

Teyleten Robot ESP32 30P

Teyleten Robot ESP32-WROOM-32 Development Board User Manual

1. INTRODUCTION

The Teyleten Robot ESP32-WROOM-32 Development Board is a versatile microcontroller featuring integrated 2.4GHz dual-mode WiFi and Bluetooth capabilities. Designed for a wide range of applications, particularly in the Internet of Things (IoT), this board offers a high performance-to-price ratio and a compact form factor, making it easy to embed into various projects. It supports the LWIP protocol, FreeRTOS, and Lua programming, facilitating development for both beginners and experienced users.

2. KEY FEATURES

- **High Performance:** Utilizes 40nm TSMC low-power technology for optimal power and RF characteristics.
- **Integrated Connectivity:** Features 2.4GHz dual-mode WiFi and Bluetooth for robust wireless communication.
- **Compact Design:** Small volume allows for easy integration into other products.
- **Scalable Applications:** Strong function support with LWIP protocol and FreeRTOS.
- **Programming Flexibility:** Supports Lua programming and is compatible with Arduino IDE.
- **GPIO Accessibility:** Most I/O pins are exposed via pin headers for easy interfacing.
- **On-board Voltage Regulator:** Can withstand input voltages up to 5V via VIN pin, regulating to 3.3V for operation.

3. SETUP GUIDE

3.1 Driver Installation

Before using the ESP32-WROOM-32 Development Board, it is essential to install the CP2102 USB to UART Bridge VCP Drivers. If the board is not recognized by your computer, installing or updating these drivers is the first troubleshooting step. Ensure you download the correct driver version for your operating system from the Silicon Labs website.

3.2 Powering the Board

The ESP32 operates at a maximum voltage of 3.3V. The development board includes an on-board AMS1117

voltage regulator. You can supply power through the Micro USB port or via the VIN and GND pins. The VIN pin can accept up to 5V, which the regulator will convert to 3.3V for the board's components. Always ensure your power source does not exceed 5V when using the VIN pin.

3.3 Connecting to Arduino IDE

1. Install the Arduino IDE on your computer.
2. Add the ESP32 board package URL to the Arduino IDE preferences. This URL is typically found on the Espressif GitHub page or related community resources.
3. Install the ESP32 board package through the Boards Manager.
4. Select "ESP32 Dev Module" from the "Tools" > "Board" menu.
5. Connect your ESP32 board to your computer using a Micro USB cable.
6. Select the appropriate COM port from the "Tools" > "Port" menu.
7. You are now ready to program and upload sketches to your ESP32 board.

4. OPERATING INSTRUCTIONS

The ESP32-WROOM-32 Development Board is designed for ease of use in various embedded projects. Its exposed GPIO pins allow for flexible interfacing with sensors, actuators, and other electronic components. The board's compatibility with Arduino IDE, CircuitPython, and MicroPython provides multiple programming environments to suit different project requirements and developer preferences.

4.1 Basic Programming

You can begin by uploading simple sketches, such as controlling the built-in LED or reading data from a basic sensor. The dual-core processor and integrated wireless capabilities enable complex tasks like data logging, web server hosting, and communication with cloud services.

4.2 Pinout Diagram

Refer to the pinout diagram provided in the Media Gallery for detailed information on each GPIO pin's function and capabilities. This will assist in correctly connecting external components and utilizing the board's various peripherals.

5. SPECIFICATIONS

| Feature | Specification |
|--------------------|--|
| Processor | 2.4E+2 core_m_family (Dual-Core Espressif) |
| RAM | 0.51 MB (512 KB) |
| Wireless Type | Bluetooth, WiFi (2.4GHz) |
| Operating System | FreeRTOS |
| Item Model Number | A9 |
| Item Weight | 1.06 ounces |
| Product Dimensions | 2.03 x 1.12 x 0.48 inches |

| Feature | Specification |
|--------------|----------------|
| Manufacturer | Teyleten Robot |

6. TROUBLESHOOTING

6.1 Board Not Recognized

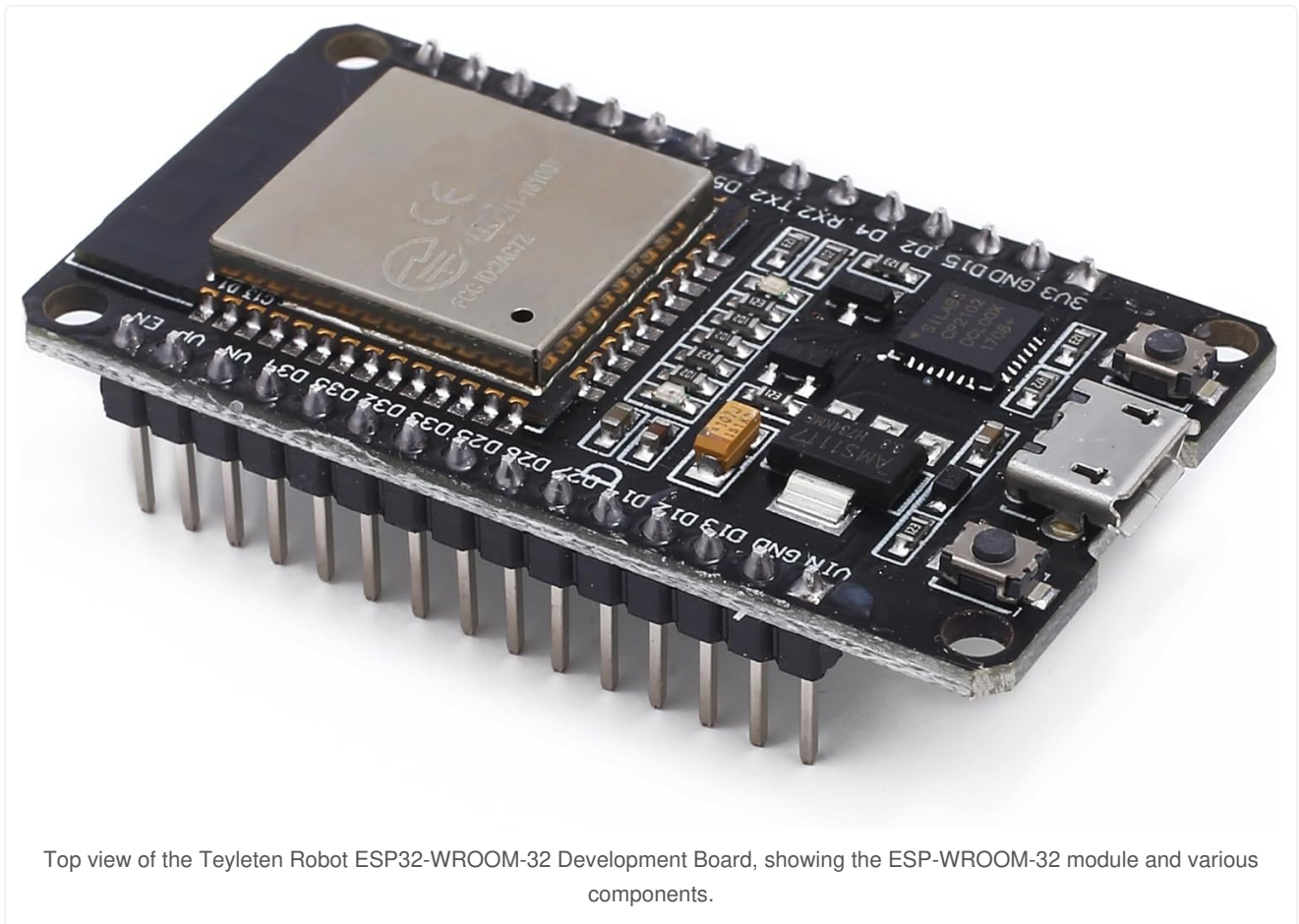
If your computer does not recognize the ESP32 board when connected via USB, ensure the CP2102 driver is correctly installed. You may need to replace the USB cable as some cables are for charging only and do not support data transfer.

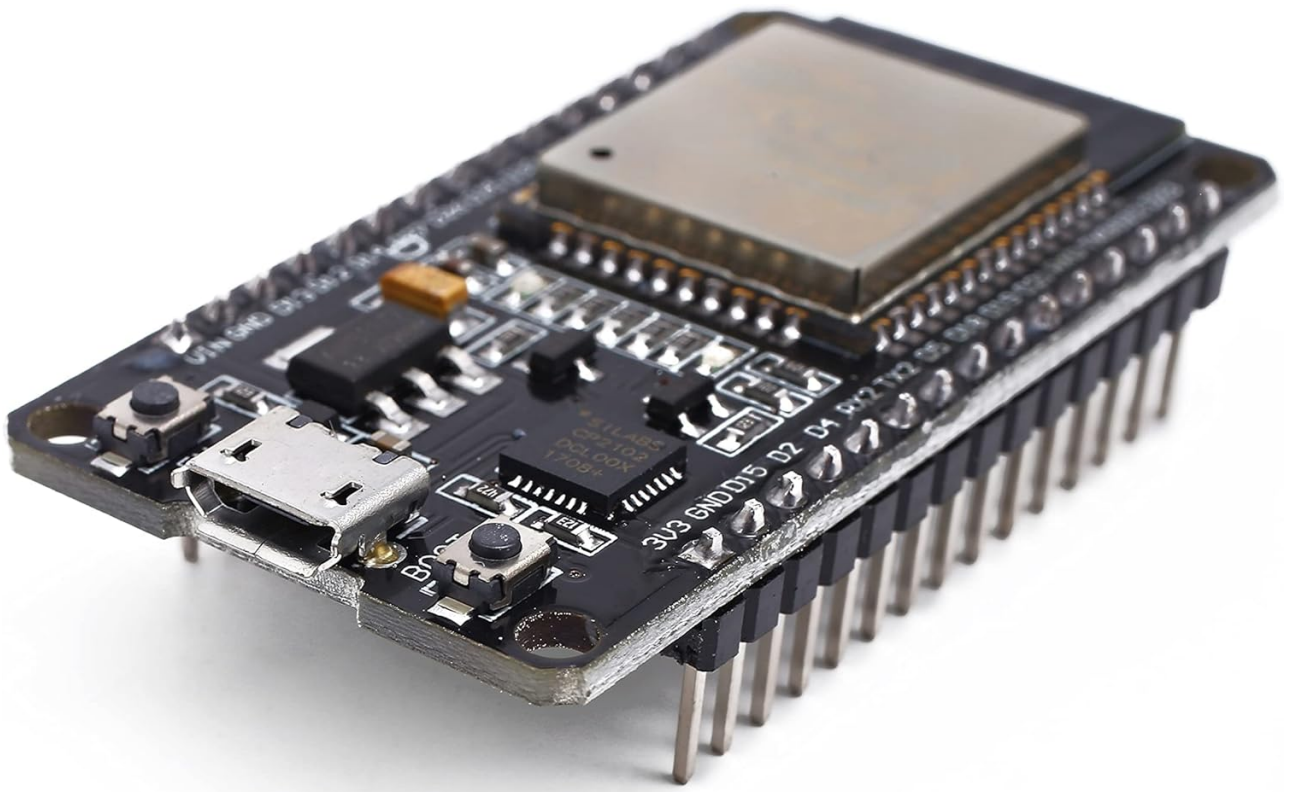
6.2 Power Consumption

ESP32 boards can consume more power than some other microcontrollers, especially when WiFi and Bluetooth are actively used. If you encounter power-related issues, consider optimizing your code for power efficiency, such as using deep sleep modes when the board is idle. Ensure your power supply (USB port or external source) can provide sufficient current.

7. MEDIA GALLERY

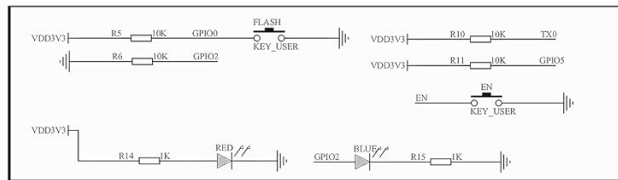
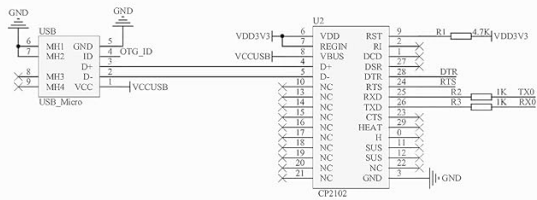
7.1 Product Images



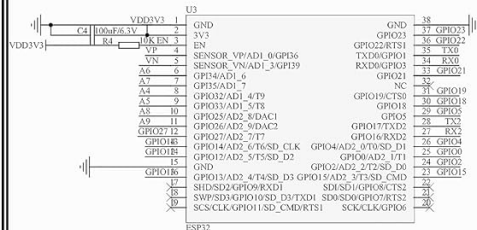
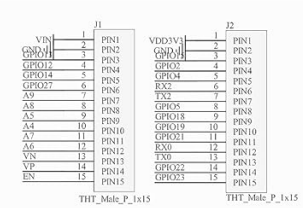
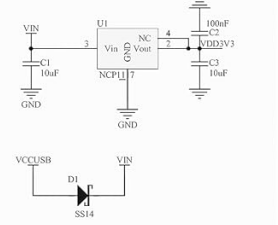


Angled view of the ESP32-WROOM-32 Development Board, highlighting the Micro USB port and pin headers.

USB Part



Power Part



Schematic diagram of the ESP32-WROOM-32 Development Board, illustrating internal connections and components.



The Teyleten Robot ESP32-WROOM-32 Development Board in its anti-static packaging.

7.2 Official Product Videos

Video: An overview of the Tyleten Robot ESP32-WROOM-32 Development Board, highlighting its features and suitability for IoT projects. This video demonstrates the physical board and its connection capabilities.

Video: A detailed look at the Tyleten ESP32 Microcontroller, presented as an Arduino alternative. This video covers its features, programming options (Arduino IDE, CircuitPython, MicroPython), and potential applications in home automation.

8. WARRANTY AND SUPPORT

For specific warranty information and technical support, please refer to the official Tyleten Robot website or contact their customer service directly. Keep your purchase receipt for any warranty claims.