Prototype Base Station Conclusions

Conclusions

Hardware

This was the simplest implementation of the design that was possible and consists of:

- A Standard Arduino UNO that was powered by a 5V 4A “Wall Wart” Power Supply
- A Commercial Prototyping Shield containing a 4.1 Volts Regulator and compatible SIM800L Module. The design of the Regulator was taken from SIMCOM’s “SIM800L Hardware Considerations”. The Traditional Series Pass Regulator was chosen over the ‘Switched Mode” example to minimise any “generated noise” so near the phone module. The SIM800L Module contains the Bypass Capacitor. This Shield just plugs in to the Arduino UNO.
- The 20 character by 4 row I^2C communication Liquid Crystal Display was included to provide an alterative means to the EXCEL Workbook “speaking” and is optional as the Arduino Sketch doesn’t “hang-up” if the LCD is omitted. The LCD is connected by 4 “Dupont” wires that just plug in to the contacts on the Shield (5 Volts; GND; SDA[A4] & SCL[A5]).

Antenna Choice

Various antenna were trialled during the Development phase with out there being any clear leader. For the Base Station it was decided to use the “PCB” Version to maintain the “clean lines” of the enclosure.

SIM800L Module Orientation

The SIM800L Module was orientated with the SIM Card Slot to the edge of the shield. The access was obstructed by the power wires when the “Liquid Crystal Display” was fitted, and access is constrained by the bolt securing the Arduino UNO and Shield. With hindsight, the SIM800L Module should have been orientated with the SIM Card Slot being away from the Shield’s edge, however, it is a difficult action to insert the SIM Card so it may be easier to remove the Arduino Shield to fit the SIM Card.