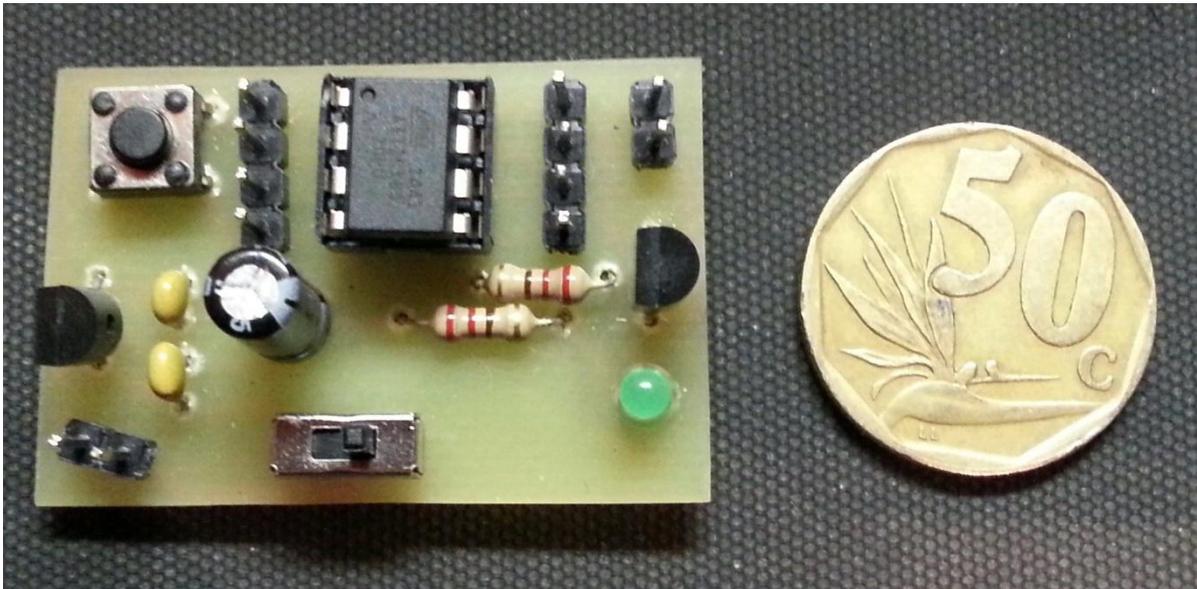


ZS6KMD Attiny85 CW Beacon

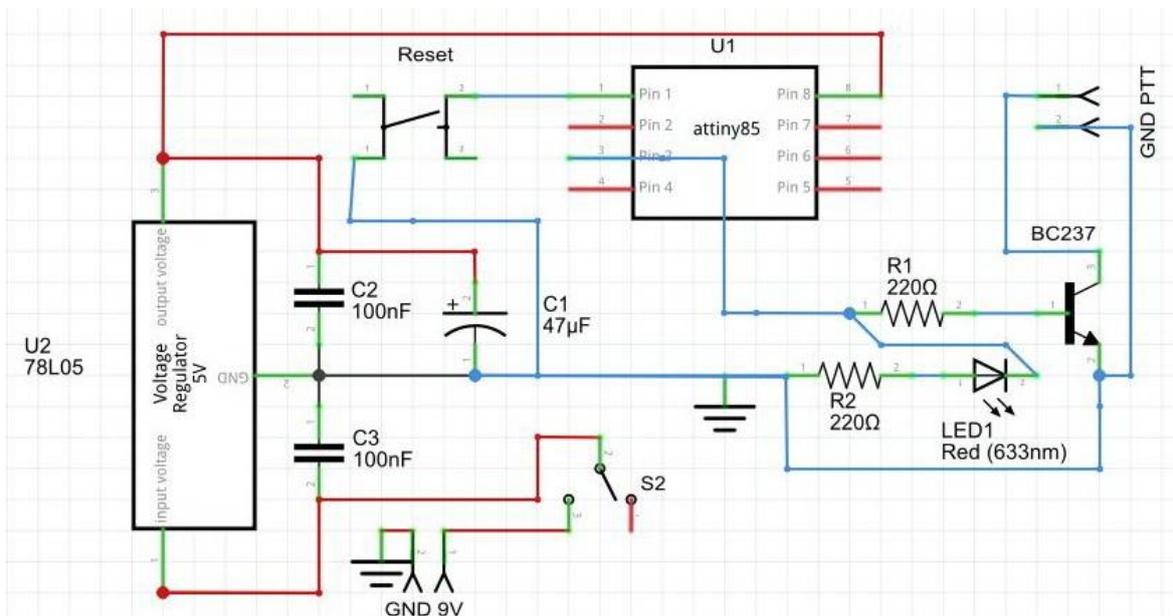
By Kevin Mc Donald ZS6KMD

Last month we introduced you to the Attiny85, the little brother of the Arduino. This month we will look at building a CW beacon that uses the Attiny85 and is tiny in stature, but not in what it does...



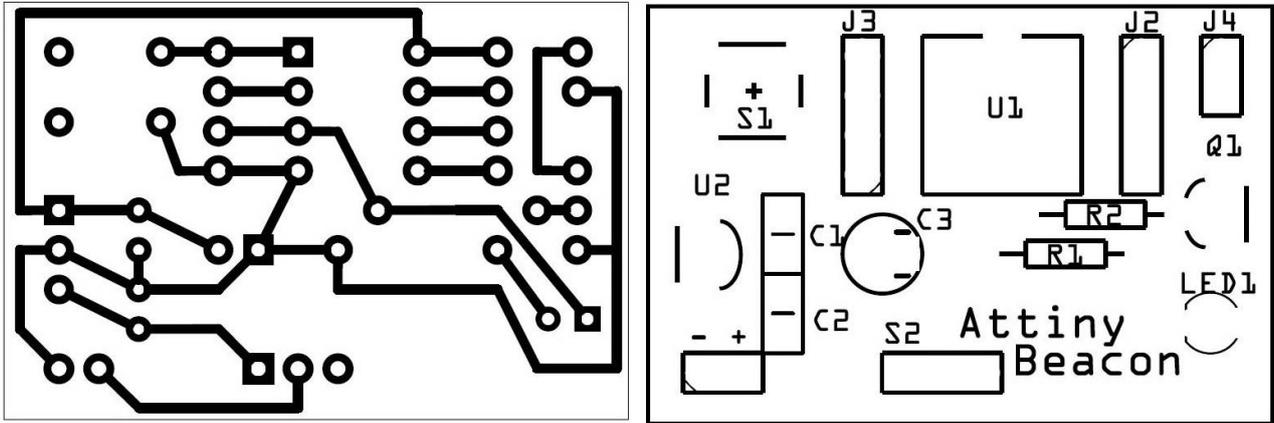
This little beacon measures 27X40mm, draws a measly 3.6mA in standby and less than 15mA key down and is powered by a 9-12V supply (PP3 Battery works well). The beacon text is fully editable for your own custom message and programming is done using the interface discussed last month.

The schematic below shows how simple it is using minimal components to create a beacon for your radio station or for a Fox transmitter.



Components

The components list is short and sweet, 2 X 220R resistors (current limiting), 1 X 3mm LED, 1 X BC237 transistor, 1 X 78L05 voltage regulator, 2 X 100nF ceramic capacitors, 1 X 47uF capacitor, 1 X reset push button switch, 1 X on / off toggle switch, 1 X 8 pin IC holder, 1 X Attiny85 and a PCB. You can build this on a small piece of vero board if you like. The PCB and source code will be listed at the end of the article for download from my website.



Construction

Construction is straight forward, starting with the smaller components; solder these in place making sure that there are no shorts between tracks. Next, add the larger components leaving the Attiny chip for last. Once completed, check again to make sure that there are no shorts between tracks and that electrolytic capacitors and transistors are fitted with the correct polarity.

Programming the Attiny85

To program the Attiny with your message, fit the Attiny to the programming interface discussed last month, or if you choose, use an AVR programming device such as the USBASP programmer. Open the Arduino IDE, select file, examples, ArduinoISP. Select tools, board and select Arduino Uno. Upload the ISP. Your Uno is now ready to program the Attiny chip. Place the programming interface on top of the Arduino as discussed last month making sure that the pins are matching in the headers. Open the KMDAttiny85CWBeacon.ino file (downloadable from the website). Select board, Attiny85 (internal 1MHz clock). Edit the beacon message where I have prompted for message and delay. Upload to the Attiny, ignore any error messages, as this seems to be a versioning compatibility issue, the program does successfully load. You are now complete, remove the Attiny from the programming interface and insert it into the beacon board. Apply power to the board and in the preset delay time the LED should start flashing your message. Connecting this to your radio using the correct cables I leave up to you.

Please send us pictures of your beacon so we can show them in future articles, mails can be sent to projects@zs6kmd.za.net – PCBboards and kits will be made available through the website for those interested in building this project.

Source Files

ZS6KMDAttiny85CWBeacon – <http://www.zs6kmd.za.net/ZS6KMDAttiny85CWBeacon.txt> (right click and save as)

PCB Files – <http://www.zs6kmd.za.net/ZS6KMDAttiny85CWBeacon.rar>

Happy Building