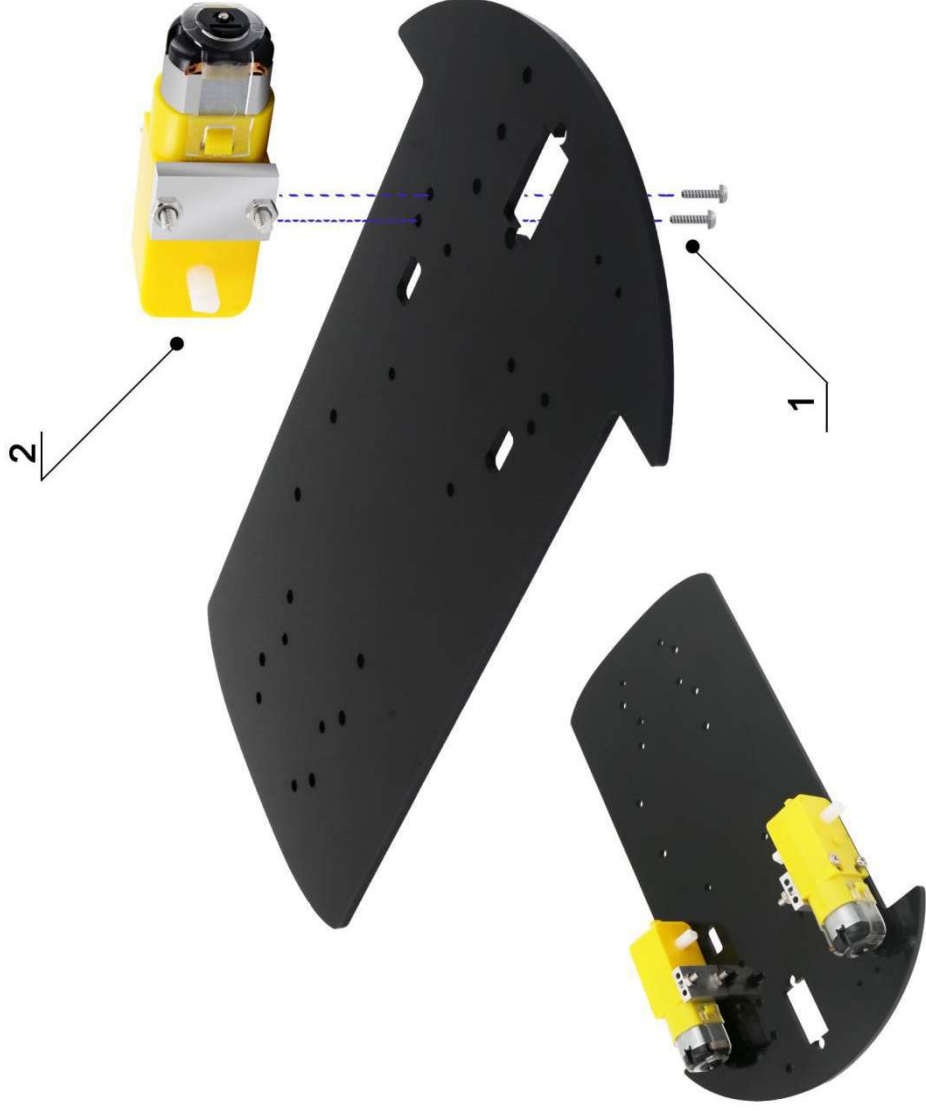
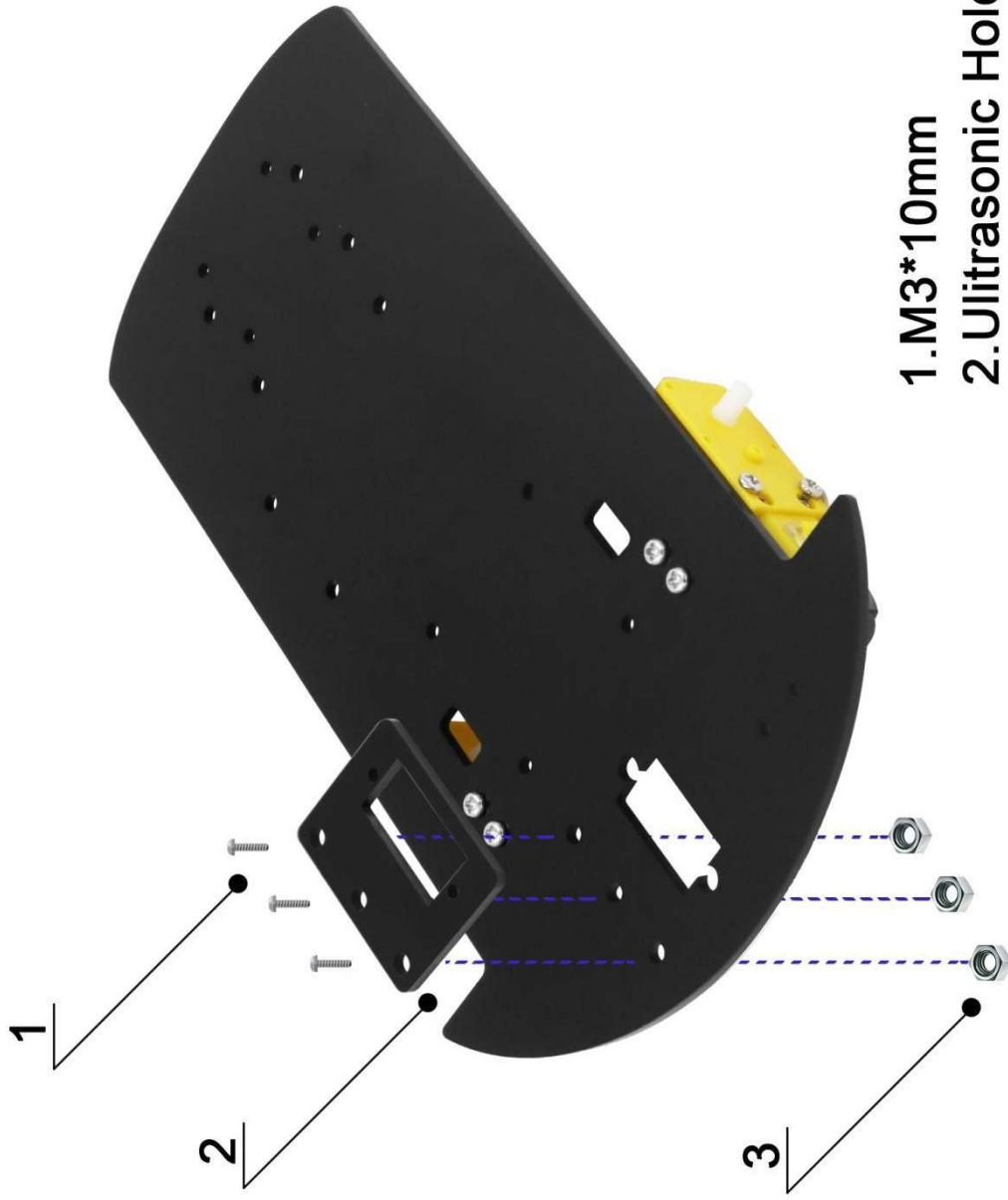


## Lesson 4 Installation Method

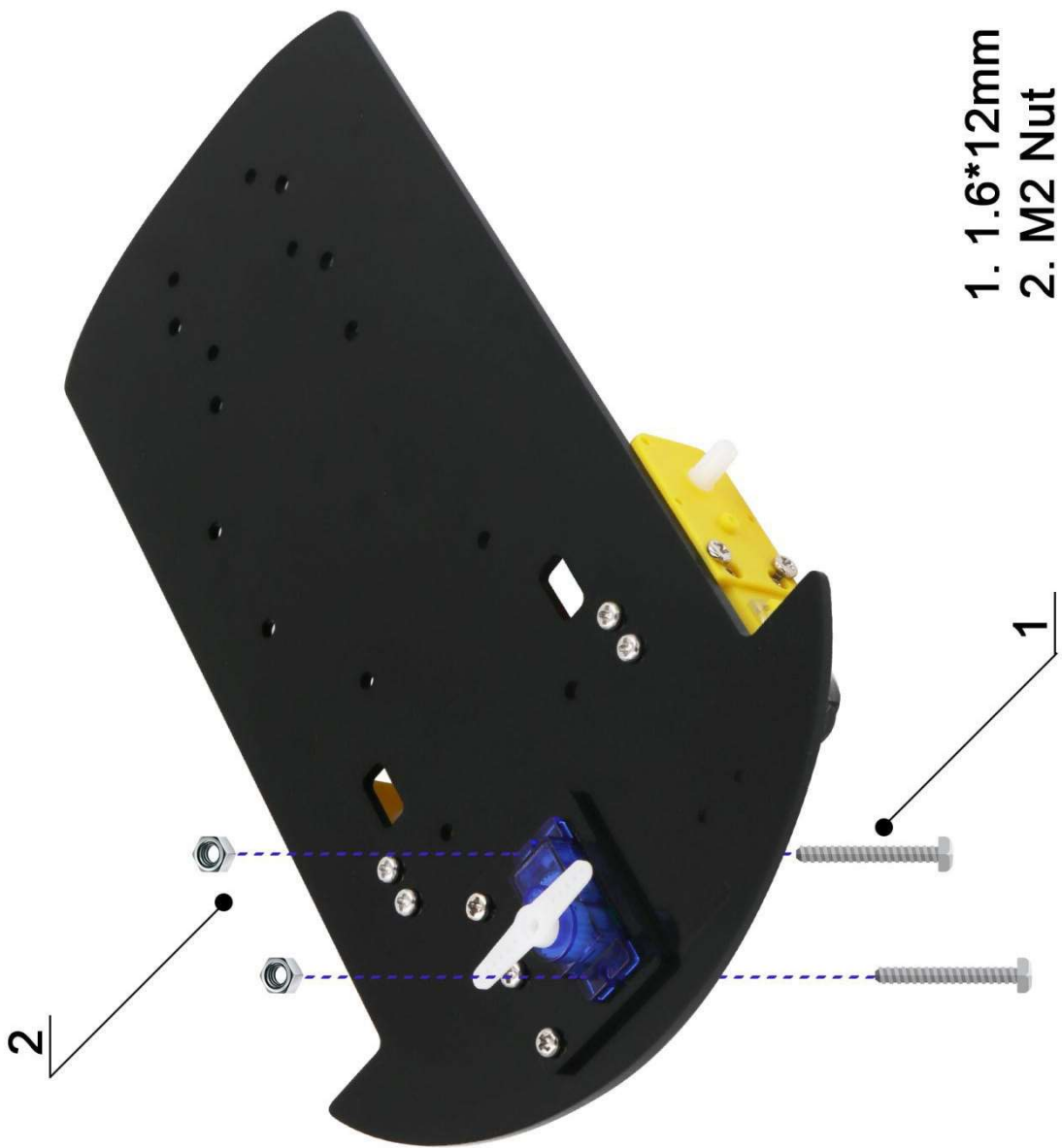
1.M3\*6MM

2.Motor with Aluminium Block

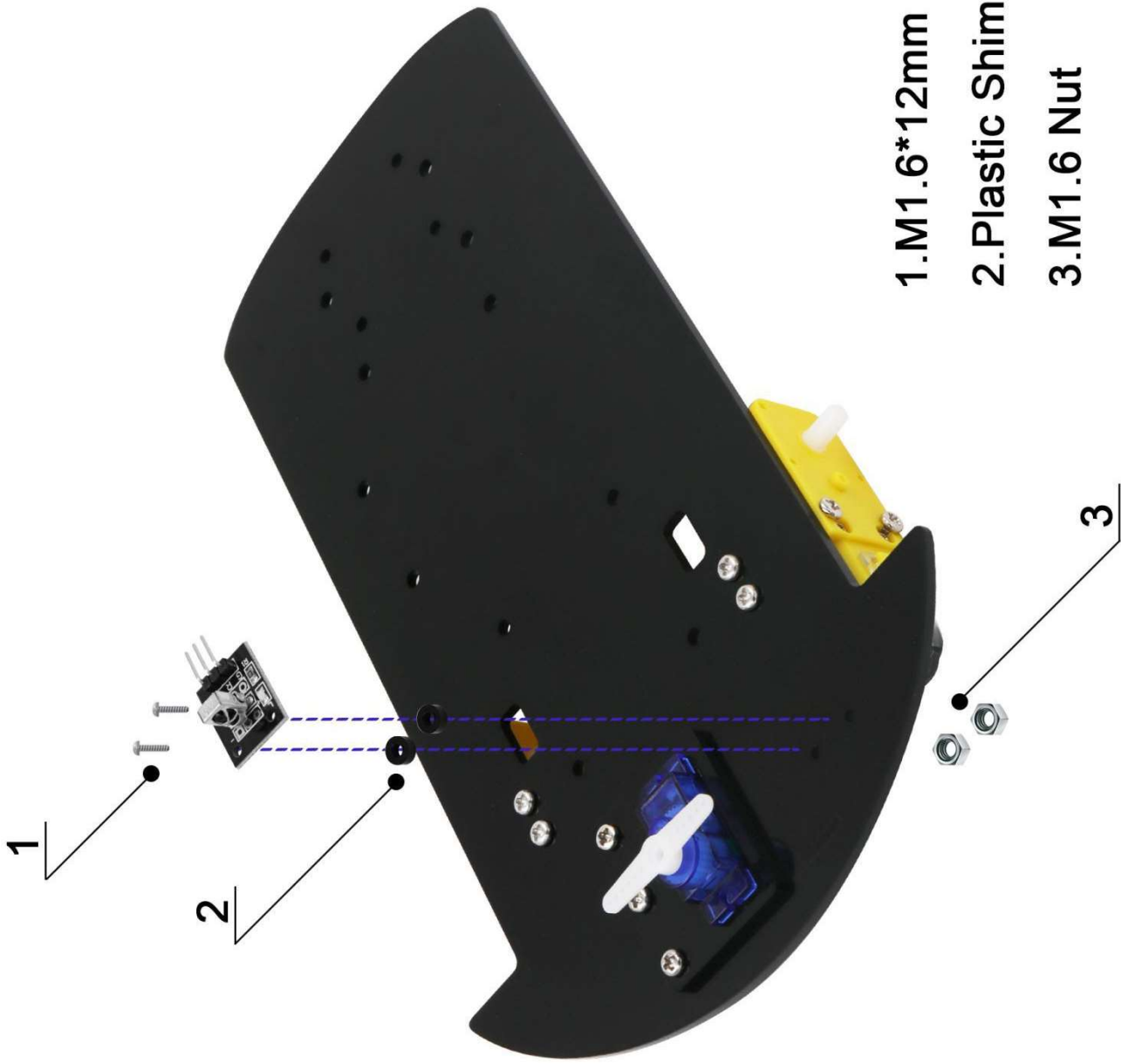




- 1. M3\*10mm
- 2. Ultrasonic Holder
- 3. M3 Nut



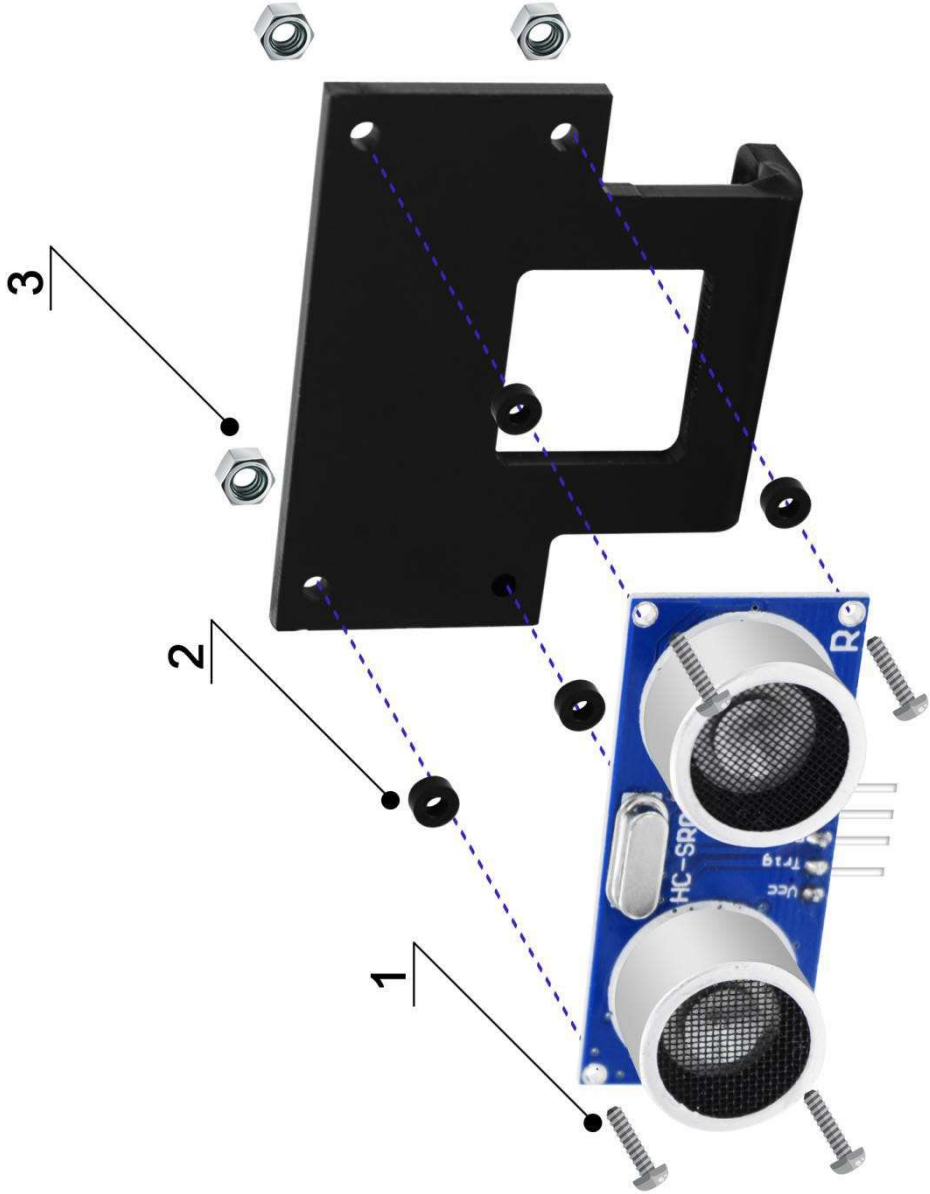
- 1. 1.6\*12mm
- 2. M2 Nut



1.M1.6\*12mm

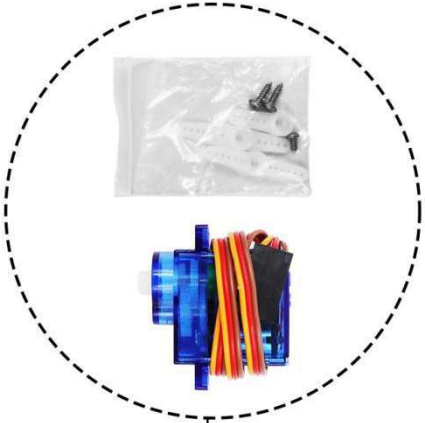
2.Plastic Shim

3.M1.6 Nut

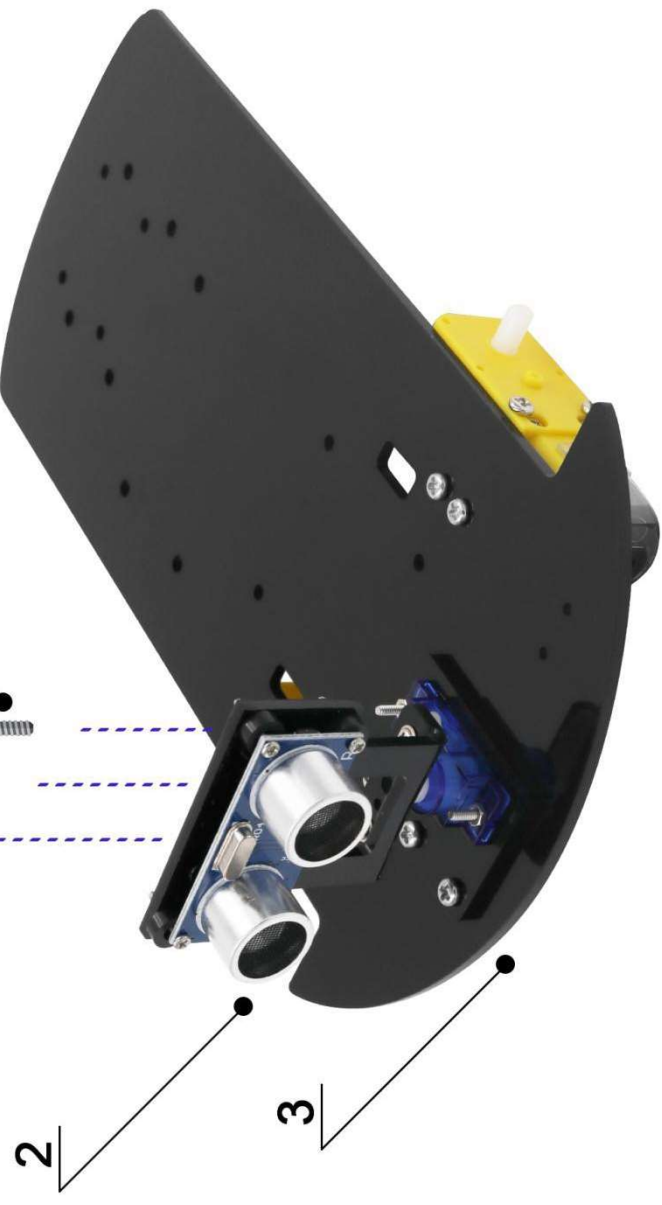


- 1. M1.6\*12mm
- 2. Plastic Shim
- 3. M1.6 Nut

- 1. SG90 Servos
- 2. Ultrasonic Holder
- 3. SG90



1

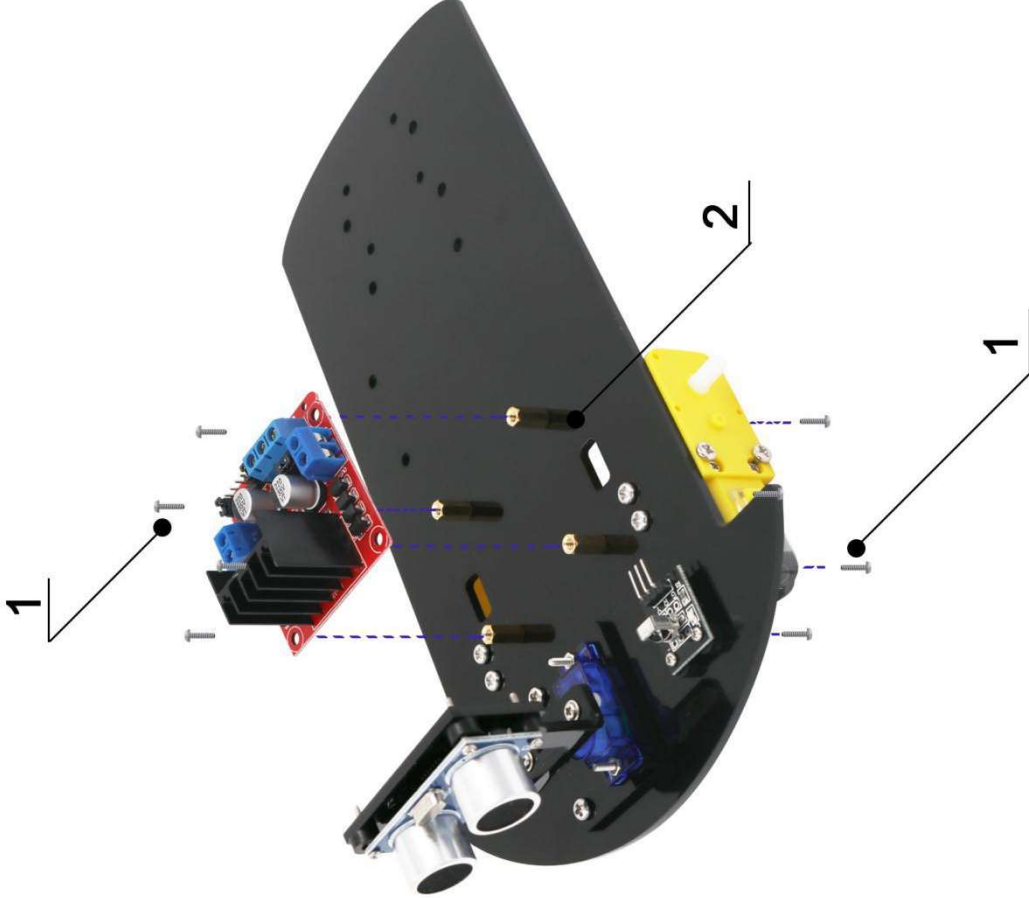


2

3

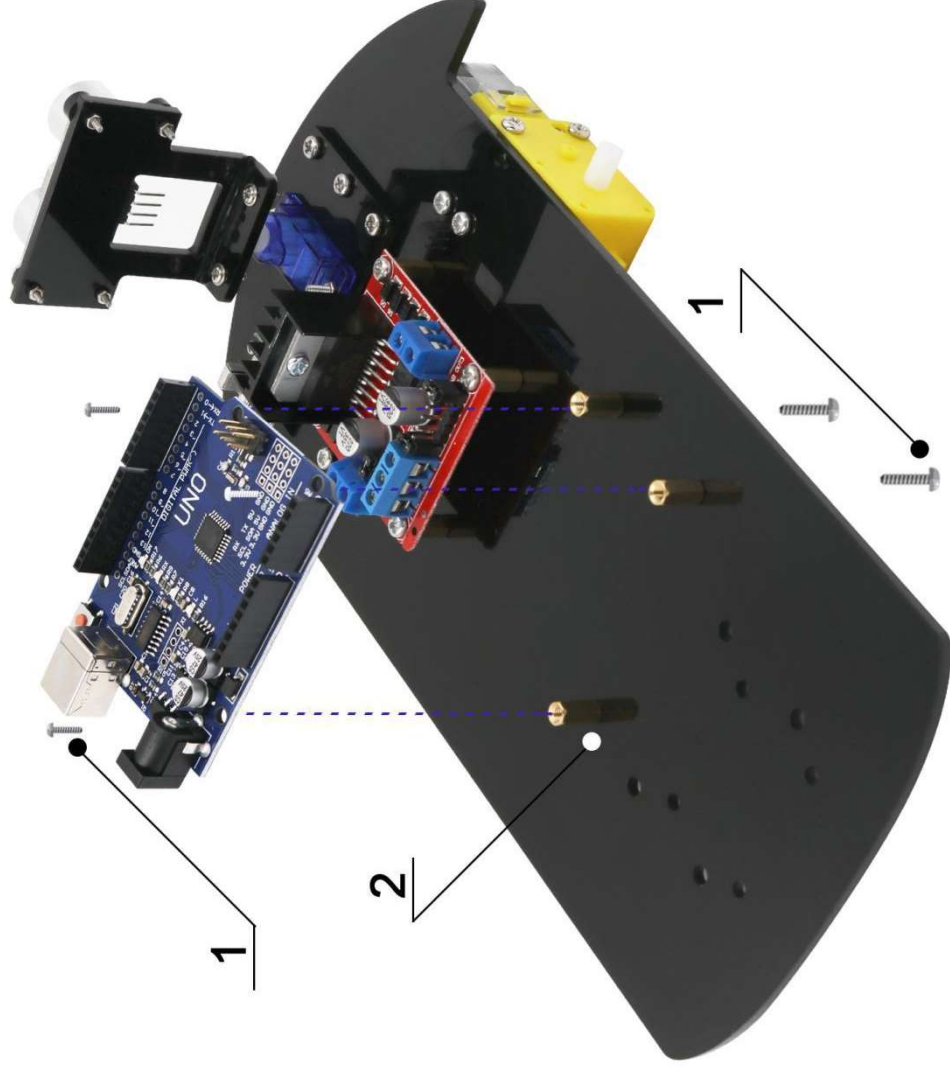
1.M3\*6mm

2.Copper Cylinder M3\*8mm



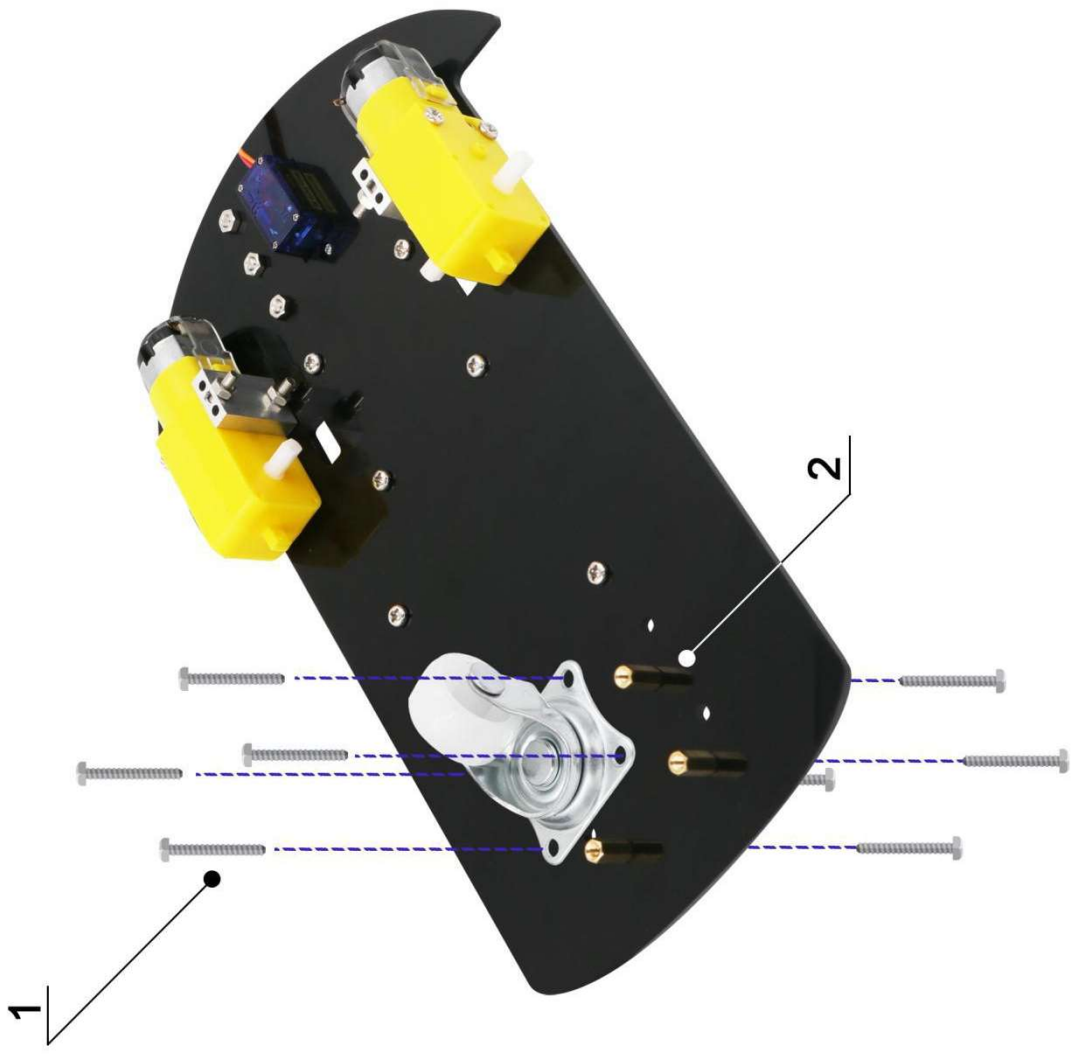
1. M3\*6mm

2. Copper Cylinder M3\*8mm



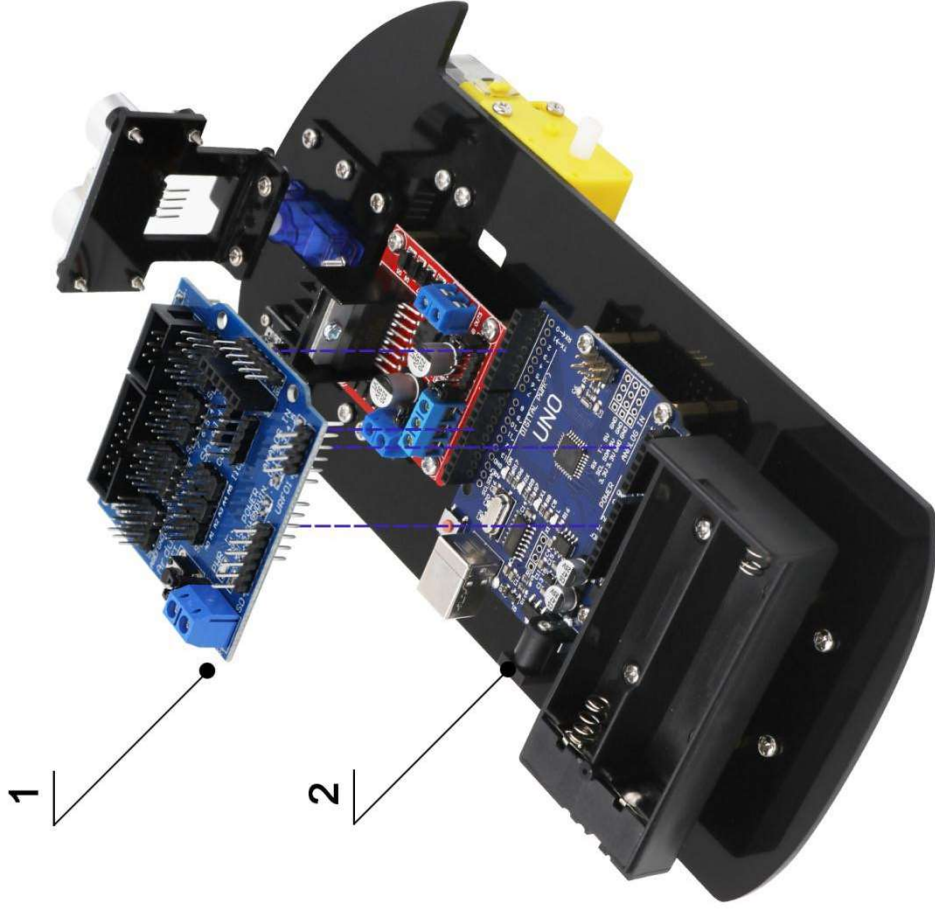


- 1. M2\*6mm
- 2. Copper Cylinder M3\*8mm

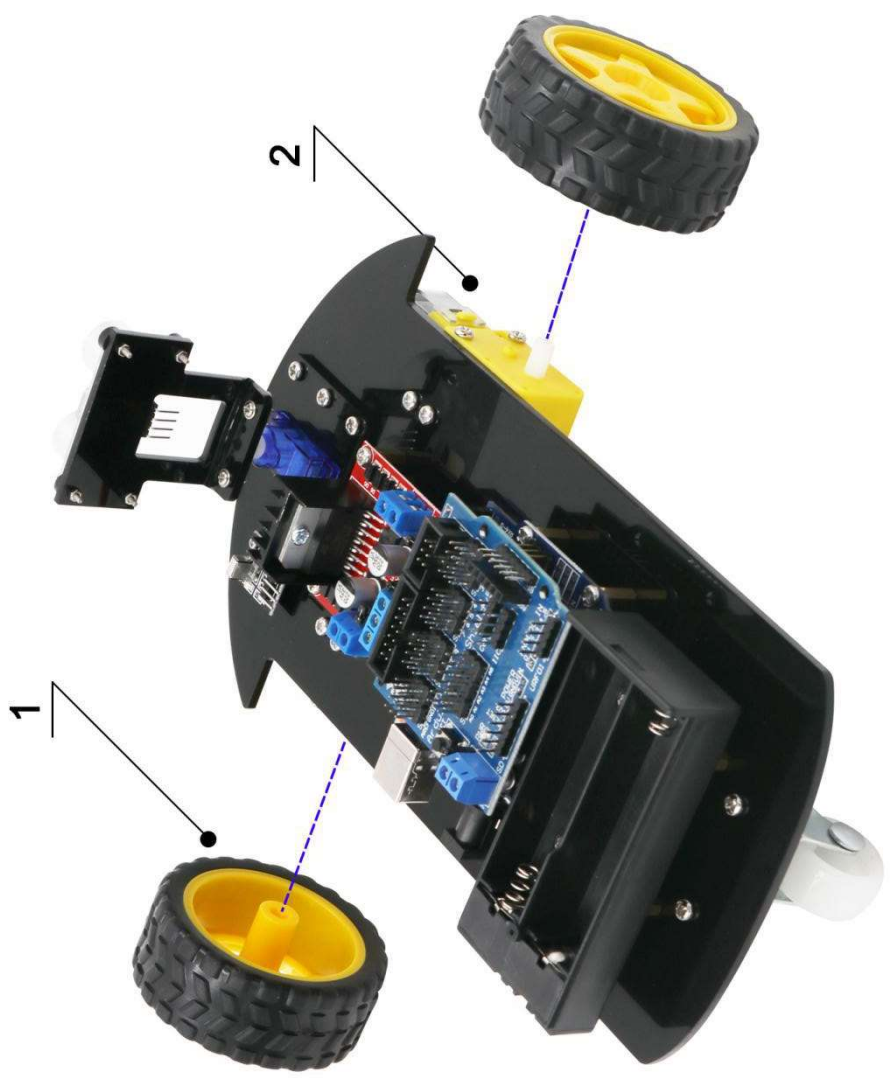


1.V5 Expansion Board

2.UNO R3



- 1. Tire
- 2. DC Motor



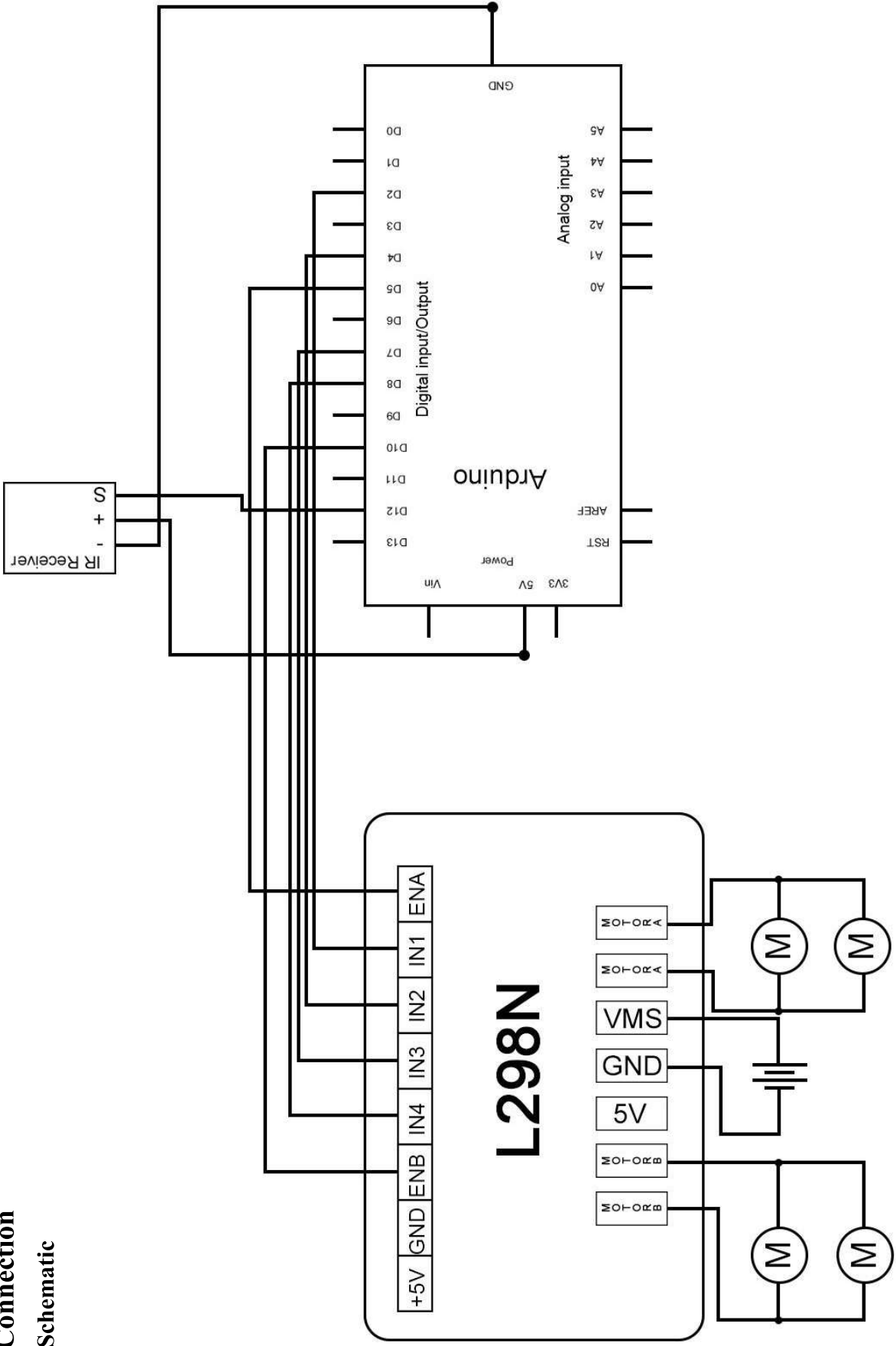
## Lesson 9 IR Remote Control Car

### About this lesson:

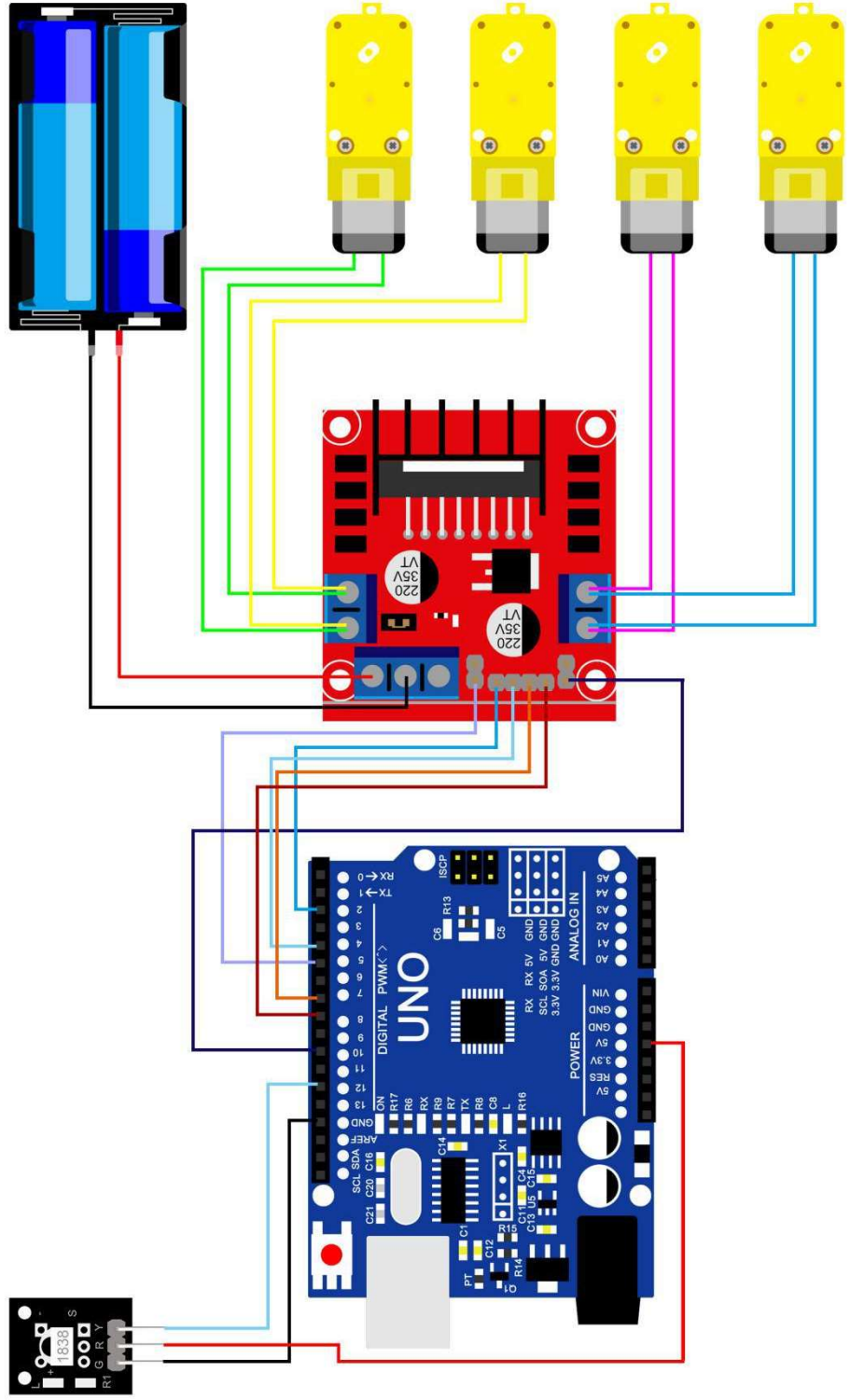
This lesson ,regarding Arduino microcontroller as main control, uses IR module to receive IR remote signal and send the signal to Arduino. Arduino will analyse the signal and then control the driver motor and the motion of the car with IR remote control. In addition, you can observe the state of the car through 1602 I2C Module.



# Connection Schematic



# Wiring diagram



## Code

After wiring, please open the program in the code folder- Lesson 9 IR Remote Control Car and click **UPLOAD** to upload the program. See Lesson 3 for details about program uploading if there are any errors.

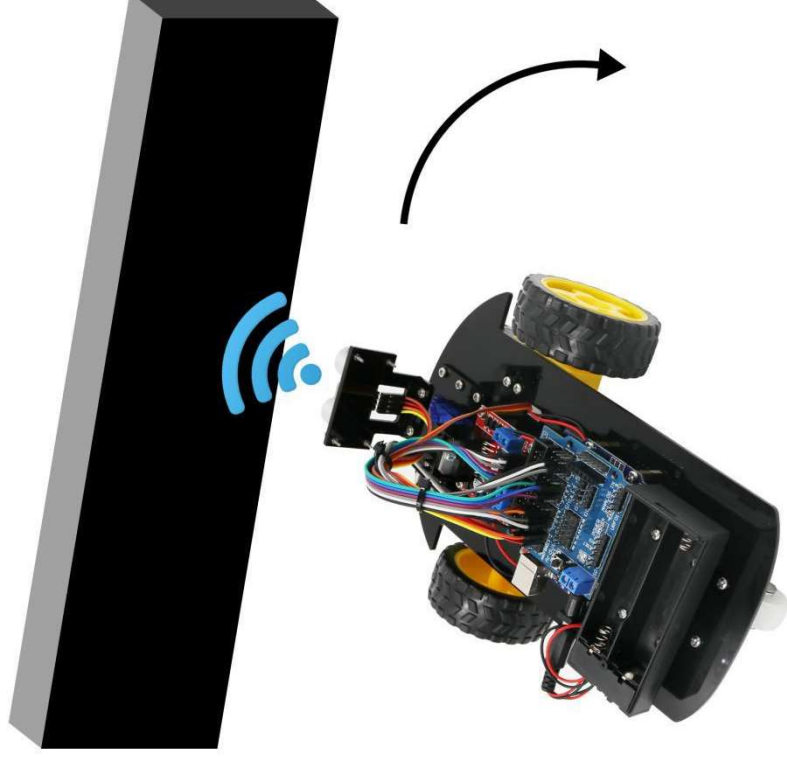
Before you can run this, make sure that you have installed the `<IRremote >` library or re-install it, if necessary. Otherwise, your code won't work.

For details about loading the library file, see Lesson 2.

## Lesson 10 Obstacle Avoidance Car

### About this lesson:

This lesson ,regarding Arduino as main control, detect front obstacle by ultrasonic sensor and platform motor, and send the feedback to Arduino. Arduino will analyse the feedback signal and then control the driver motor to adjust the car diversion. Finally the car is able to avoid obstacle automatically and keep going. In addition, you can observe the state and speed of the car , the angle of motor , and the distance between car and obstacle through I2C Module.

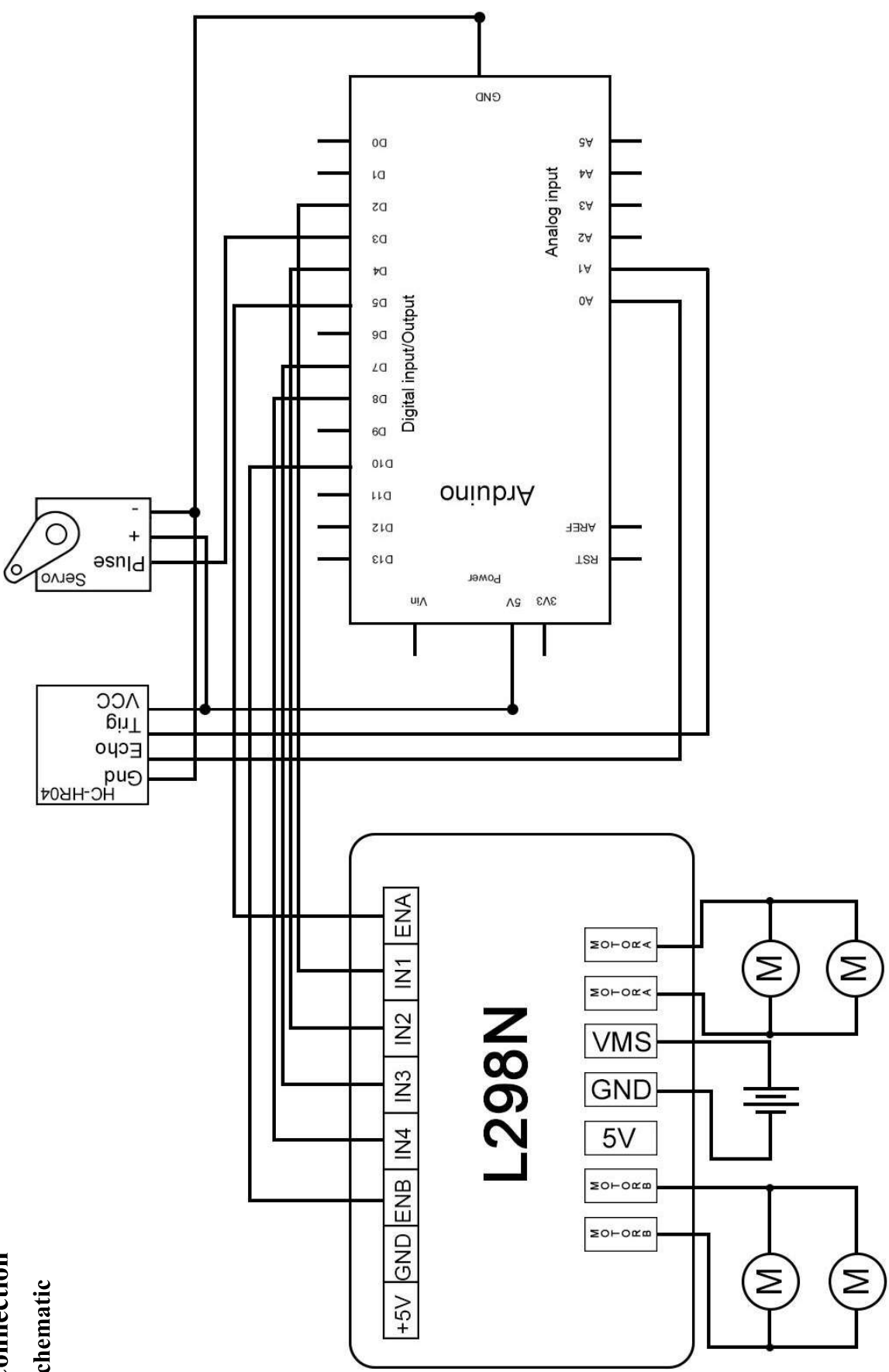




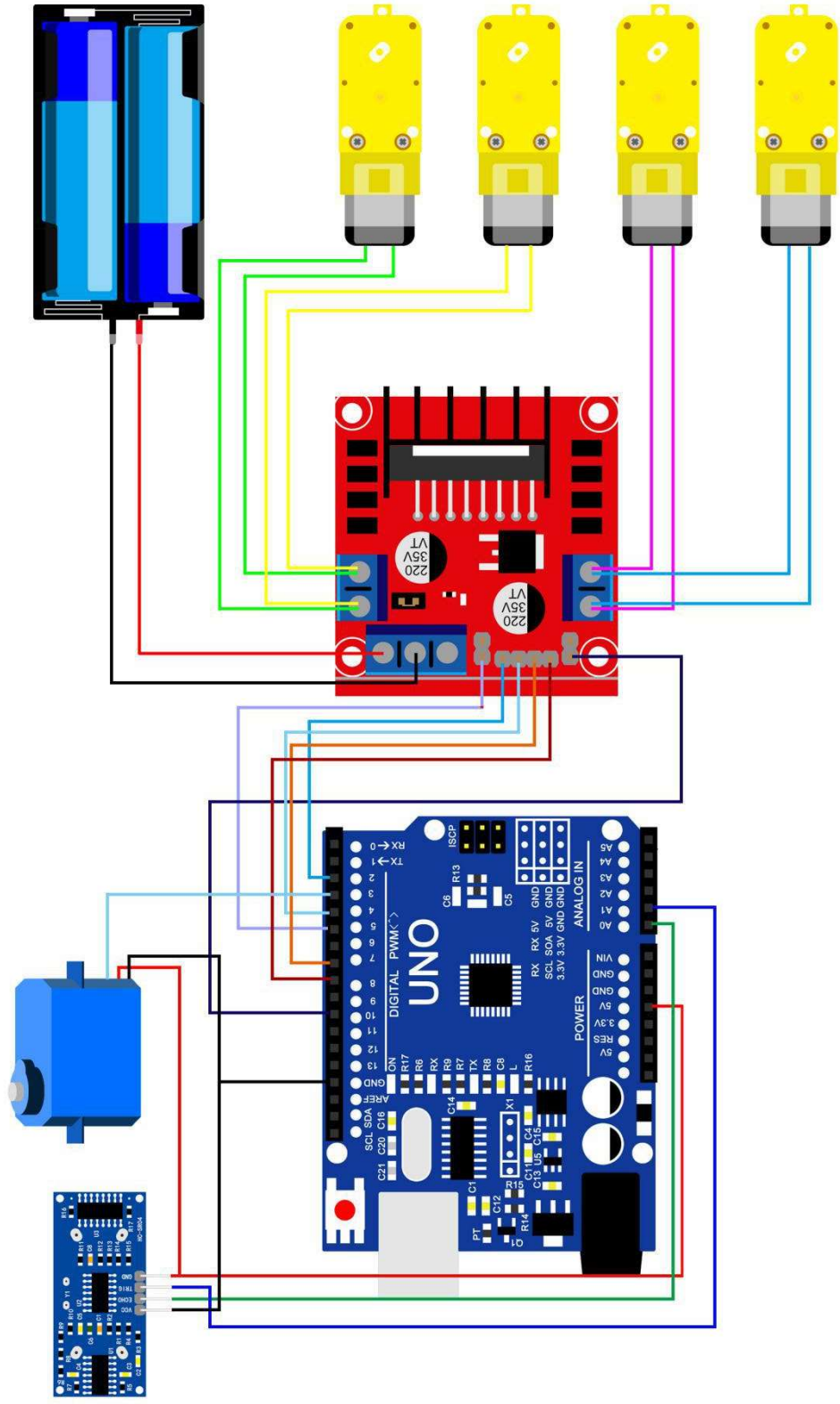
## **Principle:**

1. Ultrasonic detecting distance: one port emits high level more than 10 US. Once it outputting level, open potentiometer to time. When the port becomes low level, read out current value. Use the time of detecting distance to calculate distance.
2. Use ultrasonic to detect the distance between obstacle and car, so that control the motion of the car according to the data.
3. If the distance between the car and obstacle is less than 35 cm, the car goes backward; if the distance is no less than 10 cm, the car goes forwards; if the distance is less than 60 cm, the motor turns to detect the distance between car and left obstacle or right obstacle; if the distance between car and left obstacle, the distance between car and right obstacle are less than 35 cm, the car goes backward; if the distance between car and left obstacle is larger, the car turns left; if the distance between car and left obstacle is less than or equal to the distance between car and right obstacle, the car turns right.

**Connection  
Schematic**



Wiring diagram



## Code

After wiring, please open the program in the code folder- Lesson 10 Obstacle Avoidance Car and click **UPLOAD** to upload the program. See Lesson 2 for details about program uploading if there are any errors.

Before you can run this, make sure that you have installed the `< Servo>` `< HC-SR04>` library or re-install it, if necessary. Otherwise, your code won't work.

For details about loading the library file, see Lesson 2.