Multi-function Arduino robot

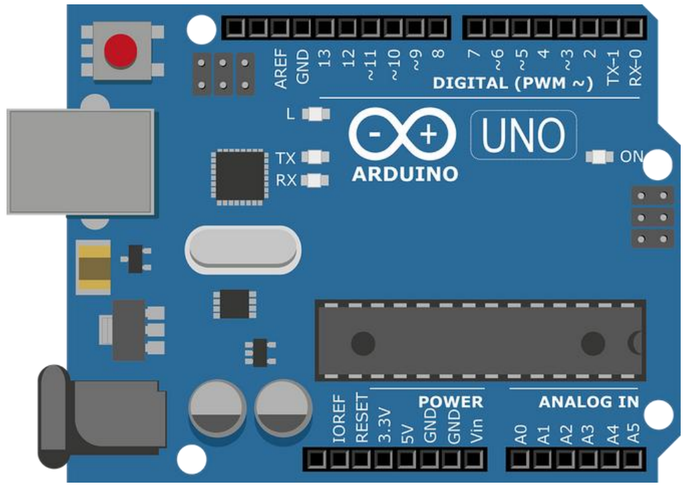
Adam Kamal

Project Aims

- Obstacle avoidance
- Bluetooth control
- Voice control
- Lights & horn

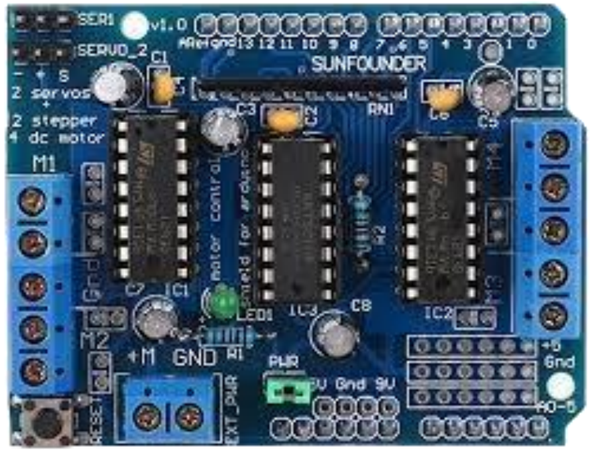
Components?

Components we used to make the project.



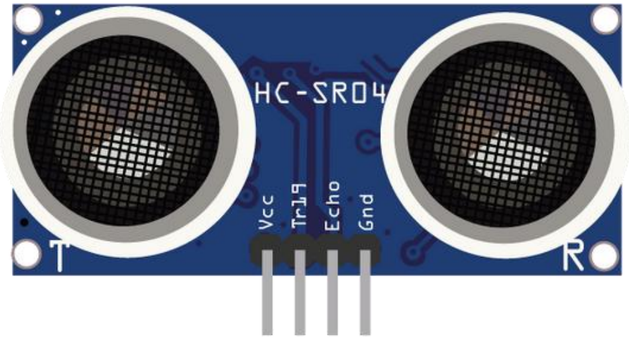
Arduino Uno

A



L239d Motor driver shield

B

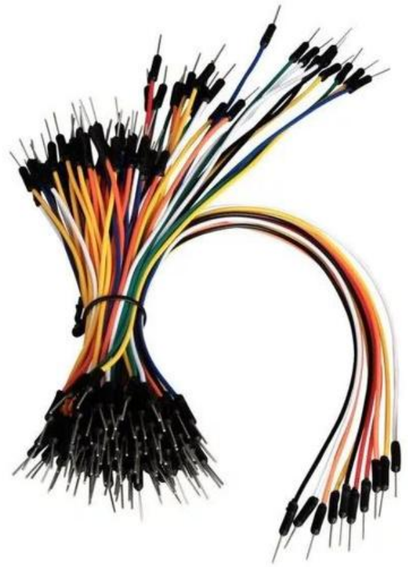


Ultrasonic Sensor hc-sr04

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

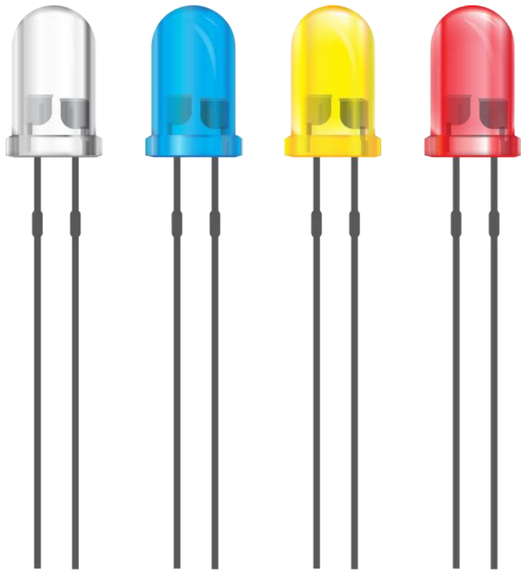
K

Acrylic Plate Panel

L

Components?

Components we used to make the project.

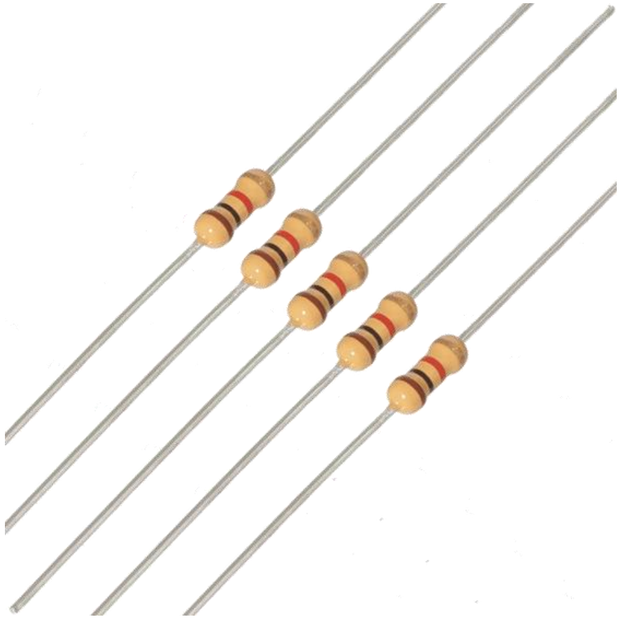


2X Leds

M

Buzzer

N

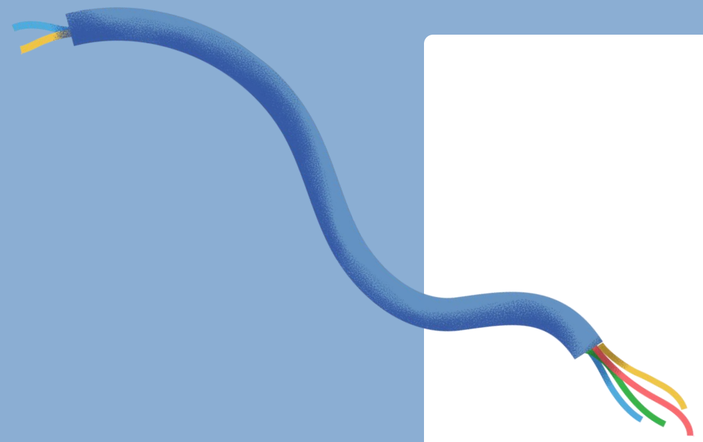


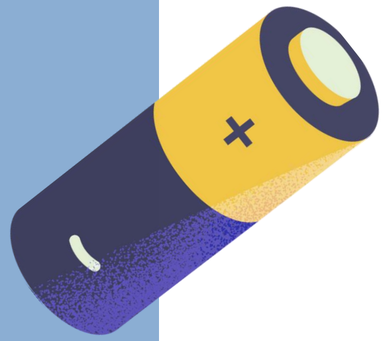
3X 220 ohm resistors

O

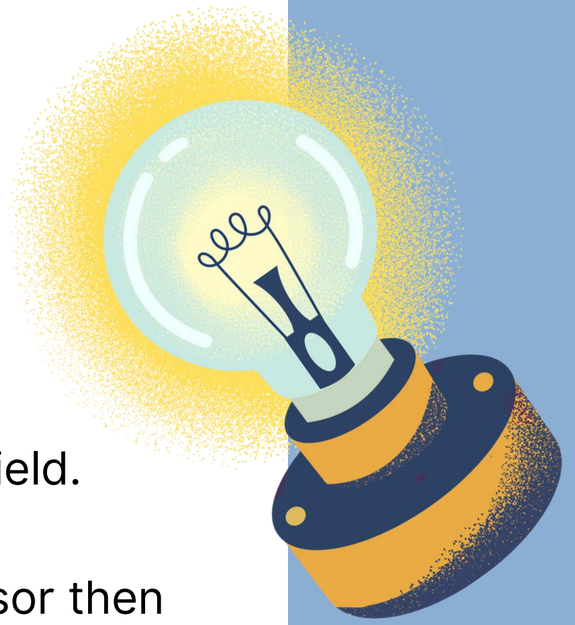
Now follow the steps

Take a look at the circuit diagram



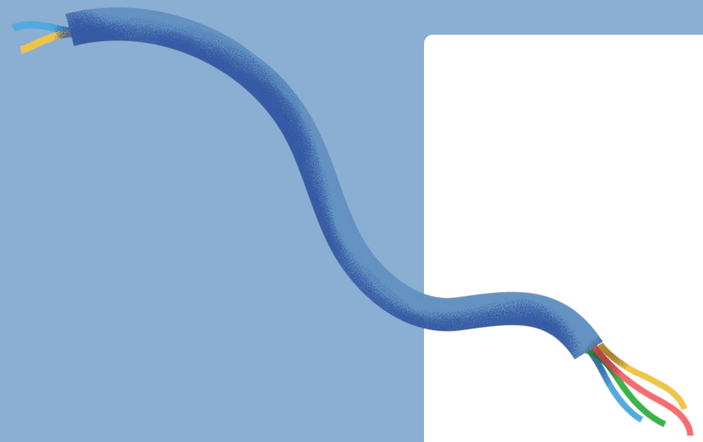


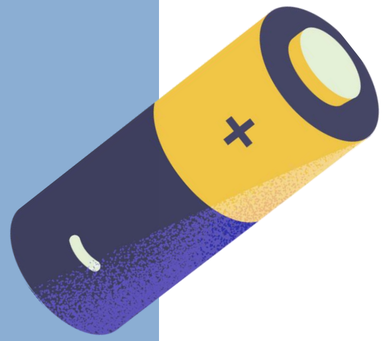
- Assemble the acrylic plates (car parts) and install the 4-gear motors to it.
- Solder the positive and negative wire to each motor.
- Attach the motor shield to the Arduino board and glue it to the robot chassis.
- Connect the motors to the motor driver shield.
- Attach the servo motor and ultrasonic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



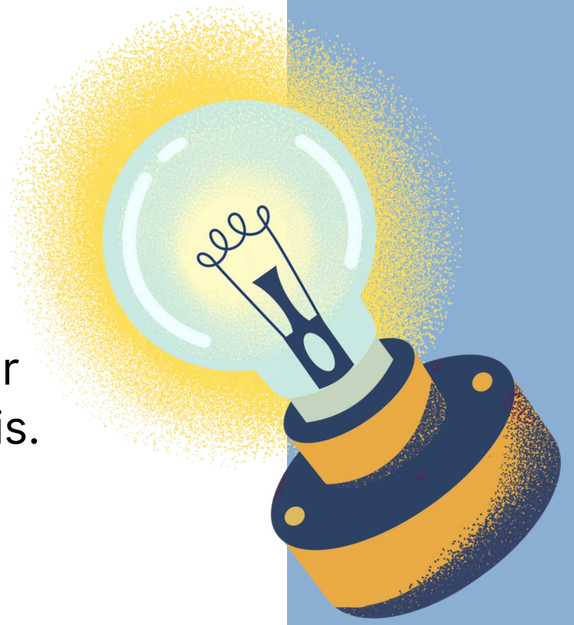
Now follow the steps

Take a look at the circuit diagram

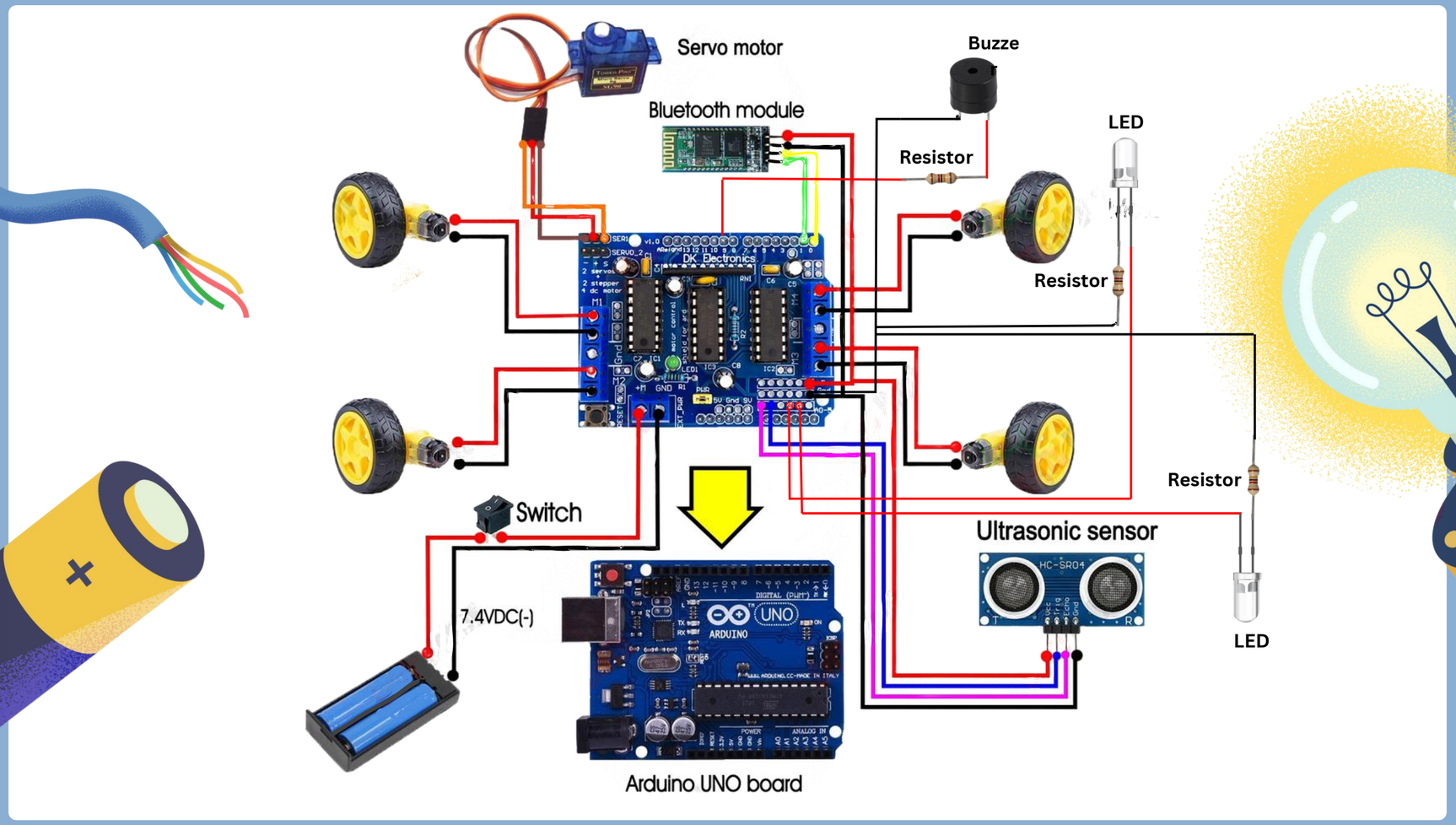




- Solder a 220-ohm resistor to each LED and to the Buzzer.
- Attach the 2 LEDs and the buzzer and connect them to the motor shield.
- Connect the Bluetooth module to the motor driver shield and glue it to the robot chassis.
- Glue the battery holder and connect it to the driver shield then put the batteries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



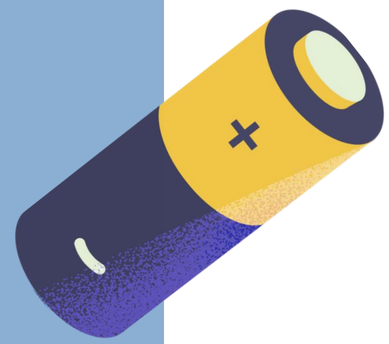
Circuit diagram

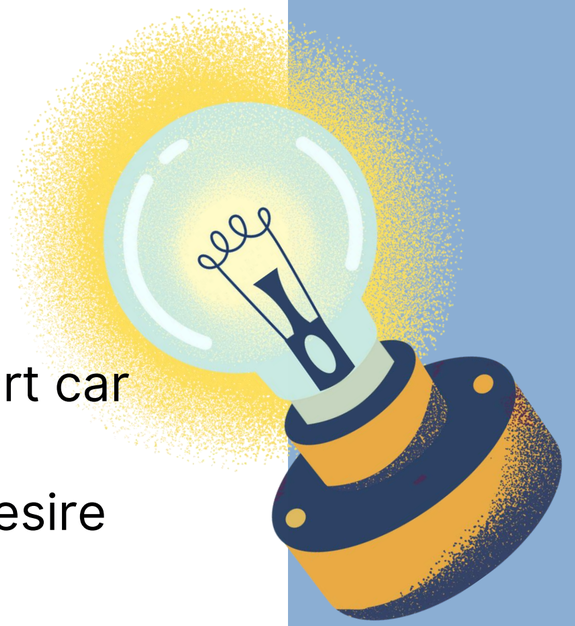


Now Let's code!!

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





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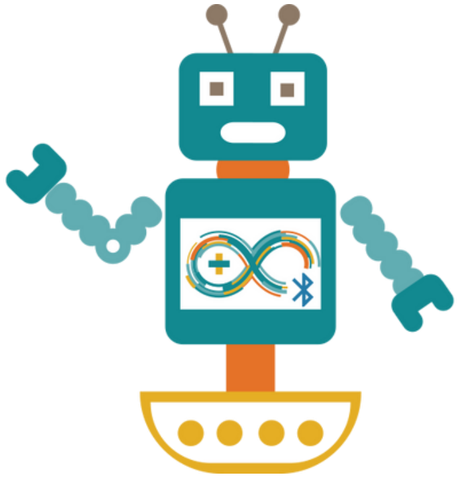
Software applications we used

Bluetooth RC Car



Arduino Bluetooth Control

SCAN ME

SCAN ME

Bluetooth RC Car for Manual control

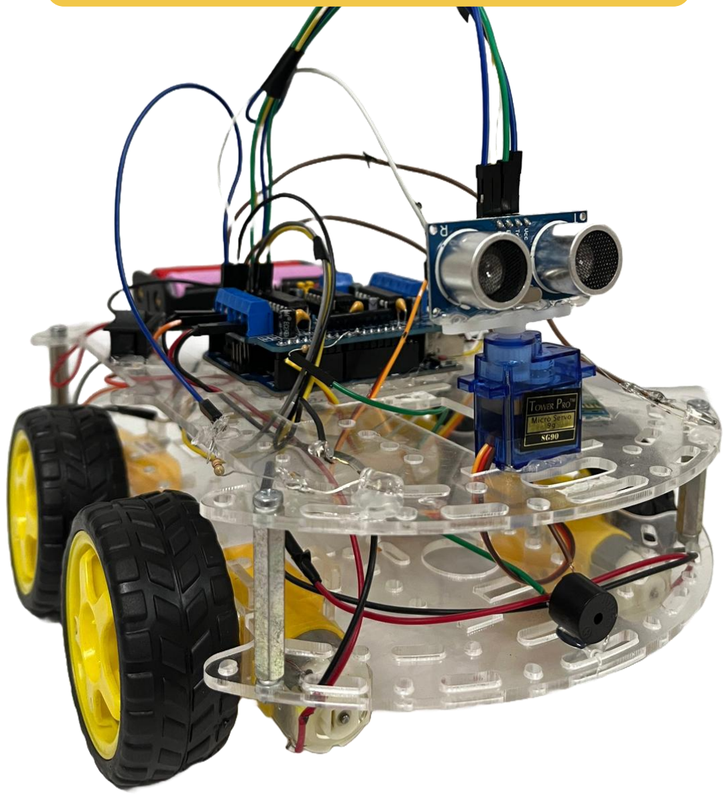
Arduino bluetooth control for voice control

REMINDER

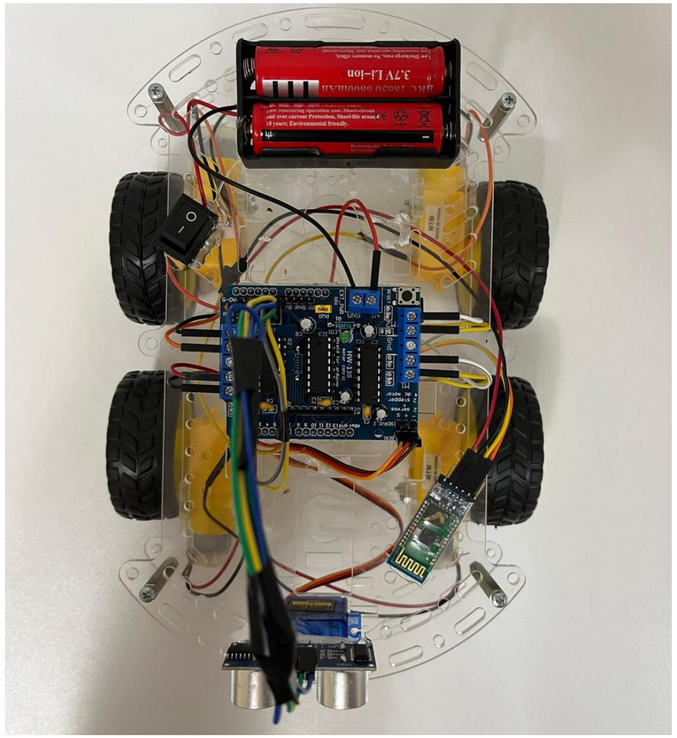
Do not forget to Remove the TX & RX pins from the Bluetooth module when uploading codes

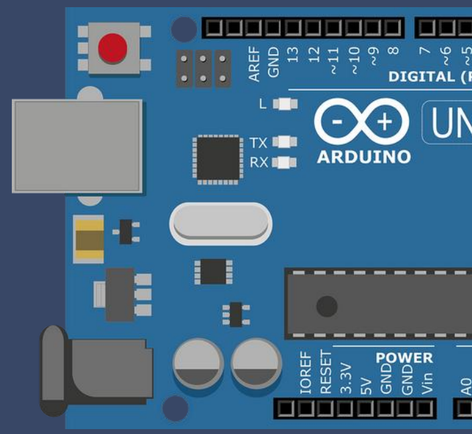
Actual physical setup

General View of the Project



Overhead View of Wiring Connections





Thank you!

Enjoy the project :)