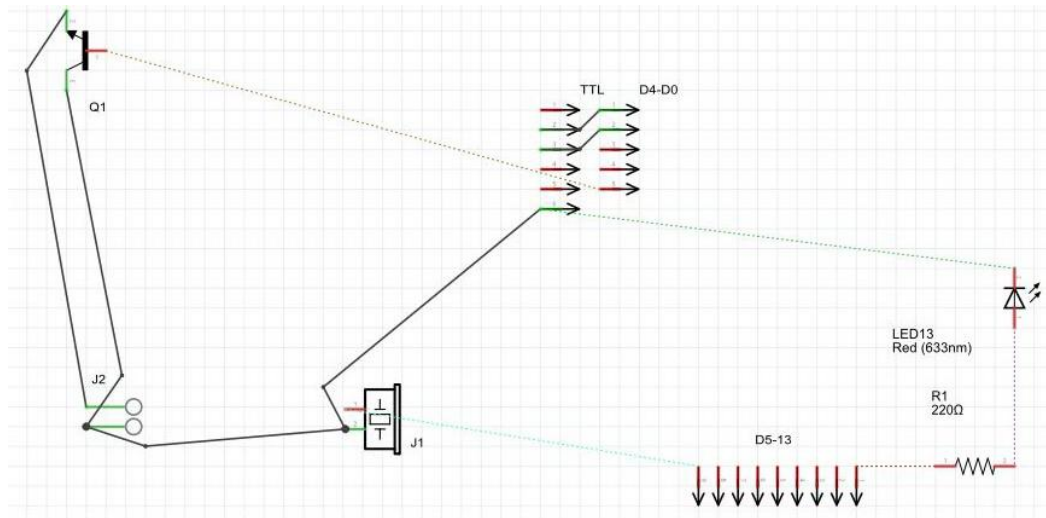


# KMDuino CW Beacon

By Kevin Mc Donald ZS6KMD

I was chatting with some fellow Hams (Rudi, Pierre, Eddie and a few others) on the Zone 38 Amateur Radio Chat about building some PIXIE 40m QRP transceivers. One of the questions that came up was “could it be used as a beacon?” Well as a standalone device certainly not, but with the right interface to a pre-programmed micro device it would work quite well. I gave it some thought and went hunting on the web for some options for both PIC Micro and Arduino. I found a simple CW Beacon Keyer that was written for Arduino by Charlie Davy M0PZT.

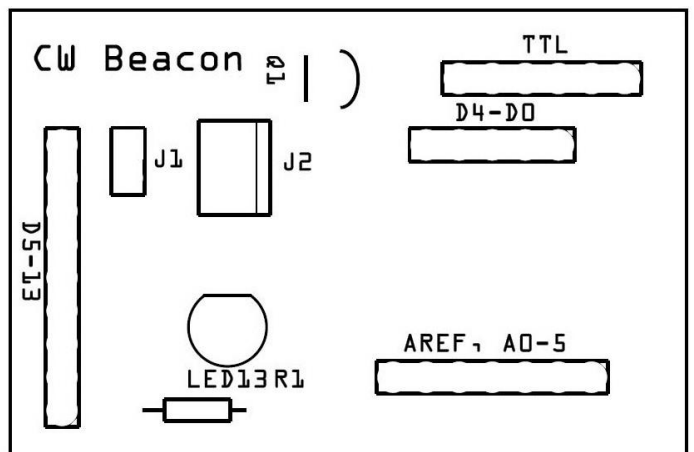
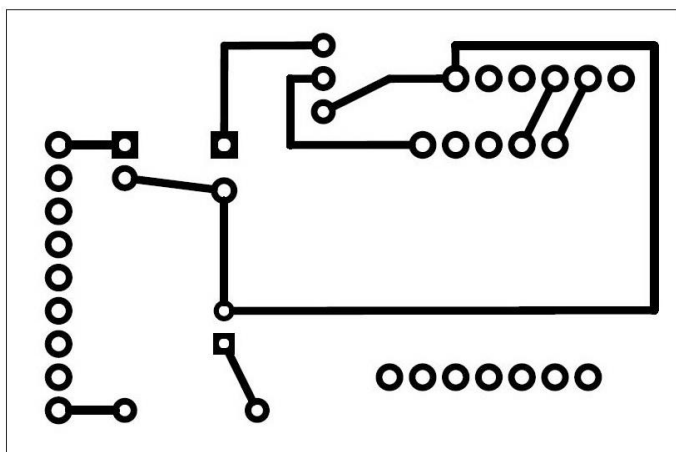
Taking into account that we have been looking at Arduino for the past few months, I decided that this is what we would build as the next shield for our KMDuino. Below is the design I have done based on the pin outs provided in the Sketch.



The circuit makes use of one NPN transistor in an open collector configuration to key the transceiver, one LED and associated pull-up resistor to show the beacon is operating and a piezo transducer to sound the tone. All of these components are mounted on a small shield that connects to the top of the KMDuino using the existing pins. The PCB layouts are pictured below and are not to scale. Should you want to make your own board, the PCB files are listed at the bottom of the article and are available for download from my website.

## Components:

1 X BC237, 1 X Red LED, 1 X 220ohm Resistor, 1 X Piezo transducer, 1 X PCB and a cable and socket to connect to the transceiver.



## Construction:

Construction is simple, place the components in the associated holes as per the overlay and solder in place, solder female headers to TTL, D5-D13 and AREF A0-A5. This will support the board on top of the KMDuino and feed the relative pins to the shield. J1 is for the speaker or Piezo transducer and J2 is the connection to the transceiver.

The code for the sketch is available on my website and is listed below, however I just want to highlight a few small segments.

We start off by declaring the variables.

```
// Declare variables...
```

```
#define strBeaconID "ZS6KMD KG43AW PWR 1W" Here you will input your callsign, locator and other station variables.
```

Further down the sketch we define the speed that we will transmit the morse at

```
int CWdot = 1200 / MorseWPM;
```

```
int CWdash = (1200 / MorseWPM)*3;
```

Finally right at the bottom we define the delay before the whole thing starts again. I have set it at 30000 milliseconds or 30 seconds, this give a time of roughly 40 seconds per cycle and you can tweak this to only transmit once a minute if you so choose.

```
TransmitMorse(strBeaconID, MorseWPM, MorseToneFreq);
```

```
digitalWrite(pinPTT, LOW);
```

```
delay(30000);
```

The files for download are available here:

PCB files – <http://www.zs6kmd.za.net/KMDuinoBeacon.rar>

Arduino sketch – <http://www.zs6kmd.za.net/KMDuinoBeacon.txt> (just open the text file and save as filename.ino)

Thanks to Charlie MOPZT for sharing his code with us.

Happy building.

73 de Kevin ZS6KMD