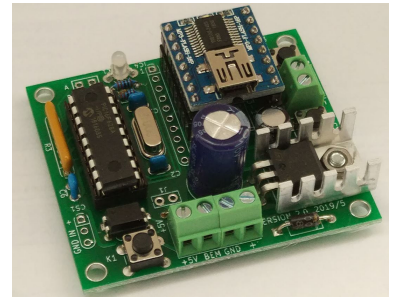


MP3 file player module with 2 input, internal memory

The aim: a simple circuit, for such functions, that if you press a button, it will start a sound playing. (Information boards, bells, etc.)

Currently the most common file format for audio storage is MP3.

The MP3 format provides the good sound quality, in a well-compressed data format.



Circuit description:

- It has two starter input. Can be connected here a pushbutton or any signal sources.
- The MP3 file can be loaded into the 4 megabytes of internal memory.
- There is an audio output, a 3.5 jack connector.
- It has an built-in 3-watt amplifier, that can drive a speaker directly. This 3 watts is enough to drive a smaller sound box.
- Small and easy to install circuit

The operation:

The MP3 module is complemented by a microcontroller, that monitors the inputs and the buttons, and controls the player module, and the indicator LED.

The audio file can be downloaded to the 4 megabytes of memory of the MP3 module with a micro USB cable.

The microcontroller monitors the two starter inputs. If one of them goes to a low level - due to a sensor, or simply press the button for the input - it starts playing the assigned file.

The files names must be 0001.mp3 and 0002.mp3 .

A three-color LED - red / green / blue, RGB - gives a feedback on operation and the events.

When a starter signal is received - a low level of at least 0.1 seconds - the microcontroller will flash the LED red for a moment, and starts playing the selected file.

The MP3 module also got a color in the RGB led. It lights up in blue, while the playback is in progress.

Volume setting:

The volume can be adjusted in 16 steps. By pressing and holding the K3 button, the K1-K2 button is given a new function. If you hold down the K3 key, and press the K1, you increase it by one. And if you want to decrease the volume, press and hold down the K3, and press the K2.

The volume can be adjusted separately for all 2 audio files!

So. Start the desired sound. Press - and hold - K3. And now we press K1, K2 until we set the desired volume.

The program stores the new values. The data is written to the "non-volatile" eeprom memory - the LED flashes green three times - and from now on they will be valid. (Even after the power supply is switched on / off.)

Enable starting during the playback:

What happen, if it plays a voice, but get an new starting signal? Depending on the usage, you want to start a new play at any time, or you don't want, that the started sound to be interrupted.

You can program it to start playing the new sound or not during playback.

Can be switch between the two operating modes, if you press the K1, K2 and K3 buttons at the same time, and keep them pressed for 5 seconds, until the LED flashed three times.

Commissioning the circuit:

Connect a 8 ohm speaker or sound box to the SP terminal. (The 3 watts can drive a speaker perfectly.) Of course, pay attention to the polarity. The + and - terminals of the speakers are marked. The red is the plus, and the black is the minus.

The power supply must connected to the +/- terminals. The circuit is protected against the reversed power connection, but be careful, not connect the power supply to the speaker terminal!

It requires DC 9-15V power supply. If you only use the audio output, a 300mA is enough. If you want to drive a speaker, a power let it at least 1000 mA, 9-12 volts.

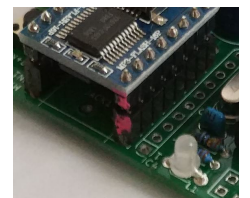
To upload the MP3 file:

Connect the circuit to a PC with the USB cable. (WIN7 or WIN10) There is no need to power the circuit during charging, enough what get from the PC.



But you can also pull the MP3 module off the panel from its connector. Of course, when replacing it, be careful, do not put it back the other way around.

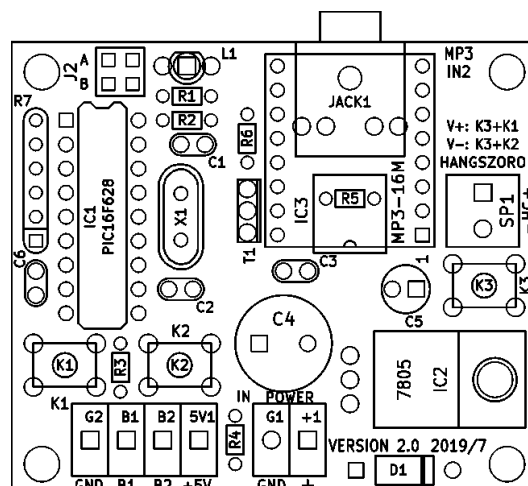
(A dot of paint indicates the correct direction.)



As I mentioned before, we have 4 megabytes of space. All right, but what's enough for that? So we can store roughly 5 minutes of sound. This is usually enough for an information board, a melody bell, and more.

Of course, we need to know, that the length of the sound file that can be played, depends greatly on the MP3 encoding. Adjust mono sound, with average sound quality.

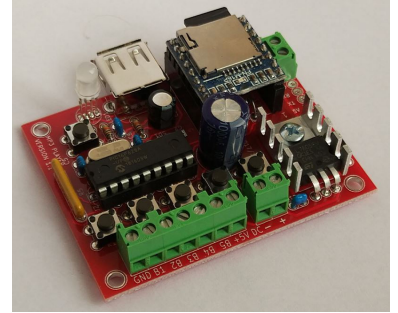
It is not necessary to know the operation of the electronics, but for those who are interested in this, I will detail them here:

[illegible]

Related documentation:

With an 5-input MP3 player panel with an SD card, the sound length is limited only by the capacity of the SD card. Let's say you can put on a 256 megabyte card or 50 hours of audio...

<http://www.mikroklub.hu/htm/mp3.htm#mp3modul>



We can use a free program, AUDACITY, to produce and edit mp3 sound files, to "effects" and to cut them.

In the end, all I have to do wish a lot of success to use it.
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