Technical Details & Assembly Note: Hamcom Interface

Overview:

I have been listening rhythm of a Wood Pecker sitting on Neem tree around our house and so have been listening Morse code. Both sounded same to me until late, when I started listening with more attention. Well, they were different anyway!! In the sense that one was just hard work of a bird while other contained a message produced by controlled hand work of a human!!

Morse codes are irritating for many, me too. But when I was 7 or so, dad started running a program called Hamcom on our PC. It was fun, because I could type in a character and the PC played a pitch of the wood packer's hard work!

I loved that program. Recently we were working on Science projects at our school & first thing came to my mind was to make this simple PCB with just one IC.

You do not require this PCB/KIT if you only want to practice Morse code. You may download the Hamcom software, install it on your PC & start practicing Morse code or have your woody wood-packer on your PC

You require this Kit only if you want to copy Morse or radio Teletype messages transmitted over radio. If you have a good radio (SW) just add this card on your PC's Com Port & you can copy Morse, RTTY, Weather Fax & many more digital transmission signals. This board is RS232 powered, which means, you do not require to supply any power to it because it takes its power from your computer.
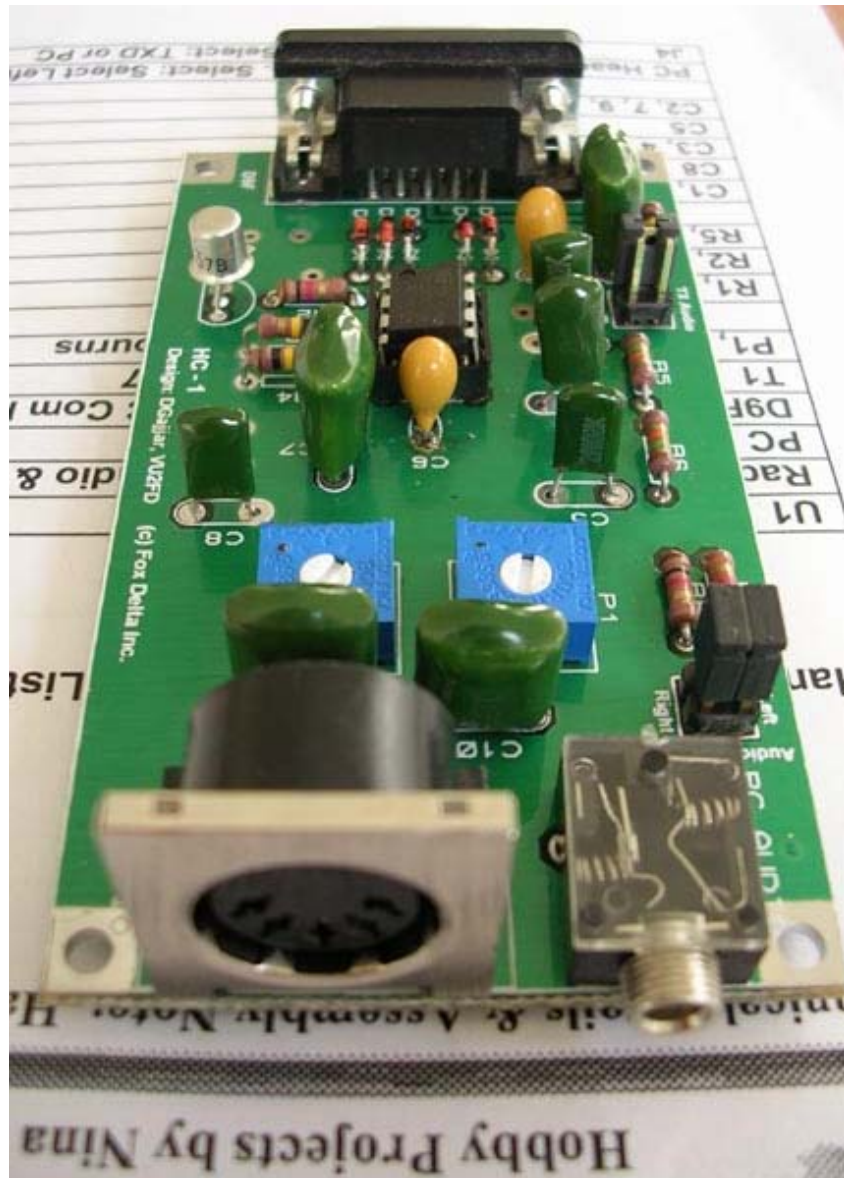
Picture of the assembled Hamcom PCB:

Top View:
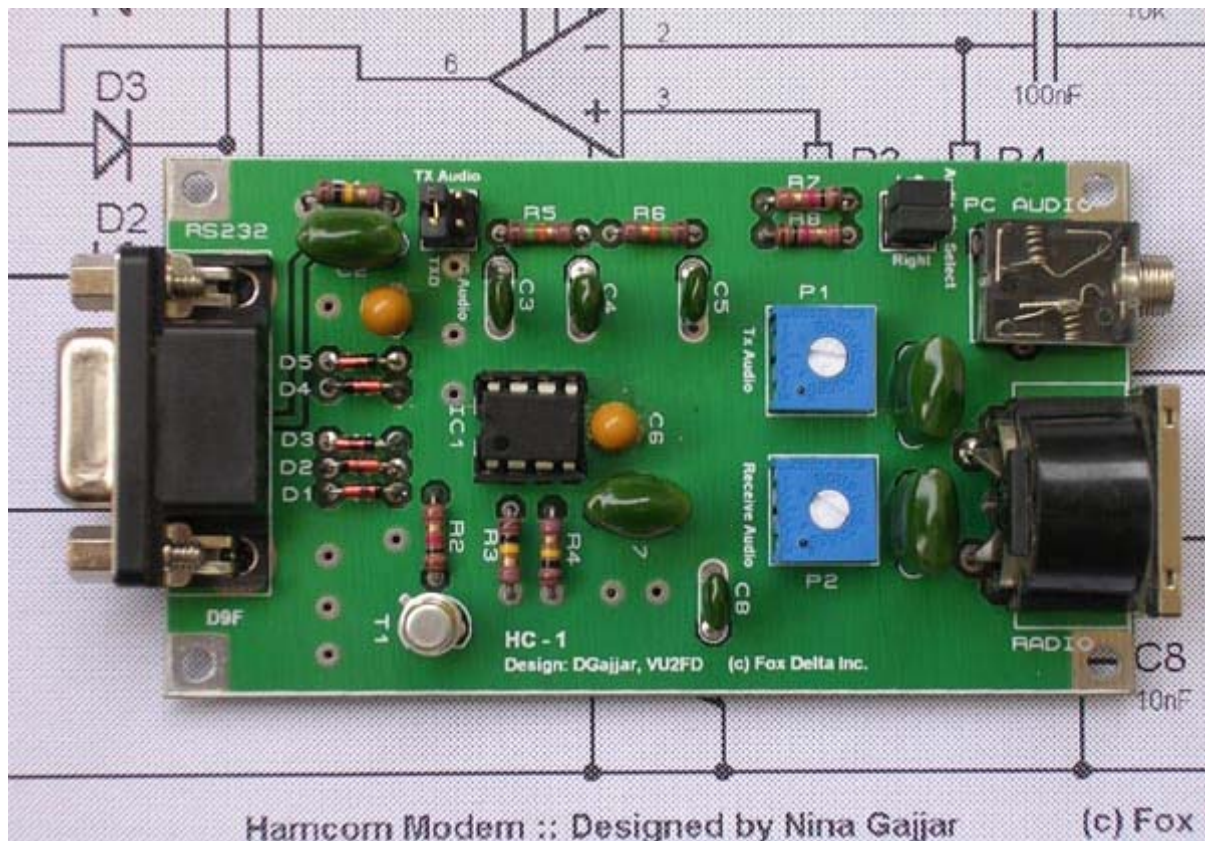
Side View of the Assembled Board:
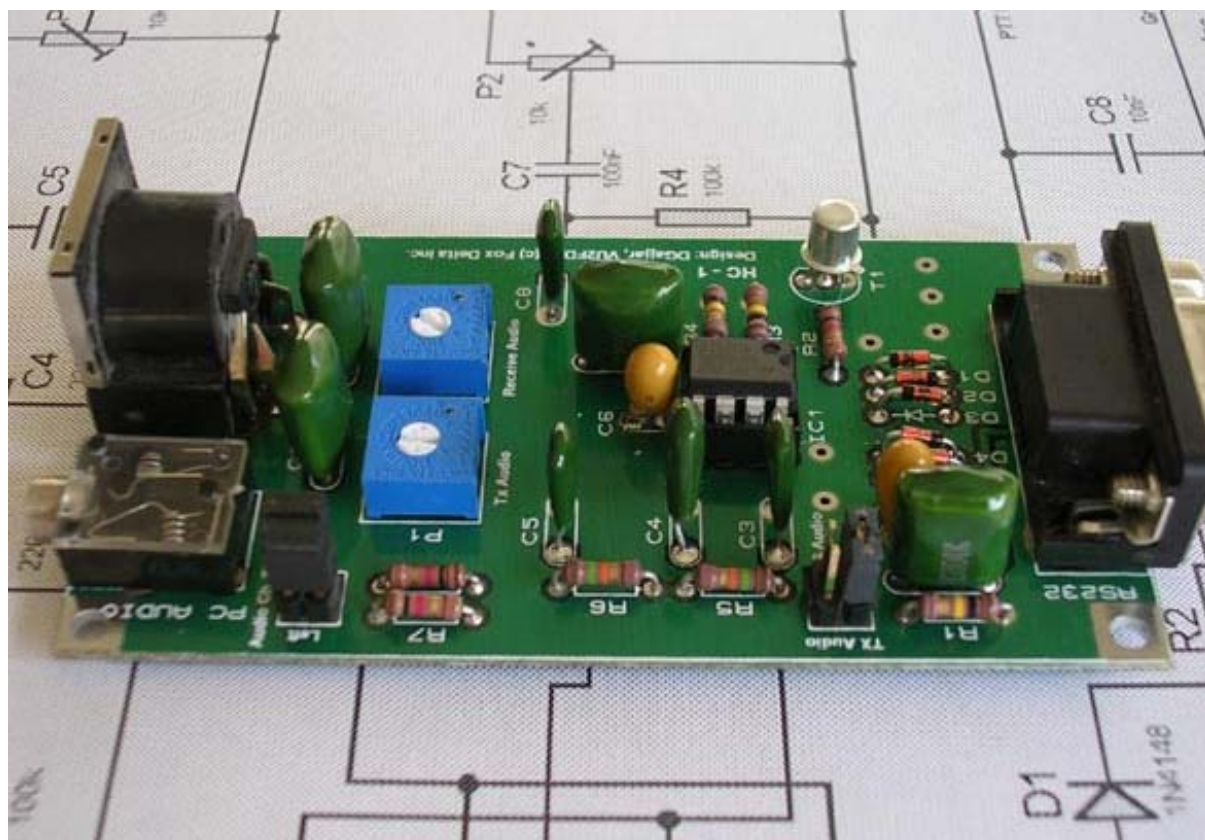
**Front View of the Assembled Board from DIN Socket:**

The Program:

Hamcom is a free software written by a German radio amateur with Call Sign DL5YEC. It requires a simple Com Port interface to receive & transmit RTTY/CW on radio. With this kit, you can start digital communication at very low cost & in a shortest time slot. New Version of Hamcom is also available with capability to receive Pactor, Amtor & more but this version is not a freeware.

Hamcom also includes audio spectrum analyzer and tuning scope built into the software. My dad built this card 20 years back but here I have made it again because, since then, there is not much of the improvement in digital communication scenario around here!!

Hamcom interface may also be used to see audio signals on your PC. It's as good as having an economical audio analyzer at low cost.

The Schematic:

Hamcom Modem :: Designed by Nina Gajjar   (c) Fox Delta Inc.
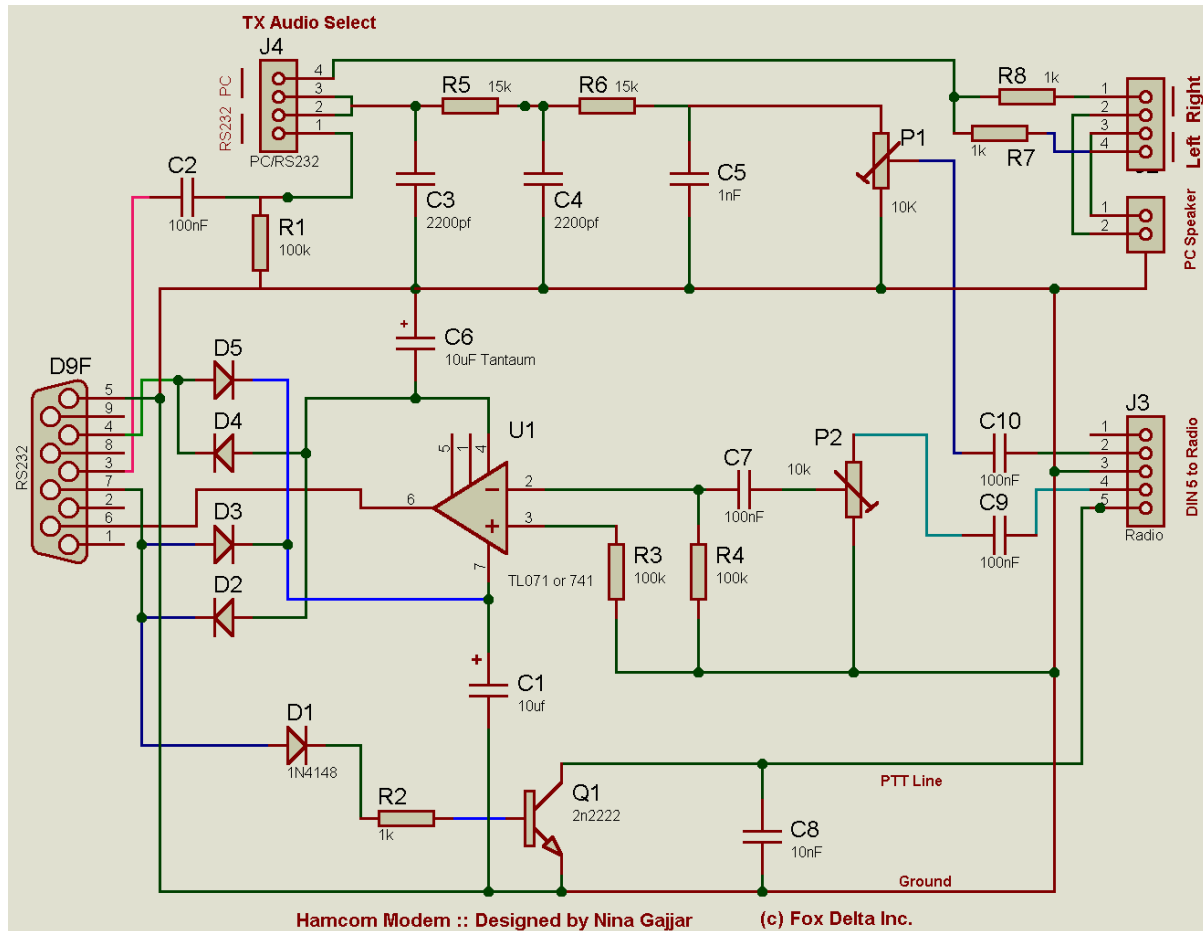
Download hi-resolution JPG:

The Circuit Details:

There is not much to be discussed here. The program writer Om DL5YEC has already given the schematic within the program under: help: overview: converter. I have simply followed his drawing for this project.

There is a small edition to the original circuit suggested by dad that TXD also has TX audio available, so, I have a selector Header to select either TXD audio or PC soundcard audio.

Circuit takes power from your PC's Rs232. Four diodes around op amp uA741 are doing this work. There is a Transistor Q1, which is producing low Impedance when program instructs it for "Transmit", causing the PTT of your rig (amateur radio transceiver) to operate.

Two presets are for adjusting audio to Microphone and from Receiver. The transmit side is only useful if you are a licensed radio amateur.

I have provided a selection header for PC audio. You may select "Left" or "Right" or both channels. However, if you have selected TXD audio, these headers need not be installed.

Since program does most things for us, this modem supports many digital communication methods. Have a look at various programs that you may use for different types of digital communication available under software download at:

http://hamradiosoftware.foxdelta.com

Assembly note:

Kit includes all the parts listed under "Schematic & Parts List". A clear picture of PCB layout is enclosed along with kit for you to find proper place of components. Each component is packed in a separate plastic bag with its number and name marked clearly, as indicated on PCB. Some silk printing was wrong on received board so, I will solder those parts even in kits to avoid confusion. (T1 Silk orientation and C1, C6 Polarities)

IC socket, DIN Connector, RS232 connector & phone sockets are soldered first. Solder all green caps & resistors next. Two tantalums need to be mounted carefully as I have forgotten polarity marking on PCB Silk. This was my first PCB so small things left out. I am sure to make next once much better.

Operation:

You may attach this board directly to your PC's Comp Port or use a Com Port extension cable. Then it should be 9-9pin cable. If you only have a 25pin Com Port, either you replace it with 9 Pin adepter on your PC or buy a 25-9 Pin cable.

Download the hamcom software & install it on your PC. The only important thing is to verify that you know which Com Port you have installed your hamcom modem. If your hamcom is fitted on Com1, then select "Com1" in the software.

Since "How to operate" need not be discussed here as the same is given in details in the program itself, just go thru help provided in Hamcom program.

Thank you for reading.

Best Regards.

Nina Gajjar

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Visit my website: http://nina.foxdelta.com

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