Sending readings to Pachube using the RN-XV WiFly module

I recently obtained a WiFly RN-XV module. This is a nifty little XBee shaped module that does everything you need for WiFi connectivity. You can configure it to connect to your WiFi network very easily.

<picture and reference to the data sheet <http://www.rovingnetworks.com/files/resources/WiFly-RN-XV-DS.pdf>>

I used a Xino Basic for Atmel (Arduino clone) and a XBee shield- both from Ciseco. The XBee shield is unusual in several ways, firstly it does not enable power to the XBee socket until an AVR output is set – this helps a lot with programming the AVR as there is no contention for the serial Rx and Tx pins. Secondly the XBee shield has a number of options to add sensors to the shield, including an LDR (variable resistor – resistance varies with light) or potentiometer and a Dallas one wire temperature sensor. For this example I chose to use a potentiometer.

<picture of XBee shield with options>

So now to the code. The best Arduino library available for the WiFly range of modules is the Sparkfun library, this can be found at <https://github.com/sparkfun/WiFly-Shield>, however this is written for the Sparkfun WiFly shield, which has an additional SPI serial converter chip, and accesses the WiFly module via the SPI interface. I have modified this library to use the Serial UART on the AVR as this is much more suitable for the XBee format. My modifications and the code used for the example can be found here <https://github.com/jcrouchley/WiFly-Shield>.

The code reads the potentiometer voltage every 15 seconds and sends the result to a Pachube data stream. If you have not done so already you will need to sign up to Pachube and get an API key so that you can upload your data.

A free Pachube account will allow you to have 5 datastreams and 5 API requests a minute. If you are using a free account you may like to alter the upload frequency to every 30 seconds (TIMETOUPDATE). All configuration is in the Credentials tab when you open the example project in the Arduino IDE. You will need to insert your feed ID and your API key. Pachube also offers other neat things like graphs that you can embed into your blog or website, as well as being able to view you data through the Pachube web site.

WiFi access is also configured in this file – you need to enter your SSID, encryption type and passphrase.

For debugging it is difficult to use the Serial port as usual because this is occupied by the RN-XV so I configured a couple of unused pins to be used with the NewSoftSerial library, you can download the latest NewSoftSerial library from here <http://arduiniana.org/2011/01/newsoftserial-11-beta/>. Note the NewSoftSerial library is now called SoftwareSerial and will be released at the end of this month as the SoftwareSerial library shipped with the Arduino IDE V1.0. If you are using an earlier version of the Arduino IDE then just replace the SoftwareSerial library with the one from the link. You can also just remove the use of the library from the code and all references to mySerial , this will not affect the code as it is only used for debug messages.

<code walkthrough here>