play an audio file from SPIFFS using PCM5102A

the following is a guide on how to play an audio file using the PCM5102A amplifier.
for this tutorial, we used the Arduino IDE.

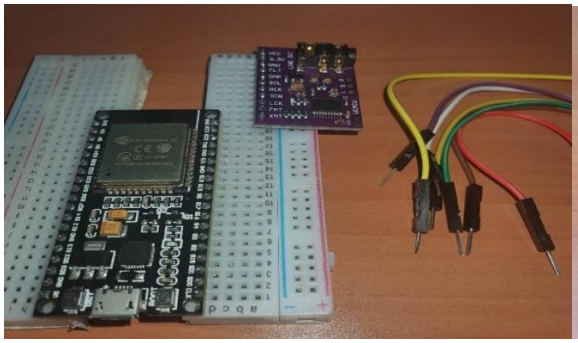
assumptions:

- you have downloaded the Arduino IDE.
- you have configured the IDE to work with the “DOIT ESP32 DIVKIT V1” board.
- you know how to upload a file to esp32’s SPIFFS

a guide to all the steps above can be found in the “bank of knowledge”.

needed material:

- ESP32 microcontroller
- PCM5102A amplifier
- breadboard
- WiFi connection
- 7 wires
- earphones with an aux jack

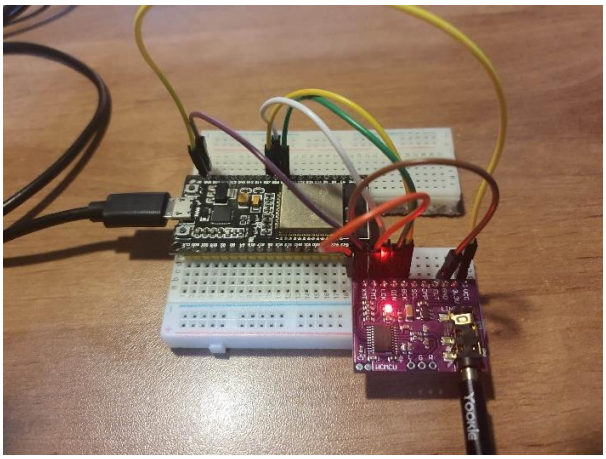


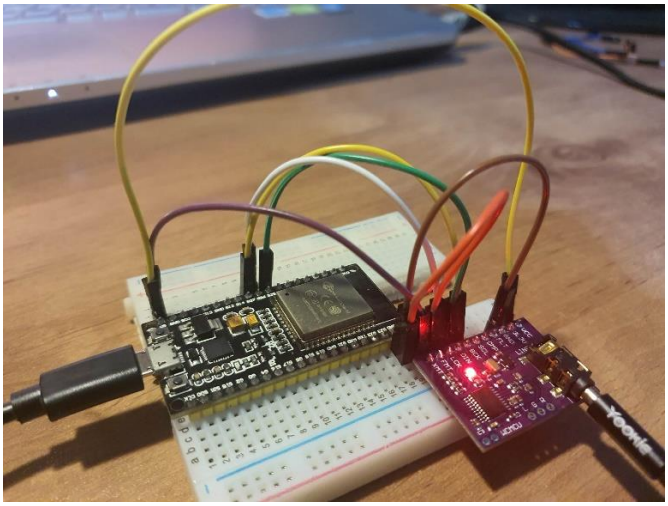

step 1: download the following Github repository as a zip file to your computer:
https://github.com/schreibfaul1/ESP32-audioI2S

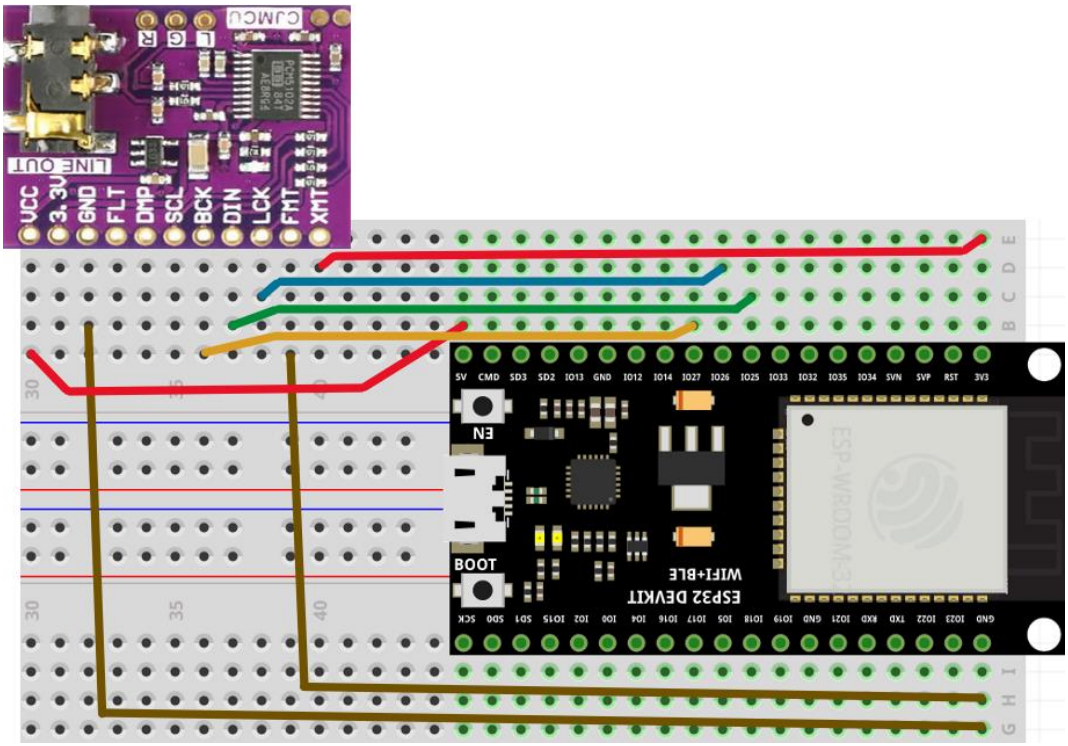
step 2: go to the Arduino IDE -> Sketch -> include library -> add .ZIP library -> choose the file you’ve downloaded in step 1.

step 3: setup the wiring as shown in the “audio input and output for microcontrollers” presentation, or as follows:

PCM5102/A	ESP32
Vcc	Vcc (5V)
GND	GND
BCK or BCLK	Pin 27 (G27)
DIN	Pin 25 (G25)
LCK	Pin 26 (G26)
FMT	GND
XMT	Vcc (5v\3.3v) preferably 3.3V






LINE OUT
VCC
3.3V
GND
FLT
DMP
SCL
BCK
DIN
LCK
FMT
XMT
EN
BOOT
ESP32 DEVKIT
WIFI+BLE

step 4: copy and paste the following code:

```
//#include "Arduino.h" //required for PlatformIO
#include "Audio.h"
#include "FS.h"

// Digital I/O used for I2S DAC amplifier
#define I2S_DOUT      25
#define I2S_BCLK      27
#define I2S_LRC       26

Audio audio;

void setup() {

    Serial.begin(115200);

    if (!SPIFFS.begin(true)) {
        Serial.println("An Error has occurred while mounting SPIFFS");
        return;
    }

    audio.setPinout(I2S_BCLK, I2S_LRC, I2S_DOUT);
    audio.setVolume(20); // range 0...21 - This is not amplifier gain, but controlling
the level of output amplitude.

    audio.connecttoFS(SPIFFS, "123_u8.wav"); // a file with the proper name must be
placed in /data folder and uploaded using "ESP32 sketch upload" plugin

    audio.setFileLoop(true); //this causes the file to play in an endless loop
}

void loop()
{
    audio.loop();
    if (Serial.available()) { // put streamURL in serial monitor
        audio.stopSong();
        Serial.println("audio stopped");
        log_i("free heap=%i", ESP.getFreeHeap());

    }
}
```

NOTE: make sure that the defined Pins match the wiring, and that the file name matches the one you uploaded to SPIFFS.

step 5: connect the ESP32 to your computer, compile and run the code, and then connect your earphones to the aux jack on your PCM5102. you might need to press on the “reset” button on your ESP32.

NOTE:

- it doesn’t matter if the earphones were already connected or not when the code was being uploaded to the esp32.
- the earphones connection is a bit sensitive. if you don’t hear a sound, try moving the headphone jack a little bit.
- the following code plays the file in a loop. sometimes the audio plays for 1\2 times only for some unknown reason. changing the port which the esp32 is connected to seems to help!

step 6: enjoy 😊