MAME PROJECT GUIDE 1. LOW COST AUDIO AMPLIFIER

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Credit where credits due.
This project is based upon an article I came accross whilst surfing the net.
The project was called M.A.F.I.A (**M**r **A**rcades **F**ast **I**nexpensive **A**mplifier) and can be found at: http://www.geocities.com/arcademafia/

In this project we will construct a cheap audio amplifier. The basis of the project is a pair of multimedia speakers.
The type of speakers used are indipendantly powered. By that I mean that they require a seperate power supply from the PC.
They often have their own power switch on one of the speakers and always have their own volume control.
These type of stereo, independantly powered speakers are very easy to come by and are now very affordable, often less than £15.00.

Fig 01.

As you can see from Fig 01. the speakers that I am using for this project require a 12v (DC) input. You can create this power supply quite easily by spurring from any standard PC power supply unit (PSU). For those of you wondering about them, the three small holes you can see in the picture are from my exploration of how the case is assembled.


Fig 02.
Here are the speakers before I dismantled them. As you can see there are a couple of small speakers ready to be installed into my cabinet as supplimentary speakers to the main arcade speaker.

After a few minutes the audio amplifier is easily removed from its resting place inside one of the speakers.
Now this speaker has just about all the cables that can be found in any self powered audio speakers so you can easily use this example as a reference to your own project.

I have labelled all the main components that are of interest to you. And below is a simple cross reference chart of those items.
1. Volume Control
2. Left and right speaker outputs
3. 12v Power Led wire
4. 12v Power in
5. Audio Line In

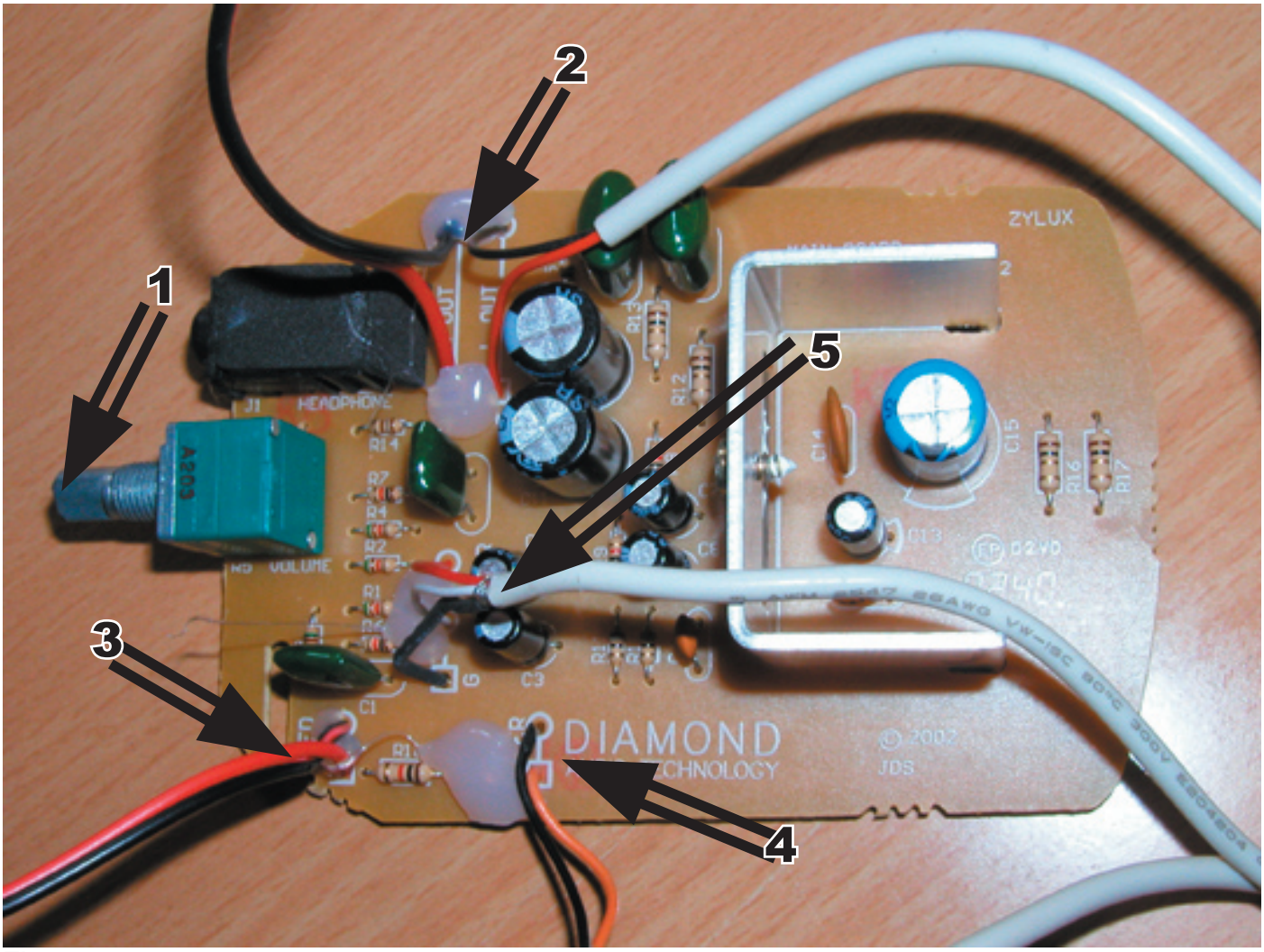

Fig 03.

On the next page you can see in Fig 04 all the components that I have removed and layed out. Connecting them to your PC inside your Mame cabinet is a very simple operation. All you have to do is plug the green audio in connector into the speaker output from your audio card. Then connect the speaker wires to the two removed speakers. Then connect the power in cable to a 12v power supply. The power LED is optional but I have used mine as a little bit of bonus “glitz”.
The circuit board can be mounted inside your cabinet near the coin mech door for easy accessability to the volume knob.
The speakers can be fitted inside your cabinet wherever you require.

Personally I want to go a bit further than that because I want my cabinet to be completely enclosed and yet all functions accessable.
In the next part of this audio amplifier project I will show you step-by-step how to professionally mount your PCB board, tidy up the wiring loom and fully install your speakers as well as connecting this mini amplifier to your cabinets main speaker.

Fig 04.

You can see in the picture above all the components of your audio amplifier project.
The two speakers gleaned from the donor speakers can be installed in your cabinet.
I have purchased a 12v Red LED from RS components wich simply connects to the two wires coming from the circuit board.
The green connector at this stage remains intact and can simply be plugged into the speaker jack plug on your pc audio card.
The pink connector pictured above (which used to plug into the back of the non amplifier carrying speaker) is now redundant and can be discarded as we simply connect the wires to the speakers. If you recall from the picture on page one the board has two seperate sets of wires going into it. One for the left and one for the right speaker to give you the true stereo sound.
The purple connector shown above used to be used to connect the speakers to a 12v power supply. You can simply spur this power from your pc's power supply unit.
In the next section of this project I will connect this power lead to my cabinets power supply and install all the above in my cabinet. So for an easy step by step guide to completing this project simply download project 02 from the website.
Until next time have fun ripping your speakers apart.... :)

Stuart Sumpter