

JarzRover iPhone-ESP32 - Hardware Reference

Basic-kit customers: check [What to Buy](#) for quantities, Amazon shopping links and missing-parts checks.

This guide is for the **iPhone mounted on the rover**, using a **classic ELEGOO ESP-WROOM-32 / ESP32 Dev Module** over **BLE**. Documentation/kit revision v1.1.0, 7 October 2026. The handheld remote is a separate phone running Controller.

Confirm your order's included parts; the digital ZIP supplies files, not physical electronics. Battery, charger and connectors may be customer-provided.

Part	What you need / check
Rover computer	iPhone; runs Robot and mounts on chassis
Low-level board	classic ELEGOO ESP-WROOM-32 / ESP32 Dev Module; verify printed module/board label
Remote	Separate phone running Controller; this guide describes a second iPhone
Motor system	L298N module, four TT motors, four matching wheels; check module and motor ratings
Front distance sensor	HC-SR04 with compatible regulated 5 V supply
Wheel sensors	Two front digital speed sensors and matching encoder disks; identify output type
Power	Rated battery, correct charger, switch, matching pigtail/connector and insulated wiring
Printed parts	One-piece body OR bottom + top; both phone-mount parts
Fasteners	8 M3 motor screws with nuts, 2 M3 phone-mount screws with nuts, 2 long back-cover screws, 2 small speed-sensor screws; confirm your order
Tools	Computer with Arduino IDE, USB data cable, screwdrivers, multimeter; adult soldering/insulation tools where needed
ESP32 input protection	ECHO divider or level shifter, separate appropriate speed-input conditioning; see wiring guide
ESP32 power	Verified USB supply for bench tests; an identified regulated mobile supply for untethered driving

Board-specific connections

Board pin	Connect to	Purpose / check
GPIO16	L298N IN1	Left motor input 1
GPIO17	L298N IN2	Left motor input 2
GPIO25	L298N IN3	Right motor input 1
GPIO26	L298N IN4	Right motor input 2
GPIO32	HC-SR04 TRIG	Verify 3.3 V trigger is recognized
GPIO33	Conditioned HC-SR04 ECHO	Divider or verified level shifter required
GPIO34	Conditioned left speed DO	Input only; no internal pull resistor
GPIO35	Conditioned right speed DO	Input only; no internal pull resistor
GND	L298N GND and sensor grounds	Common signal reference

Use classic ESP32 with GPIO16/17 available; ESP32-C3, S3 and PSRAM variants are not drop-in substitutes. Inputs must be safe for 3.3 V. GPIO34/35 have no internal pull-up or pull-down.

Normal firmware enables sonar and two front speed sensors. Battery-voltage sensing, indicators and OLED are not enabled for this kit. GPIO36 is not a battery power connection. Do not wire optional pins simply because a firmware symbol exists.

Record your actual parts before power

Ask an adult to record battery model/full-charge voltage and polarity, motor ratings, L298N module identity, ENA/ENB and regulator jumper positions, board power source, sensor model/output type, measured supply and signal voltages, and motor lead polarity. The repository does not establish every shipped module or power arrangement; request the matching instructions if a part cannot be identified.

Read [Wiring Reference](#) before wiring and [Component Tests](#) before powering a test.

Work together safely

An adult checks wiring, soldering, power supplies and powered motor tests. Children can label parts, read steps and record results. Disconnect battery and USB before moving wires. Keep all wheels raised during motor tests; keep fingers, hair and loose clothing clear. Stop immediately for buzzing, a stalled motor, heat, smoke or a damaged battery. Never charge a damaged battery. Use its specified charger.

Do not apply raw battery voltage to 5V, 3V3 or signal pins. Never feed motor current through the controller board, USB cable or a breadboard. Photos show mechanical placement; board labels and the wiring table determine electrical connections.

Contact Jarzlabs24@gmail.com for help. Include your kit version, board label, app version, test name and result. A parent or adult helper can send the request.