PlatformIO Setup Guide

Install PlatformIO

Prerequisites:

- Install Visual Studio Code if you haven't already.

- Ensure you have Python installed, as PlatformIO requires it.

Steps to Install PlatformIO in VS Code:

1. Open VS Code.

2. Click on the Extensions tab (or press Ctrl+Shift+X).

3. In the Extensions Marketplace search bar, type PlatformIO.

4. Click on Install for the PlatformIO IDE extension.

5. Once installed, you'll see a PlatformIO icon in the left toolbar.

Create a New Project

1. Click the PlatformIO icon in the VS Code sidebar.

2. On the PlatformIO Home screen, click New Project.

3. In the New Project Wizard, enter project name, board, and framework.

4. Click Finish and wait for the project to initialize.

Project Structure Overview

Once your project is created, you'll see a folder structure with important folders like include, lib, src, and platformio.ini file.

Write Code

Open the src/main.cpp file and start writing your code.

Example Blink code:

```
#include <Arduino.h>
void setup() {
  pinMode(2, OUTPUT);
}
void loop() {
  digitalWrite(2, HIGH);
  delay(1000);
  digitalWrite(2, LOW);
  delay(1000);
}
```

Build the Project

1. Click the checkmark (Build) icon or press Ctrl+Alt+B to build the project.

2. If successful, you'll see SUCCESS in the terminal.

Upload Code to the Board

1. Connect your ESP32 board via USB.

2. Click the arrow (Upload) icon or press Ctrl+Alt+U to upload.

Monitor Serial Output

1. Click the plug icon or press Ctrl+Alt+M to open the serial monitor.

2. The output from the board will appear in the terminal.

Install Libraries

1. Open PlatformIO Home, click Libraries.

2. Search for the library and click Install.

Debugging

1. Connect JTAG adapter.

2. Add debug configuration in platformio.ini.

3. Click the Run and Debug button to start debugging.

Manage Multiple Environments

You can configure multiple environments in platformio.ini to switch between different boards or settings.

Using PlatformIO CLI

Common CLI commands:

- Build: pio run

- Upload: pio run --target upload

- Serial monitor: pio device monitor