

## Aluminum Mobile Robot Platform 4WD with Mecanum Wheels & Arduino Control Kit

The **Aluminum Mobile Robot Platform 4WD (with 4 DC Metal Geared Motors & Mecanum Wheels)** is a complete robotics development kit designed for students, hobbyists, and professionals who want to explore the world of mobile robotics and autonomous vehicle design. With its **high-quality aluminum chassis, powerful geared motors, and Mecanum wheel system**, this kit enables smooth omnidirectional movement — forward, backward, sideways, and even diagonal — giving your robot unmatched flexibility and maneuverability.

This kit is **fully programmable** using **Arduino**, and comes with all the essential electronic components you need to build, power, and control your robot. It also includes **Bluetooth communication (HC-05)**, allowing for **wireless control** via smartphone or computer, making it perfect for smart car and IoT robotics projects.



### Key Features

- Omnidirectional 4WD Movement:**  
 Equipped with **4 Mecanum wheels** (2 left and 2 right), the robot can move in any direction without changing its orientation. This advanced motion system allows smooth navigation in tight spaces and precise movement control — ideal for industrial automation, warehouse robots, or research-based projects.
- Durable Aluminum Chassis:**  
 The **high-strength aluminum frame** ensures excellent durability and stability. It can handle rough surfaces and additional payloads like sensors, cameras, or microcontrollers without compromising performance.
- High-Torque DC Gear Motors:**  
 The kit includes **4 metal-gearred TT motors (3V–6V, 110 RPM)** for strong and reliable torque output. These motors are designed for consistent performance, offering smooth control and balanced motion across all directions.
- Arduino UNO R3 Compatible:**  
 The included **Arduino UNO R3 board** acts as the main controller of your robot. It supports easy programming through the Arduino IDE, making it beginner-friendly yet powerful enough for advanced robotics applications.
- Dual H-Bridge Motor Driver (L298N):**  
 The **L298N motor driver module** efficiently drives the 4 DC motors simultaneously, allowing for precise speed and direction control through PWM signals.
- Bluetooth Control (HC-05 Module):**  
 The kit includes an **HC-05 Bluetooth module**, enabling wireless communication between your robot and smartphone or PC. You can easily program and control your robot remotely using any compatible app or custom Arduino code.
- Rechargeable Power Supply:**  
 Powered by **3 × 18650 Li-ion batteries (3.7V, 1000mAh each)** housed in a **3-slot battery holder**, the robot delivers sufficient energy for continuous operation. The ON/OFF switch ensures easy power control.
- Ready-to-Assemble Kit:**  
 This kit includes all necessary parts — motors, wheels, chassis, wiring, and electronic modules — for quick assembly. It's ideal for **STEM learning, Arduino robotics workshops, or DIY robotics competitions**.
- Programming Included:**  
 Unlike basic mechanical kits, this package includes **Arduino programming** for controlling

movement via Bluetooth. The provided code allows you to move the robot in multiple directions, adjust speed, and experiment with automation.



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Aluminum Mobile  
Robot Platform 4WD (with 4 DC Metal Geared Motor & 4 Mecanum Wheel)[/caption]

### Educational & Research Benefits

This 4WD Mecanum robot platform is an excellent educational tool for learning **robotics**, **embedded systems**, and **control theory**. It helps students and makers understand real-world applications of **microcontrollers**, **DC motor control**, **Bluetooth communication**, and **kinematic motion algorithms**.

It's also widely used in:

- Robotics competitions and innovation labs
- Autonomous vehicle development
- IoT and wireless control projects
- AI vision-based navigation systems (with additional sensors/cameras)
- Engineering coursework and research prototypes





#### KIT INCLUDES

- 1 × Aluminum Robot Chassis (4WD)
- 4 × DC Gear TT Motor (3V–6V, 110RPM Dual Shaft)
- 4 × Mecanum Wheel 60mm (2 Left + 2 Right)
- 1 × Arduino UNO R3 (Without Cable)
- 1 × L298 Dual H-Bridge Motor Driver
- 1 × HC-05 Bluetooth Module

- 3 × Li-ion Battery 18650 (3.7V 1000mAh Rechargeable)
- 1 × 3-Slot 18650 Battery Holder
- 15 × Jumper Wires (Male-Female, 20cm)
- 1 × ON/OFF Switch (KCD1, 2 Pins, 17×11mm)
- Programming Support Included

### Applications

- Smart car and Bluetooth-controlled robot projects
- Autonomous mobile robots (AMR)
- Educational and academic robotics experiments
- IoT-controlled vehicles
- Research and industrial automation prototypes

### Why Choose This Kit?

This **Aluminum Mobile Robot Platform 4WD Kit** combines mechanical precision, electrical efficiency, and programming flexibility in one package. Whether you're a student learning robotics or an engineer building an autonomous system, this kit offers everything you need — **hardware, electronics, and software** — to bring your robotic ideas to life.

With its **Mecanum wheel design**, **Arduino-based control**, and **Bluetooth functionality**, it provides an excellent foundation for developing **next-generation mobile robots**.