BUILD YOUR OWN SMART CAR!

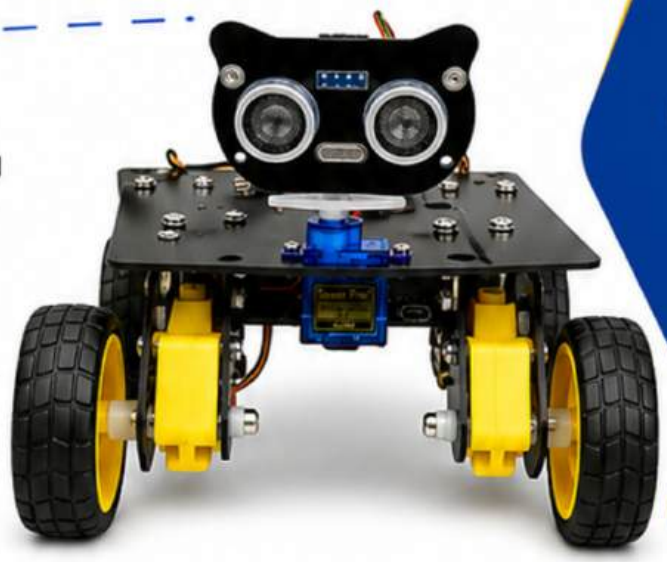
Kids Zee

2-IN-1 OBSTACLE AVOIDING ROBOT CAR KIT

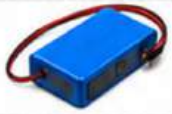
AVOID OBSTACLES
Smart ultrasonic sensing

2-IN-1 MODES
Obstacle Avoiding + Manual Control

EASY TO BUILD
Perfect for learning & fun projects!



YOUR KIT CONTAINS

#		PART	WHAT IT DOES	QTY
1		4-Wheel Drive Chassis Kit	The body & wheels of your car	1 set
2		Arduino UNO R3	The brain (code is already inside!)	1
3		L298N Motor Driver	The muscles that power the wheels	1
4		HC-SR04 Ultrasonic Sensor	The "eyes" that see distance	1
5		SG90 Micro Servo	Turns the eyes left & right	1
6		7.4V Li-ion Battery Pack	The energy source	1
7		170-pin Mini Breadboard	Tiny board for sharing power	1
8		Pushbutton	Switches between the 2 modes	1
9		Jumper Wires	The colorful "veins"	~25
10		Screws, Nuts, Standoffs	(Included in chassis kit)	1 bag

STEP 1: Build the Chassis (The Car's Body)

Attach the small metal plates to the all 4 main bracket using screws and nuts.

1

Install the Motors – Fix both DC motors on the side brackets using screws and nuts.

2

3

Attach the Chassis Plate – Connect the top chassis plate to the motor brackets using screws and nuts.

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Note:- Ensure all screws are securely fastened.

Mount the Wheels – Push one wheel onto each motor shaft.

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Assemble the Ultrasonic Sensor – Attach the sensor to its mounting bracket and secure it with screws.

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Install the Servo Motor – Fit the servo motor into the front slot of the chassis and tighten it.

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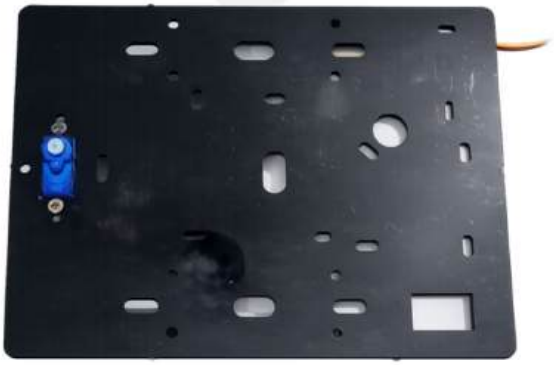

Attach the Servo Horn – Fix the white servo arm (horn) onto the servo shaft.

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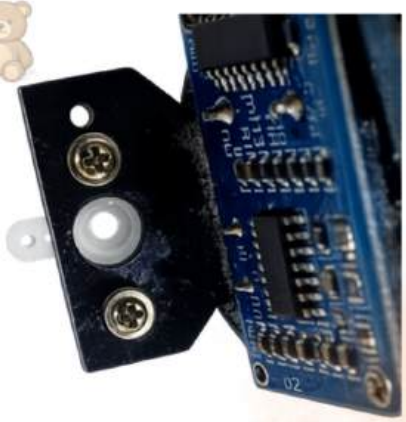

Connect Sensor to Servo – Mount the ultrasonic sensor bracket onto the servo horn.
Secure the Sensor Assembly – Tighten all screws and check alignment.

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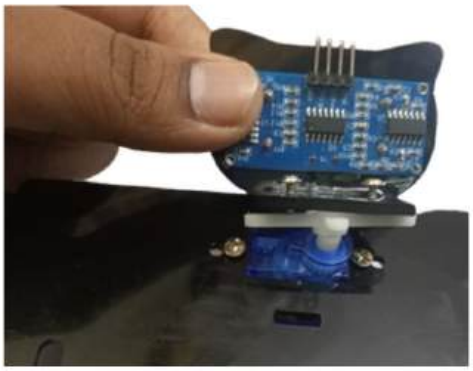

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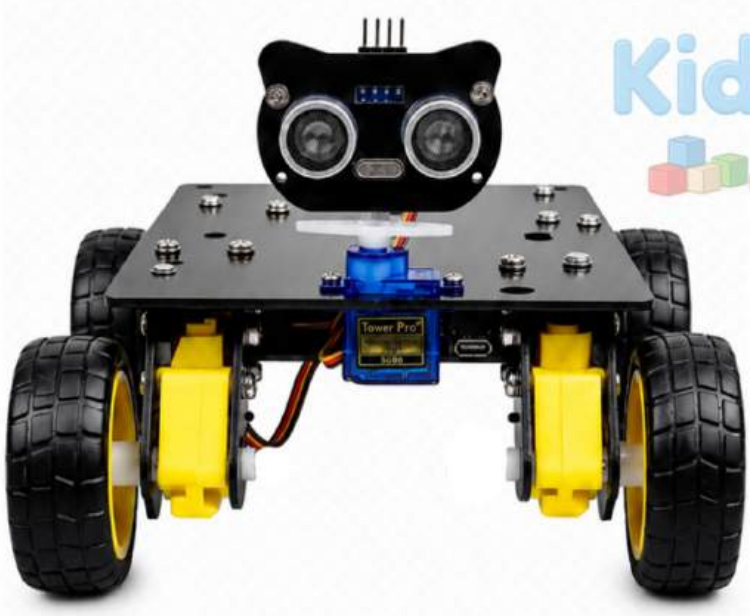
Final Check – Make sure the wheels rotate freely and all parts are firmly attached.



STEP 2: Place the Brain, Muscles & Power

🎯 Objective

Mount the Arduino, the L298N motor driver, the breadboard, and the battery pack onto the chassis — but don't turn on power yet!

🧰 Materials You'll Need

- Arduino UNO R3 (with code pre-loaded ✅)
- L298N motor driver module
- 170-pin mini breadboard
- 7.4V Li-ion battery pack (keep it switched OFF)
- Double-sided foam tape or small screws
- Pushbutton

🛠️ Assembly Actions

1. Stick the top acrylic plate onto the standoffs from Step 1 with short screws. Now your car has a "deck."
2. Place the Arduino UNO on one side of the top deck. Use foam tape or screws to hold it down. USB port should face outward (so you can plug in later if needed).
3. Place the L298N motor driver next to the Arduino. The screw terminals (the green/blue blocks) should face the back of the car (where motors are).
4. Peel & stick the mini breadboard to a free spot near the Arduino.
5. Stick the battery pack on top — make sure its switch is OFF and batteries are NOT inserted yet. 🔒
6. Poke the pushbutton through any free hole, or stick it onto the breadboard so kids can press it easily.

⚠️ Safety Notes

- 🚫 Battery switch must be OFF the entire time you are wiring.
- 🔋 Do not insert the batteries until Step 4!

STEP 3: Connect Everything with Jumper Wires

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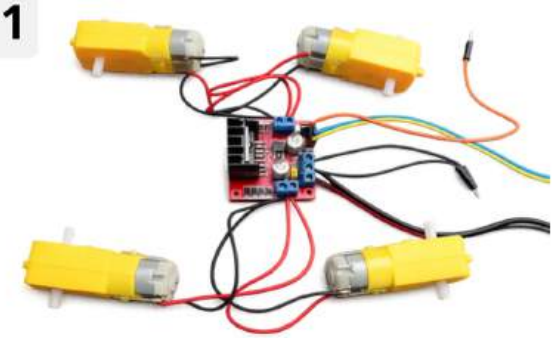

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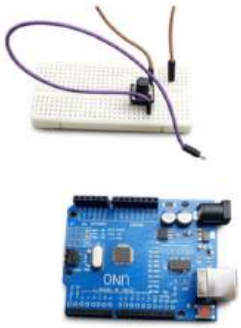

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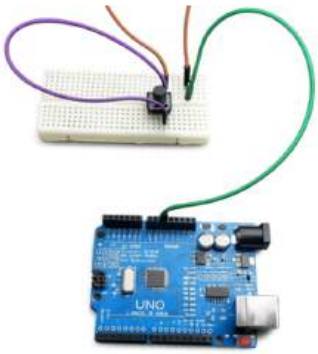

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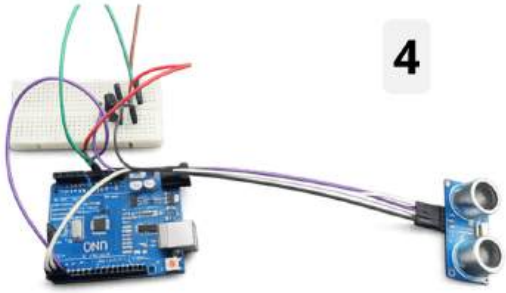

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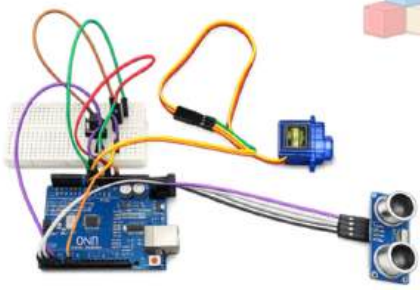

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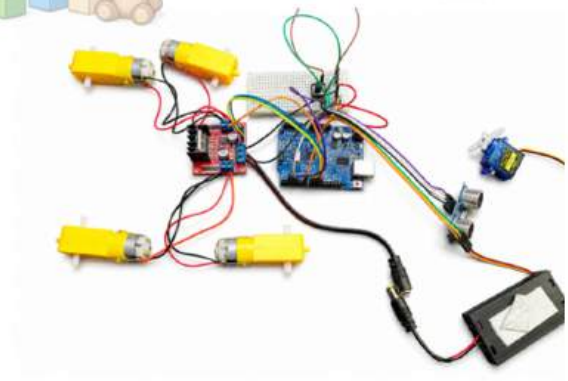
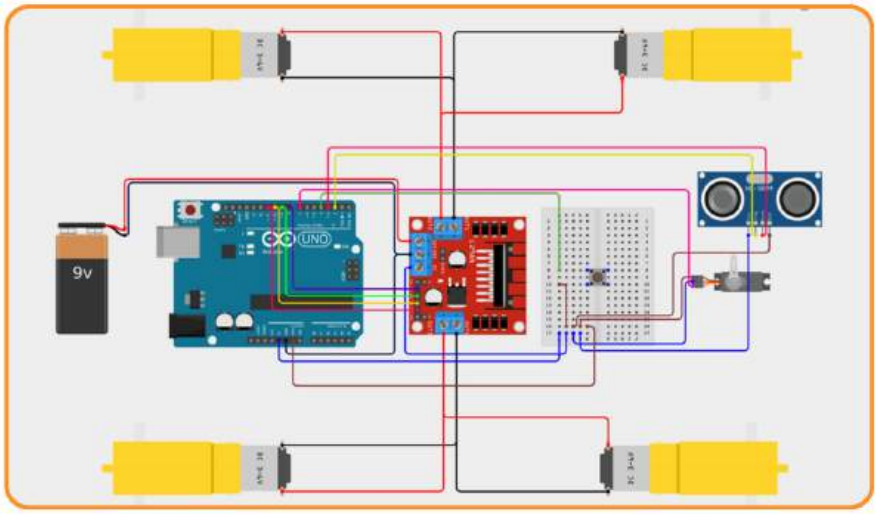


Note: This image is for reference only. For correct wiring and setup, follow the connection tables and circuit diagram.



Make the Wirings as shown in the diagram and explained in the tables below

Ultrasonic Sensor Pin	Connect To Arduino	Simple Meaning
VCC	5V	Gives power to the sensor.
GND	GND	Completes the circuit.
TRIG	D2	Arduino sends sound signal.
ECHO	D3	Arduino receives sound bounce.
VCC gives power.	GND makes connection complete.	TRIG sends, ECHO receives sound.

Ultrasonic Sensor Table

Servo Wire	Connect To Arduino	Simple Meaning
Orange / Yellow	D7	Controls servo movement.
Red	5V	Gives power.
Brown / Black	GND	Ground connection.
3-wire servo cable. (Orange/Yellow, Red, Brown/Black)	Pins connect to Arduino as shown.	Correct connections make the servo work properly.

Servo Motor Table

PUSH BUTTON TABLE

Button Side	Connect To Arduino	Simple Meaning
One side of button 	D4	Arduino checks button press.
Other side of button 	GND	Button completes signal.

MOTOR DRIVER TABLE (L298N)

L298N Pin	Connect To Arduino	Simple Meaning
IN1	D8	Controls left motor direction
IN2	D9	Controls left motor direction
IN3	D10	Controls right motor direction
IN4	D11	Controls right motor direction
5V	5V	Powers the L298N logic circuit
GND	Arduino GND	Common ground

MOTOR TABLE

Motors	LEFT MOTOR TABLE Connect To L298N	Simple Meaning
Front-left motor	OUT1 and OUT2	Left side motor output
Rear-left motor	OUT1 and OUT2	Same left side output

RIGHT MOTOR TABLE

Motors	Connect To L298N	Simple Meaning
Front-right motor	OUT3 and OUT4	Right side motor output
Rear-right motor	OUT3 and OUT4	Same right side output

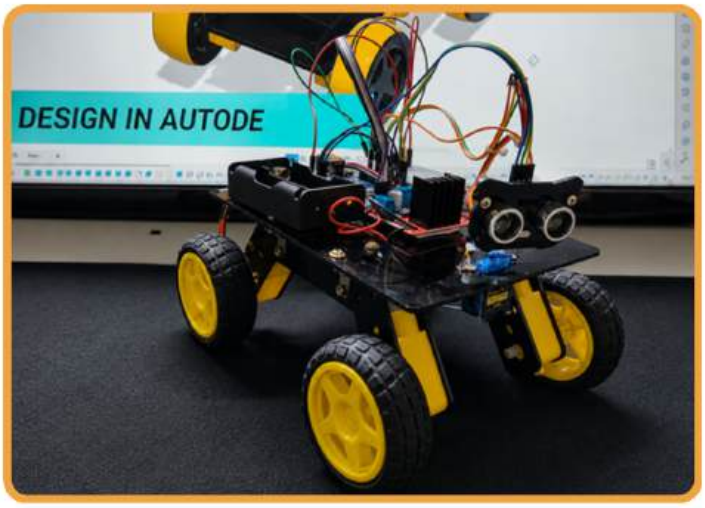
COMMON GND TABLE

Component	GND Goes To
Arduino GND	Common GND
L298N GND	Common GND
Battery negative (-)	Common GND
Ultrasonic GND	Arduino GND
Servo GND	Arduino GND
Button GND	Arduino GND

BATTERY TABLE

Battery Wire	Connect To L298N	Simple Meaning
Positive wire +	+12V / VIN	Gives motor power
Negative wire -	GND	Battery ground

Your Final Obstacle Avoiding Robot Car Will Look Like This After Assembly.



📝 **Note: Wire colors are for reference only. You can use jumper wires of any color, but all connections must go to the same points shown in the diagram.**

⚠️ **Keep the power supply disconnected during wiring. Connect it only after all connections have been checked.**

✅ STEP 4: FIRST POWER-ON & TESTING!

OBJECTIVE

Test each mode for the first time and check that both modes work — proof your wiring is perfect!

MATERIALS YOU'LL NEED

- Your fully wired car (Step 1–3 complete)
- Charged 7.4V Li-ion batteries
- A big open space on the floor
- Your hand 👋

TEST ACTIONS

- ☑ Lift the car OFF the surface (book so the wheels hang in the air). (Safety first!)
- ☑ Insert the batteries into the battery pack.
- ☑ Flip the battery switch to ON.
- ☑ Watch the servo: it should snap to the center (90°) — that means the Arduino is alive!

TEST 1: OBSTACLE AVOIDANCE MODE (DEFAULT)

- ☑ The car starts in this mode automatically.
- ☑ Place the car on the floor in an open area.
- ☑ Watch it drive forward.
- ☑ Place your hand or a box about 15 cm in front of the sensor.
- ☑ The car should stop, back up, look left, look right, then turn toward the clear side and keep going!

TEST 2: SWITCH TO HAND-FOLLOWING MODE

- ☑ Press the pushbutton once.
- ☑ Pick up the car (or put it back on the book).
- ☑ Hold your hand about 15–20 cm in front of the sensor.
- ☑ The wheels should spin forward (the car follows your hand).
- ☑ Move your hand closer (under 8 cm).
- ☑ The wheels should spin backward (the car backs away).
- ☑ Take your hand away.
- ☑ The wheels should stop.

TEST 3: SWITCH BACK

- ☑ Press the pushbutton again — back to obstacle avoidance mode!

What Success Looks Like

- ☑ Servo centers when powered on
- ☑ Button switches between modes
- ✗ No buzzing, smoke, or hot smells
- ☑ Mode 1: Car avoids obstacles by itself
- ☑ Mode 2: Car follows your hand

NOTE

You may use jumper wires of **any color** for the extra connections.
The wire colors shown in the diagram are only for easy identification.
Just make sure each wire is connected to the **correct pin or terminal** as indicated.

IMPORTANT: KEEP THE POWER SUPPLY DISCONNECTED

Keep the power supply/battery disconnected while making all connections.
Connect the power supply only **after verifying** that every wire is connected correctly.