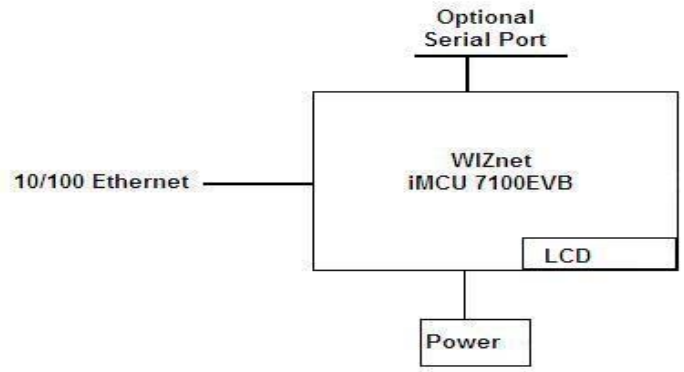
Weather Client

I have a weather station on the roof of my house. While it is quite interesting to monitor the weather at one central location, it is much more useful to view the data in other locations around the house. To process the raw data from my weather equipment, I use a package called Weather Display that may be seen on the Internet at http://www.weather-display.com. One of the many features of this software is that it may be configured to broadcast weather data on my in-home network. While some great free client software is obtainable for a P.C. to display this broadcast data, I don't really want to install a Personal Computer in every location where I want to view the data. This seems like a great application for the WIZnet iMCU 7100 EVB.



On the network side of the WIZnet controller, Weather Display transmits multicast UDP data approximately once per second. The destination network address is 231.31.31.31 and the port is 333. This sample UDP packet looks like this:

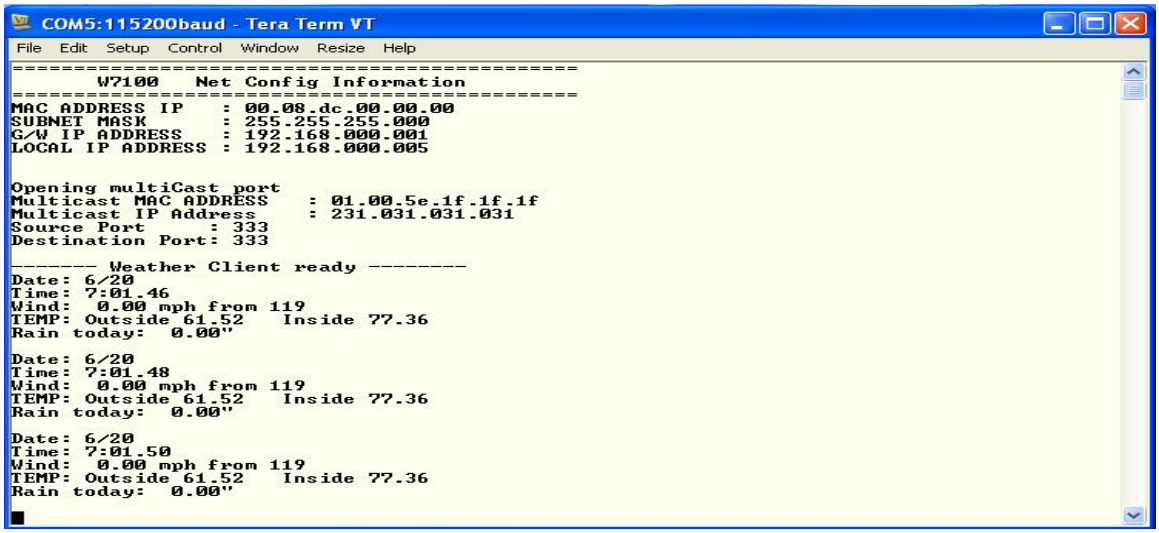
Ethernet II, Src: IntelCor_9a:4d:e5 (00:13:20:9a:4d:e5), Dst: 01:00:5e:1f:1f:1f (01:00:5e:1f:1f:1f)
Internet Protocol, Src: 192.168.0.104 (192.168.0.104), Dst: 231.31.31.31 (231.31.31.31)
User Datagram Protocol, Src Port: 333 (333), Dst Port: 333 (333)
Data (205 bytes)

```
0000  31 32 33 34 35 20 30 2e 30 20 30 2e 30 20 31 31   12345 0.0 0.0 11
0010  39 20 31 36 2e 35 20 31 30 30 20 31 30 31 33 2e   9 16.5 100 1013.
0020  30 20 30 2e 30 20 33 36 2e 34 20 31 39 36 2e 37   0 0.0 36.4 196.7
0030  20 30 2e 30 20 30 2e 30 20 32 35 2e 32 20 35 30    0.0 0.0 25.2 50
0040  20 30 2e 30 20 33 37 20 30 2e 30 20 30 20 32 20    0.0 37 0.0 0 2
0050  30 2e 30 20 2d 31 30 30 2e 30 20 2d 31 30 30 2e   0.0 -100.0 -100.
0060  30 20 2d 31 30 30 2e 30 20 2d 31 30 30 2e 30 20   0 -100.0 -100.0
0070  2d 31 30 30 2e 30 20 2d 31 30 30 2e 30 20 2d 31   -100.0 -100.0 -1
0080  30 30 20 2d 31 30 30 20 2d 31 30 30 20 36 20 35   00 -100 -100 6 5
0090  32 20 32 35 20 20 30 20 30 20 32 30 20 36 20 31   2 25  0 0 20 6 1
00a0  30 30 20 31 30 30 20 31 30 30 20 31 30 30 20 31   00 100 100 100 1
00b0  30 30 20 31 30 30 20 31 30 30 20 31 36 2e 35 20   00 100 100 16.5
00c0  31 36 2e 35 20 30 2e 30 20 30 2e 30 20            16.5 0.0 0.0
```

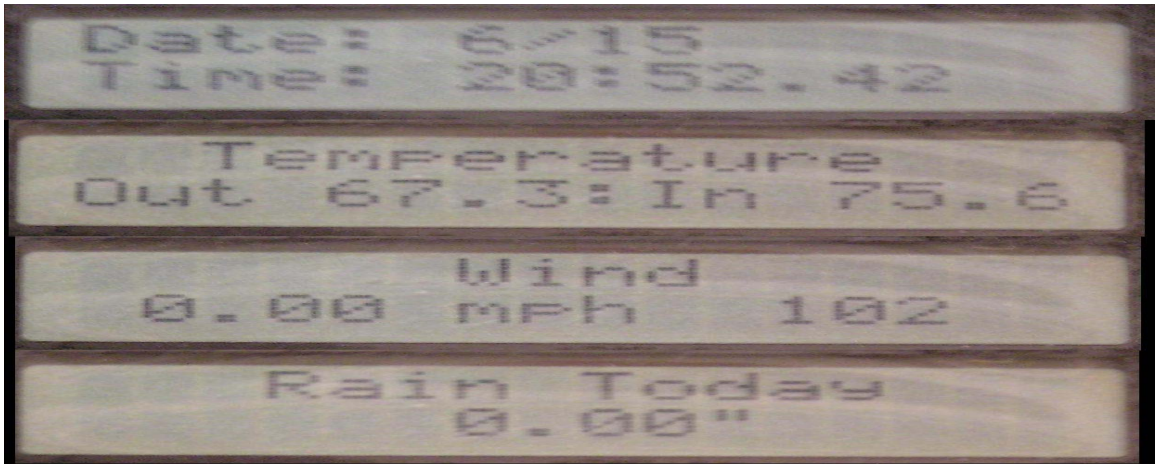
Looking at the data, the numerous fields are transferred as ASCII characters each field separated by a “space” character. As speed is sent in knots, rain in millimeters, and temperatures in Celsius, the WIZnet controller also must convert the units into MPH, inches, and Fahrenheit.

With the optional serial connection, the user can monitor the progress of the controller and what it is doing. I did use the serial port at a BAUD rate and line settings of 115200, 8,N,1. Most P.C.s contain a serial terminal emulator called HyperTerm or a freeware version of TeraTerm can be obtained from many sources on the Internet.

This screen shot was taken from my computer. The TeraTerm window shows both the basic Ethernet initialization largely taken from the WIZnet code examples plus the connection and parsed weather data.



While displaying the parsed data on a PC is nice, it still requires a P.C. The display on the WIZnet evaluation board is perfect for this. I captured the entire data packet, parsed and converted selected fields, and then displayed each approximately once per second. As I could not display all fields at the same time without being cryptic, the code captures every data packet but displays a different field with each reception. Rotating through the four desired displays, it takes about four seconds to display all the data I want to see.



This project has no external components and is based solely on the WIZnet iMCU 7100 EVB as provided right from the box therefore no schematic is required.