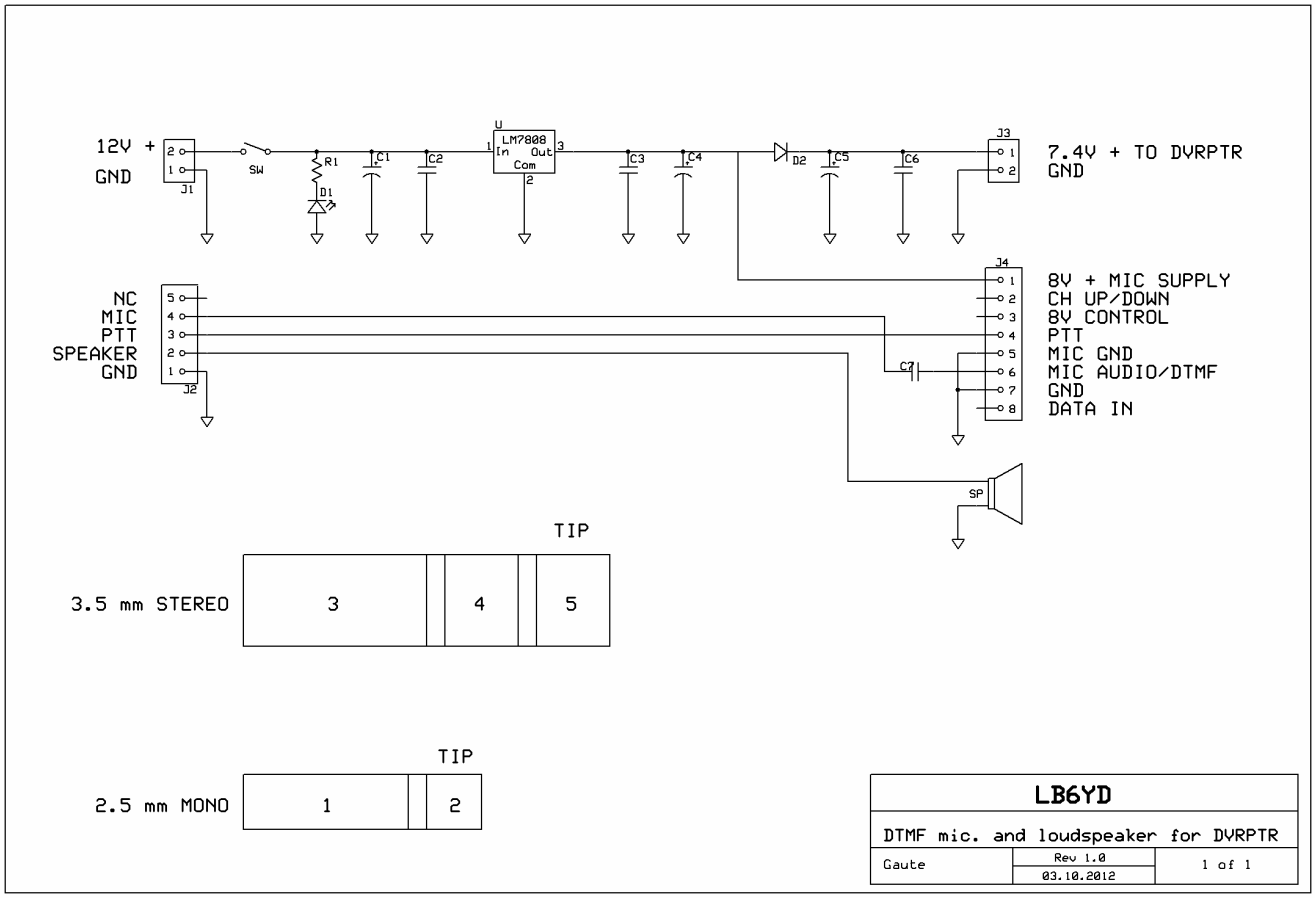
# DIY DTMF MICROPHONE AND LOUDSPEAKER FOR DVRPTR/AMBE

By LB6YD Gaute

Here is a small project for those who still like to handle a hot soldering iron.
You will probably find most of the parts in your junk-box, including some pieces of Veroboard.
The schematic shows what you have to build into the loudspeaker cabinet.
Alternatively you can build this into a small cabinet and use an external speaker.
Some drilling and cutting has to be done.
A volume setting of 50% with the potmeter in DVRPTR/AMBE is giving sufficient volume level, so no extra audio amplifier is needed. ( May be in phase 2 of this project ☺ )

Setup with Yaesu FT-8100, DVRPTR/AMBE, loudspeaker and Icom HM-118TN DTMF mic.
The Control Center is running on an Asus 1000H with WinXP.




MOST PARTS LIST:

| | |
|---|---|
| C1 | 220uf/35V Electrolyt |
| C2,C3,C6 | 1nf SMD Ceramic |
| C4,C5 | 100uf/16V Electrolyt |
| C7 | 1uf NP May be omitted if Mic type is set to Dynamic in CC. |
| R1 | 2K2 Gives 5mA in red LED |
| D1 | LED |
| D2 | 1N4006 |
| U | LM-7808 TO-220 1A |
| J1,J2,J3 | Wires soldered on Veroboard |
| J4 | RJ45 socket |
| SW | Your choice |
| SP | Any 4 to 16 ohm |
| MIC | Icom HM-118TN DTMF Microphone |
| 1 ea powercable for 12V supply. Your choice of connector. | |
| 1 ea cable with power plug for DVRPTR | |
| 1 ea Kenwood type mic.cable with 2,5mm mono and 3,5mm stereo plugs. Alternatively 2 cables with separate plugs. | |
| Some pieces of Veroboard. | |
| A short extension cable for the mic may be needed. | |

Icom mic, best buy?
http://www.409shop.com/409shop_product.php?id=102548
DTMF, backlit, 19,- usd incl. shipping.

Kenwood mic, 2 pin, best buy? May also use as cheap cable for this project.
http://www.409shop.com/409shop_shopcat.php?&usercat=1699&parentid=1698
From 8,50 usd incl. shipping.

Do measure voltages and polarity after assembling!
Set DVRPTR potentiometer to max. 50% for a starter.
A small potmeter inside the HM-118 mic may need adjusting for the DTMF output level.
Too low will sound chirpy, and too high will overload the Ambe codec.
Press and hold PTT while keying DTMF tones.
There will be some noise between tones as there is no TX delay while sending successive tones.

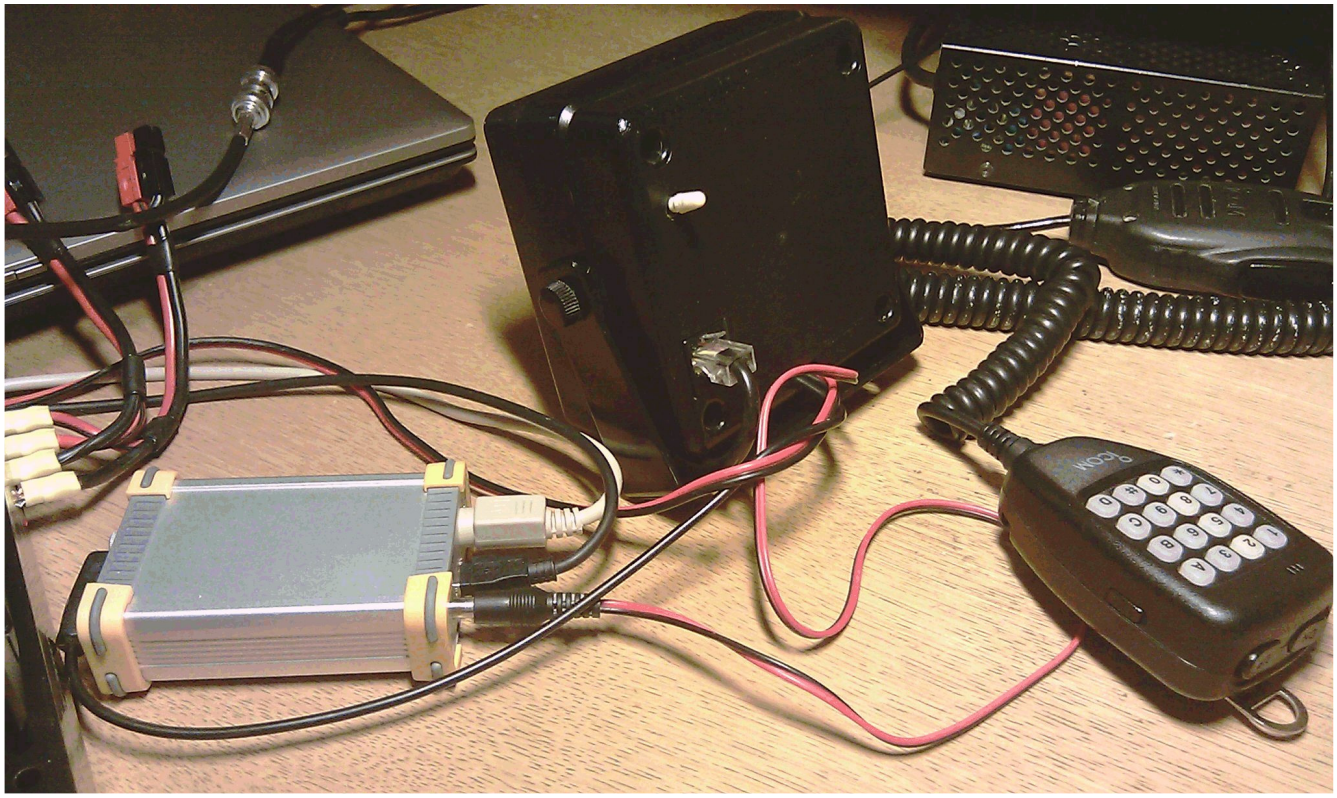
DVRPTR/Ambe modes that will only transmit the DTMF from the mic. on the air:

DV-Tranceiver with external FM-TRX. Used for controlling remote repeater

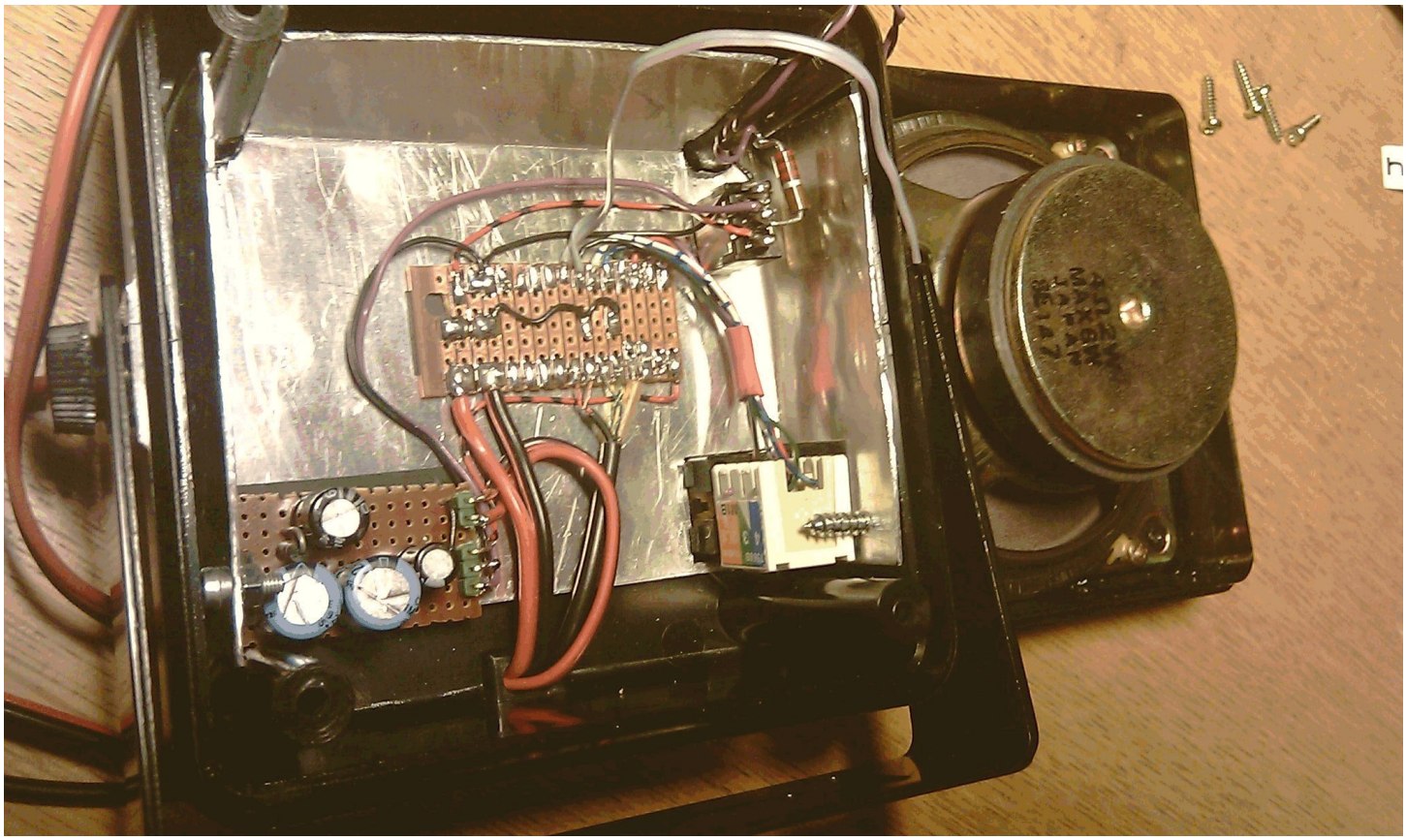
DVRPTR/Ambe modes that will also decode the DTMF from the mic. as commands by your Control Center:

DV-Dongle (Talk to Internet)

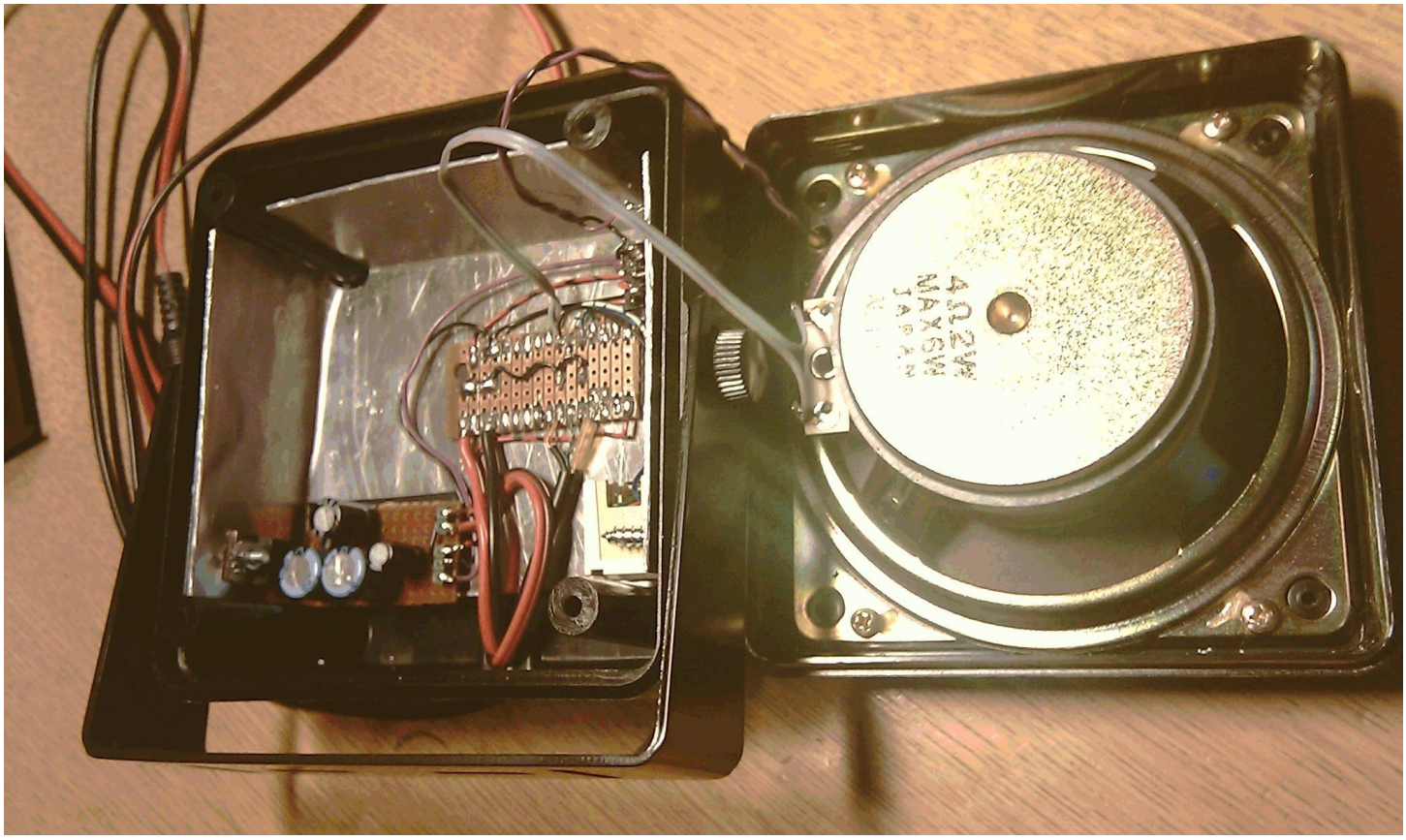
Conference Mode (Mic/LS-TRX-Internet).
Sending DTMF to both a DVRPTR repeater and your Control Center may cause confusion!?



Rear side of loudspeaker with mic.connector and power ON/OFF.switch.



Inside information.




More inside. Cover the soldering points with electrotape when finished.

ANY USE OF THIS INFORMATION IS DONE AT YOUR OWN RISK.
USE AND MODIFY THIS PROJECT AS YOU LIKE.
NO FINGERS WERE CUT OR HARMED IN ANY WAY DURING DEVELOPING AND BUILDING THIS PROTOTYPE.

Enjoy and share your ideas!

73's de
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