

The complete for the R2-D2 Droid Clock.

Arduino IDE Setup Reference

1. Board Selection

- **Board Manager:** [esp32](#) by Espressif Systems (Version 2.0.11 or later recommended).
- **Board Selection:** [ESP32C3 Dev Module](#)
 - (Note: The "SuperMini" is just a small Dev Module. Select this generic option.)

2. Board Settings (Tools Menu)

- **USB CDC On Boot:** [Enabled](#) (CRITICAL: If "Disabled", Serial Monitor won't work).
- **Flash Mode:** [DIO](#)
- **Flash Frequency:** [80MHz](#)
- **Upload Speed:** [921600](#) (Fast) or [115200](#) (Safe).
- **CPU Frequency:** [160MHz](#) (Standard).

3. Serial Monitor Settings

- **Baud Rate:** [115200 baud](#)
 - (Matches the line [Serial.begin\(115200\);](#) in the code).

4. Required Libraries (Sketch > Include Library > Manage Libraries)

Search for and install these specific libraries. The others (WiFi, Time, BLE) are built-in.

Library Name	Author	Version	Purpose
TM1637	Avishay Orpaz	Latest	Controls the 4-digit display.
DFRobotDFPlayerMini	DFRobot	Latest	Controls the MP3 player.

- **Note:** [BLEDevice](#), [WiFi](#), and [time.h](#) do **not** need to be installed. They come pre-installed with the ESP32 board package.

Here is the guide for customizing the R2-D2 code for your new home.

These settings are located at the very top of the file, right after the library includes.

1. WiFi Settings (Lines 11 & 12)

You must keep the quotation marks "" around your network name and password.

- **Line 11:** `const char* ssid = "YOUR_WIFI_NAME";`
- **Line 12:** `const char* password = "YOUR_WIFI_PASSWORD";`

Common Time Zone Cheat Sheet

Time Zone	gmtOffset_sec
Eastern (EST)	-18000
Central (CST)	-21600
Mountain (MST)	-25200
Pacific (PST)	-28800
UK (GMT)	0
Central Europe (CET)	3600

2. Time Zone Settings (Lines 15 & 16)

The clock uses **seconds** to calculate the time zone, not hours.

Line 15 (gmtOffset_sec): This is your offset from UTC (Greenwich Mean Time) in seconds.

Formula: (Hours Offset) * 3600

Example (EST): New York is UTC -5. So, -5 times 3600 = -18000

Example (PST): California is UTC -8. So, -8 times 3600 = -28800

Example (GMT): London is UTC 0. So, 0

Line 16 (daylightOffset_sec):

Set to **3600** if your area uses Daylight Savings Time.

Set to **0** if you do not use DST (like Arizona).