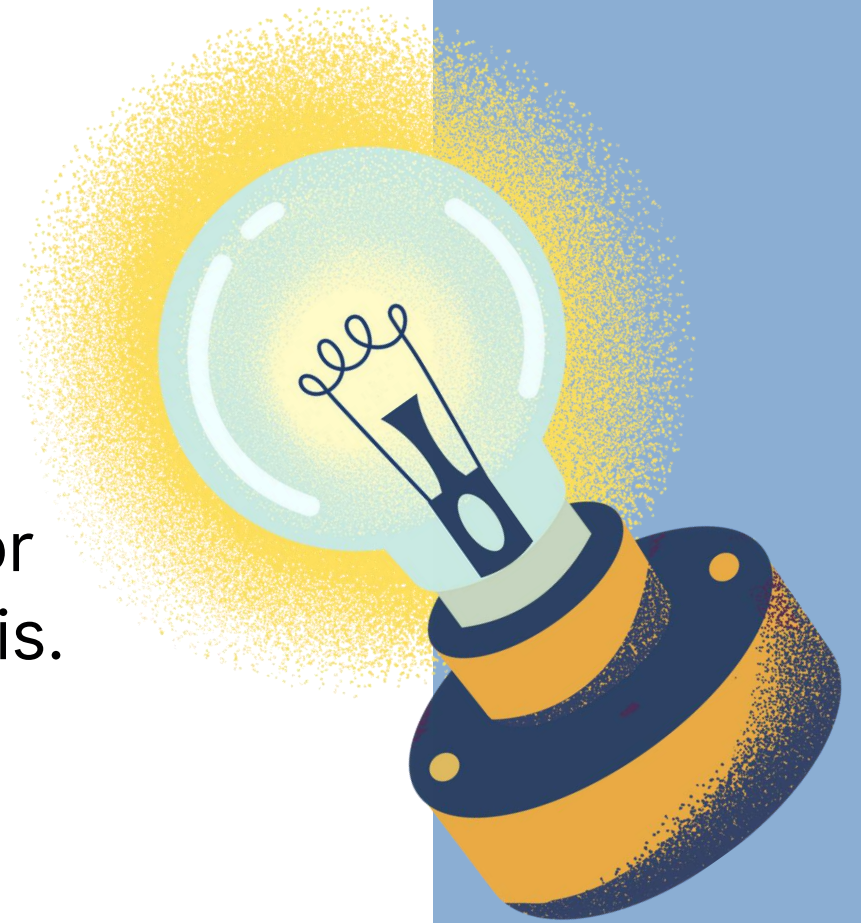
- Assemble the acrylic plates (car parts) and install the 4-gear motors to it.
- Solder the positive and negative wire to each motor.
- Attach the motor shield to the Arduino board and glue it to the robot chassis.
- Connect the motors to the motor driver shield.
- Attach the servo motor and ultrasonic sensor then connect them.



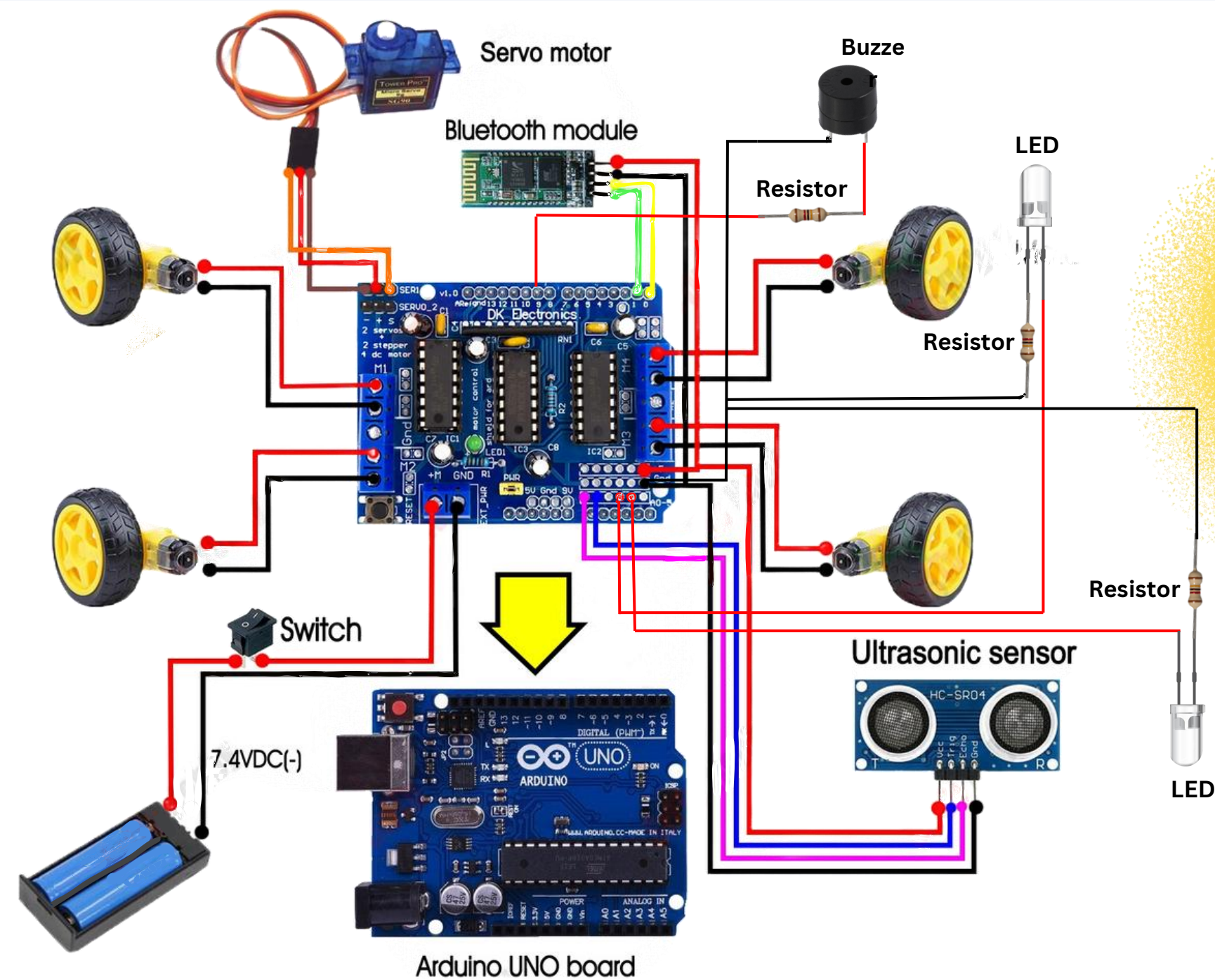
Now follow the steps

Take a
look at
the circuit
diagram

- 
- 
- Solder a 220-ohm resistor to each LED and to the Buzzer.
 - Attach the 2 LEDs and the buzzer and connect them to the motor shield.
 - Connect the Bluetooth module to the motor driver shield and glue it to the robot chassis.
 - Glue the battery holder and connect it to the driver shield then put the batteries in.



Circuit diagram

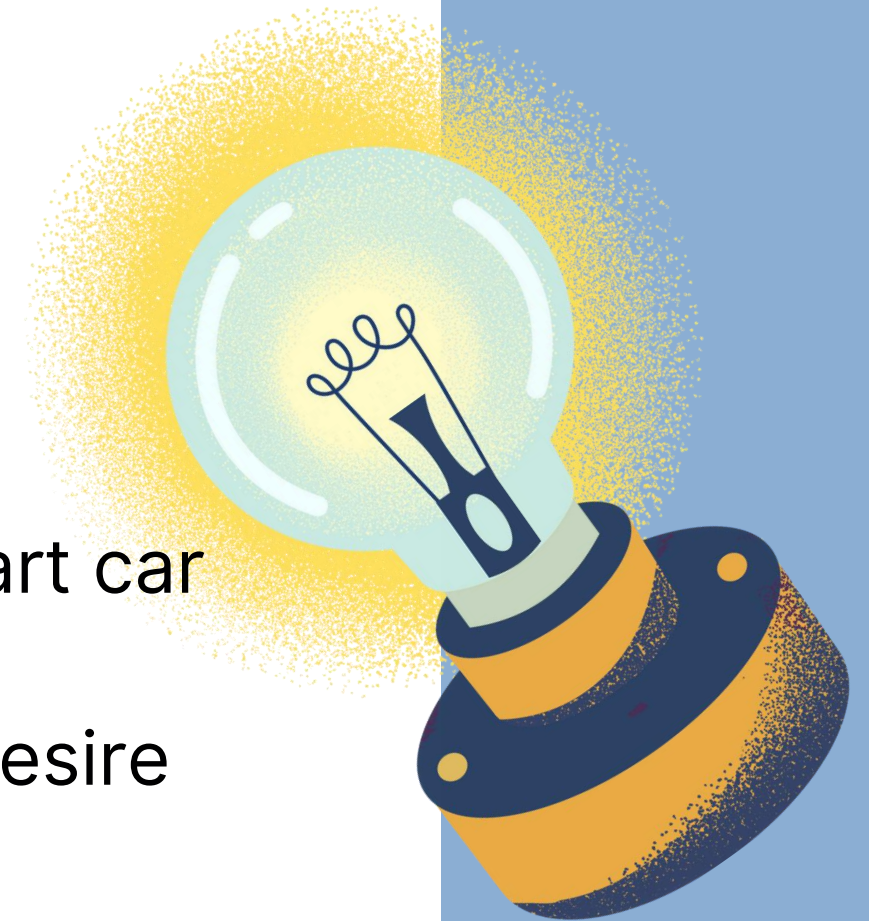
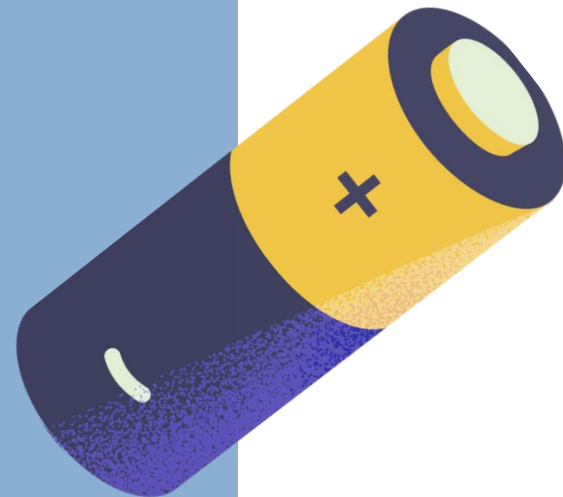
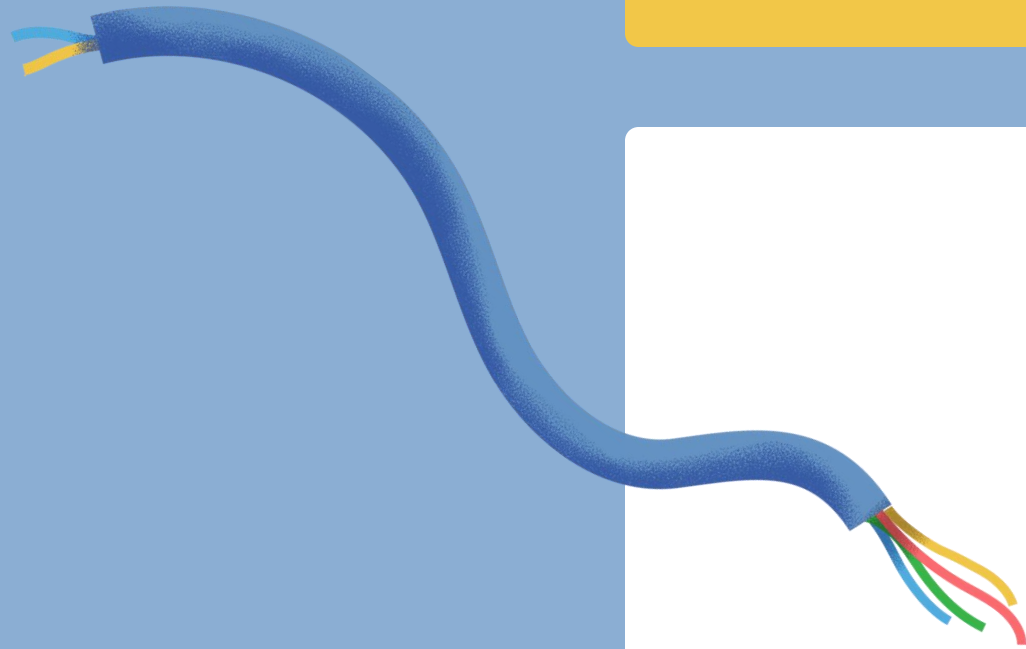


Now Let's code!!

Connect the Arduino board to your PC and open the [Arduino IDE](#)

- Download the program and it's library - [DOWNLOAD](#)
- You can run each function of the smart car separately by just removing the "//" (comment) before the function you desire

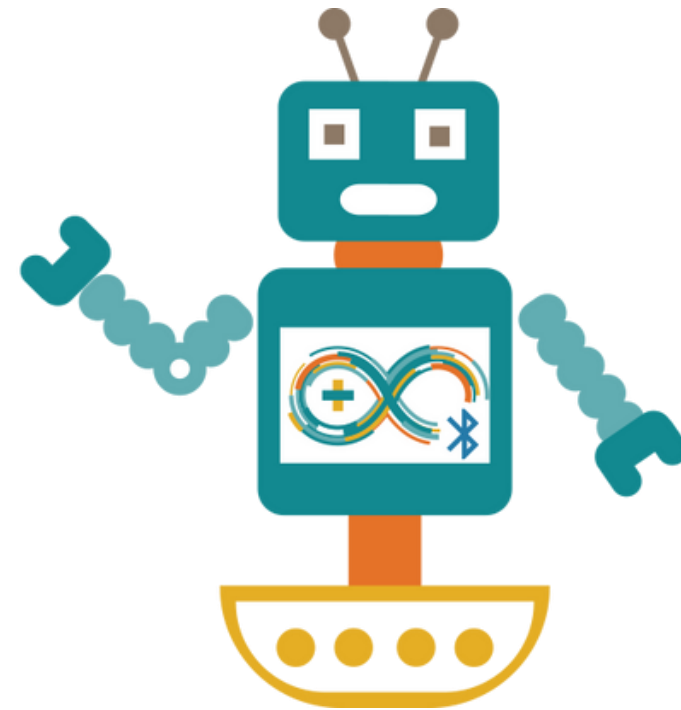
Click the **RED** font to be redirected to the links



Software applications we used



Bluetooth RC Car



Arduino Bluetooth Control



Bluetooth RC Car for Manual control



Arduino bluetooth control for voice control

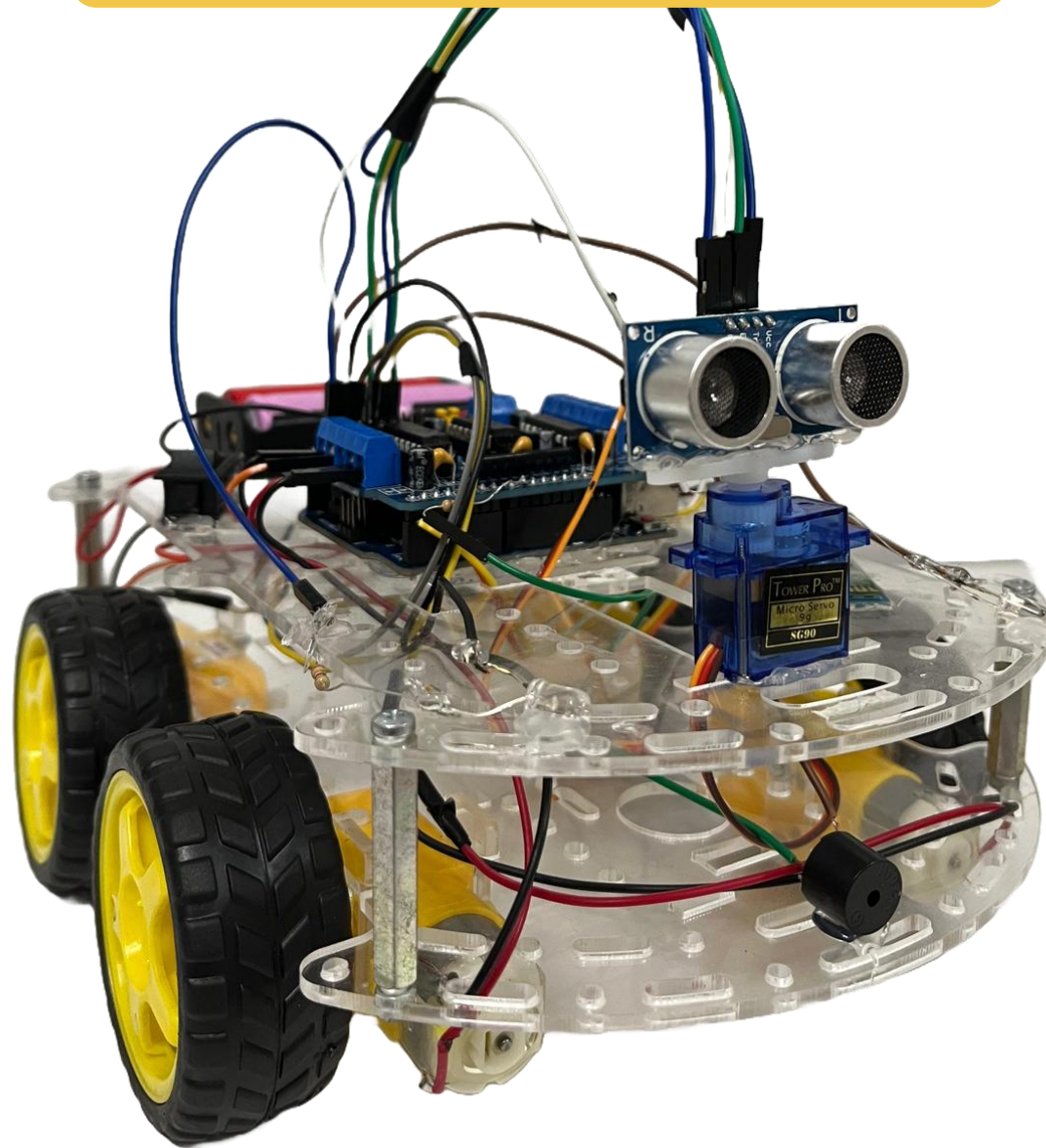


REMINDER

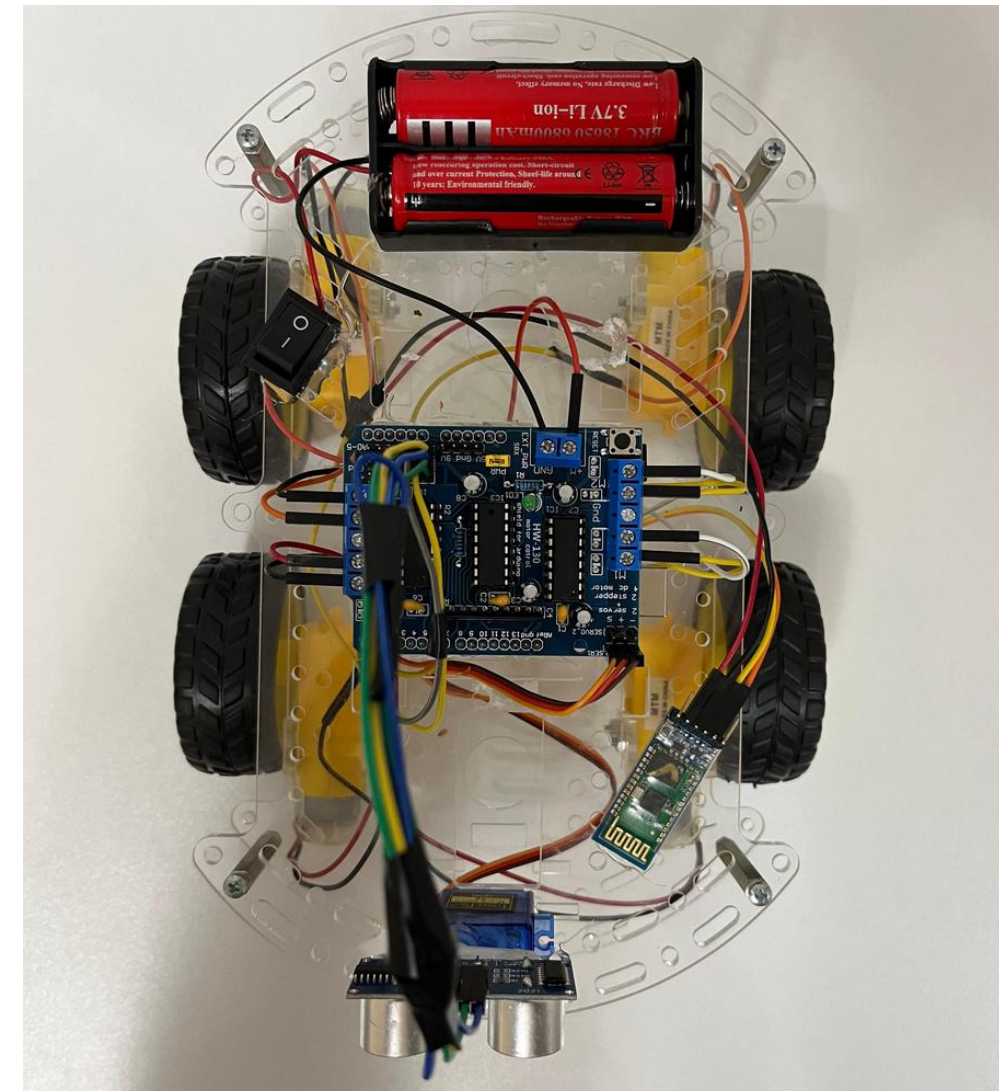
Do not forget to Remove the TX & RX pins from the Bluetooth module when uploading codes

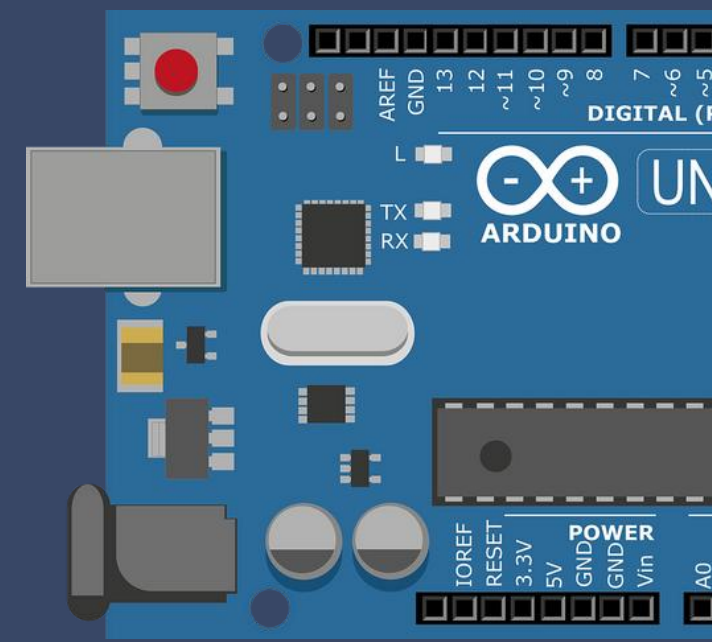
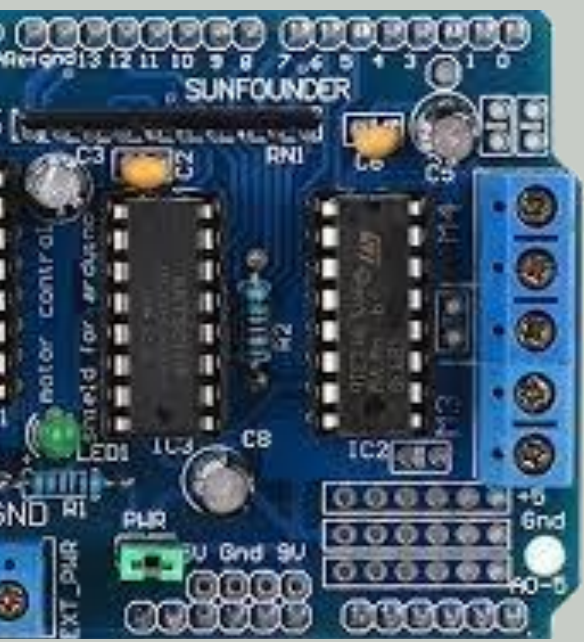
Actual physical setup

General View of the Project



Overhead View of Wiring Connections





Thank you!

Enjoy the project :)

