Installation Instructions

Please note- The firmware only works with ESP32S3 Lilygo t-displayS3 Touch.

Here are some links to related videos on YouTube.

https://youtu.be/HqioXrjpPSk?feature=shared

https://youtu.be/gyk2eq8ZymM?feature=shared

https://www.youtube.com/watch?v=cFctgusRfhY

Here is a link to the Espressif Flash Download Tools required for uploading the firmware:

https://www.espressif.com/en/support/download/other-tools

In order to upload the firmware please follow the following steps:

1. Download the Espressif Flash Tool
2. Press the tree dots to select the files as follows:

My_Radio.ino.bin 0x10000

My_Radio.ino.bootloader.bin 0x0000

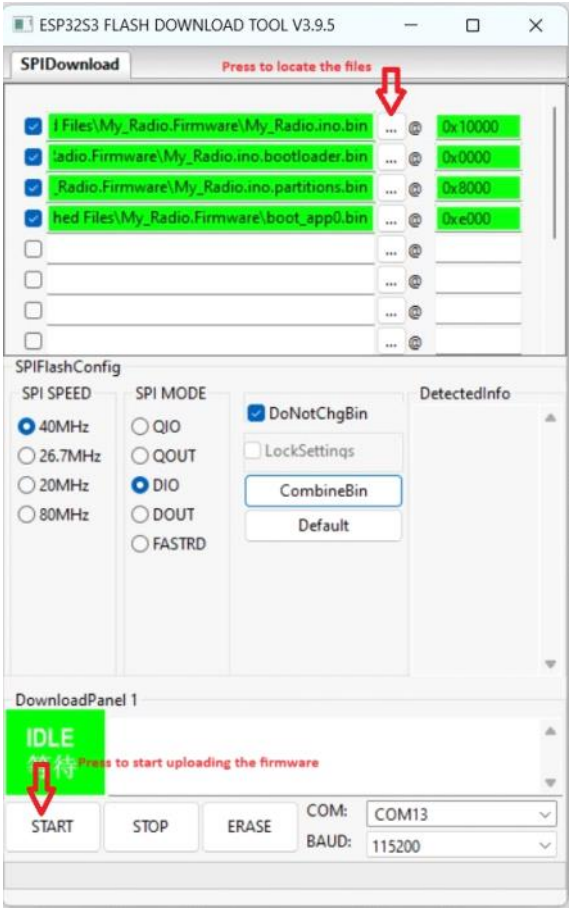
My_Radio.ino.partitions.bin 0x8000

My_Radio.Firmware\boot_app0.bin 0xe000

Make sure that all the lines are marked green. If not green use the check mark on the left side.

Here is a screenshot of the flash tool:

Make sure to select the right com port (located at the right bottom side)



Press the start button for uploading the firmware.

One time connecting process:

1. After successful upload press the reset button on the ESP32 or disconnect the USB cable and reconnect it.
2. Wait for around 3 min until network scanning is completed.
3. Open the Wi-Fi settings in your phone or computer browser and search for My_Radio network.
4. Go to the following address **192.168.4.1.**
5. Press the "Configure Wi-Fi", Find your network and connect to that network using your internet password and press the "Save" button. This will connect the radio permanently to your home network.
6. Press the reset button of the ESP32 controller and wait until the Spiff file system formatting is completed (you will get a message on the LCD Screen).
7. When completed, you should be able to see the IP address that was assigned to your radio by your home router.
8. Open your computer web browser and type that IP address.

   Note: don't touch the scree as the webserver is only working after the ESP32 boot, it will stop working once you touch the screen. If it happens just reboot the ESP32.

   Upload a single station or list of stations using the following format:

   (example file with various stations can be found in the documentation folder).

   Station Name 1, Station Address 1

   Station Name 2, Station Address 2

   Radio Ibiza, http://ibiza-smooth-jazz.vip-radios.fm:8033/stream-128kmp3-IbizaSmooth

   Roma Radio, http://nr9.newradio.it:9371/stream .

   You can find and copy station URL's in the following web site: https://streamurl.link/ , https://fmstream.org/ ,

https://www.radio-browser.info/ , or alternatively search YouTube for instruction video on how to get Live Radio Streaming URLs.

9. The last step - Open the web page. At the bottom left corner of the page you will see the following.

   Please send me the your RADIO ID to the following email **themicromaker@yahoo.com**

   I will email you back the required License Key

   Your Internet Radio ID:

   153963357526764

10. **License Key**

    Enter your key Here:
    Authenticate

Important Note: The webserver is only working after the ESP32 boot, it will stop working once you touch the screen. To reactivate it you will need to reboot the radio by pressing the reset button located on the side of the screen or disconnecting and connecting back the power to the ESp32.

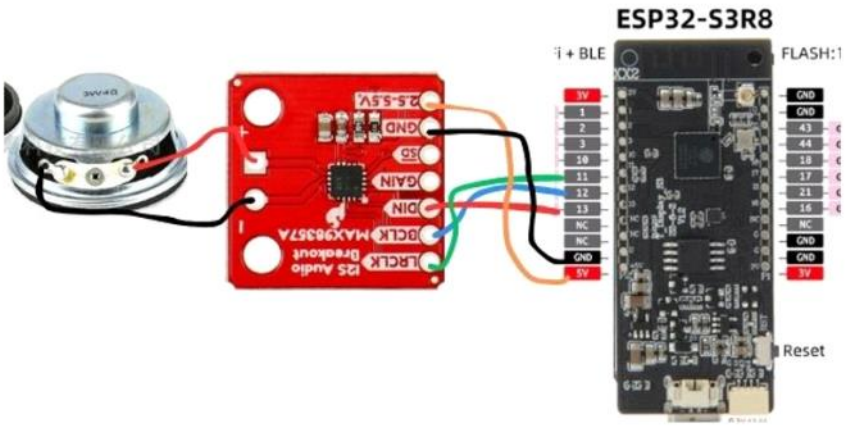
Note:

1. The boot_app0.bin file is included with the Lilygo flash tool in the bin directory.
2. An I2S DAC is required for this project, Amplifier is optional.
3. For some stations that don't play and their URL starts with https:// try to change it to http:// and check if it is working

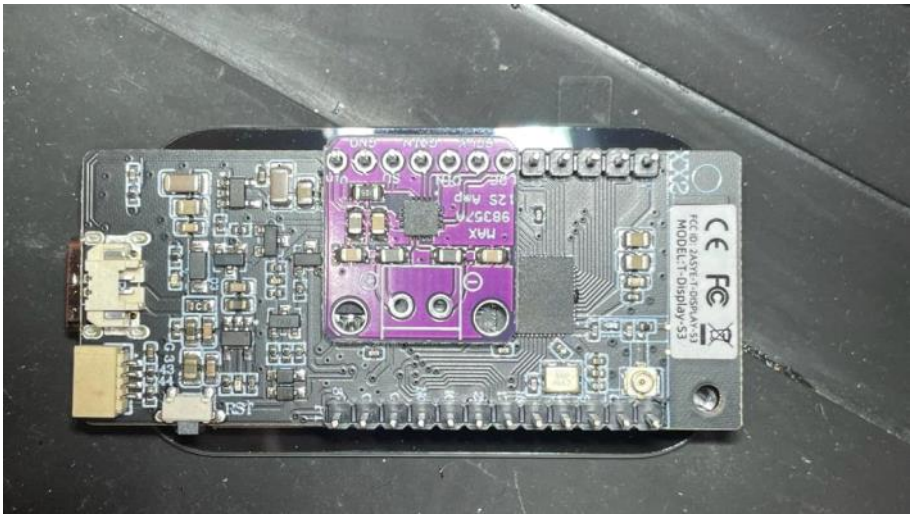
Following is the connection diagram for using the Max98357a chip (if you use pin header you don't need to connect wires as the pins are arranged correctly).

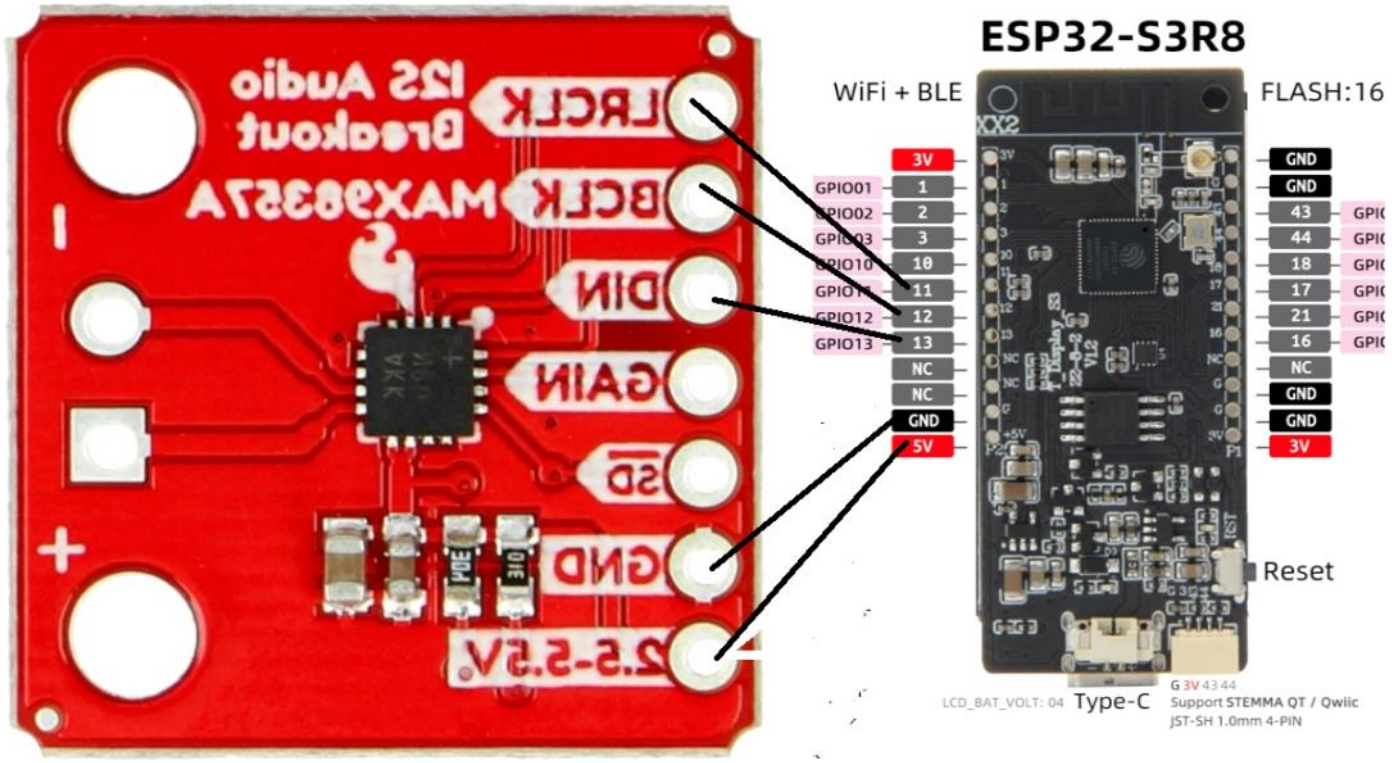
Connect the I2S DAC to the following pins as shown in the picture:

BCLK to pin 12, LRC to pin 11, DOUT to pin 13, VCC to 5V, GND to GND



Refer to the below photo: it is possible to solder the DAC directly to the ESP32 in the following way (the pins are already aligned) After soldering the DAC to the pins you only need to connect a speaker to the + and - signs (speaker pins) on the DAC module.





Link that might be interesting for you and you get extract URLs from:
https://radio.garden/