KeeYees ESP32S 38PIN Narrow

KeeYees ESP32S ESP32 Development Board (38-PIN Narrow Version) User Manual

Model: ESP32S 38PIN Narrow

1. Introduction

The KeeYees ESP32S ESP32 Development Board is a versatile microcontroller featuring the ESP-WROOM-32 chip. This 38-pin narrow version offers integrated 2.4 GHz dual-mode Wi-Fi and Bluetooth capabilities, making it suitable for a wide range of embedded projects and IoT applications. Its design ensures compatibility with standard breadboards, facilitating prototyping and development.
Key features include:

- Integrated 2.4 GHz dual-mode Wi-Fi and Bluetooth.
- Powered by the ESP-WROOM-32 chip with 40nm low-power technology.
- 38 pins for expanded functionality compared to 30-pin modules.
- Support for Lua programming and various operating modes (AP, STA, AP + STA).
- Narrow width for breadboard compatibility.

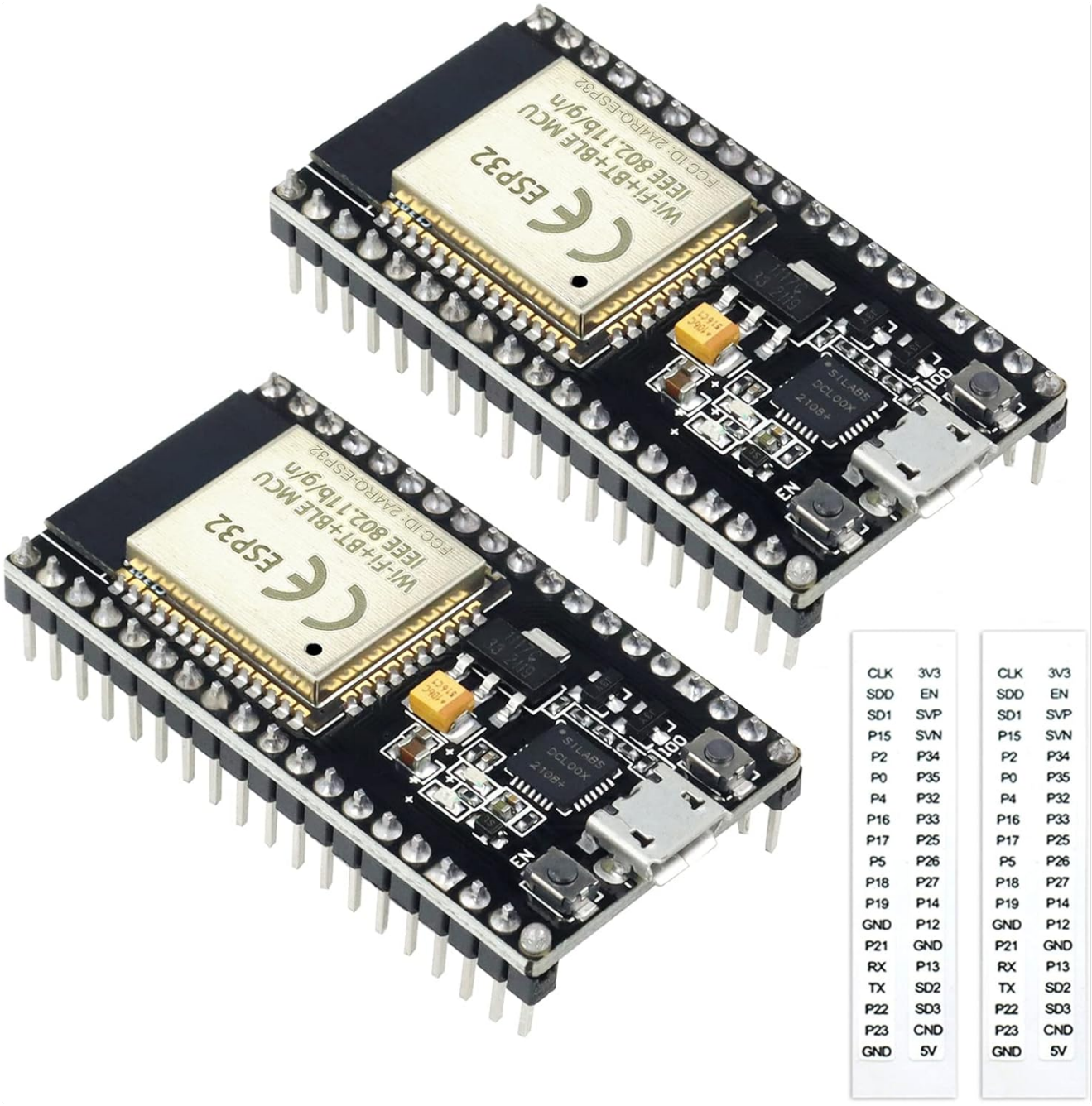


Figure 1: Two KeeYees ESP32S 38-PIN development boards. These boards offer integrated Wi-Fi and Bluetooth for various development projects.

2. Setup Guide

2.1 Driver Installation

Before connecting the board, ensure the necessary USB-to-serial driver is installed on your computer. The KeeYees ESP32S board typically uses a CP210x USB-to-UART bridge chip. Drivers can usually be found on the Silicon Labs website or through your operating system's device manager.

2.2 Arduino IDE Configuration

To program the ESP32S using the Arduino IDE, follow these steps:

1. **Add ESP32 Board Manager URL:** Go to File > Preferences and add the ESP32 board manager URL to the 'Additional Boards Manager URLs' field. (Search online for the current ESP32 board manager URL).
2. **Install ESP32 Boards:** Navigate to Tools > Board > Boards Manager. Search for 'ESP32' and install the 'esp32 by Espressif Systems' package.
3. **Select Board:** After installation, go to Tools > Board > ESP32 Arduino and select 'ESP32 Dev Module'.

2.3 Connecting the Board

Connect the ESP32S development board to your computer using a Micro USB cable. A functional USB cable is crucial for proper communication and power supply.

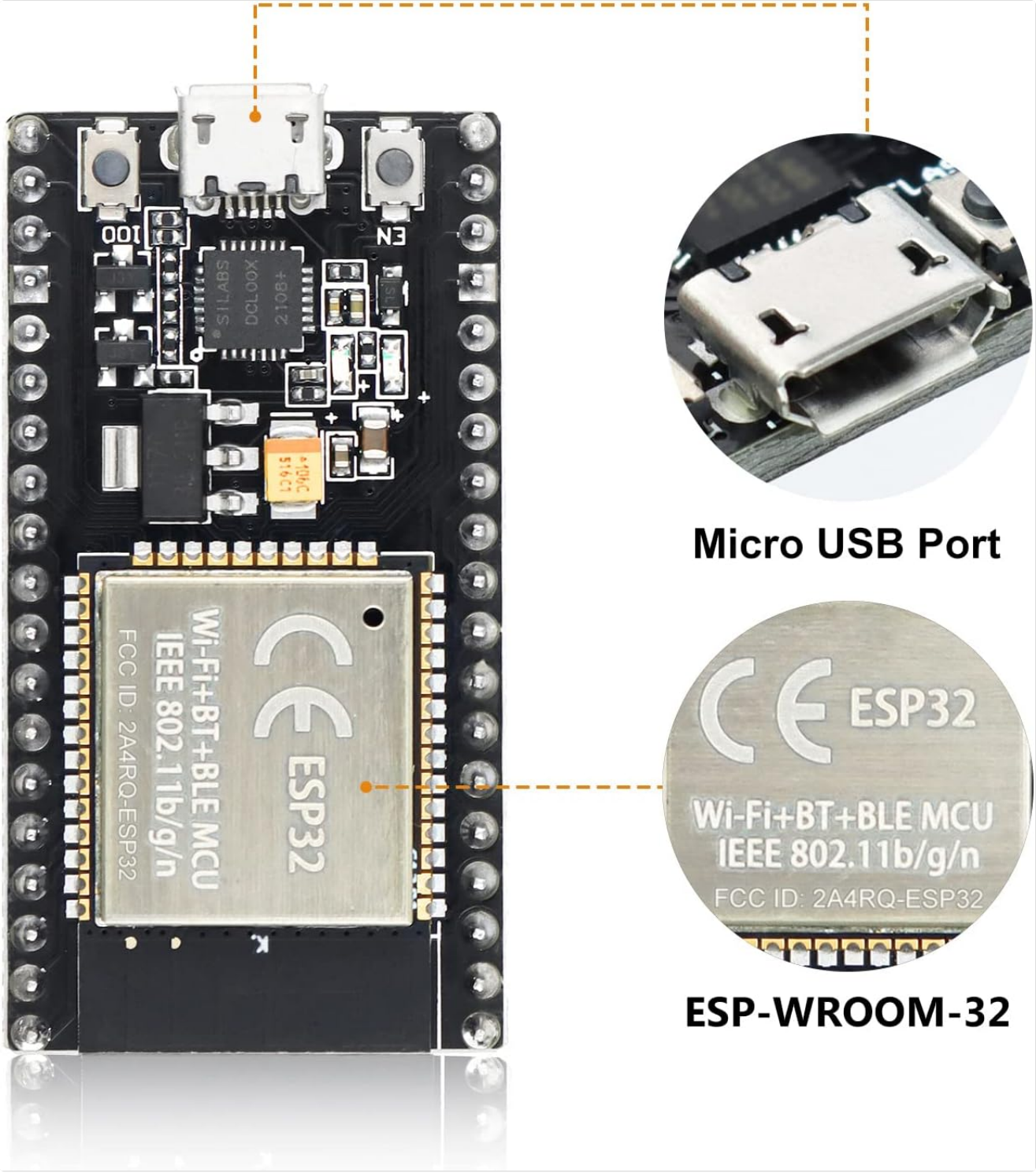


Figure 2: Detail of the Micro USB Port and the ESP-WROOM-32 chip on the development board.

2.4 Uploading Code

When uploading code to the ESP32S board, you may need to manually activate the bootloader mode:

- After compiling your sketch in the Arduino IDE, click the 'Upload' button.
- When the IDE output displays 'Connecting...', press and hold the**'Boot' button** (usually located near the USB port) on the ESP32S board for a few seconds until the upload process begins. Release the button once the upload progress starts.

2.5 Pin Identification

The board comes with sticky labels for pin identification. These can be applied to the board for easy reference. Refer to the pinout diagram for a comprehensive understanding of each pin's function.

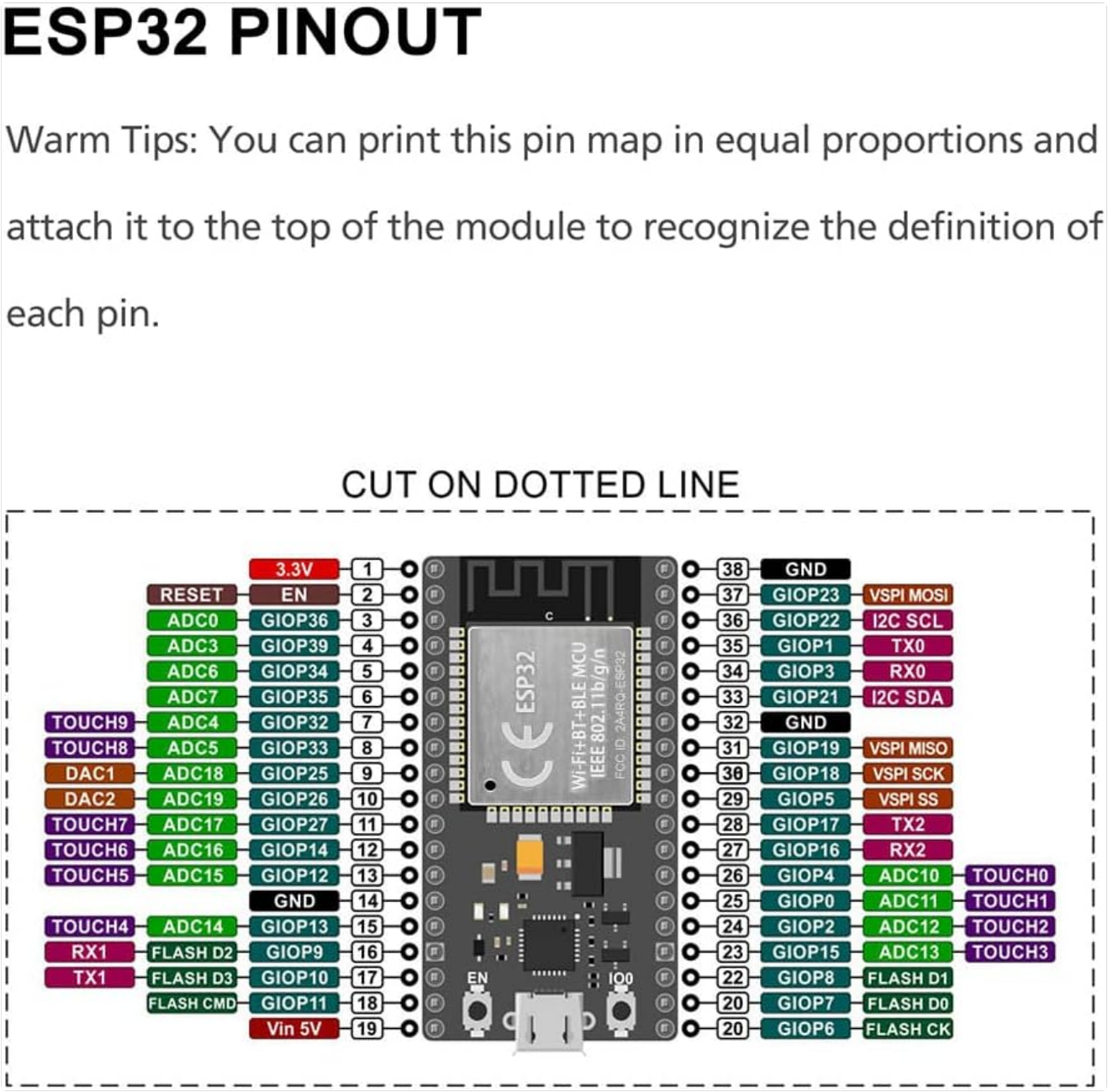


Figure 3: ESP32S 38-PIN Development Board Pinout Diagram. This diagram illustrates the function of each pin on the board.

3. Operating Instructions

3.1 Basic Programming

To verify basic functionality, you can upload a simple 'Blink' sketch. The onboard blue LED is typically connected to GPIO2 (D2). Modify the default pin in the sketch to '2' to control this LED.

3.2 Wi-Fi and Bluetooth Modes

The ESP32S supports three operational modes for wireless communication:

- **AP (Access Point) Mode:** The ESP32S acts as a Wi-Fi hotspot, allowing other devices to connect to it.
- **STA (Station) Mode:** The ESP32S connects to an existing Wi-Fi network.
- **AP + STA Mode:** The ESP32S operates as both an Access Point and a Station simultaneously.

3.3 Example Project: Simple Wi-Fi Server

A common introductory project is to create a simple Wi-Fi web server. The Arduino IDE's 'WiFi' examples, such as 'SimpleWiFiServer', can be adapted. Configure the sketch with your Wi-Fi network SSID and password. Once connected, the ESP32S will provide an IP address via the serial monitor, which can be accessed from a web browser to interact with the board (e.g., control the onboard LED).

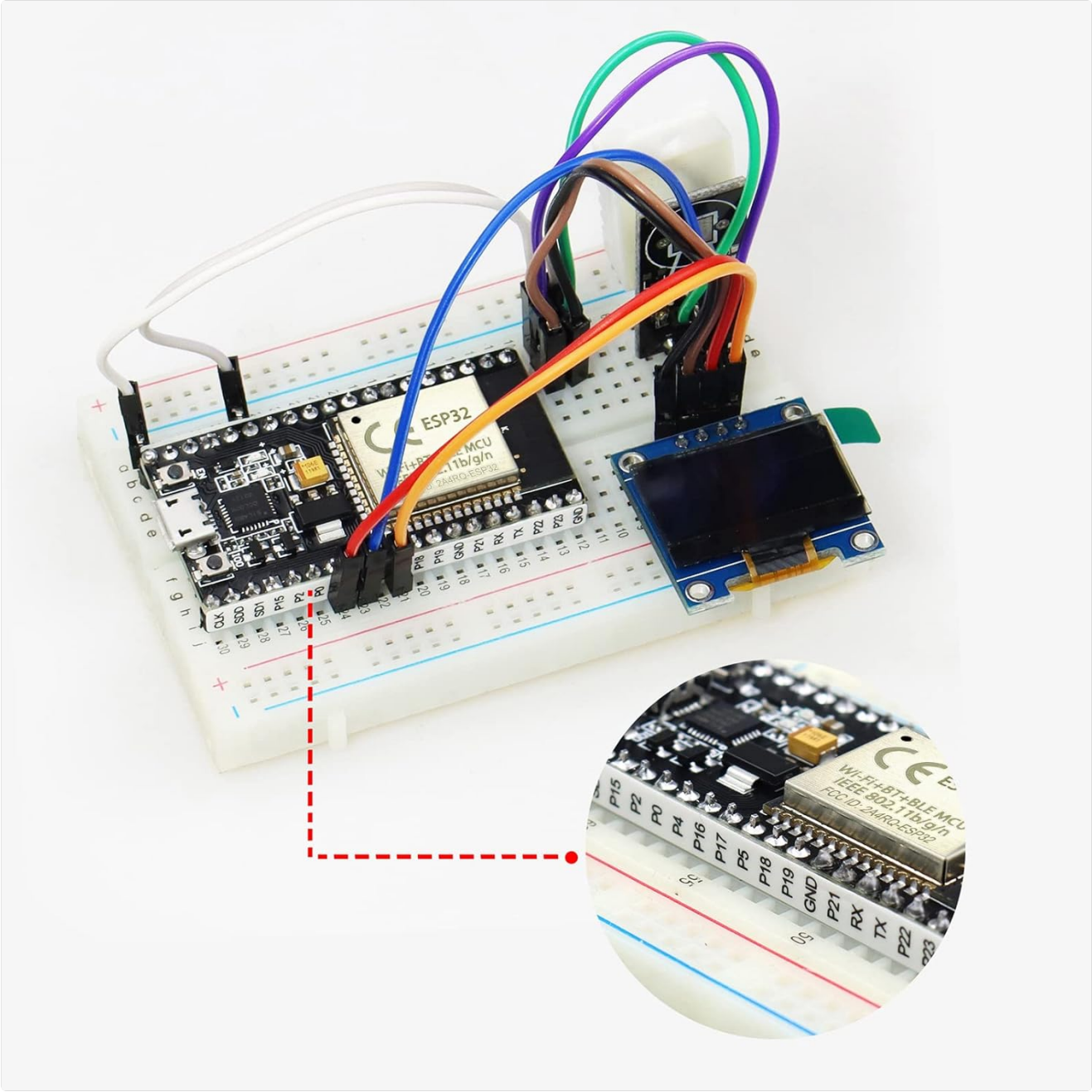


Figure 4: ESP32S board on a breadboard connected to an OLED display, demonstrating a typical project setup.

4. Maintenance

4.1 Thermal Management

When utilizing Wi-Fi and Bluetooth functionalities extensively, the ESP32 chip can generate heat. For applications involving continuous wireless operation or enclosure within a confined space, consider adding a small heatsink to the ESP32 chip to ensure optimal performance and longevity.

4.2 Power Supply Considerations

Ensure a stable and adequate power supply. Weak USB ports or insufficient current can lead to brownout detector errors and unstable operation, especially when driving external components or during wireless transmissions. If

experiencing such issues, use a stronger USB power supply or consider adding an external capacitor to stabilize power.

5. Troubleshooting

5.1 Upload Issues ('Connecting...')

- **Driver:** Verify that the CP210x USB-to-serial driver is correctly installed and the board is recognized as a COM port in your device manager.
- **USB Cable:** A faulty or charge-only USB cable can prevent data transfer. Try a different, known-good data USB cable.
- **Boot Button:** Remember to press and hold the 'Boot' button on the board when the Arduino IDE displays 'Connecting...' during the upload process.

5.2 Brownout Detector Errors / Bootloops

- **Power Supply:** These errors often indicate insufficient power. Use a higher-quality USB cable and a stable power source (e.g., a powered USB hub or a dedicated 5V power supply).
- **External Components:** If you have many external components drawing current, they might be causing voltage drops. Consider powering them separately or adding a larger capacitor across the power rails on your breadboard.

5.3 Connectivity Problems (Wi-Fi/Bluetooth)

- **Credentials:** Double-check your Wi-Fi SSID and password in your code.
- **Signal Strength:** Ensure the board is within range of your Wi-Fi access point.
- **Antenna:** Verify that the onboard antenna is not obstructed or damaged.

5.4 Pin Functionality Issues

- **Pinout:** Always refer to the pinout diagram (Figure 3) to ensure you are using the correct GPIO pins for your application. Some pins have specific functions or limitations.
- **Short Circuits:** Check for any accidental short circuits on your breadboard or wiring.

6. Specifications

Feature	Specification
Model Name	ESP32S
Chipset	ESP-WROOM-32
Processor	Dual-core
Memory Speed	240 MHz

Feature	Specification
RAM	SRAM
Memory Storage Capacity	512 KB
Wireless Type	802.11bgn (Wi-Fi), Bluetooth
Operating System	FreeRTOS
Product Dimensions (LxWxH)	1.9 x 1 x 0.47 inches (48.26 x 25.4 x 12 mm)
Item Weight	1.13 ounces
Number of Pins	38

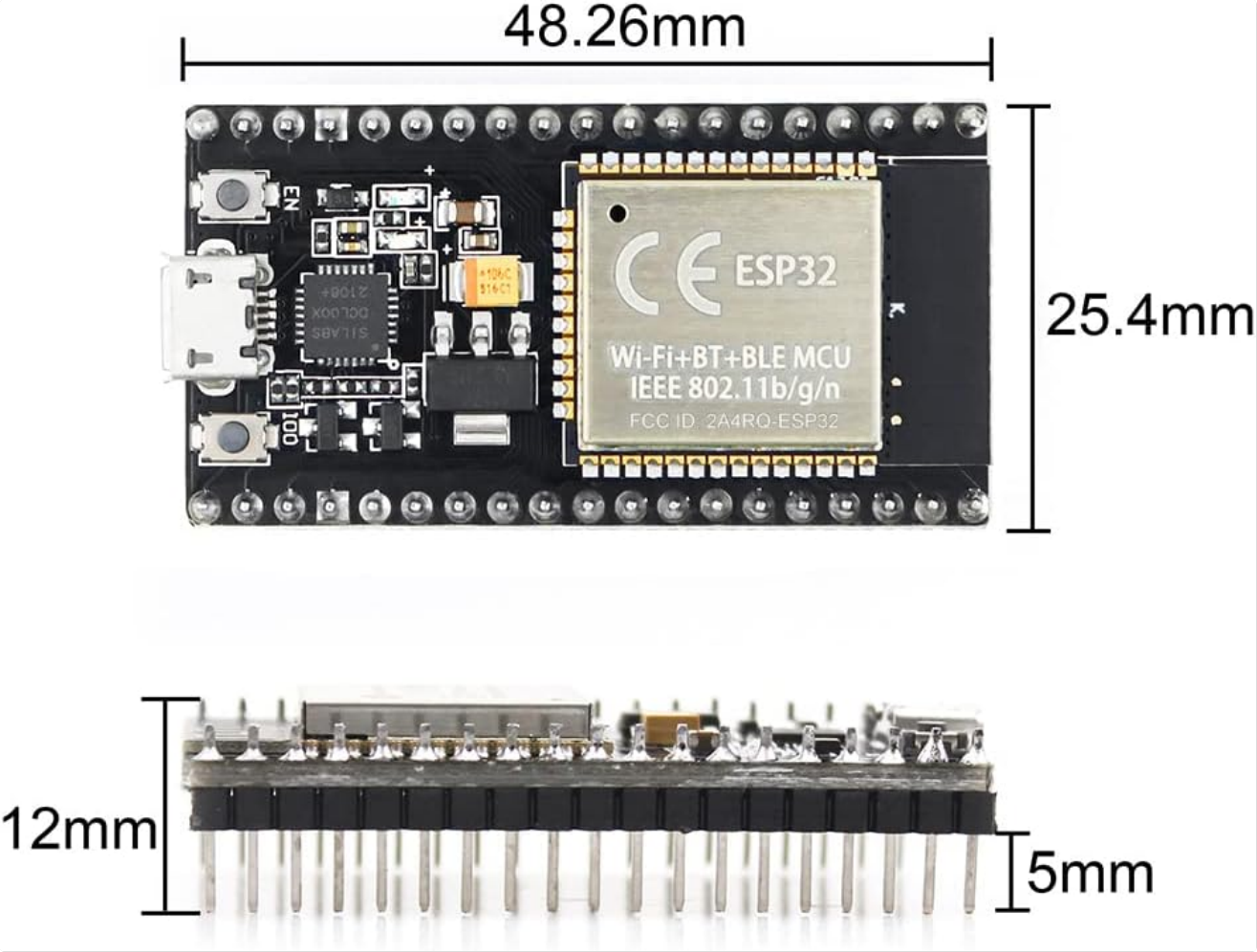


Figure 5: Dimensions of the KeeYees ESP32S 38-PIN Development Board.

7. Warranty and Support

7.1 Return Policy

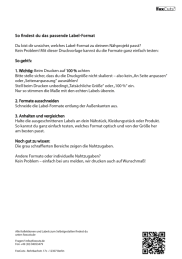
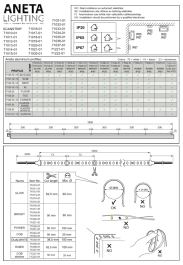
This product is typically covered by a 30-day return or replacement policy from the date of purchase. Please refer to your retailer's specific return policy for detailed terms and conditions.

7.2 Technical Support

For additional technical assistance, programming guides, or troubleshooting tips, please refer to the official KeeYees website or the product page where a PDF tutorial may be available. Online communities and forums dedicated to ESP32 development are also valuable resources for support and project ideas.

Related Documents - ESP32S 38PIN Narrow

	KeeYees ESP32 Development Board User Guide A comprehensive guide on how to set up and use the KeeYees ESP32 Development Board with Arduino IDE, including driver installation and board manager configuration.
SONANCE BEYOND SOUND INVISIBLE SERIES PRE-CONSTRUCTION BRACKET MANUAL	Sonance Invisible Series Pre-Construction Bracket Manual Comprehensive installation guide for the Sonance Invisible Series Pre-Construction Bracket, detailing preparation, installation steps, compatibility, and warranty information for premium distributed audio systems.
	Crown RD 5700 Series Narrow-Aisle Reach Truck: Specifications and Technical Information Detailed specifications, features, and technical information for the Crown RD 5700 Series Narrow-Aisle Reach Truck, including dimensions, performance data, operator compartment details, and safety features.
Rubies Bras SAHAARA SOLIDS BRA-MAKING CLASS FIT AND FITTING ALTERATIONS PART 2	Sahaara Solids Bra-Making Class: Fit and Fitting Alterations Part 2 | Rubies Bras A comprehensive guide to fitting alterations for the Sahaara Solids bra-making class by Rubies Bras. Learn techniques to increase projection, implement moon darts, adjust cup seams, narrow the cradle, and narrow the bowl for a perfect fit.

	[FoxCuts Label Formats Guide: Find the Perfect Fit] A guide from FoxCuts on how to choose and test the right label format for your sewing projects. Includes detailed dimensions for square, rectangular, narrow, and extra-narrow labels.
	[Aneta Lighting Scanstrip Product Information and Installation Guide] Detailed information on Aneta Lighting's Scanstrip LED lighting profiles, including product codes, IP ratings, color options, and installation instructions. Covers various profiles like Glow, Bright, Power, COB, DualWhite, and RGBW, along with compatible drivers.