THE RETRO-STYLE CARDBOARD RADIO

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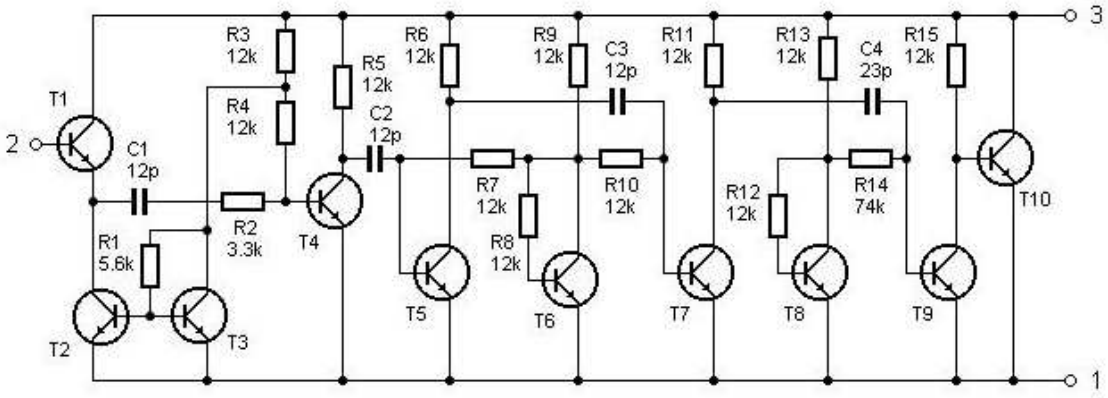
This highly educational and quirky project is suitable for a rainy day, and is an ideal way to use up surplus electronic components that may happen to be lying around the workshop.

Basically it consists of a TA7642 integrated circuit that is constructed using discrete components – i.e. transistors, resistors and capacitors. With the addition of a small audio amplifier, a complete radio receiver is possible.



The TA7642 is a successor to the ZN414 TRF receiver chip. The ZN414 was well known to European and Australian constructors of AM radio receivers. It was developed in the early 1970's by Ferranti in the UK. There are only three connections; input from a ferrite rod aerial, earth and audio output. The circuit is a TRF (tuned radio frequency) type with all gain at the received frequency. The chip also incorporates a detector and AGC circuit. Supply is a nominal 1.5V at 300uA and audio output is sufficient to drive a crystal earphone.

The prototype was made by gluing a copy of the circuit onto a piece of cardboard, punching holes with a needle, then inserting the components and soldering them together on the underside of the board. The small jiffy box contains the tuning capacitor, coil, volume control, an LM386 audio amplifier and a loudspeaker.

The end result did not quite come up to expectations, but nevertheless the project was a worthwhile exercise. The radio refused to run on 1.5 volts, but instead required about 9 volts to function. The top frequency achievable was only about 1.0 Mhz instead of 3.0 Mhz as per TA7642 specifications. A small antenna was also attached to increase the signal level.