

Explore the Future of Location Precision with the ESP-DW1000 Evaluation Board

Your Journey towards Innovation Begins with the ESP32-DW1000





Fig: Image of ESP32-DW1000

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1 Demo Video

- Click on the link below to open the video.
- Copy and Paste the URL into the browser.

https://drive.google.com/file/d/1iL8BeEW0ehmeyeVX73UecmaHv_SlwtUk/view

2. Using the ESP32 DW1000 UWB Board with Arduino IDE

In this guide, we'll learn how to use the ESP32 DW1000 UWB (Ultra Wideband) board with the Arduino IDE to measure the distance between two boards. For this project, you'll need a pair of boards. We'll follow a series of steps to set up the module.

2.1 Installing the DW1000 Library

First, you'll need to install the Arduino-DW1000 library from Thotro. This library provides the necessary functionality to work with Decawave's DW1000 chips and modules in the Arduino environment.

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DW	1000					
by	Thomas Tro	jer Vers	ion 0.9.0 INS	TALLED		
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off	er. The libra	ry desig	n is intended	to offer an e	asy-to-use interface to the otherwise complex and configuration intense	
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You can also install this library using the Library Manager. Simply search for "DW1000" and click "Install" to add the library to your Arduino IDE.

2.2 Modifying the Library

The DW1000 UWB library doesn't compile directly for ESP32 boards, so we need to make some modifications.

First, navigate to the Arduino library folder and locate the DW1000 folder. Inside that folder, open the "src" folder to access the library's source files.



Quick access	^	Name	Date modified	Туре	Size
Desktop		adapterBoard	09-02-2023 18:44	File folder	
Downloads		examples	09-02-2023 18:44	File folder	
OneDrive	<u> </u>	extras	09-02-2023 18:44	File folder	
Deserve	- 1	src 📃	09-02-2023 18:44	File folder	
Documents	*	keywords.txt	12-06-2019 20:54	Text Document	1 K
Pictures	*	library.json	12-06-2019 20:54	JSON File	1 K
Crack		library.properties	12-06-2019 20:54	PROPERTIES File	1 K
DW1000_3000		LICENSE.md	12-06-2019 20:54	MD File	10 K
EWARM		README.md	12-06-2019 20:54	MD File	7 K
EWARM					

Open the "src" folder and find the DW1000.cpp file. Use a text editor, such as Notepad++, to open this file.

$\leftarrow \rightarrow \land \uparrow $ > This PC	> Docum	nents > Arduino > libraries > DW1000) > src		
📌 Quick access	^	Name	Date modified	Туре	Size
Desktop		🛃 deprecated.h	12-06-2019 20:54	C Header File	1 KE
Downloads		🐏 DW1000.cpp	14-01-2023 13:18	C++ Source File	60 KE
		🔁 DW1000.h	12-06-2019 20:54	C Header File	22 K8
Decuments		DW1000CompileOptions.h	12-06-2019 20:54	C Header File	2 K8
Documents		DW1000Constants.h	12-06-2019 20:54	C Header File	7 KI
Pictures		🔁 DW1000Device.cpp	12-06-2019 20:54	C++ Source File	4 Ki
Crack		DW1000Device.h	12-06-2019 20:54	C Header File	3 KI
DW1000_3000		DW1000Mac.cpp	12-06-2019 20:54	C++ Source File	5 KI
EWARM		DW1000Mac.h	12-06-2019 20:54	C Header File	3 KI
EWARM		💁 DW1000Ranging.cpp	12-06-2019 20:54	C++ Source File	32 KI
		B DW1000Ranging.h	12-06-2019 20:54	C Header File	7 K
Desktop		🔁 DW1000Time.cpp	12-06-2019 20:54	C++ Source File	8 KI
OneDrive - Personal		B DW1000Time.h	12-06-2019 20:54	C Header File	5 KI

Next, locate the following lines (Line 172) and comment out all three lines.

Once these lines are commented out, the library code will compile successfully.



2.3 Board Selection

Connect the pair of ESP32 Wrover boards to two different USB ports on your computer using micro-USB cables. In the Arduino IDE, select the development board: choose "ESP32 Dev Module" if you are using the ESP32 UWB board with the ESP32 WROOM chip. If you have the ESP32 UWB board with the ESP32 WROVER chip, select "ESP32 WROVER Module."

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		Archive Sketch		
DW1	1000Rangi	Fix Encoding & Reload		
7	•/	Manage Libraries	Ctrl+Shift+I	
8	includ	Serial Monitor	Ctrl+Shift+M	
9 \$	includ	Serial Plotter	Ctrl+Shift+L	
2	/ conn	WiFi101 / WiFiNINA Firmware Updater		
c	onst u	ESP Exception Decoder		
5	onst u	ESP32 Sketch Data Upload		
¢	onst u	ESP8266 LittleFS Data Upload		
		ESP8266 Sketch Data Upload		
ľ	oid se	Board: "ESP12 Dev Module"		>
	delau	Upload Speed: "921600"		>
	//ini	CPU Frequency: "240MHz (WiFi/8T)"		>
	DW100	Flash Frequency: "80MHz"		Reset, CS, IRQ pin
	//def	Flash Mode: "QIO"		y change the type of module
	DW100	Flash Size: "4M8 (32Mb)"		>
	DW100	Partition Scheme: "Default 4MB with spiffs (1.2MB APP/1.5MB SPIFFS)"		>
	DW100	Core Debug Level: "None"		>
	//Enal	PSRAM: "Disabled"		>
	//DW1	Port: "COM7"		>
		Get Board Info		
	//we .			
	DM100	Programmer		MORE LONGDARA DAMOR LOODDARY

Also, make sure to select the correct COM port, which you can find in the Device Manager. Your ESP32 Ultra Wideband board is now set up for serial communication.



3. Hardware



Pin connection

PIN_RST	IO 27
IRQ	IO 4
SS	IO 5
LED 1	IO 17
LED 2	10 26

