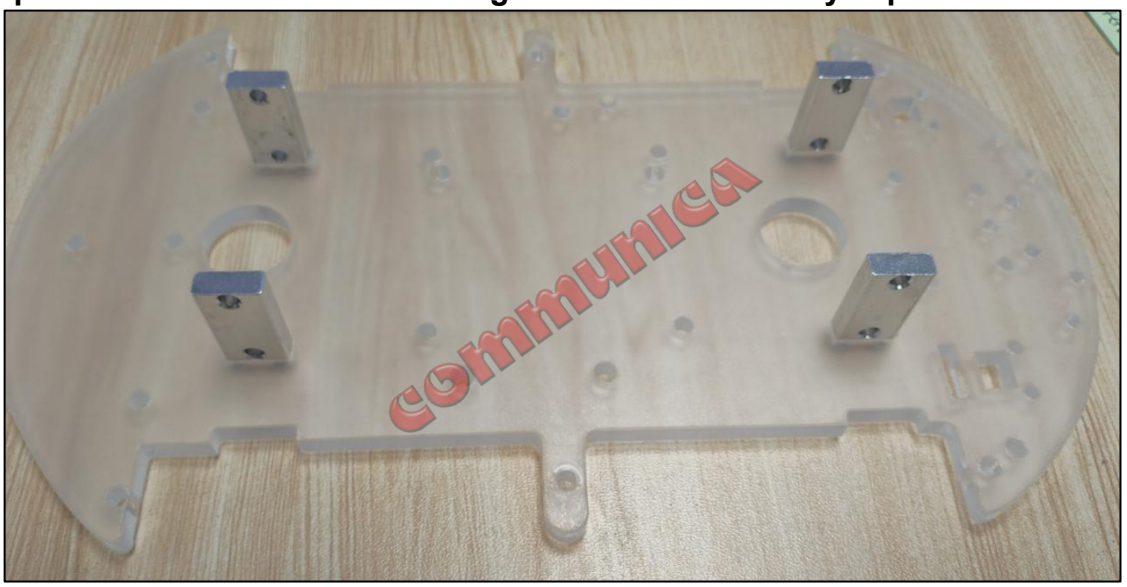
BDD BLUETOOTH CAR CHASSIS KIT

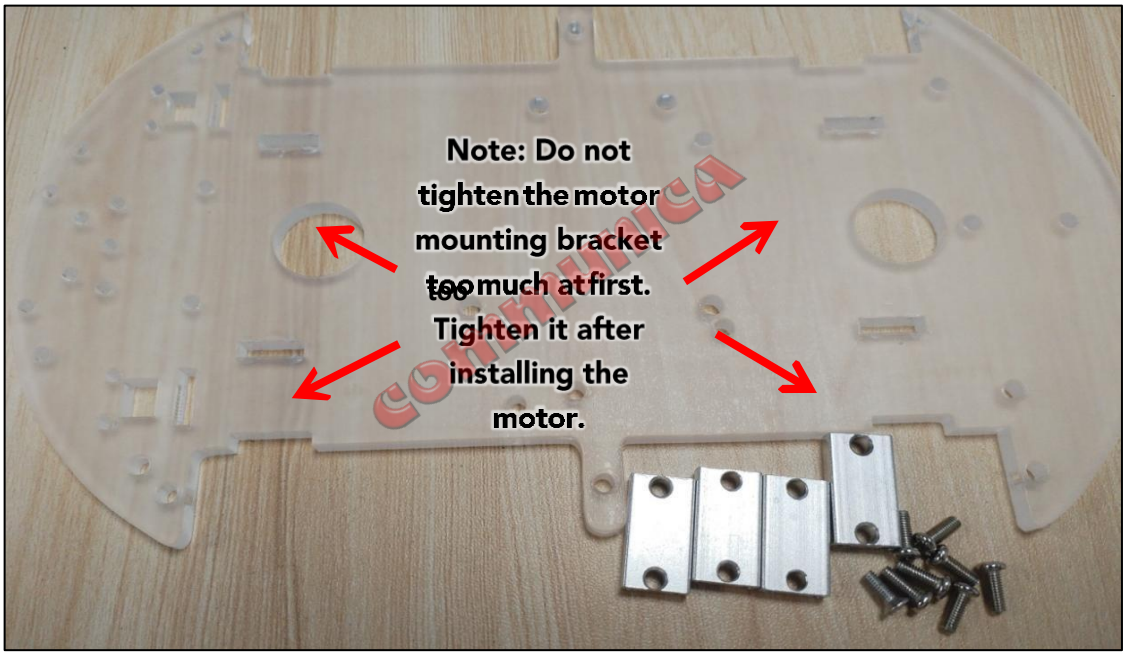
Step 1: Secure the motor

Step 1.1: Solder the positive and negative wires to the motor

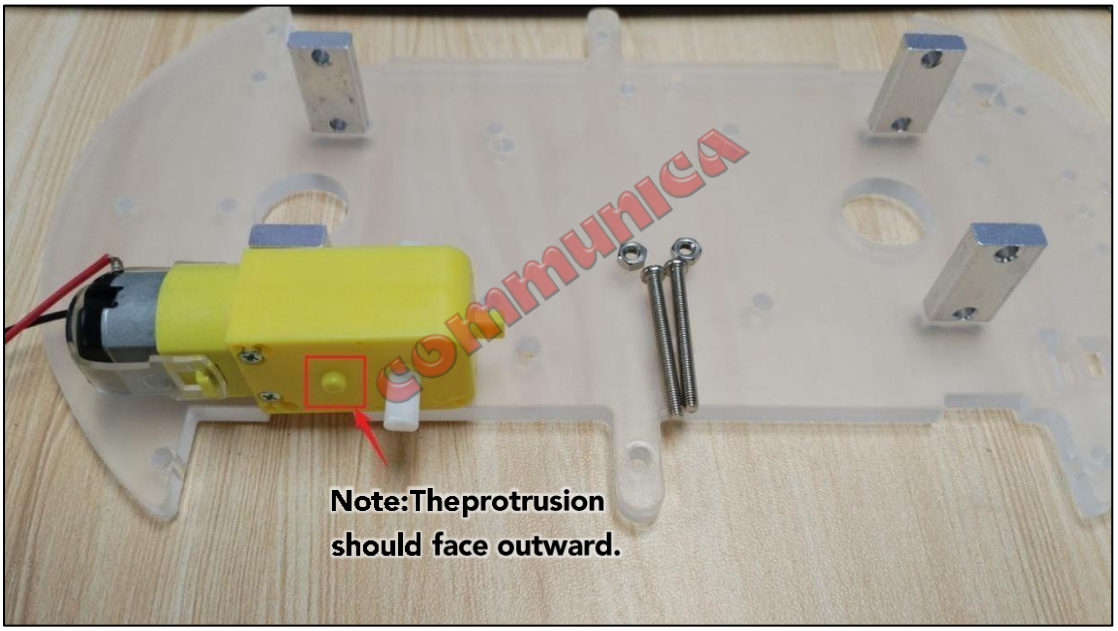
Solder the other three motors as well.

Step 1.2: Install the motor mounting bracket onto the acrylic plate.

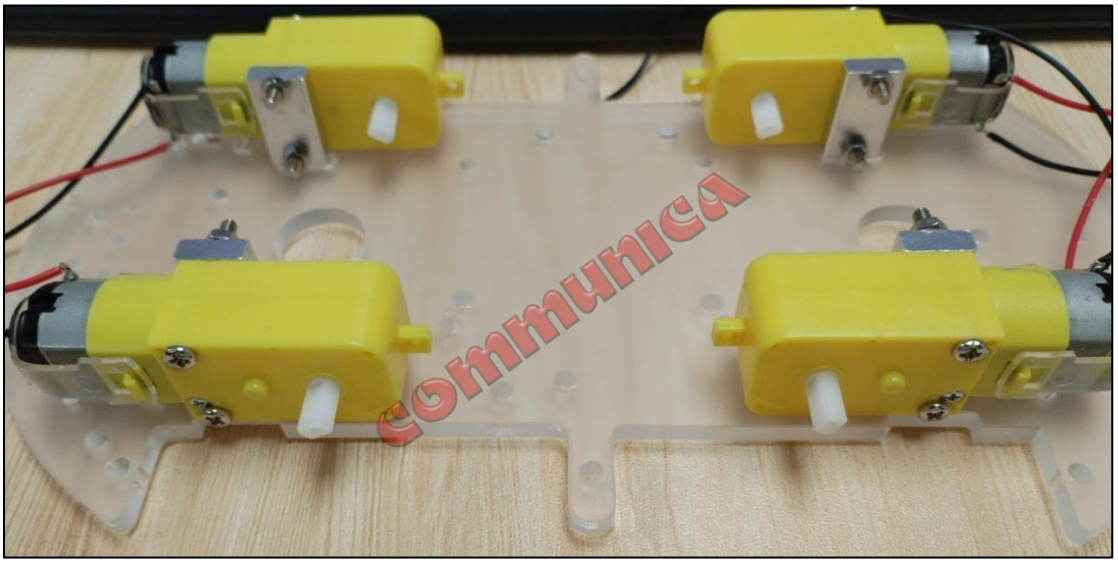




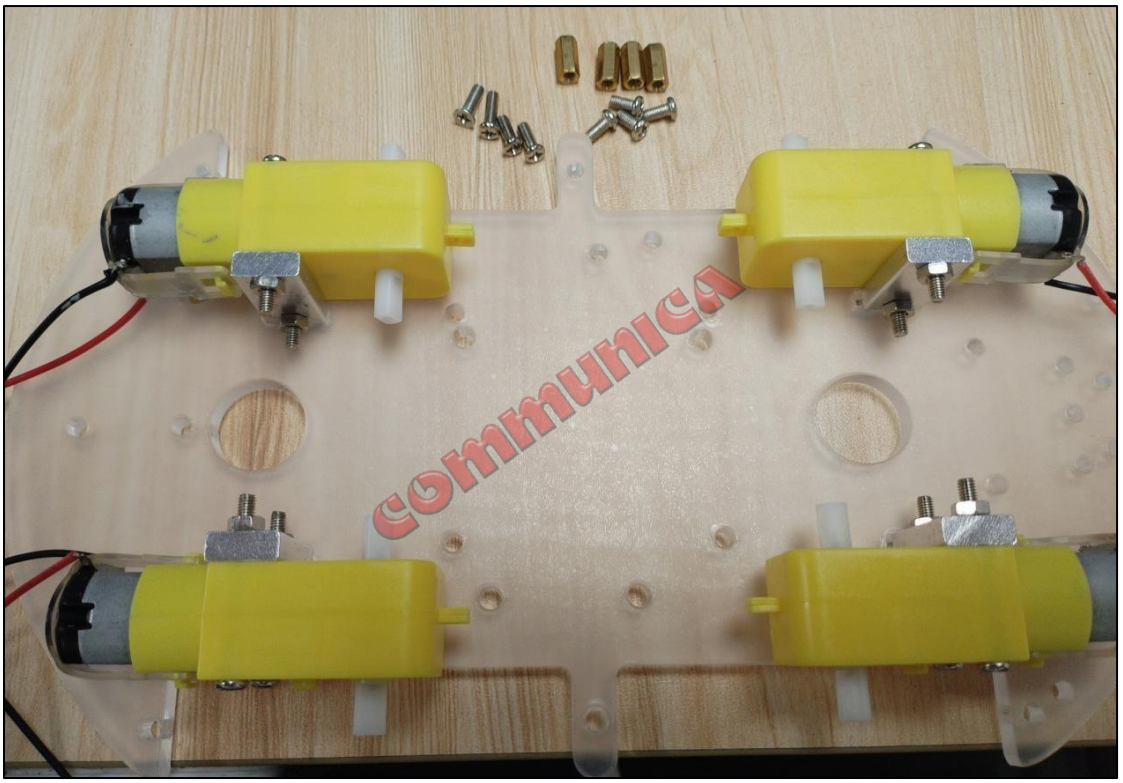
Step 1.3: Mount the motor onto the motor mounting bracket.



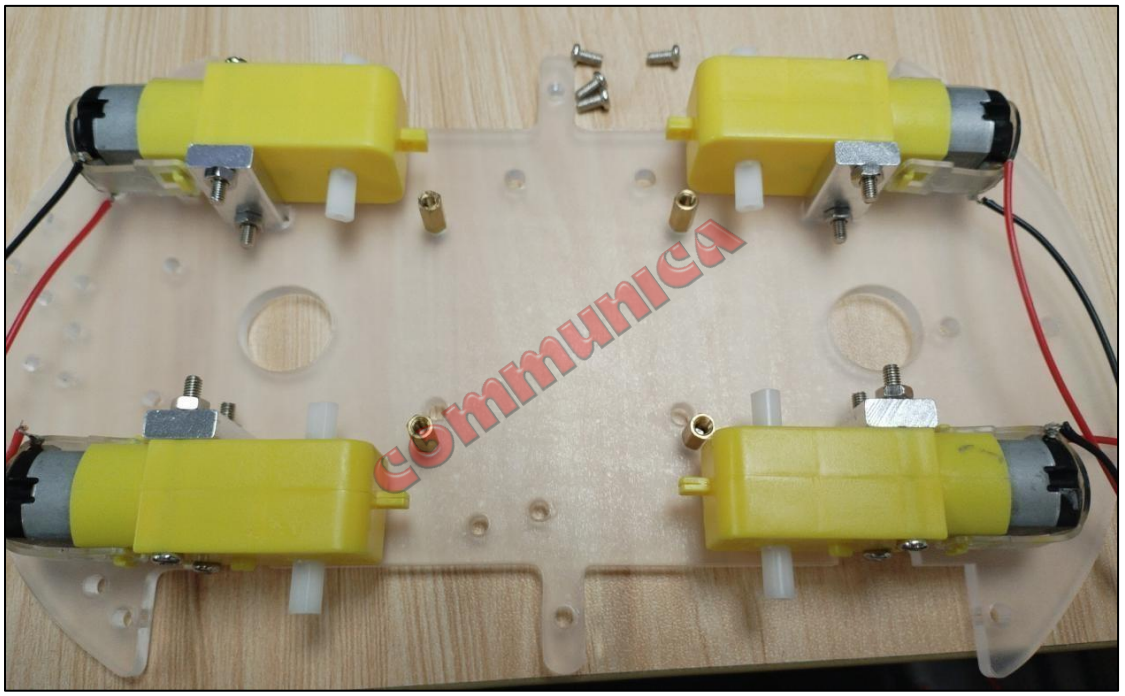
Next, install the remaining three motors onto the motor mounting brackets.



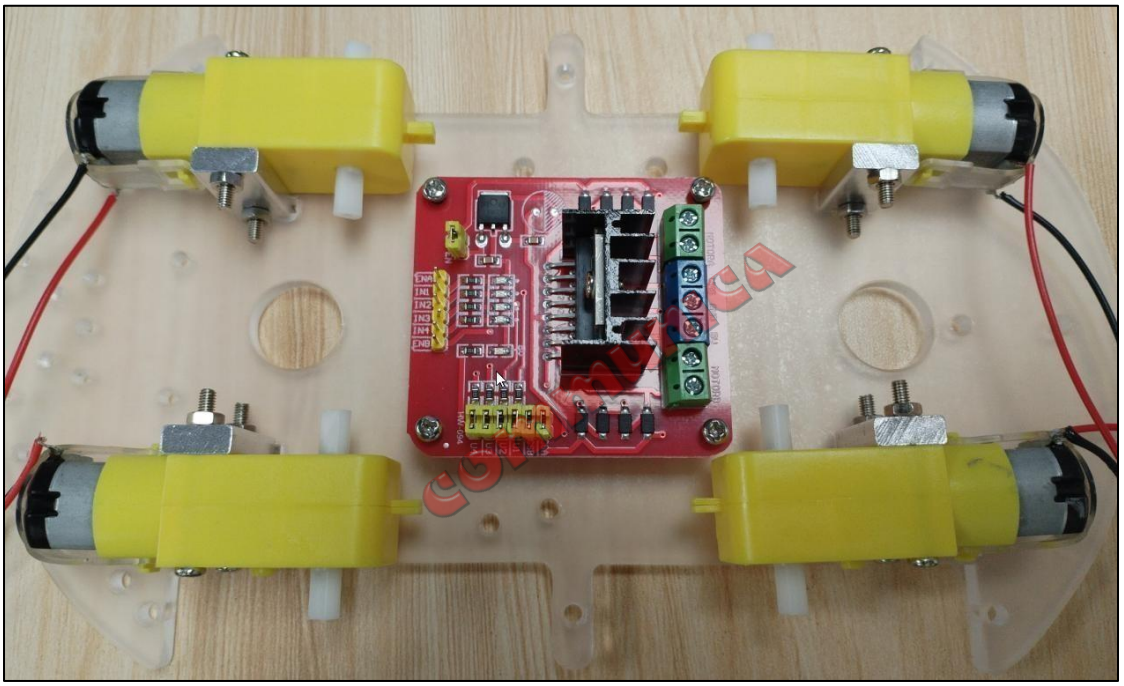
Step 2: Install the motor driver board



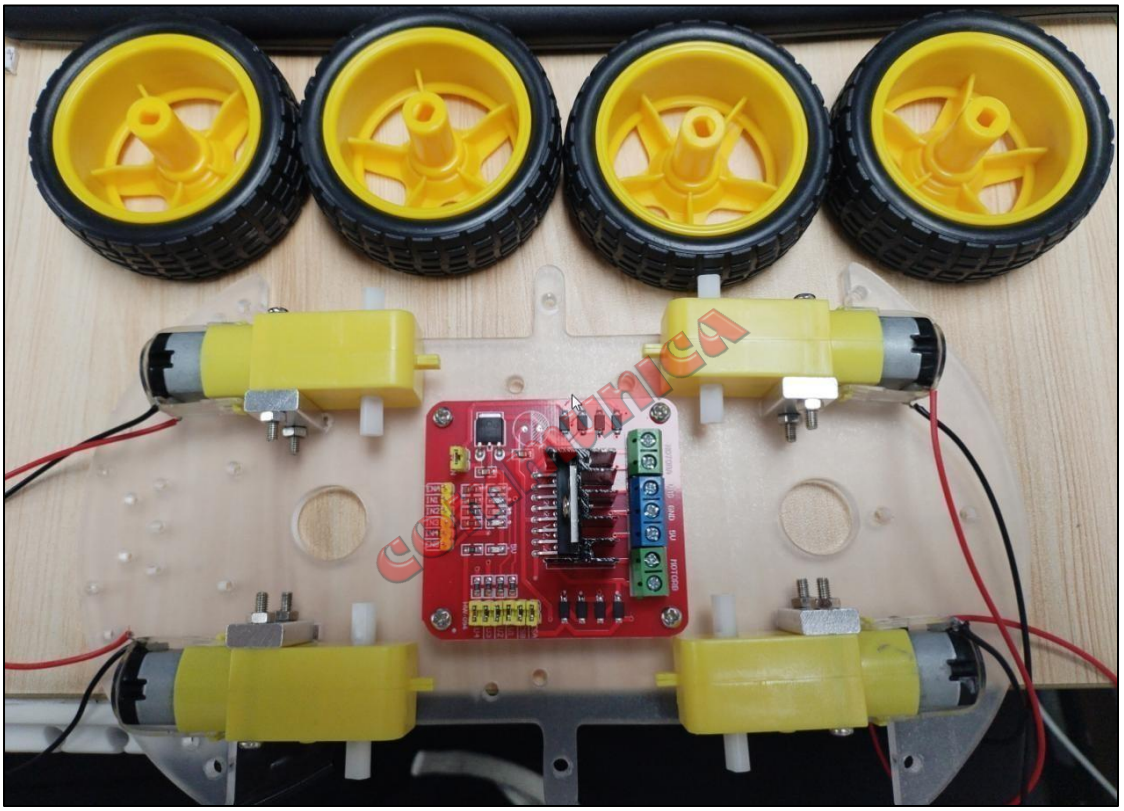
Step 2.1: Install the dual-pass copper standoffs onto the acrylic plate.

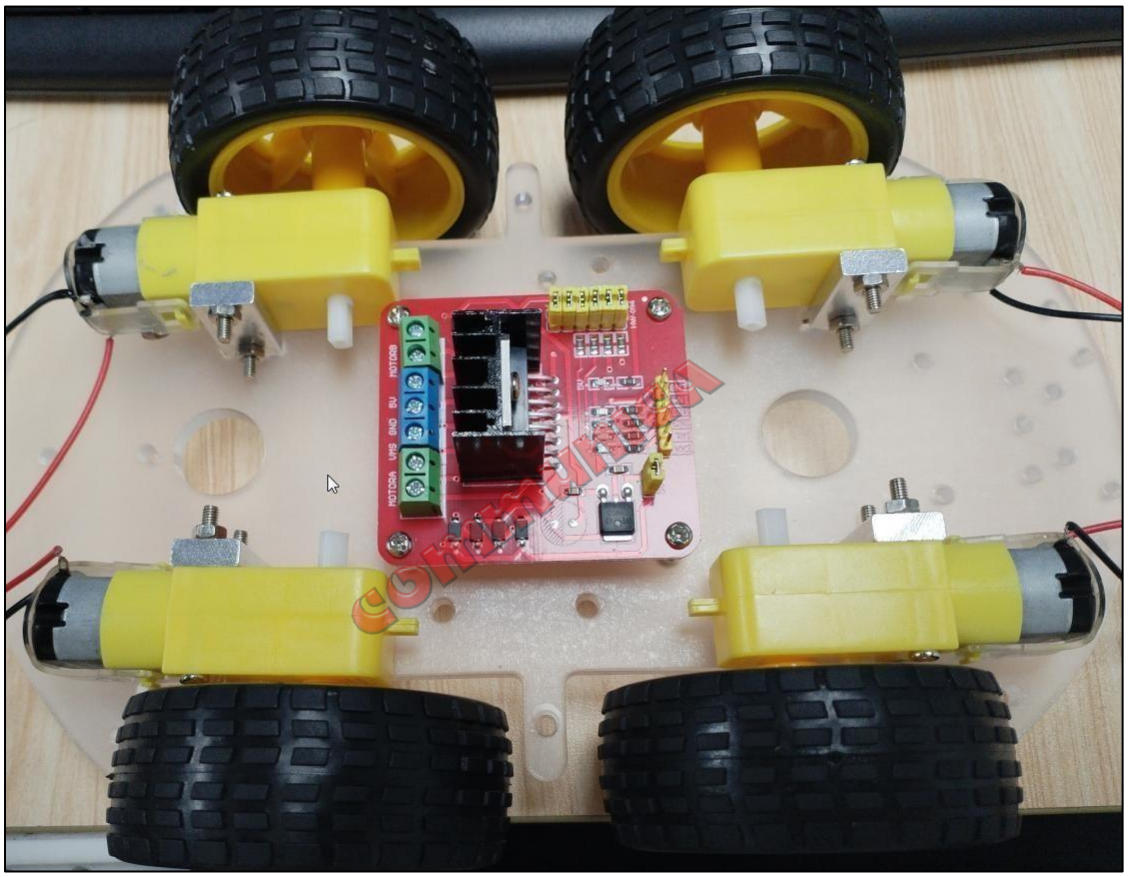


Step 2.2: Mount the motor driver board onto the dual-pass copper standoffs.

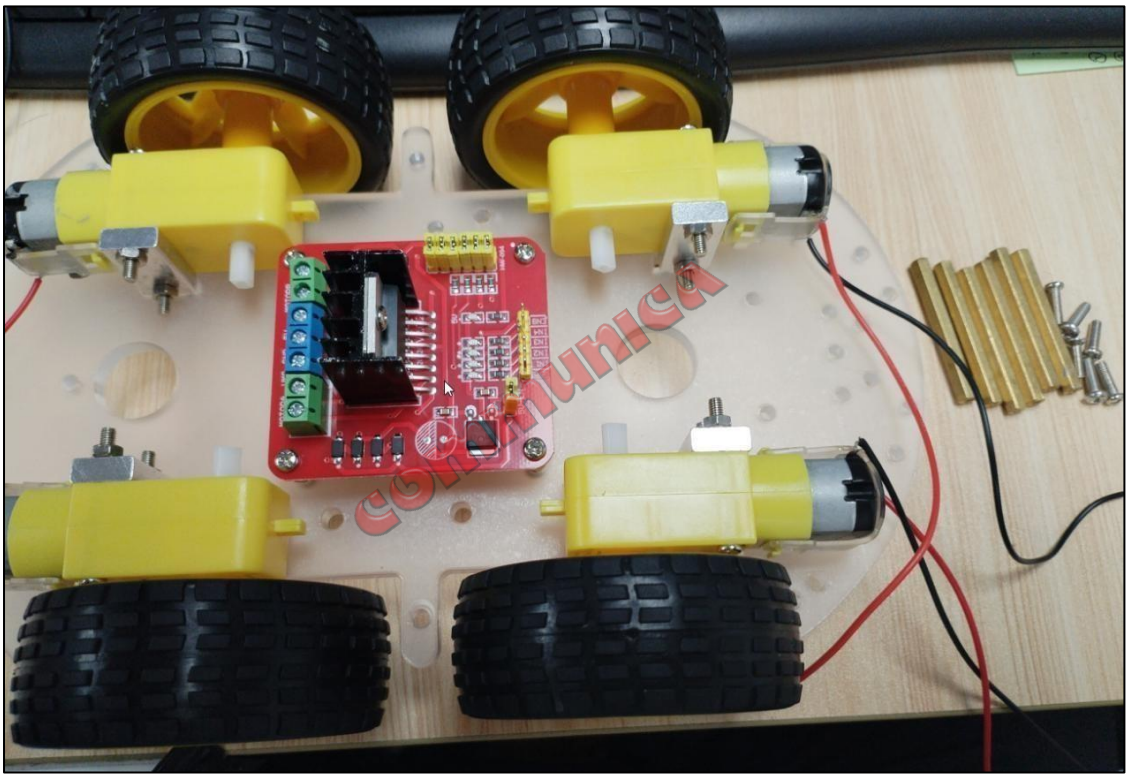


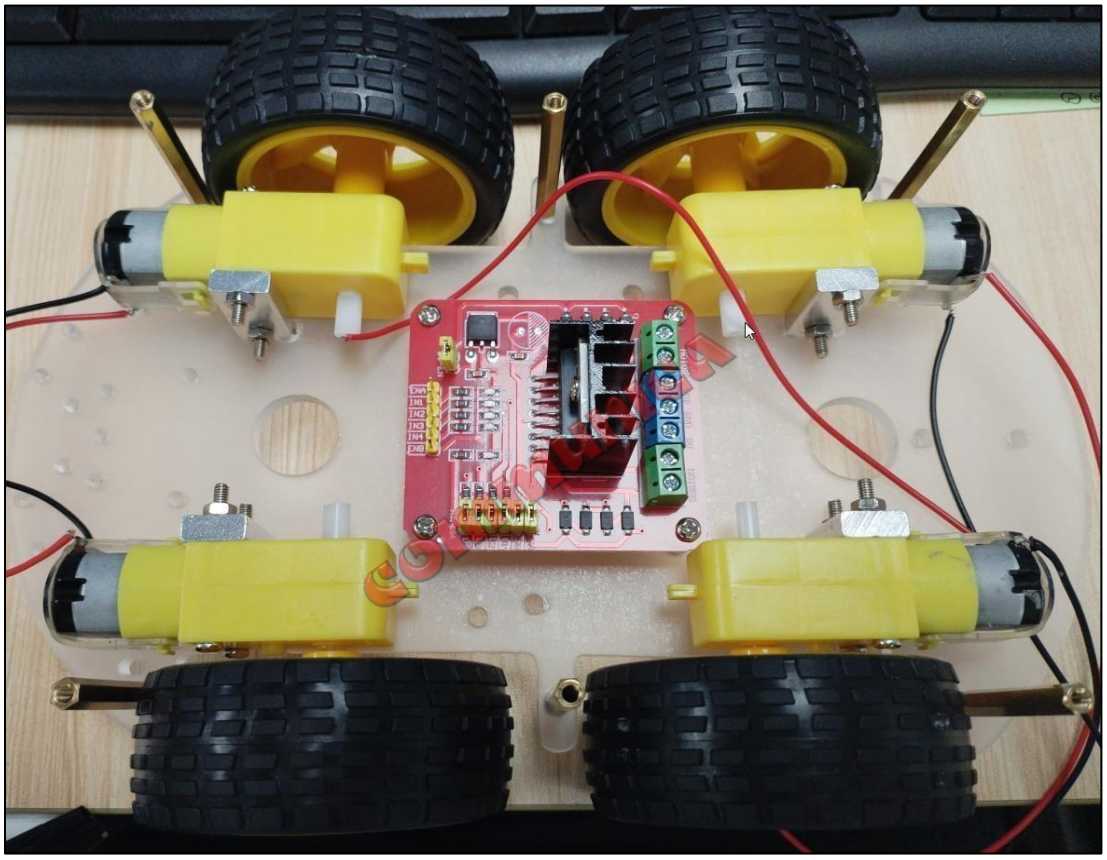
Step 3: Install the rubber wheels



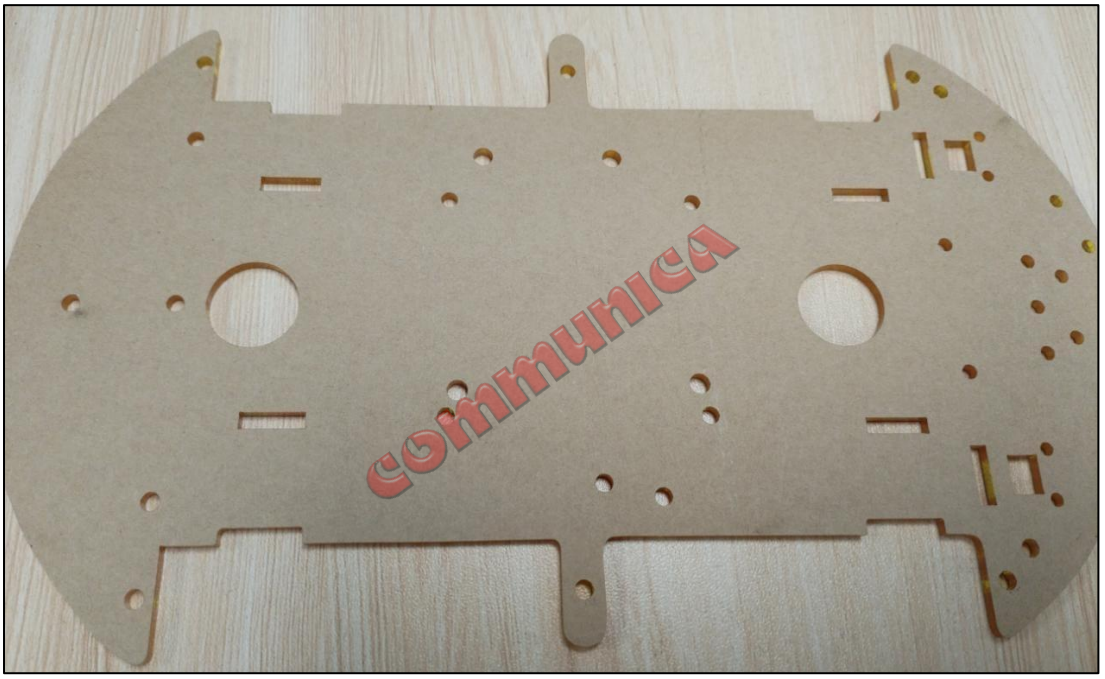


Step 4: Install support copper pillars

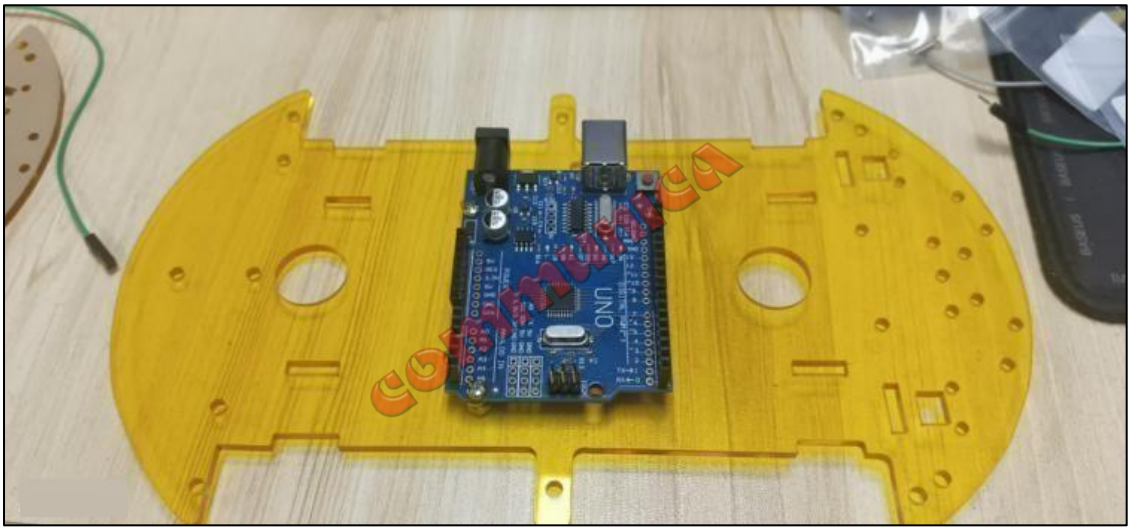




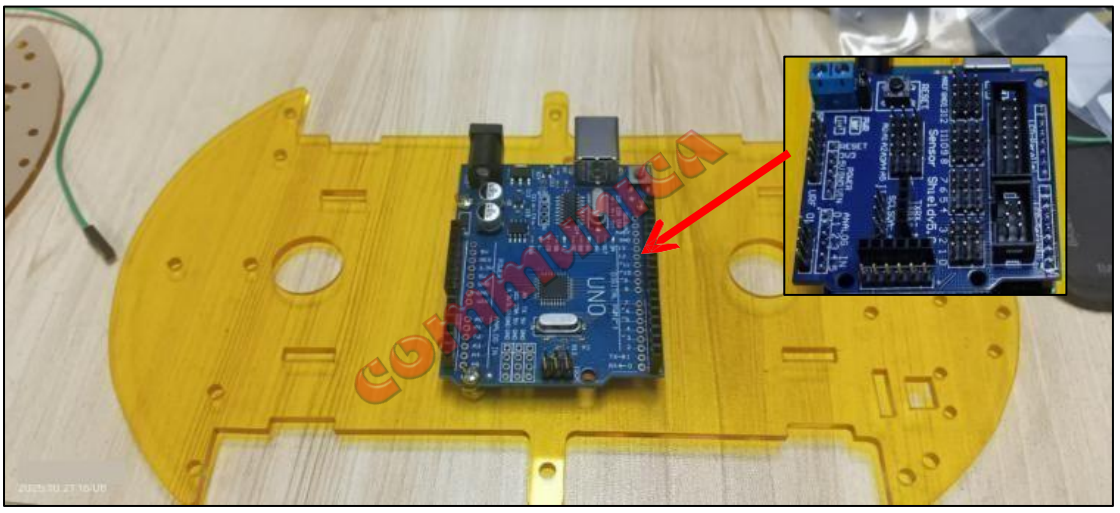
Step 5: Peel off the acrylic film

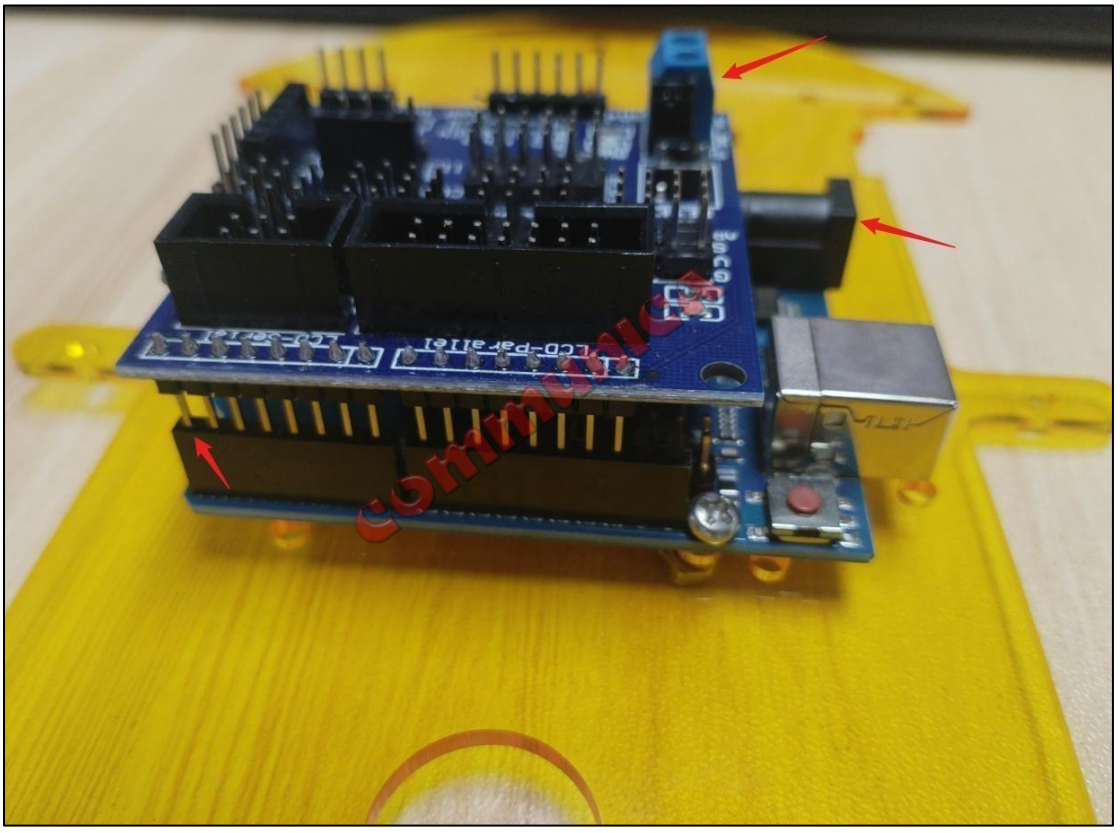


Step 6: Install the Arduino controller board



Step 7: Install the Arduino expansion board





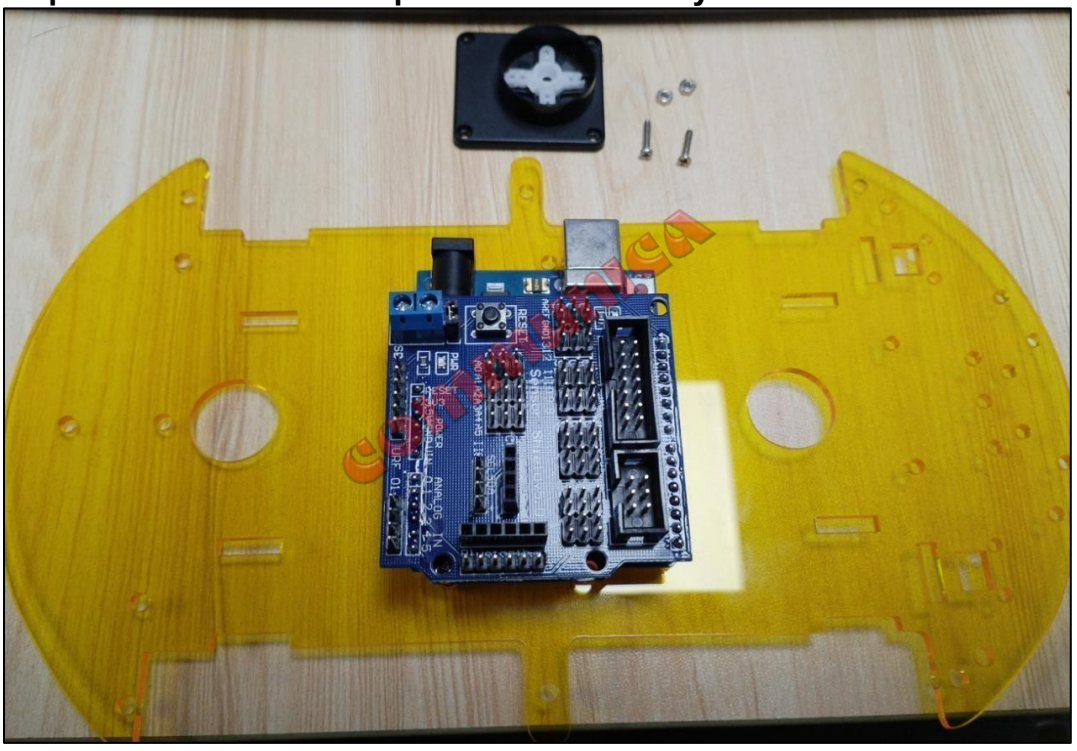
Step 8: Install the servo pan-tilt

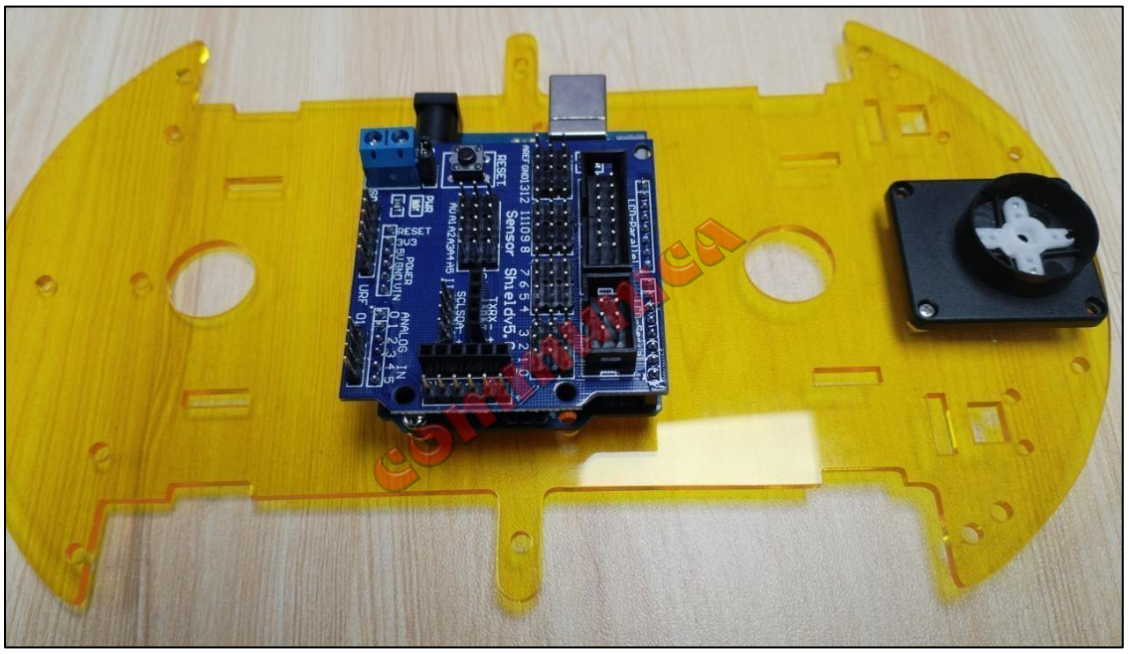
Step 8.1: Take out the cross-shaped servo horn.

Step 8.2: Cut the cross-shaped servo horn into the shape shown in the image.

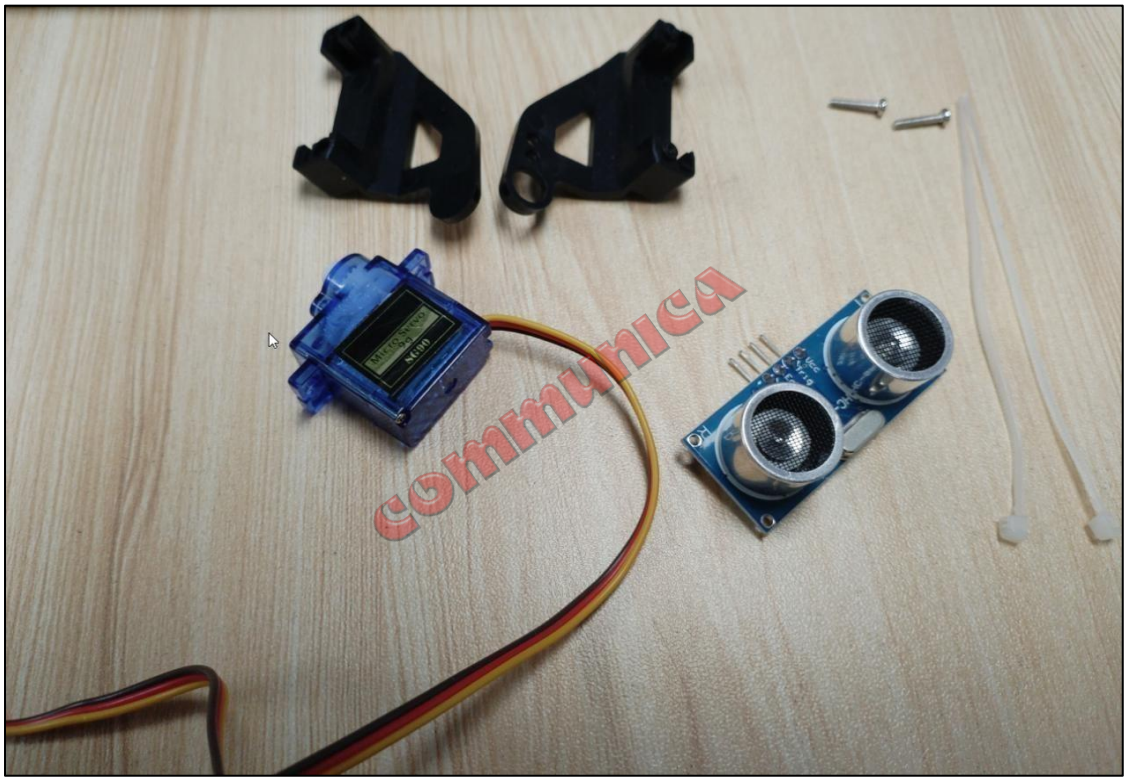
Step 8.3: Install the servo horn onto the pan-tilt base.

Step 8.4: Install the servo pan-tilt onto the acrylic board.

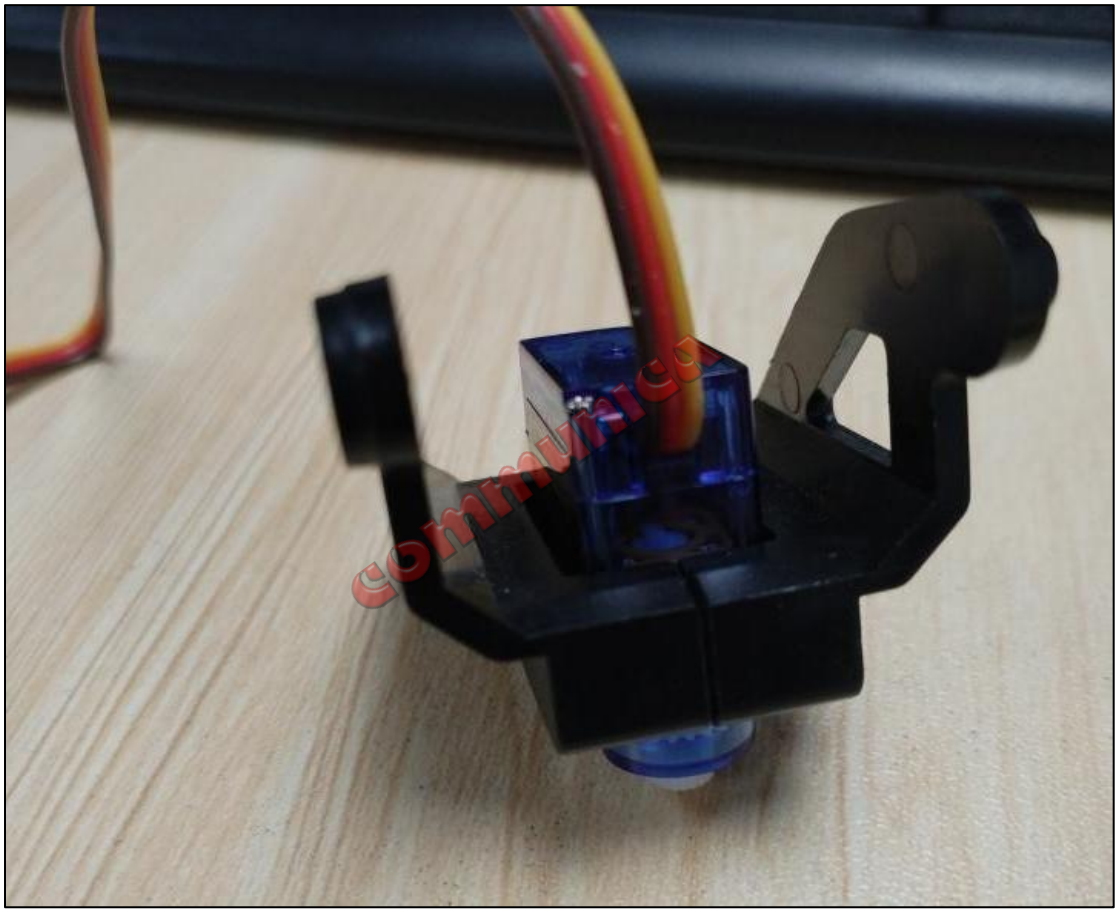


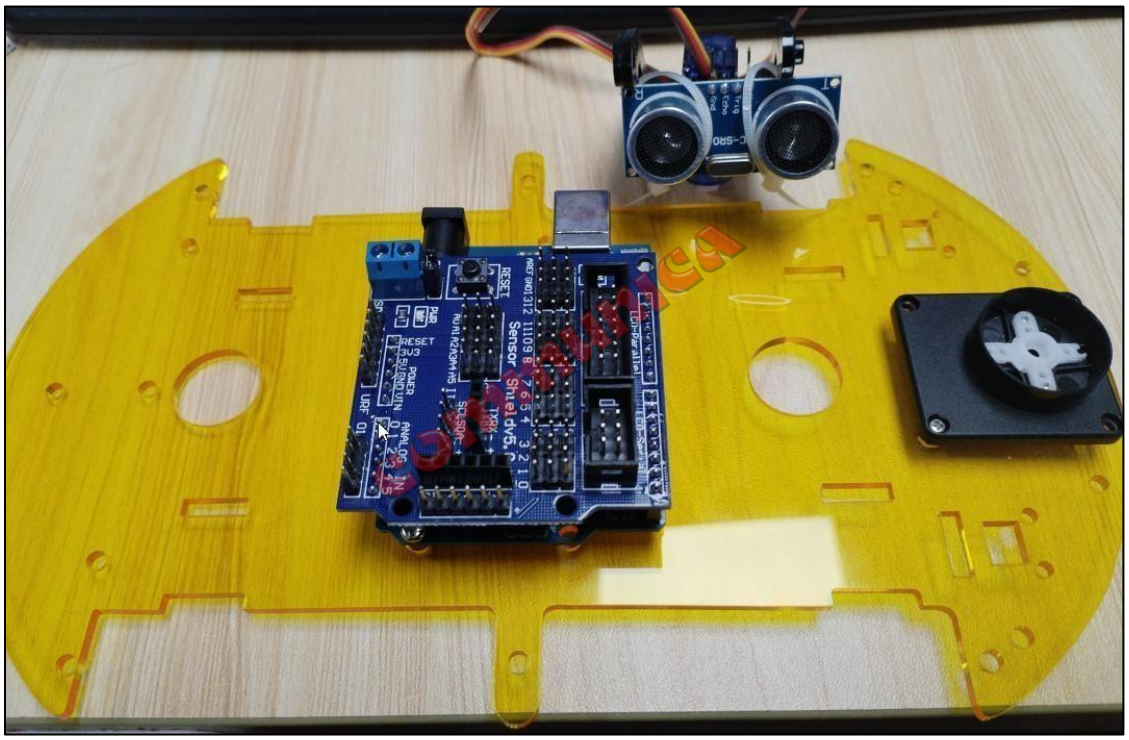


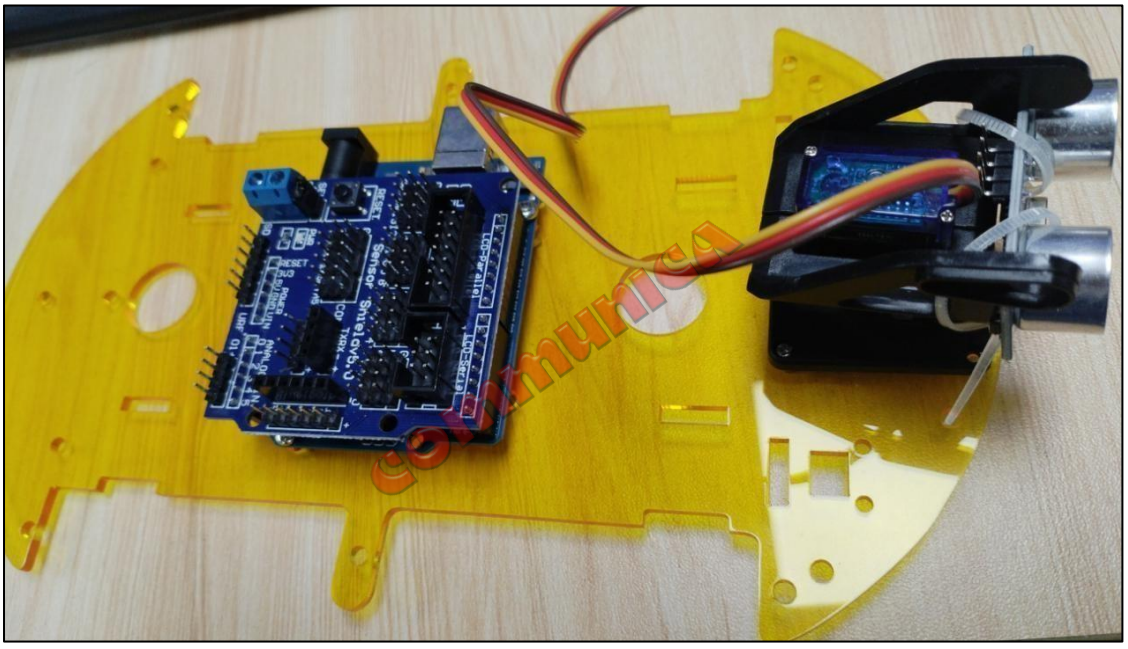
Step 8.5: Install the ultrasonic module onto the pan-tilt bracket.



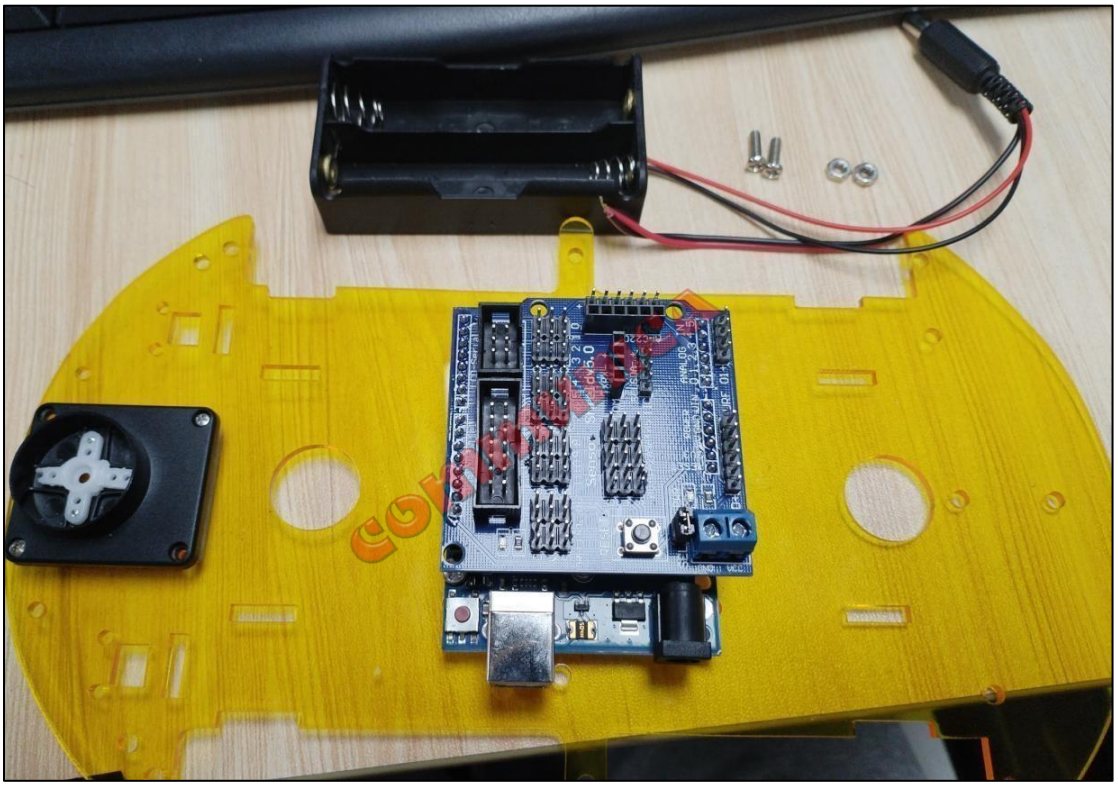

SG90
Micro Servo 9g

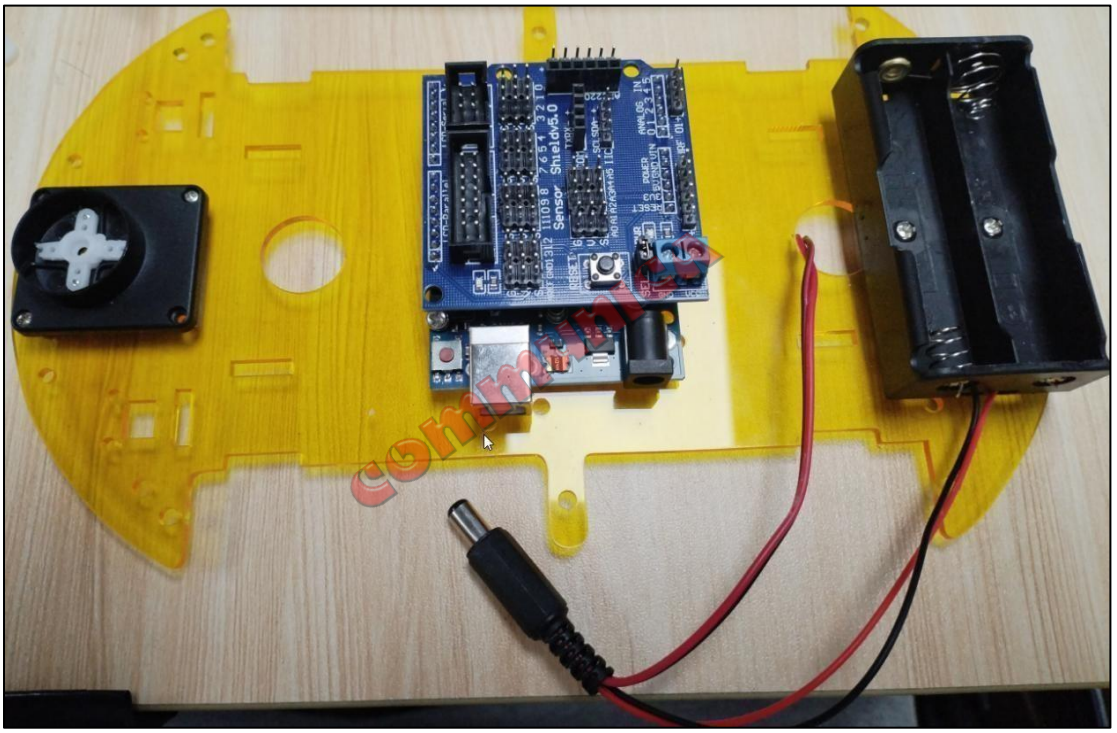




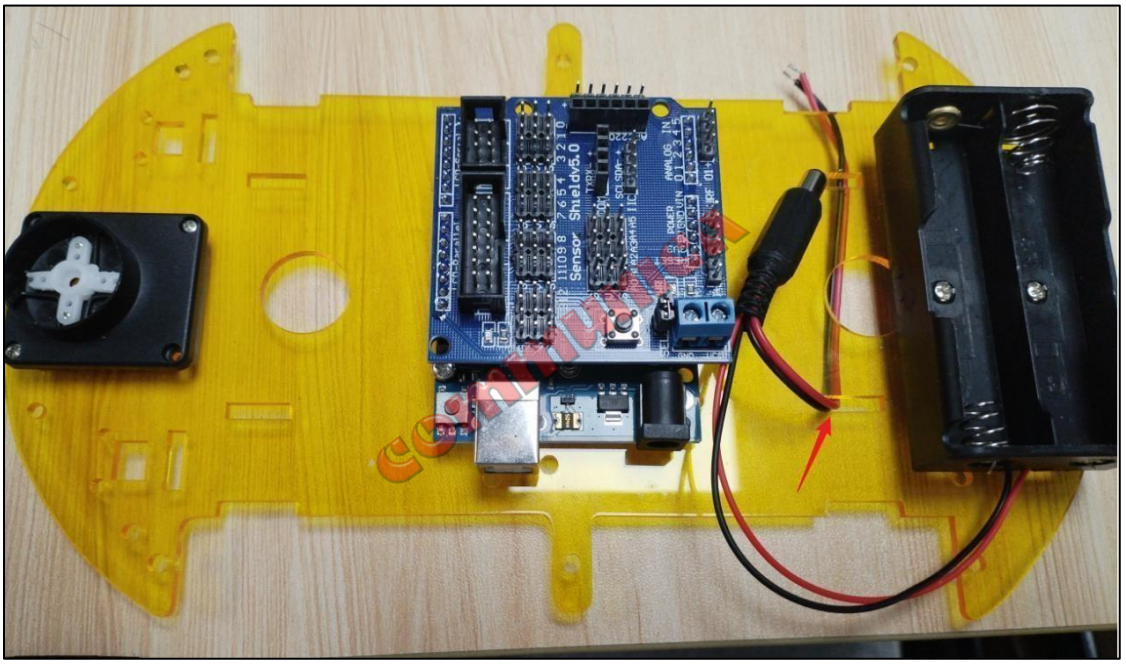


Step 9: Install the battery holder

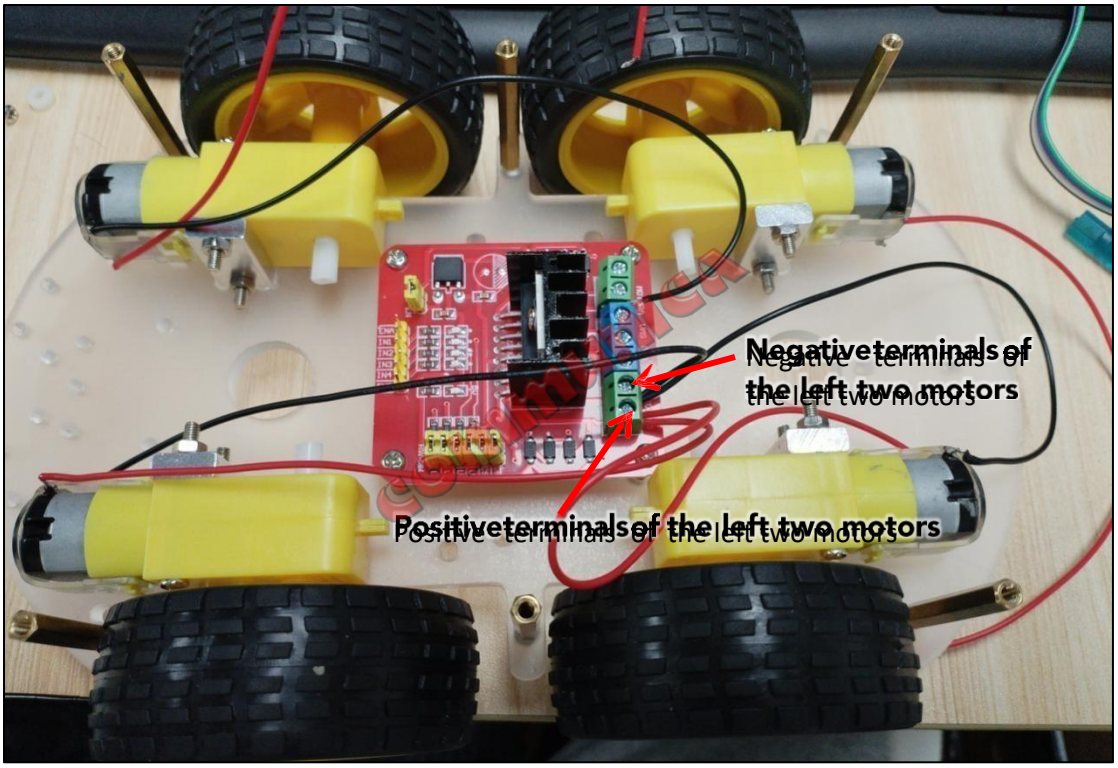


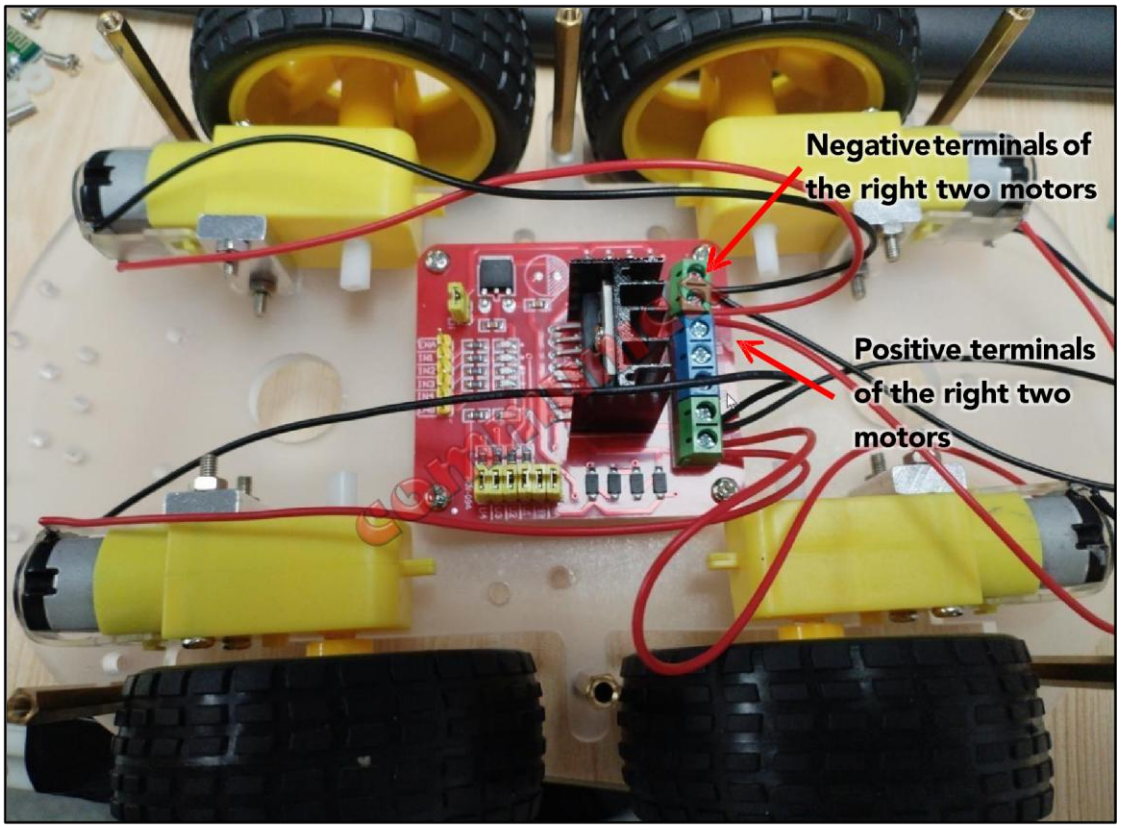


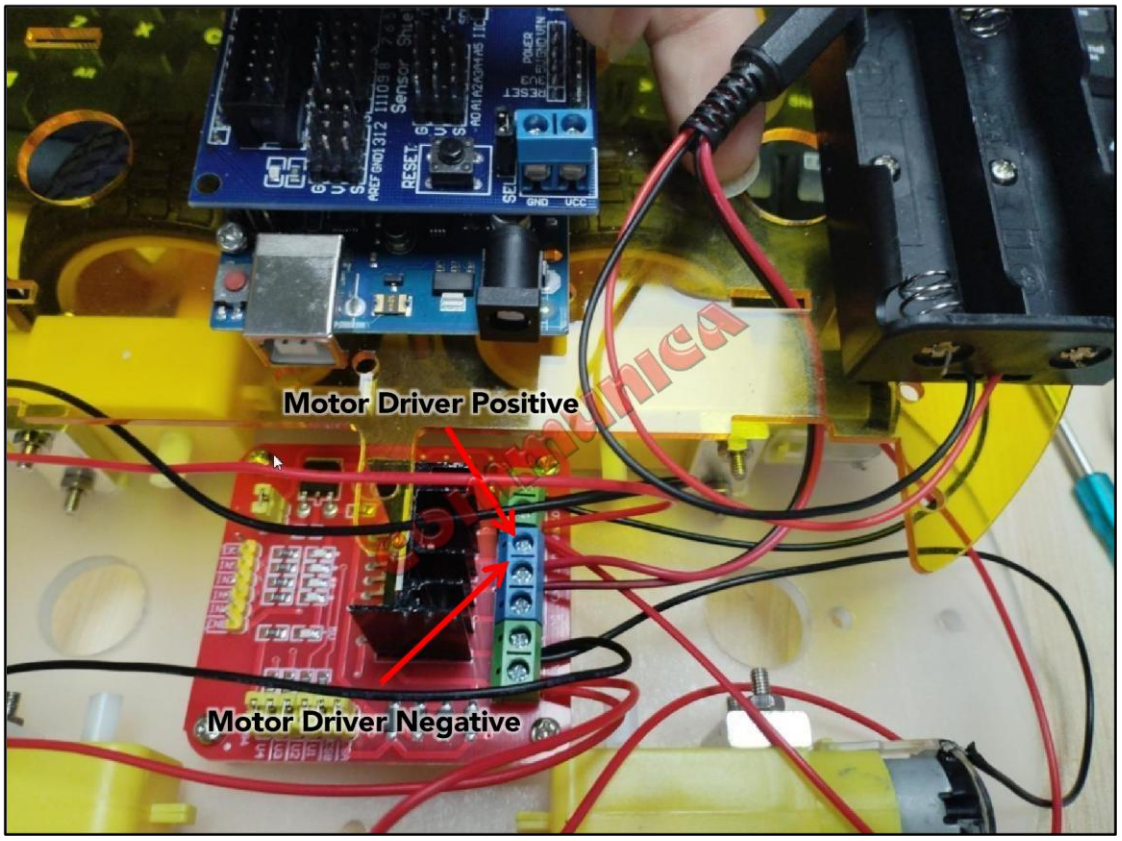
Pass the power cable of the motor driver board through the hole indicated by the arrow

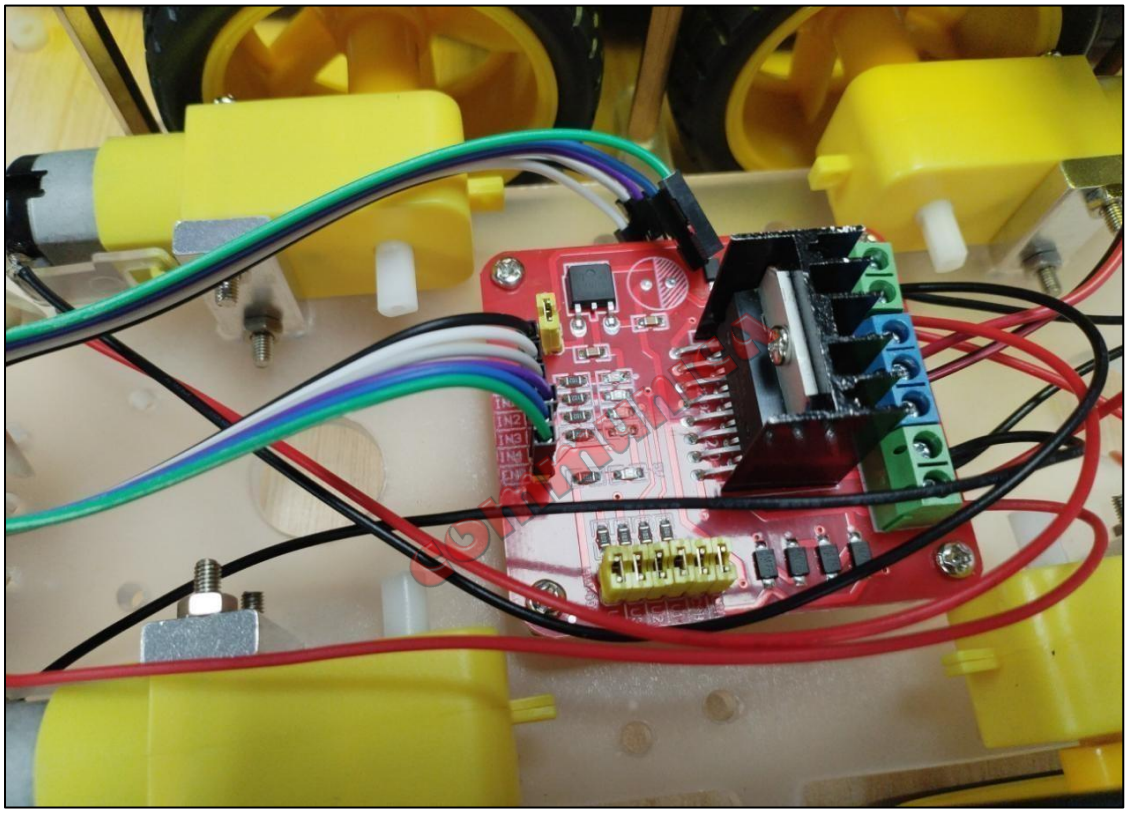


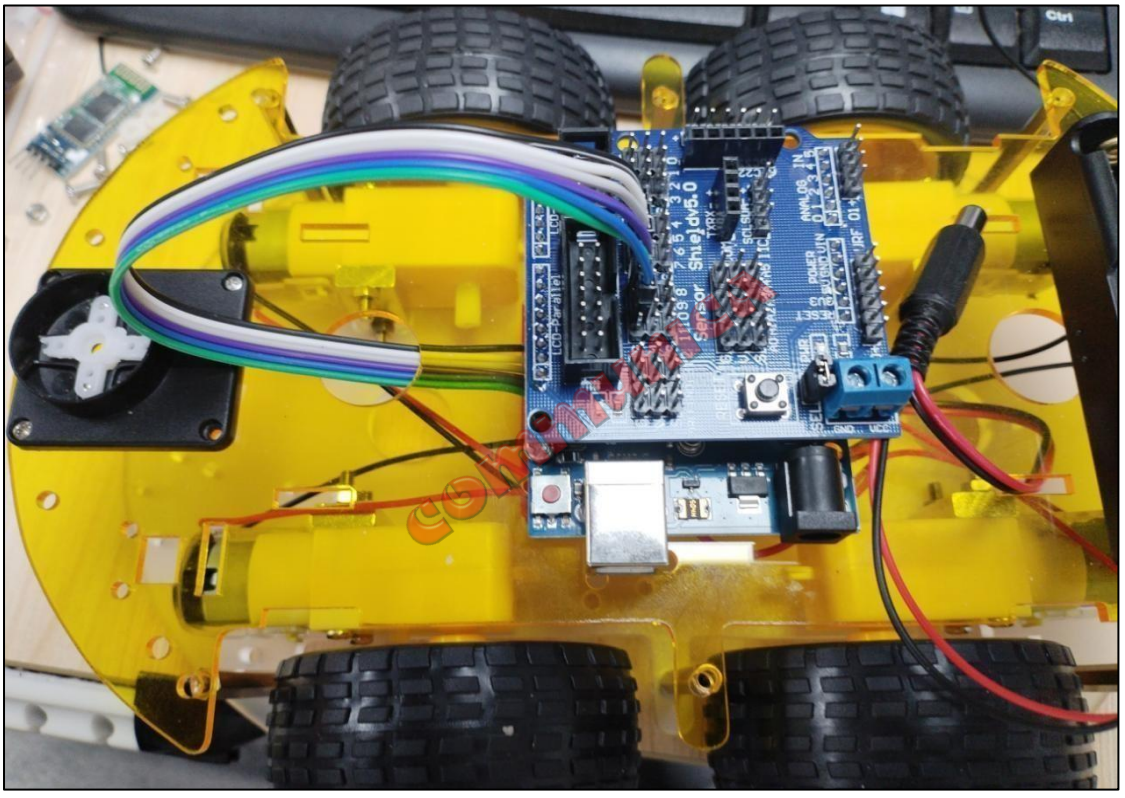
Step 10: Connect the motor power cable




Negative terminals of the right two motors
Positive terminals of the right two motors


Motor Driver Positive
Motor Driver Negative

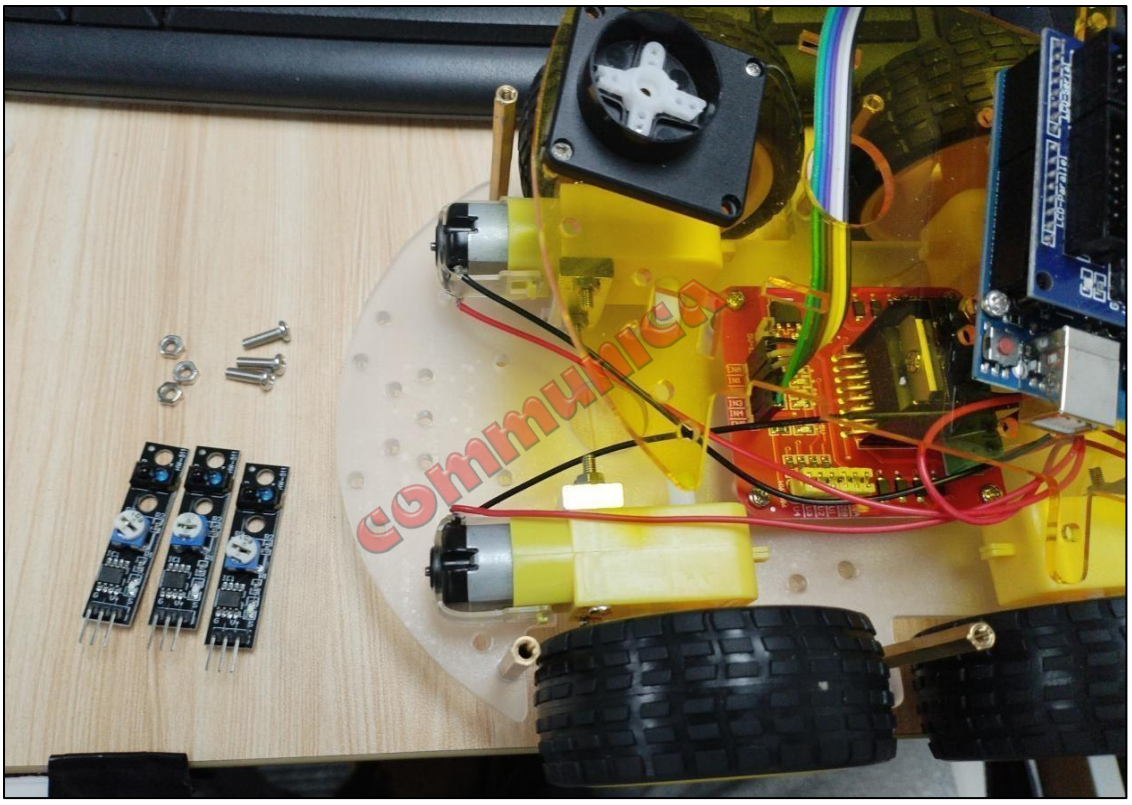


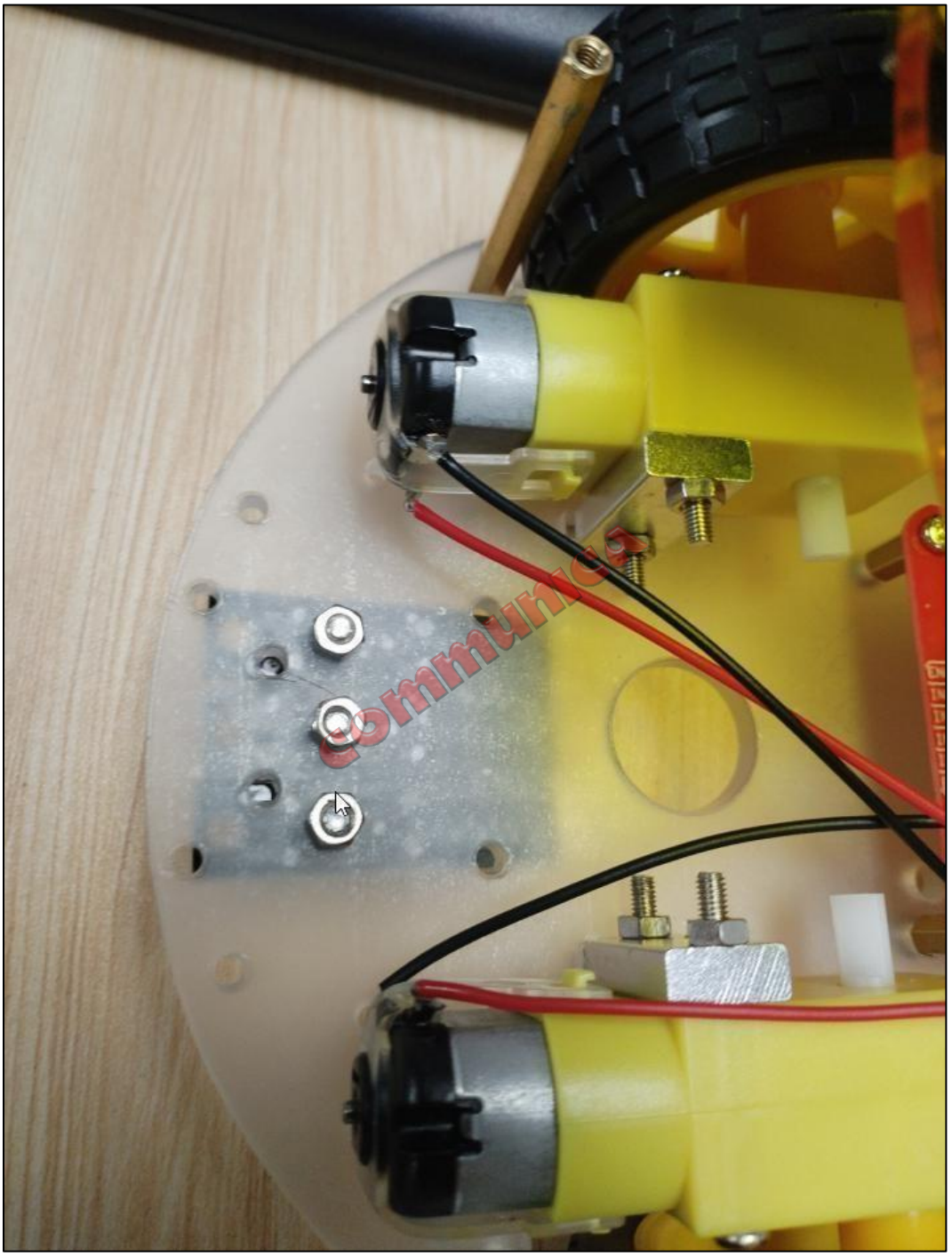


Pin connection table

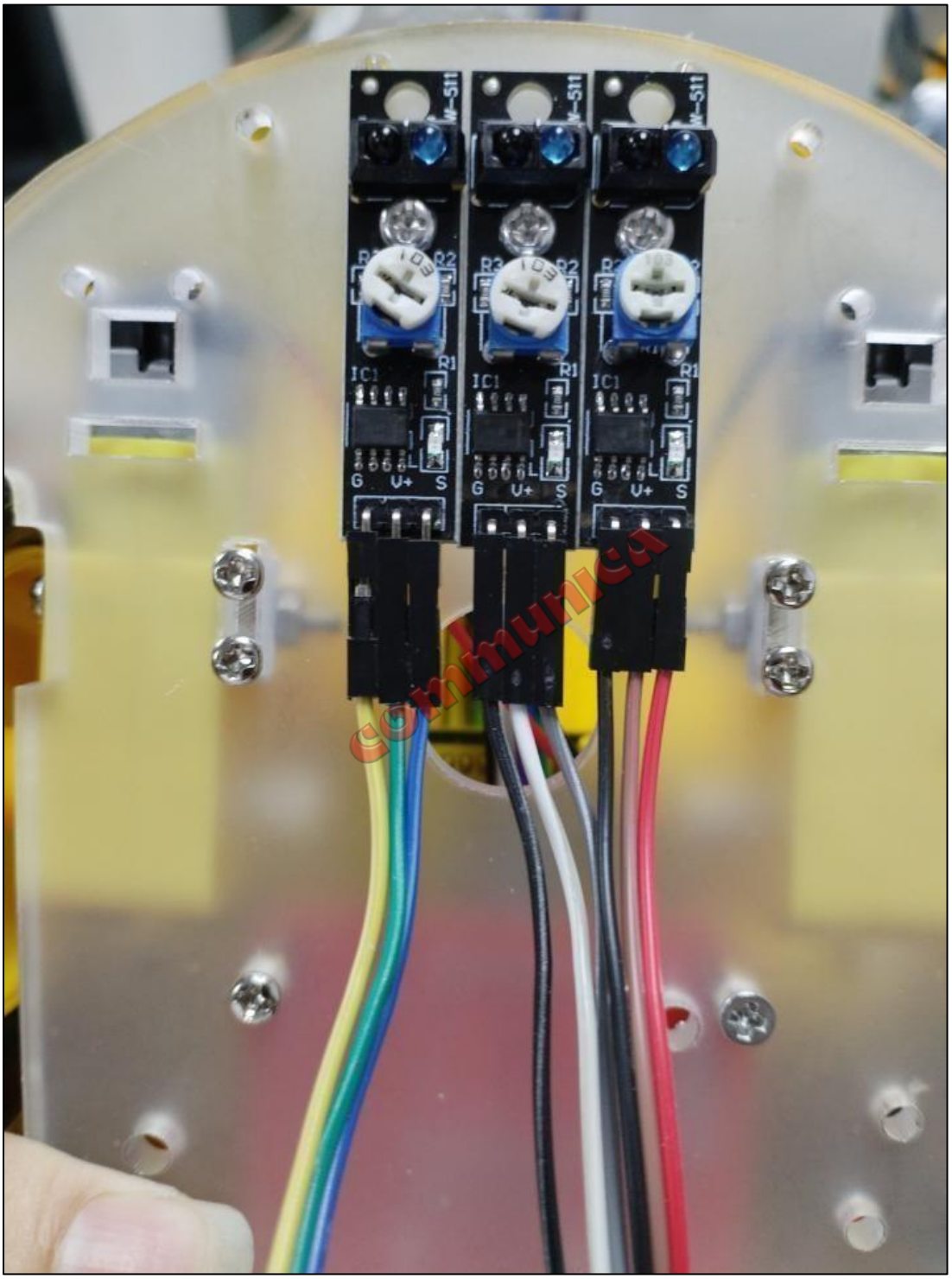
Arduino	L298N
11	ENA
8	IN1
7	IN2
5	IN3
4	IN4
3	ENB

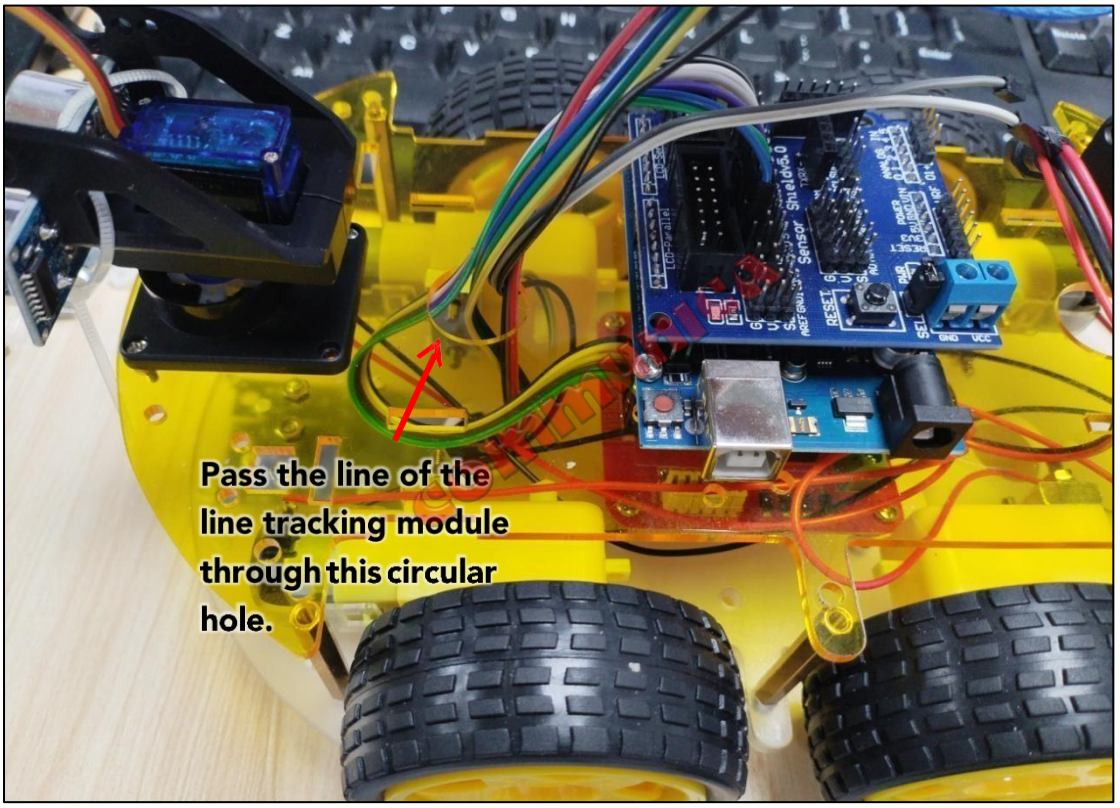
Step 11: Install the line tracking module

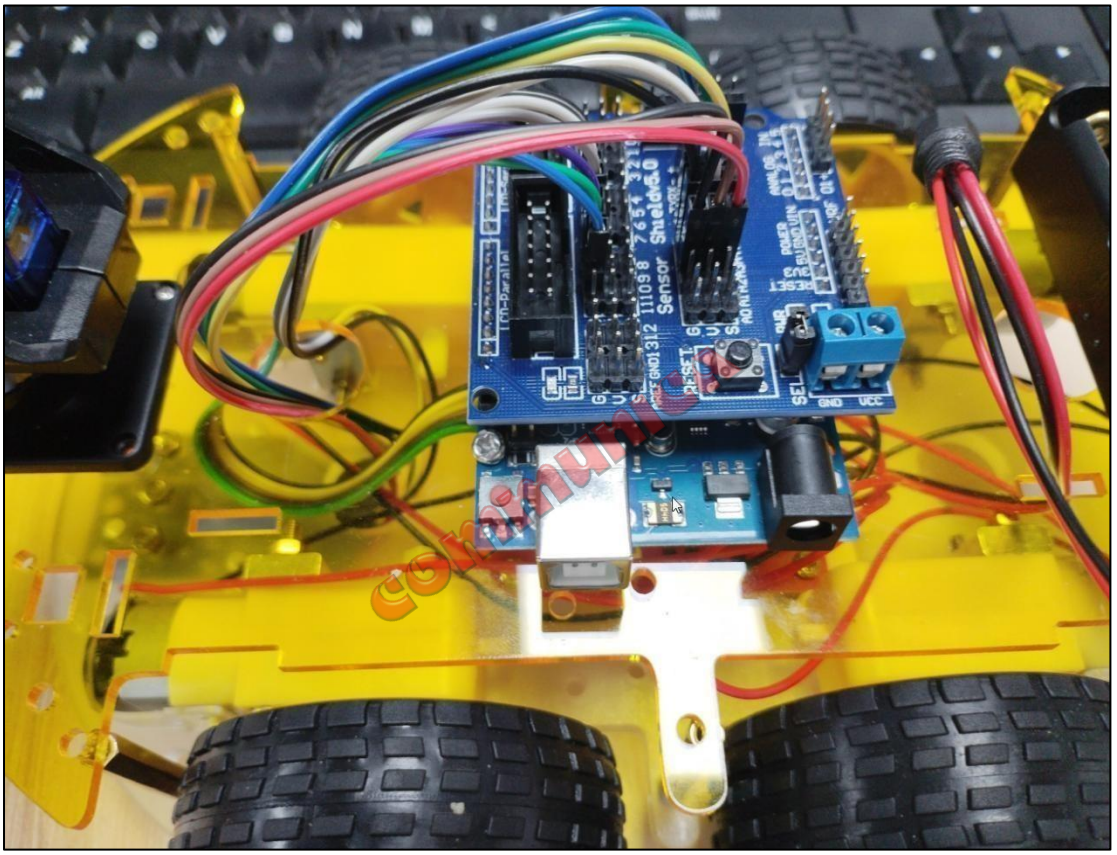





W-511
W-511
W-511


M-511
R3
R2
R1
IC1
G
V+
S
communica

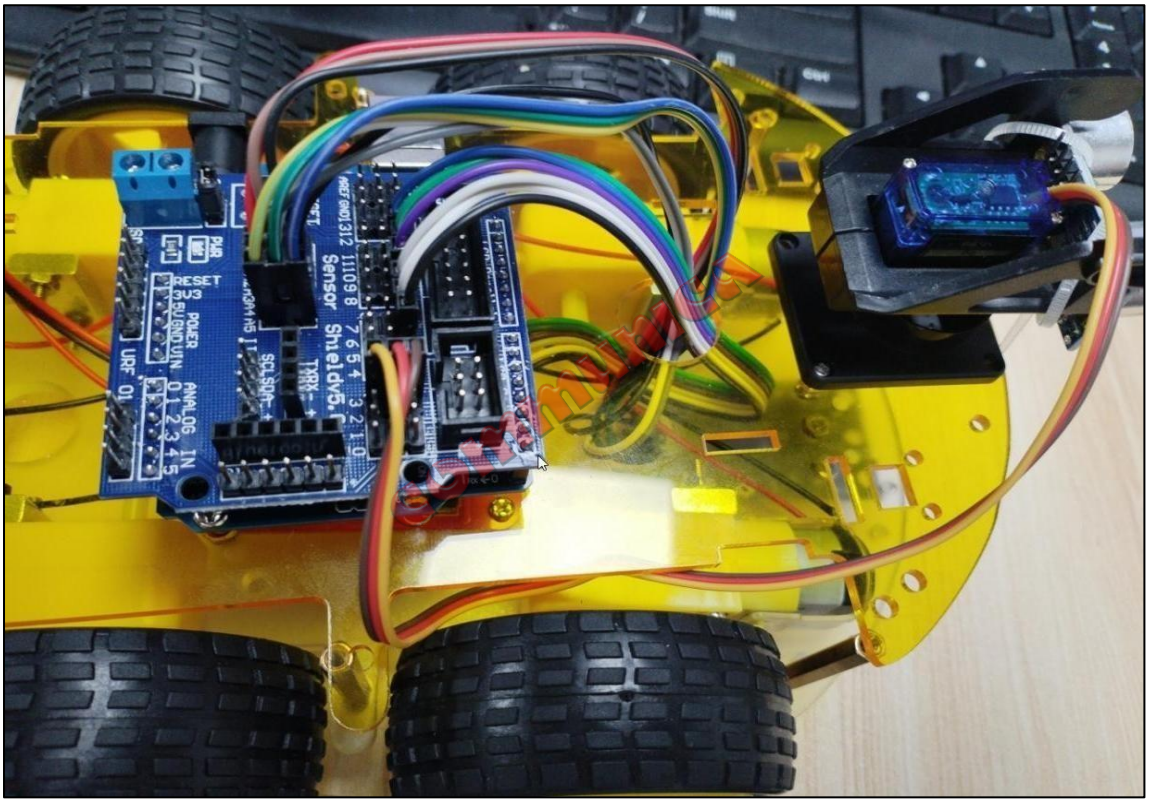


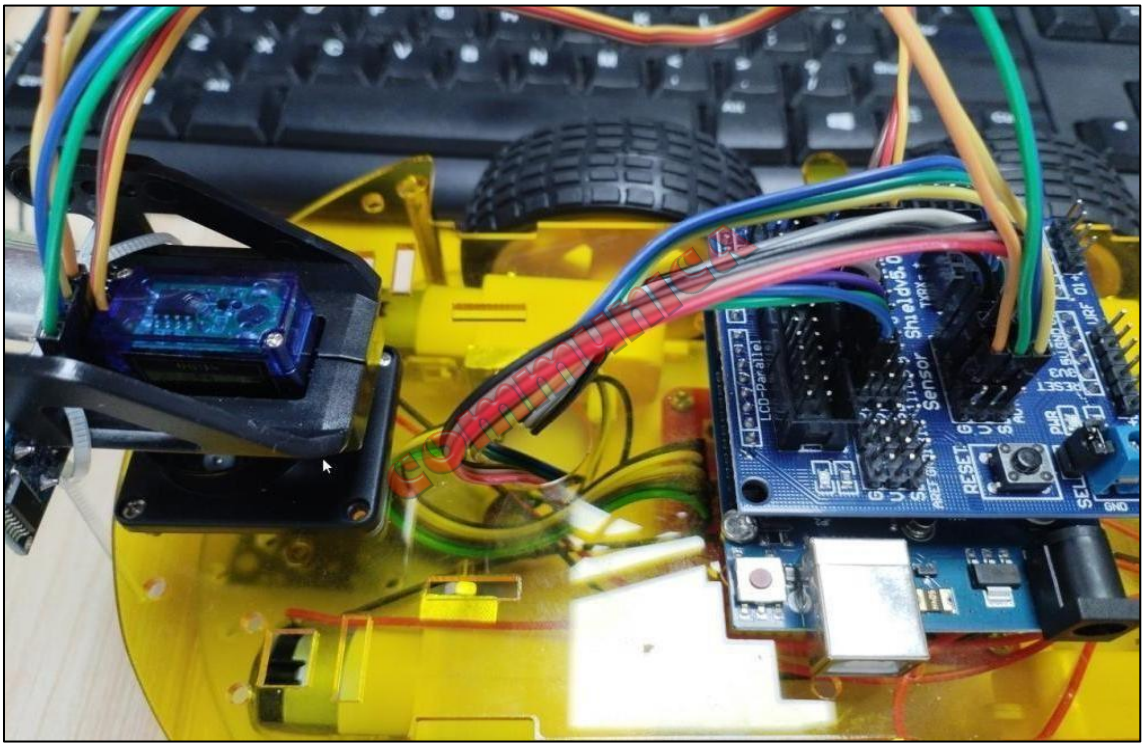


Pin connection table

Module	Tracking module	Arduino
Left tracking module	G	G
	V	V
	S	A3
Center tracking module	G	G
	V	V
	S	A4
Right tracking module	G	G
	V	V
	S	A5

Step 12: Connect the servo to the controller



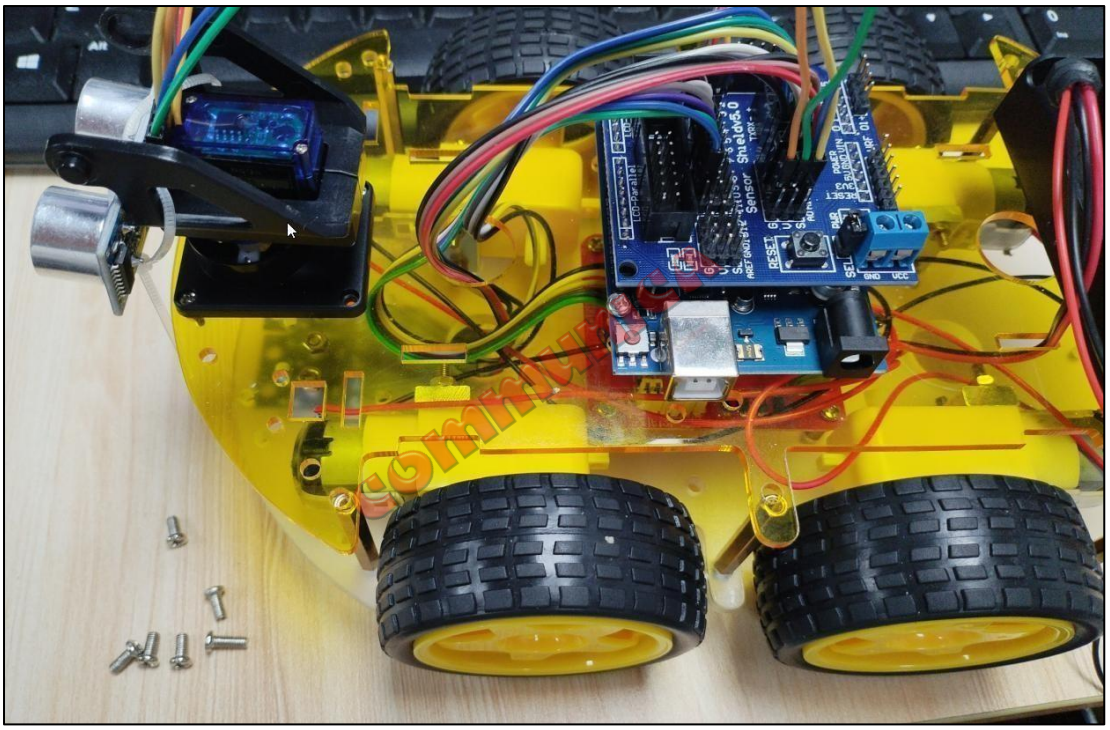


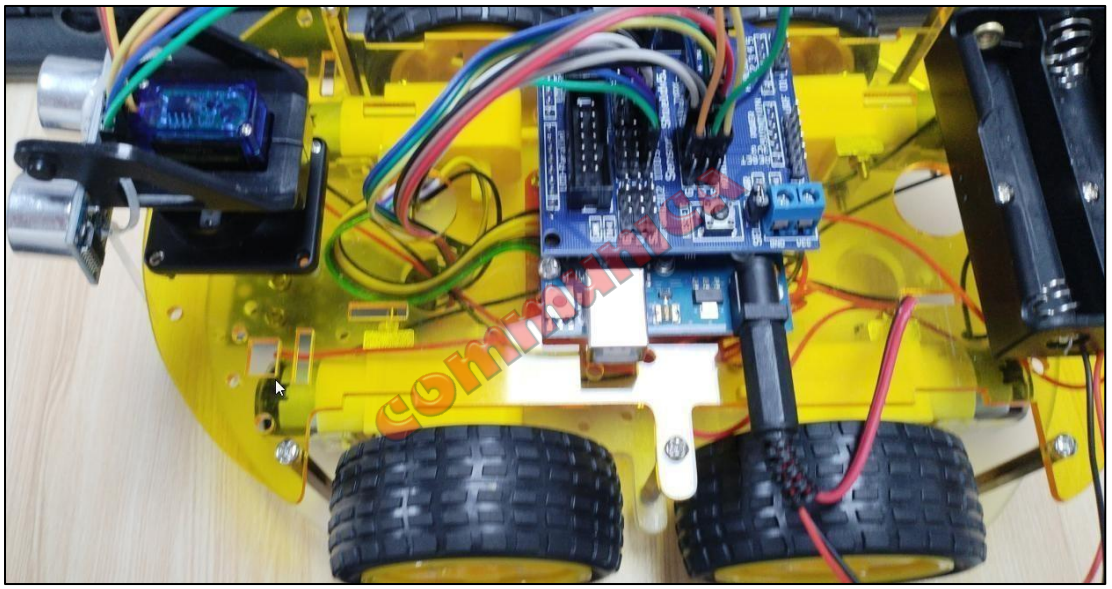
Pin connection table

servo	Arduino
G(Brown)	G
V(Red)	V
S(Yellow)	6

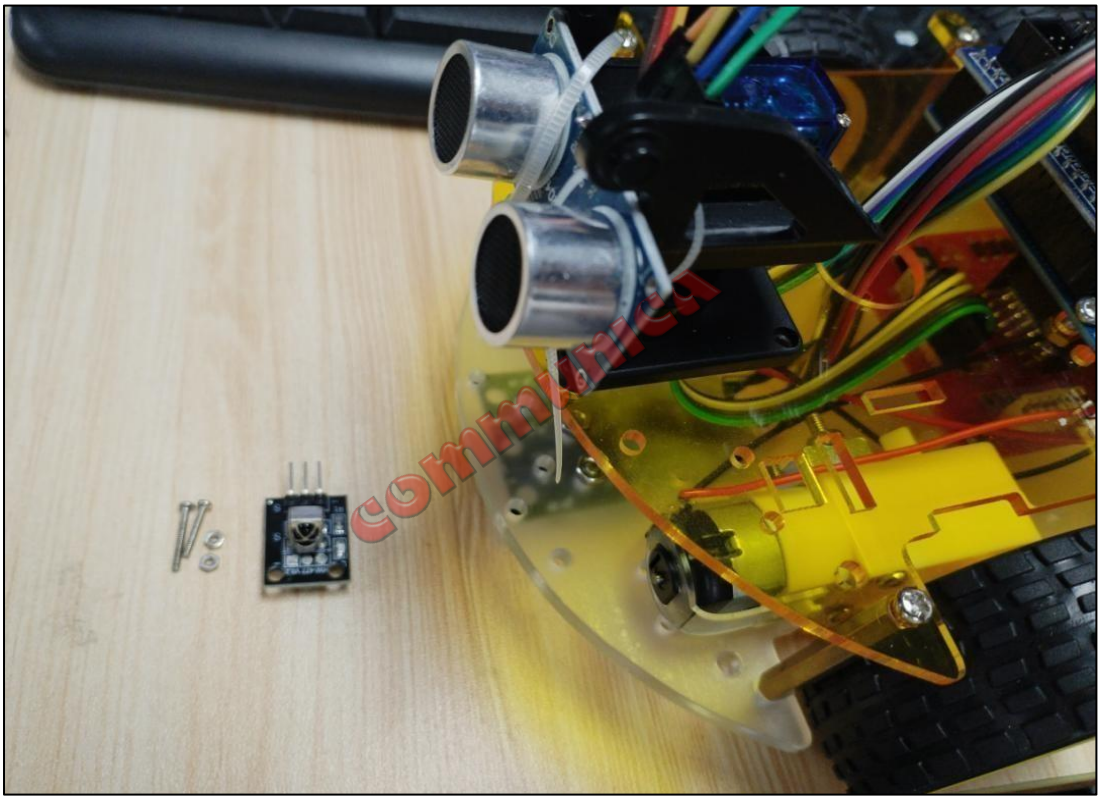
Ultrasonic module	Arduino
Gnd	G
Echo	A1
Trig	A2
Vcc	V

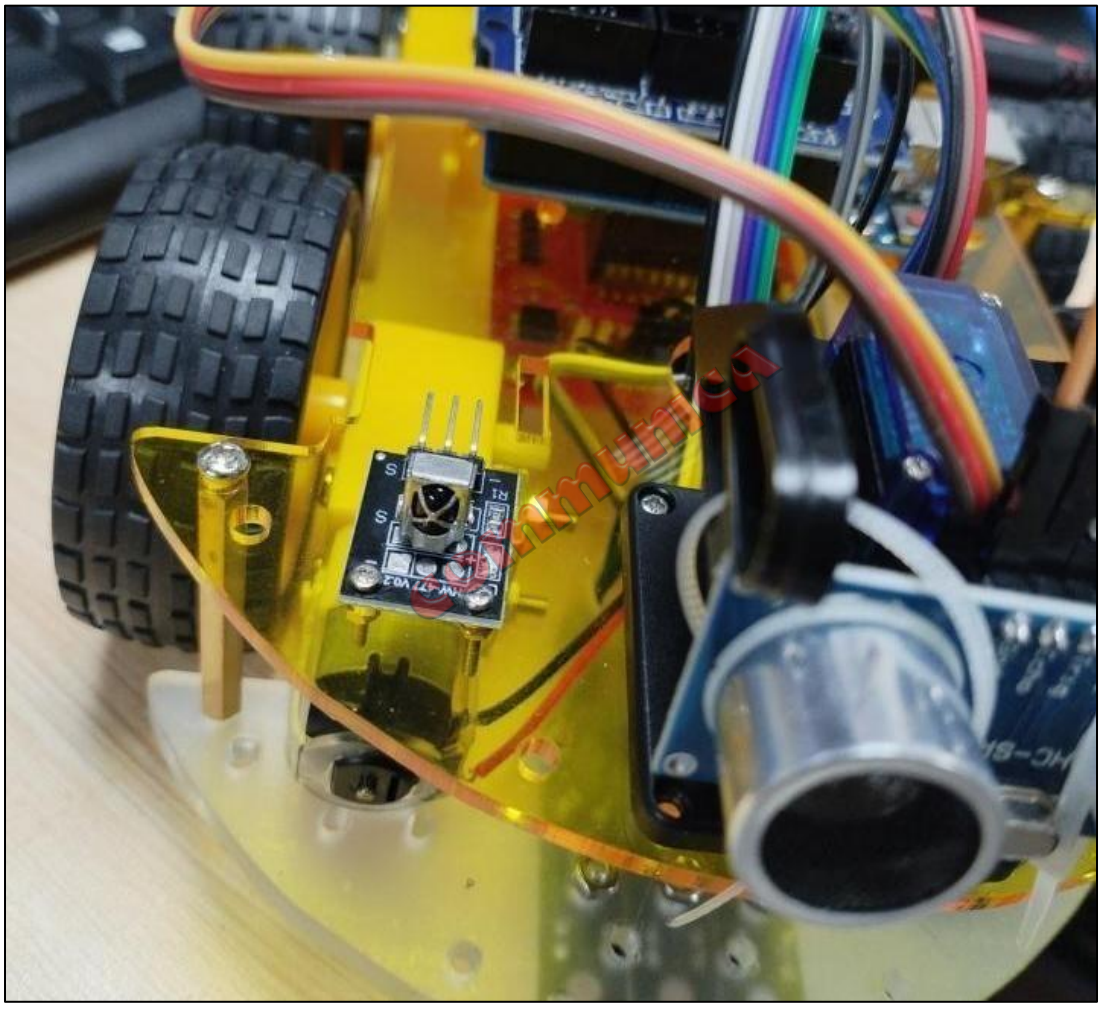
Step 13: Secure the acrylic plate

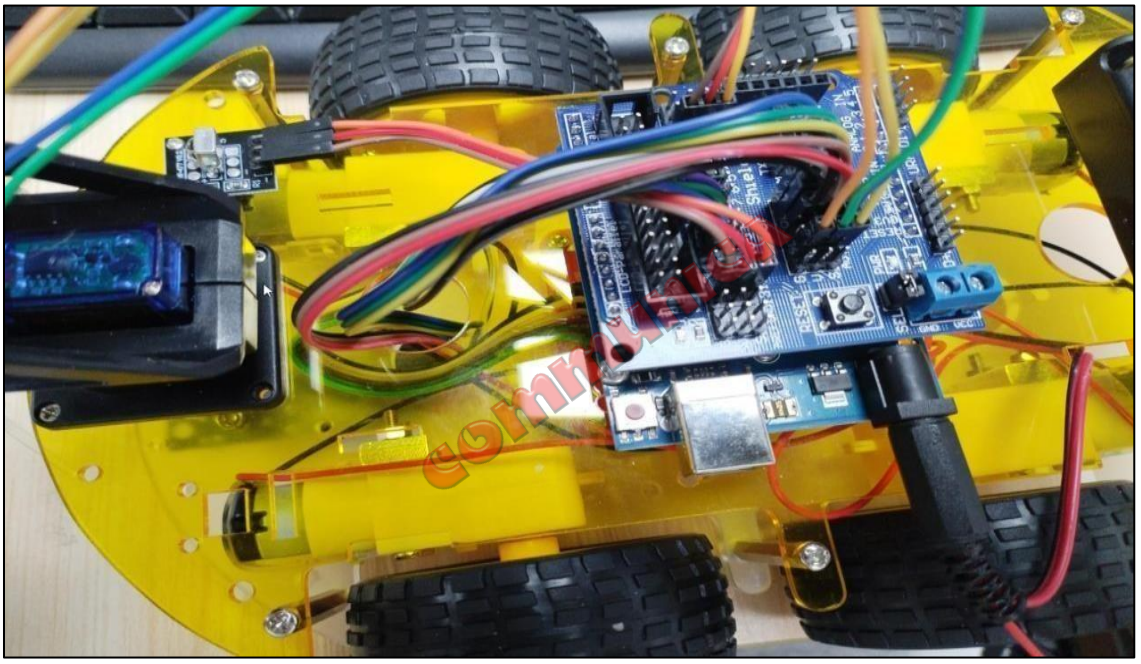

Shield3.0
RESET
PWR
SEL
GND
VCC



Step 14: Install the infrared receiver module



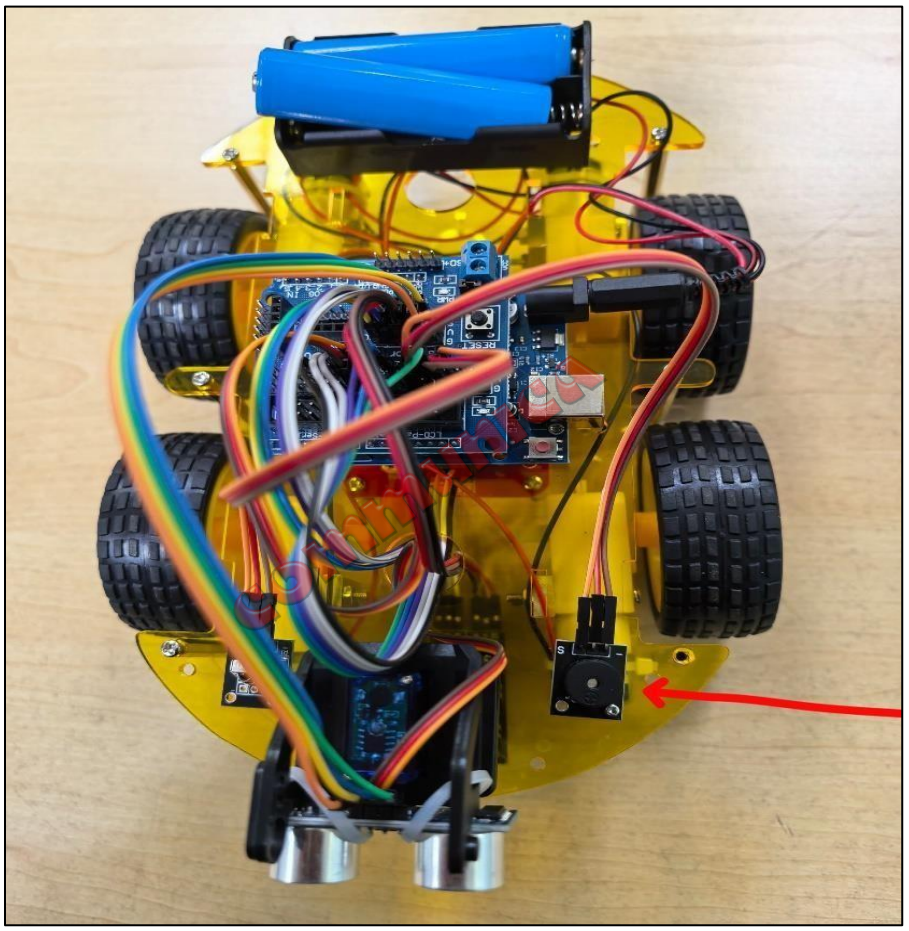




Pin connection table

Infrared receiver module	Arduino
G	G
V	V
S	12

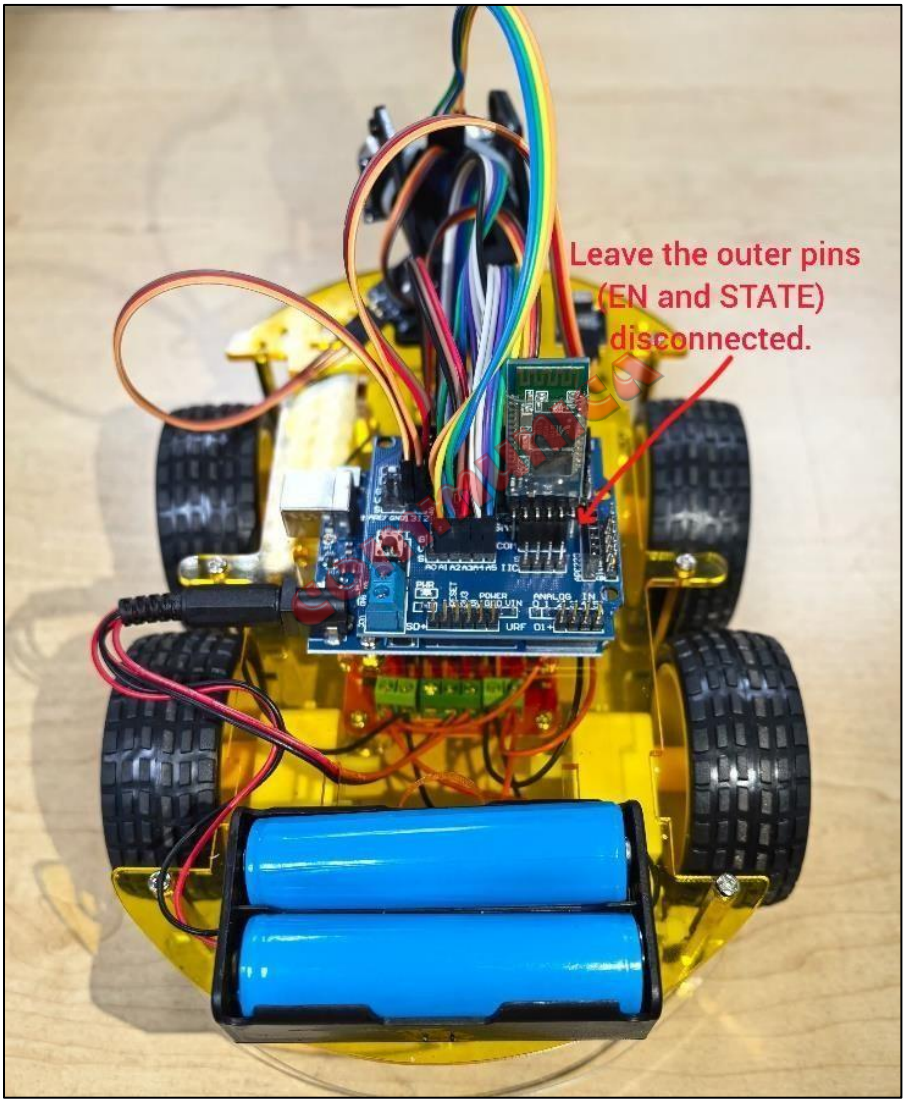
Step 14: Install the P-Buzzer module



Pin connection table

P-Buzzer module	Arduino
G	G
V	V
S	10

Please note that you have to remove the Bluetooth module (HC-05) on the Arduino UNO board when uploading the code.



Tracking module test code

```
void setup() {
  Serial.begin(9600);
  pinMode(A3, INPUT); // Left
  pinMode(A4, INPUT); // Center
  pinMode(A5, INPUT); // Right
}

void loop() {
  int left = digitalRead(A3);
  int center = digitalRead(A4);
  int right = digitalRead(A5);

  Serial.print("Left: ");
  Serial.print(left);
  Serial.print(" | Center: ");
  Serial.print(center);
  Serial.print(" | Right: ");
  Serial.println(right);

  delay(200);
}
```

Ultrasonic sensor test code

```
const int trigPin = A2;
const int echoPin = A1;

void setup() {
  Serial.begin(9600);
  pinMode(trigPin, OUTPUT);
  pinMode(echoPin, INPUT);
}

void loop() {
  long duration;
  int distance;

  // Send pulse
  digitalWrite(trigPin, LOW);
  delayMicroseconds(2);
  digitalWrite(trigPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(trigPin, LOW);

  // Read echo
  duration = pulseIn(echoPin, HIGH);

  // Calculate distance in cm
  distance = duration * 0.034 / 2;

  Serial.print("Distance: ");
  Serial.print(distance);
  Serial.println(" cm");

  delay(500);
}
```

Servo test code

```
#include <Servo.h>

Servo myservo;

void setup() {
  myservo.attach(6); // Servo signal connected to pin 6
}

void loop() {
  myservo.write(0);   // Rotate to 0°
  delay(1000);

  myservo.write(90);   // Rotate to 90°
  delay(1000);

  myservo.write(180);  // Rotate to 180°
  delay(1000);
}
```

Bluetooth control code

```
// Motor A pins
const int EN1 = 11;
const int IN1 = 8;
const int IN2 = 7;

// Motor B pins
const int EN2 = 3;
const int IN3 = 5;
const int IN4 = 4;

char command;

void setup() {
  // Set motor pins as outputs
  pinMode(EN1, OUTPUT);
  pinMode(IN1, OUTPUT);
  pinMode(IN2, OUTPUT);
  pinMode(EN2, OUTPUT);
  pinMode(IN3, OUTPUT);
  pinMode(IN4, OUTPUT);

  // Start serial communication with HC-05
  Serial.begin(9600);
}

void loop() {
  if (Serial.available()) {
    command = Serial.read();

    switch (command) {
      case 'F': // Forward
        digitalWrite(IN1, HIGH);
        digitalWrite(IN2,  LOW);
        digitalWrite(IN3, HIGH);
        digitalWrite(IN4,  LOW);
        analogWrite(EN1, 255);
        analogWrite(EN2, 255);
        break;

      case  'B':  //  Backward
        digitalWrite(IN1, LOW);
        digitalWrite(IN2, HIGH);
        digitalWrite(IN3,  LOW);
        digitalWrite(IN4, HIGH);
        analogWrite(EN1, 255);
        analogWrite(EN2, 255);
        break;

      case 'L': // Smooth Left Turn
        digitalWrite(IN1, HIGH);  // Right motor forward
        digitalWrite(IN2, LOW);
        digitalWrite(IN3, LOW);   // Left motor off
        digitalWrite(IN4, LOW);
        analogWrite(EN1, 180);   // Full speed right motor
        analogWrite(EN2, 0);      // Stop left motor
        delay (500);
        analogWrite(EN1, 0);
        break;

      case 'R': // Smooth Right Turn
        digitalWrite(IN1, LOW);   // Right motor off
        digitalWrite(IN2, LOW);
        digitalWrite(IN3, HIGH);  // Left motor forward
        digitalWrite(IN4, LOW);
        analogWrite(EN1, 0);      // Stop right motor
        analogWrite(EN2, 180);   // Full speed left motor
        delay (500);
        analogWrite(EN2, 0);
        break;

      case 'S': // Stop
        digitalWrite(IN1, LOW);
        digitalWrite(IN2, LOW);
        digitalWrite(IN3, LOW);
        digitalWrite(IN4, LOW);
        analogWrite(EN1, 0);
        analogWrite(EN2, 0);
        break;
    }
  }
}
```

Carkit test Code

```
#include <Servo.h>
#include <NewPing.h>

// ------------------- ULTRASONIC SENSOR ------------------
--
#define trig_pin  A2
#define echo_pin  A1

// ------------------- MOTOR PINS -------------
// Right motors
const int RightMotorForward  = 8;   // RF
const int RightMotorBackward = 7;   // RB
const int enableRight        = 11;  // enR (changed from 9
to avoid timer conflict)

// Left motors
const int LeftMotorForward   = 5;   // LF
const int LeftMotorBackward  = 4;   // LB
const int enableLeft         = 3;   // enL

// ---------------- Buzzer PIN ------------
const int buzzerPin = 10;

// ---------------- GLOBAL SETTINGS ------------
#define MOTOR_SPEED 130   // Adjust speed (0–255)
#define maximum_distance 200
int i = 0;
Servo myservo;
NewPing sonar(trig_pin, echo_pin, maximum_distance);


// ------------------- SETUP ------------------
void setup() {
  Serial.begin(9600);
  pinMode(enableRight, OUTPUT);
  pinMode(RightMotorForward, OUTPUT);
  pinMode(RightMotorBackward, OUTPUT);
  pinMode(enableLeft, OUTPUT);
  pinMode(LeftMotorForward, OUTPUT);
  pinMode(LeftMotorBackward, OUTPUT);
  pinMode(trig_pin, OUTPUT);
  pinMode(echo_pin, INPUT);
  pinMode(buzzerPin, OUTPUT);

  myservo.attach(6);        // Servo signal pin (Timer1)
  myservo.write(115);       // Center position
  delay(500);
  int cm = sonar.ping_cm();
  Serial.println(cm);
// -------------Basic MOTOR CONTROL -------------
 moveForward();
 delay(1000);
 moveBackward;
 delay(1000);
 turnLeft();
 delay(1000);
 turnRight();
 delay(1000);
 stopMotors();
 Buzzer();
}

// ------------------- MAIN LOOP ----------------

void loop() {
// Add your code here !!

}

// ------------------- MOTOR CONTROL Functions --------

void moveForward() {
  digitalWrite(RightMotorForward, HIGH);
  digitalWrite(RightMotorBackward, LOW);
  digitalWrite(LeftMotorForward, HIGH);
  digitalWrite(LeftMotorBackward, LOW);
  analogWrite(enableRight, MOTOR_SPEED);
  analogWrite(enableLeft, MOTOR_SPEED);
}

void moveBackward() {
  digitalWrite(RightMotorForward, LOW);
  digitalWrite(RightMotorBackward, HIGH);
  digitalWrite(LeftMotorForward, LOW);
  digitalWrite(LeftMotorBackward, HIGH);
  analogWrite(enableRight, MOTOR_SPEED);
  analogWrite(enableLeft, MOTOR_SPEED);
 }

void turnLeft() {
  digitalWrite(RightMotorForward, HIGH);
  digitalWrite(RightMotorBackward, LOW);
  digitalWrite(LeftMotorForward, LOW);
  digitalWrite(LeftMotorBackward, HIGH);
  analogWrite(enableRight, MOTOR_SPEED);
  analogWrite(enableLeft, MOTOR_SPEED);
}

void turnRight() {
  digitalWrite(RightMotorForward, LOW);
  digitalWrite(RightMotorBackward, HIGH);
  digitalWrite(LeftMotorForward, HIGH);
  digitalWrite(LeftMotorBackward, LOW);
  analogWrite(enableRight, MOTOR_SPEED);
  analogWrite(enableLeft, MOTOR_SPEED);
}

void stopMotors() {
  digitalWrite(RightMotorForward, LOW);
  digitalWrite(RightMotorBackward, LOW);
  digitalWrite(LeftMotorForward, LOW);
  digitalWrite(LeftMotorBackward, LOW);
}

void Buzzer()  {
  for(i=0;i<1000;i++){
  digitalWrite(buzzerPin,HIGH);
  delay(1);//wait for 1ms
  digitalWrite(buzzerPin,LOW);
  delay(1);//wait for 1ms
    }
}
```