## LAFVIN ESP32 Robot Smart Car Kit

# LAFVIN ESP32 Robot Smart Car Kit Instruction Manual

Model: ESP32 Robot Smart Car Kit
Brand: LAFVIN

## 1. Introduction

The LAFVIN ESP32 Robot Smart Car Kit is an optimized programming kit designed for users of all skill levels, from beginners to programming enthusiasts. This kit allows for hands-on experience in robotics, programming, and real-time observation through its integrated ESP32 camera module.

## 2. Safety Information

Always use the product according to the provided tutorials and instructions. Ensure proper handling of electronic components and power sources. Adult supervision is recommended for younger users.

## 3. Package Contents

Please verify that all components listed below are present in your kit:

*Image: All components of the LAFVIN ESP32 Robot Smart Car Kit, including the chassis, wheels, motors, ESP32 camera module, L298N motor driver, battery case, antenna, screwdriver, USB cable, and jumper wires.*

- Robot Car Chassis (Base Plate)
- TT Motors (4x)
- Wheels (4x)
- ESP32 Camera Module
- L298N Motor Drive Module
- External Antenna
- Battery Case (requires 3x 18650 3.7V batteries, not included)
- Jumper Wires
- Screws and Nuts
- USB to Serial Converter (CH340)
- Small Screwdriver

## 4. Assembly Instructions

The kit comes with a detailed assembly video guide to assist you through the construction process. Please refer to the official LAFVIN website or the provided resources for the video tutorial.

**Key Assembly Steps:**

1. Attach the TT motors to the chassis using the provided screws and brackets.
2. Mount the wheels onto the motor shafts.
3. Install the L298N Motor Drive Module and the ESP32 Camera Module onto the chassis.
4. Connect the motors to the L298N module and the L298N module to the ESP32 module using jumper wires.
5. Secure the battery case and connect it to the power input of the motor driver.
6. Attach the external antenna to the ESP32 Camera Module.

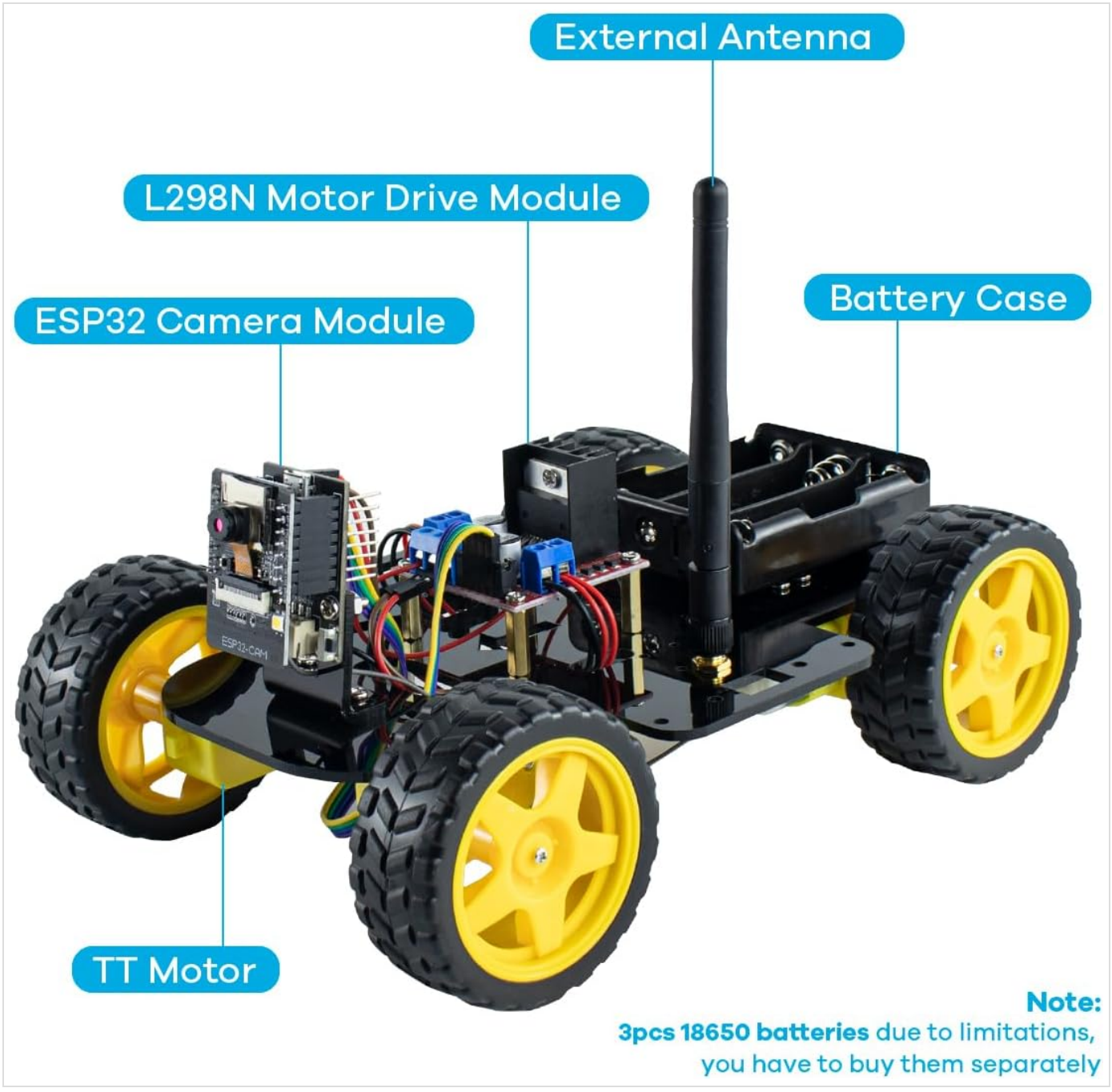


*Image: An assembled LAFVIN ESP32 Robot Smart Car, highlighting the External Antenna, L298N Motor Drive Module, ESP32 Camera Module, TT Motors, and Battery Case. Note: 3pcs 18650 batteries are required and not included.*

For a visual guide, please watch the official product use tutorial video:

Your browser does not support the video tag.

*Video: An official product use tutorial demonstrating the assembly and basic operation of the LAFVIN ESP32 Robot Smart Car Kit. This video provides a step-by-step visual guide for users.*

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## 5. Setup and Programming

This kit is compatible with the Arduino IDE for programming the ESP32 module. Detailed code and usage instructions are provided with the kit.

### 5.1. Software Installation

- Download and install the Arduino IDE from the official Arduino website.
- Install the ESP32 board package in the Arduino IDE. Instructions can typically be found in the Arduino IDE's preferences under 'Additional Board Manager URLs'.
- Install the necessary libraries for the ESP32 Camera module and motor driver.
- Install the CH340 USB-to-Serial driver if your computer does not automatically recognize the board when connected via USB.

### 5.2. Code Upload

Connect the ESP32 module to your computer using a USB cable. Select the correct board (e.g., AI Thinker ESP32-CAM) and COM port in the Arduino IDE. Upload the provided example code to the ESP32 module.


*Image: Two children observing a laptop screen displaying code for ESP32 Camera Programming, with the LAFVIN robot car positioned next to the laptop, illustrating the programming aspect of the kit.*

### 5.3. Detailed Tutorials and Resources

The kit includes access to detailed tutorials covering code, libraries, video installation guides, and circuit diagrams. These resources are essential for understanding and customizing your robot car.

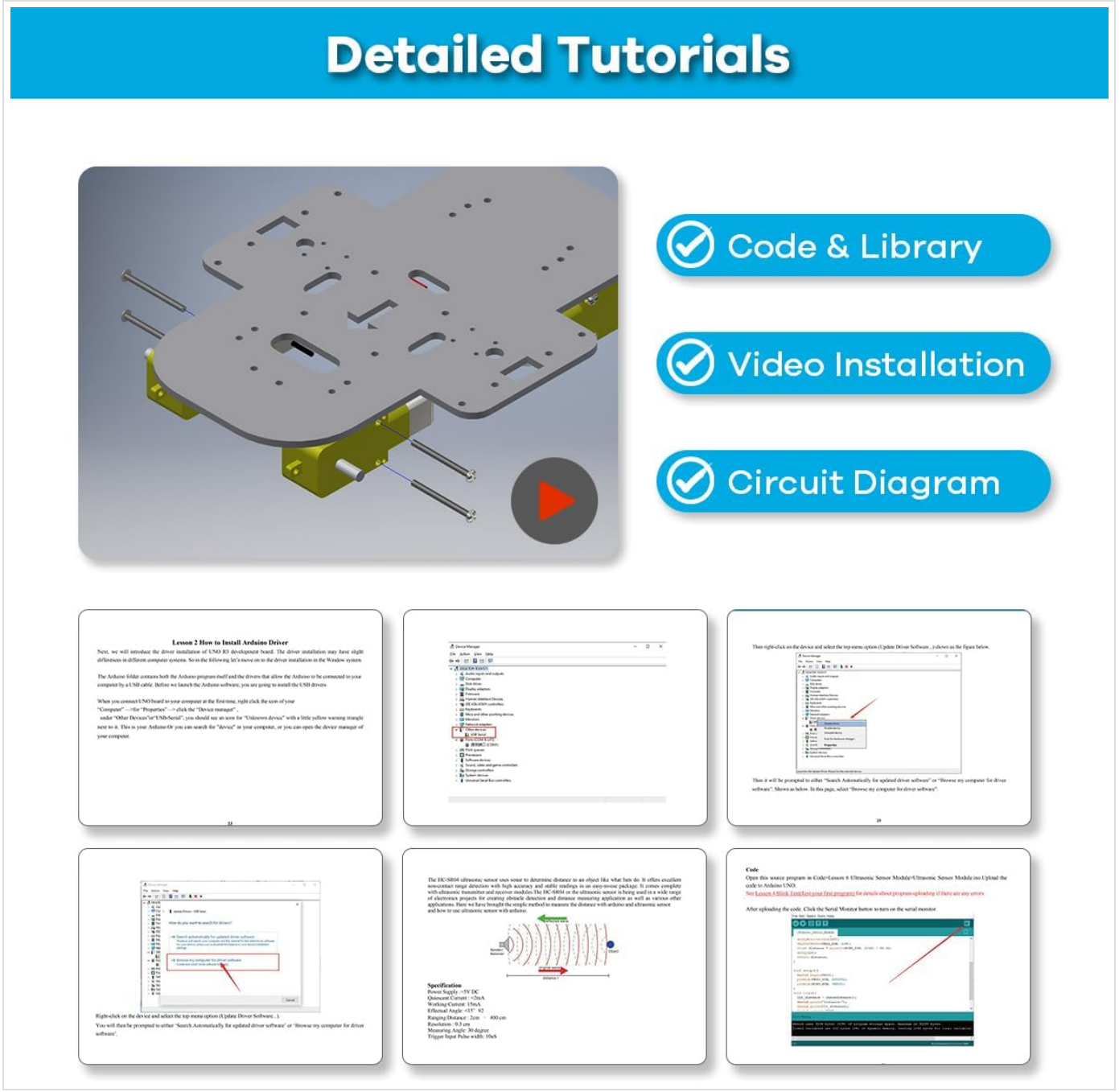


*Image: A graphic illustrating the availability of detailed tutorials, including sections for Code & Library, Video Installation, and Circuit Diagram, with a partial view of the robot car chassis.*

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## 6. Operating Instructions

The LAFVIN ESP32 Robot Smart Car is operated via a WIFI connection, typically through a web interface on your smartphone or computer.

### 6.1. Connecting to the Robot Car

1. Power on the robot car by ensuring the 18650 batteries are correctly installed in the battery case.
2. The ESP32 module will create a Wi-Fi access point. Connect your smartphone or computer to this Wi-Fi network.
3. Open a web browser and navigate to the IP address provided in the documentation (e.g., 192.168.4.1). This will open the control interface.

### 6.2. Control Interface and Features

The web interface typically includes directional controls (Forward, Backward, Left, Right, Stop) and options for controlling the integrated camera and auxiliary lighting.

- **Real-time Video Stream:** The ESP32 camera module allows you to observe the surroundings in real-time directly from the control interface while the car is moving.
- **Directional Control:** Use the on-screen buttons to navigate the robot car.
- **Auxiliary Light Control:** Toggle the car's light on or off for improved visibility in low-light conditions.


*Image: The product box for the LAFVIN ESP32 Camera 4WD Robot Car, featuring icons that represent key functionalities: Video Installation, C Language programming, Lighting Auxiliary, and ESP32 CAM Image Stream.*

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## 7. Maintenance

- Keep the robot car clean and free from dust and debris.
- Regularly check all electrical connections to ensure they are secure.

- Store the kit in a dry, cool place when not in use.
- Remove batteries if the car will not be used for an extended period to prevent leakage.

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## 8. Troubleshooting

If you encounter issues with your LAFVIN ESP32 Robot Smart Car Kit, consider the following:

- **Car Not Moving / Incorrect Direction:**
    - Check all motor connections to the L298N driver. Ensure wires are correctly oriented. Sometimes, motor wires might be reversed, requiring adjustment in wiring or code.
    - Verify battery charge and proper installation.
    - Confirm the motor driver is receiving power.
- **ESP32 Not Connecting / No Wi-Fi Signal:**
    - Ensure the ESP32 module is powered on.
    - Check the antenna connection.
    - Re-upload the code to the ESP32 module.
    - Verify that the correct board and COM port are selected in the Arduino IDE during upload.
- **Arduino IDE Compilation Errors (e.g., `LedCSetup()` not defined):**
    - This can occur due to library or ESP32 core version differences. You may need to adjust the code to use compatible functions. For example, replace `LedCSetup()` and `LEDCAttatchPin()` calls with `ledcAttachPin()` and `ledcSetup()` as per your ESP32 core version's requirements. Consult ESP32 documentation for specific function signatures.
- **Missing Parts:** If any parts are missing upon arrival, please contact LAFVIN customer support immediately.

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## 9. Specifications

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|---|---|
| **Product Dimensions** | 9 x 6 x 2.4 inches |
| **Item Weight** | 1.37 pounds |
| **Manufacturer Recommended Age** | 24 months and up |
| **ASIN** | B0CYT8LLDL |
| **Manufacturer** | LAFVIN |

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## 10. Warranty and Support

LAFVIN strives to ensure customer satisfaction. For warranty information, technical support, or any inquiries regarding your product, please refer to the official LAFVIN website or contact their customer service department directly. Keep your purchase receipt for warranty claims.

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## Related Documents - ESP32 Robot Smart Car Kit

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|---|---|
|  | LAFVIN ESP32 Basic Starter Kit: Projects and Tutorials<br>Explore the LAFVIN ESP32 Basic Starter Kit with this comprehensive guide. Learn about the ESP32 microcontroller by Espressif, its features, and build practical projects using Arduino IDE, sensors, and web servers. |
|  | ESP32 Development Board Setup Guide for Arduino IDE<br>A comprehensive guide to setting up the ESP32 development environment within the Arduino IDE. Learn how to add board manager URLs, install ESP32 support, select the correct board and port, and enter download mode for ESP32-C3 modules. |
|  | Setting Up the ESP32 Arduino IDE Development Environment<br>A comprehensive guide to installing and configuring the Arduino IDE for ESP32 development, covering software download, installation, interface overview, and basic usage for compiling and uploading programs. |
|  | ESP32 Basic Starter Kit Guide<br>Explore the ESP32 Basic Starter Kit with this comprehensive guide. Learn about ESP32 features, development boards, and get hands-on with projects involving digital and analog inputs/outputs, PWM, motion sensors, web servers, and OLED displays. |
|  | NodeMCU ESP32 USB-C: Microcontroller Development Board Guide \| Joy-IT<br>Comprehensive guide for the Joy-IT NodeMCU ESP32 USB-C microcontroller development board. Learn about its features, installation with Arduino IDE, usage examples, and support contact information. |