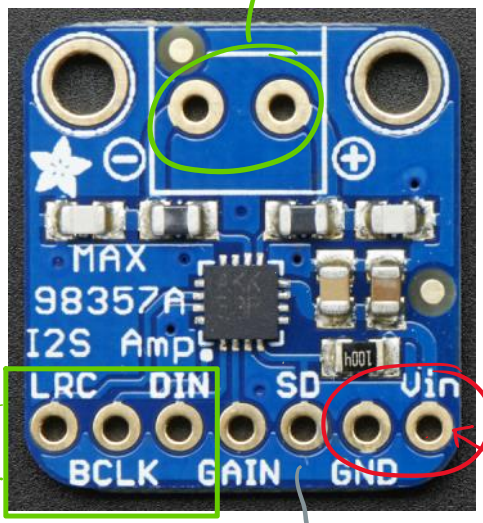
MAX98357 I2S Class-D Mono Amp

18 February 2024 08:45

Decodes into analog [I2S DAC] ← Digital sound protocol.
Amplifies [Amp]

Takes Digital input → Not analog.
Req voltage 2.7 V – 5.5V DC
Default gain → 9dB.
Can be set up to give 3dB, 6dB, 9dB, 12dB or 15dB.

Speaker Output
→ Speaker Imp > 4Ω
→ 330 KHz Pwm output



2.5V–5.5V

I2S pins
used to receive audio data

LRC
(Left right clock)
tells the amp when data is for Left channel or right channel.

BCLK
(Bit clock)
tells the amp when to read data from data pin.

DIN
(Data In)
It receives the data for L/R channel, which is controlled by LRC

Gain / SD

Gain setting for
3dB, 6dB, 9dB, 12dB
15dB.

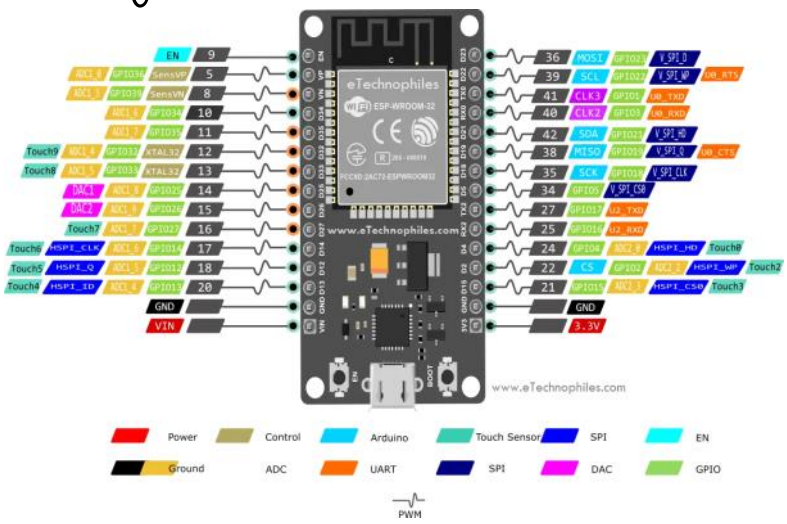
- **15dB** if a 100K resistor is connected between **GAIN** and **GND**
- **12dB** if **GAIN** is connected directly to **GND**
- **9dB** if **GAIN** is not connected to anything (this is the default)
- **6dB** if **GAIN** is connected directly to **Vin**
- **3dB** if a 100K resistor is connected between **GAIN** and **Vin**

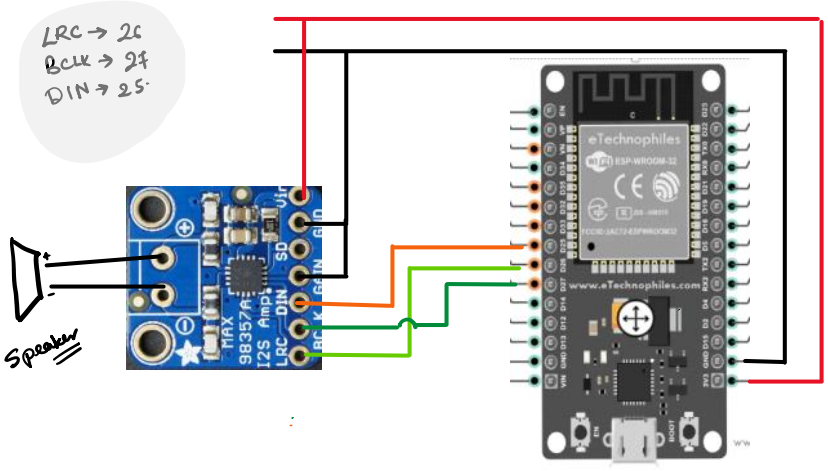
Default → 9dB.

SD/MODE
Shut down mode.
Setting which channel is output.

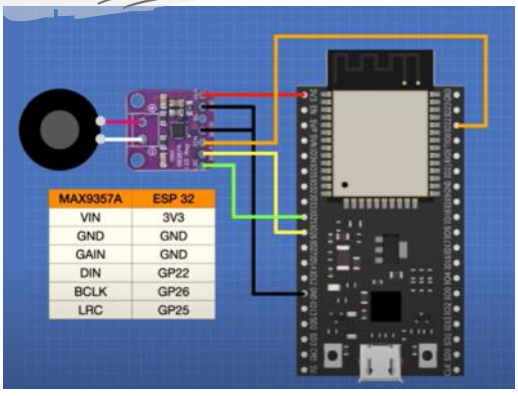
- If **SD** is connected to ground directly (voltage is under 0.16V) then the amp is **shut down**
- If the voltage on **SD** is between 0.16V and 0.77V then the output is (Left + Right)/2, that is the stereo average.
- If the voltage on **SD** is between 0.77V and 1.4V then the output is just the Right channel
- If the voltage on **SD** is higher than 1.4V then the output is the Left channel.

Connecting it with ESP 32





Alternatively -



Test Code.

Audio.h Library

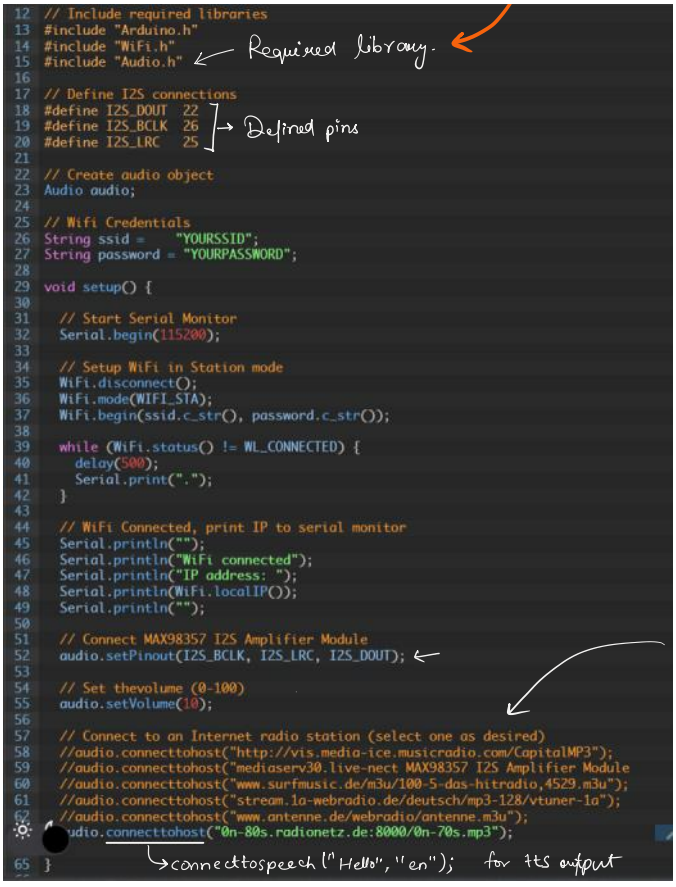
```
// Include required libraries
#include "Arduino.h"
#include "WiFi.h"
#include "Audio.h"

// Define I2S connections
#define I2S_DOUT  22
#define I2S_BCLK  26
#define I2S_LRC   25

// Create audio object
Audio audio;
```

Required library.

Defined pins



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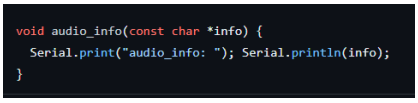
Inspect
↓
Search for blank.mp3
↓
Then search jp_jplayer_(n-1)



To debug
Audio info can be shown in Serial monitor.