```
# Codi primera part
. . .
#include "Arduino.h"
#include "FS.h"
#include "HTTPClient.h"
#include "SPIFFS.h"
#include "SD.h"
#include "SPI.h"
#include "AudioGeneratorAAC.h"
#include "AudioOutputI2S.h"
#include "AudioFileSourcePROGMEM.h"
#include "sampleaac.h"
AudioFileSourcePROGMEM *in;
AudioGeneratorAAC *aac;
AudioOutputI2S *out;
void setup(){
  Serial.begin(115200);
  in = new AudioFileSourcePROGMEM(sampleaac, sizeof(sampleaac));
  aac = new AudioGeneratorAAC();
  out = new AudioOutputI2S();
  out -> SetGain(0.125);
  out -> SetPinout(26,25,22);
  aac->begin(in, out);
}
void loop() {
  if (aac->isRunning()) {
    aac->loop();
    } else {
      aac -> stop();
      Serial.printf("Sound Generator\n");
      delay(1000);
  }
}
## Funcionament:
En primer lloc tenim les llibreries necessàries per al funcionament del
programa:
#include "Arduino.h"
#include "FS.h"
#include "HTTPClient.h"
#include "SPIFFS.h"
#include "SD.h"
#include "SPI.h"
#include "AudioGeneratorAAC.h"
#include "AudioOutputI2S.h"
#include "AudioFileSourcePROGMEM.h"
#include "sampleaac.h"
```

```
AudioFileSourcePROGMEM *in;
AudioGeneratorAAC *aac;
AudioOutputI2S *out;
Posteriorment, al setup, tenim una variable "in" la qual importa l'arxiu
d'audio, una variable "Acc" pel descodificament de l'audio ila variable
"out"
encarregada de donar un guany a l'arxiu d'audio.
void setup(){
  Serial.begin(115200);
  in = new AudioFileSourcePROGMEM(sampleaac, sizeof(sampleaac));
  aac = new AudioGeneratorAAC();
  out = new AudioOutputI2S();
  out -> SetGain(0.125);
  out -> SetPinout(26,25,22);
  aac->begin(in, out);
Al loop es l'encarregat de descodificar l'audio amb la variable "Acc"
. . .
void loop() {
  if (aac->isRunning()) {
    aac->loop();
    } else {
      aac -> stop();
      Serial.printf("Sound Generator\n");
      delay(1000);
  }
}
Finalment es mostrarà per pantalla el text "Sound generator" i per
l'altaveu es reproduirà la següent frase:
https://user-images.githubusercontent.com/100867309/171394773-318b24c6-
1667-4cf8-9e18-efa50f7443d4.mp4
# Codi segona part
#include <Arduino.h>
#include "WiFi.h"
#include "Audio.h"
```

```
#include "SD.h"
#include "FS.h"
// Digital I/O used
#define SD CS
#define SPI MOSI
                      23
#define SPI MISO
                      19
#define SPI SCK
                      18
#define I2S DOUT
                     25
#define I2S BCLK
                     27
#define I2S LRC
                      26
Audio audio;
String ssid = "Xiaomi 11 T Pro";
String password = "f5cbd8a82232";
void setup() {
    pinMode(SD CS, OUTPUT); digitalWrite(SD_CS, HIGH);
    SPI.begin(SPI SCK, SPI MISO, SPI_MOSI);
    Serial.begin(115200);
    SD.begin(SD CS);
    WiFi.disconnect();
    WiFi.mode(WIFI STA);
    WiFi.begin(ssid.c str(), password.c str());
    while (WiFi.status() != WL CONNECTED) delay(1500);
    audio.setPinout(I2S BCLK, I2S LRC, I2S DOUT);
    audio.setVolume(21); // 0...21
  audio.connecttoFS(SD, "/superhyper.wav");
// audio.connecttohost("http://www.wdr.de/wdrlive/media/einslive.m3u");
      audio.connecttohost("http://macslons-irish-pub-
radio.com/media.asx");
//
      audio.connecttohost("http://mp3.ffh.de/radioffh/hqlivestream.aac");
// 128k aac
//
    audio.connecttohost("http://mp3.ffh.de/radioffh/hqlivestream.mp3");
// 128k mp3
      audio.connecttohost("https://github.com/schreibfaul1/ESP32-
audioI2S/raw/master/additional info/Testfiles/sample1.m4a"); // m4a
      audio.connecttohost("https://github.com/schreibfaul1/ESP32-
audioI2S/raw/master/additional info/Testfiles/test 16bit stereo.wav"); //
wav
//
      audio.connecttospeech ("Wenn die Hunde schlafen, kann der Wolf gut
Schafe stehlen.", "de");
      audio.connecttospeech(" Introduzca pasta, y pulse boton para Jugar,
perdedor, jajaja.", "es");
void loop()
    audio.loop();
// optional
```

```
void audio info(const char *info) {
    Serial.print("info"); Serial.println(info);
void audio id3data(const char *info){ //id3 metadata
    Serial.print("id3data
                          "); Serial.println(info);
void audio_eof_mp3(const char *info){    //end of file
   Serial.print("eof mp3"); Serial.println(info);
void audio showstation(const char *info) {
    Serial.print("station "); Serial.println(info);
void audio showstreamtitle(const char *info){
    Serial.print("streamtitle "); Serial.println(info);
void audio bitrate(const char *info) {
   Serial.print("bitrate "); Serial.println(info);
void audio_commercial(const char *info) {    //duration in sec
    Serial.print("commercial ");Serial.println(info);
void audio_icyurl(const char *info) {    //homepage
   Serial.print("icyurl
                             "); Serial.println(info);
void audio lasthost(const char *info) {    //stream URL played
    Serial.print("lasthost");Serial.println(info);
}
void audio eof speech(const char *info) {
   Serial.print("eof speech "); Serial.println(info);
## Funcionament:
Començem amb les llibreries necessàries per al funcionament del nostre
programa i les variables a utilitzar
#include <Arduino.h>
#include "WiFi.h"
#include "Audio.h"
#include "SD.h"
#include "FS.h"
// Digital I/O used
                      5
#define SD CS
                    23
#define SPI MOSI
#define SPI MISO
                    19
#define SPI SCK
                    18
#define I2S DOUT
                    25
#define I2S BCLK
                    27
#define I2S LRC
                    26
Audio audio;
```

```
A continuació cal connectar a la xarxa wifi que convingui
String ssid = "Xiaomi 11 T Pro";
String password = "f5cbd8a82232";
Al setup caldrà connectar el lector de la SD a més del volum (quany) i els
pins necessàris. També busca el fitxer "superhyper.wav" que hem utilitzat
per a la pràctia.
. . .
void setup() {
    pinMode(SD CS, OUTPUT); digitalWrite(SD CS, HIGH);
    SPI.begin (SPI SCK, SPI MISO, SPI MOSI);
    Serial.begin(115200);
    SD.begin(SD CS);
    WiFi.disconnect();
    WiFi.mode(WIFI STA);
    WiFi.begin(ssid.c str(), password.c str());
    while (WiFi.status() != WL CONNECTED) delay(1500);
    audio.setPinout(I2S BCLK, I2S LRC, I2S DOUT);
    audio.setVolume(21); // 0...21
   audio.connecttoFS(SD, "/superhyper.wav");
    audio.connecttohost("http://www.wdr.de/wdrlive/media/einslive.m3u");
//
      audio.connecttohost("http://macslons-irish-pub-
radio.com/media.asx");
     audio.connecttohost("http://mp3.ffh.de/radioffh/hqlivestream.aac");
//
// 128k aac
    audio.connecttohost("http://mp3.ffh.de/radioffh/hqlivestream.mp3");
//
// 128k mp3
//
      audio.connecttohost("https://github.com/schreibfaul1/ESP32-
audioI2S/raw/master/additional info/Testfiles/sample1.m4a"); // m4a
      audio.connecttohost("https://github.com/schreibfaul1/ESP32-
audioI2S/raw/master/additional info/Testfiles/test 16bit stereo.wav"); //
wav
//
      audio.connecttospeech ("Wenn die Hunde schlafen, kann der Wolf gut
Schafe stehlen.", "de");
      audio.connecttospeech(" Introduzca pasta, y pulse boton para Jugar,
perdedor, jajaja.", "es");
Al loop crearem la reproducció de l'àudio per a que es fagi en bucle.
. . .
void loop()
    audio.loop();
// optional
```

```
void audio info(const char *info) {
    Serial.print("info"); Serial.println(info);
void audio id3data(const char *info){    //id3 metadata
    Serial.print("id3data
                          "); Serial.println(info);
void audio_eof_mp3(const char *info){    //end of file
    Serial.print("eof mp3"); Serial.println(info);
void audio showstation(const char *info) {
    Serial.print("station "); Serial.println(info);
void audio showstreamtitle(const char *info){
    Serial.print("streamtitle "); Serial.println(info);
void audio bitrate(const char *info) {
    Serial.print("bitrate "); Serial.println(info);
void audio_commercial(const char *info) {    //duration in sec
    Serial.print("commercial "); Serial.println(info);
void audio_icyurl(const char *info) {    //homepage
                             "); Serial.println(info);
   Serial.print("icyurl
void audio lasthost(const char *info) {    //stream URL played
    Serial.print("lasthost");Serial.println(info);
}
void audio eof speech(const char *info) {
    Serial.print("eof speech "); Serial.println(info);
}
Per últim queda la reproducció d'un audio wave que hem guardat dins la
targeta SD que es pot veure en el següent vídeo:
https://user-images.githubusercontent.com/100867309/171396946-686a8da9-
d2b1-4c08-9cd1-1955acc84527.mp4
```