



Founded 1969

T.D.A.R.S.

Telford & District Amateur Radio Society

News Letter

G3ZME G6ZME

Issue 222 Date March.2007

Dawley Bank Community Centre, Bank Road, Dawley, Telford, Shropshire. TF4 2AZ

Forthcoming programme

- April 4 Open Evening/HF OTA/ Committee Meeting
 April 11 Society Contest & Portable planning.
 April 18 Operating Abroad. Members invited to share their experiences and advice
 April 25 Social Evening. Curry, Rice and Stuff!
- May 2 Open Evening / HF on the Air / Committee
 May 5-6 (weekend) All Band Microwave contest. Brown Clee planned.
 May 9 Transiting the Panama Canal. Illustrated talk by Derek G0EYX
 May 16 Surplus Equipment Sale. Jim G8UGL wielding the gavel !
 May 23 Amateur Radio Software. Bring along your Laptop & Favourite Software (and Memory Stick might be useful !)
 May 26 (Saturday) Visit to Jodrell Bank Telescope.(Cheshire) Families welcome
 May 30 Portable in the Park (Telford)- come & see how easy portable can be.
- June 6 HF On The Air / Open Evening / Committee
 June 10 (Sunday) Elvaston Castle Radio Rally—the biggest in the Midlands.
 June 13 Meeting Mid Cheshire ARS Over the Airwaves (provis.)
 June 14-18 (Thurs-Mon) Expedition to Isle of Arran, Scotland. Contact G3UKV for details
 June 20 Bar-B-Q: Club HQ—outside, hopefully
 June 27 VHF NFD Final Plans.
- July 4 Usual First-in-the-Month
 July 7-8 (weekend) VHF NFD from the Long Mynd.

TDARS WebPages www.TDARS.org

(note—no dot UK !)

***CLUB MEETINGS EVERY WEDNESDAY AT Bank Road Community Centre,
Bank Road, Dawley Bank. Rooms available from 7:30 pm.***

ALL WELCOME. COME AND MEET EVERYONE !

For Foundation & Intermediate training, contact Mike G3JKX tel: 01952 299677, mjstreetg3jkk@blueyonder.co.uk. Advanced course contact Eric M0KZB tel: 01743 240286, e.arkinstall@virgin.net, or Mike G3JKX, as above.

Ephemera: Club News

* The second Club **“Lucky 49 squares”** winner was announced recently. This time it was Dave Johns G0VNO's turn. In the rush to pass along his winnings, he got paid twice by the club—but £25 was returned shortly afterwards to balance the books! There are still un-sold squares for Lottery number 3: any takers?Jim's your man:



Visit to Mid Cheshire Radio Club
near Tarporley in February.

Some of us missed the A41 diversion on the way backnice country route, but not recommended.

Plans are afoot for MIDCARS multi-band QSOs one Wednesday in June.

* The last **Intermediate course and exam had a 100% pass rate** by the four candidates. For the first time, they were given 'Pass' slips directly, and the RSGB was informed by Mike 'JKX. Within a few days, OfCOM knew the outcome, and hopefully new 2E0xxx callsigns have been issued by now.

***This tiny chap** was found warming him (or her) self on our 5.7 GHz Beacon heatsink in the Club QTH loft space.

Actually, he had left this world for another batty life.

Someone was heard to say he had been microwaved, but that's not true. Quite a cute little fellow, but It comes to us all, some time.



* The **results of VHF NFD** have been published on the Internet. For an incredible (UK record ?) sixth time, TDARS won the Mix & Match Section. The write-up gave us rather reserved praise—do they realise? We shall see if they publish the photo we provided in RadCom for a change. Unusually, our confirmed score on all 4 bands was between 9 and 12% less than our claimed score. In recent years our accuracy has steadily improved, and in 2005 was between 2 and 5% on all bands. Not sure why this discrepancy.

Mike's Piece: No. 1 Building and Using an RF sniffer. A simple gadget every radio amateur should have.

Recently, Bob, MØRJS asked me a question about what the SWR of 1:1 actually meant. This is not very easy to answer without lots of maths, diagrams and what not. He is trying to get his HF aerals working really well. (Don't we all?) So I said to him, 'Why bother with getting the SWR down to an extremely low figure, when what you *really* want is the most RF output from your aerial ! So why not measure it? Adjust everything for maximum smoke!

What he needs, and I suspect you do too, is an RF 'sniffer' somewhere *outside* the shack. It consists of a small plastic or metal box, out of which sticks a small aerial. This is connected via (say) a 3 mH RF choke, to the outer connection of a coaxial socket which is mounted on the bottom of the box (to help keep the rain out of the connection). The coaxial socket inner is connected to the junction of the aerial and the RFC, via a small germanium diode. Nothing else.

Now, if you haven't already realised it, your box contains a very crude crystal set. Any RF picked up by the aerial will produce a DC current and an audio signal if your rig puts out some Amplitude Modulation. By conveying these signals back to the shack via a coaxial cable (to keep RF from getting in) it is now possible to listen to the AM on headphones or measure the DC current, due to a carrier wave, with a suitable meter. This could be a self ranging digital meter, or better, a micro-ammeter, with a suitable variable resistance in series to adjust the sensitivity, in case you are running a kilowatt and don't want to fry the meter!

It may be necessary to wind the coaxial cable from the sniffer through a ferrite ring, positioned where it comes into the outside of the shack. This acts as an RF choke and prevents any of the RF from your transmissions getting back into the shack and also affecting the meter readings. Burying the cable inside a length of garden hose will make doubly sure.

It is important that there is a good water seal where the sniffer aerial exits the box. It might be a better idea to have the aerial coming out from UNDER the box, then no rain seal would be needed at all. A small hole must be provided in the bottom of the box, anyway, to let any condensation out. Not too big a hole mind or the local creepy-crawlies will make nests inside!

Now affix your box to a fence or on a stick outside somewhere. Wire up the coaxial cable to the meter and off you go. Start with low power carrier only, using AM or FM, adjusting the sensitivity potentiometer until you get a reading. Increase the power output and readjust the 'pot' to keep the current 'visible'. Keep on doing this until you have Full Scale Deflection on the meter for the highest power output that you are ever going to use.

It will now be very easy to see, day to day, if your rig is losing output or something is wrong with the ATU, the coaxial cable to the aerial or indeed that the aerial itself has bits missing or has fallen down!

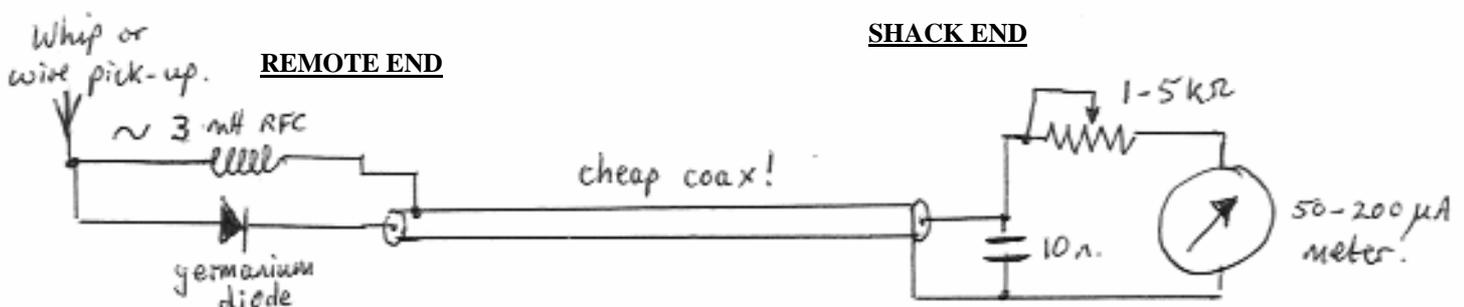
Earlier I mentioned that the RF choke has a value of 3mH; well it doesn't have to be. Half a mH would do. What you don't want is the RFC to be resonant on any band you are going to use, 'cos then RF might damage your meter.

Remember that using FM will only produce a DC current from the sniffer. (FM is a frequency modulated carrier wave of course) and SSB will only produce a wildly variable DC which will be difficult to see. You can check if the peak output is looking normal of course. This is where using a very sensitive low current moving coil meter is a distinct advantage. It will respond so much better to the varying DC current.

A sniffer is a very simple gadget to make which will make checking that you are actually 'getting out' a piece of cake. The ability to listen to yourself, on AM, also means you can personally check on the audio quality and not have to rely on the opinion of others whom you talk to over the air. You can also use it to check and adjust your audio compression and microphone gain settings. Just connect your gadget to some headphones or use a voice recorder and then play it back. You may just get a surprise.

That is about it for this time. Some of my Newsletter pieces are on the Society website, www.tdars.org Log on! (Please note that the '.uk has now been dropped) Hopefully, one day, we can get all my articles on it!

Vy 73 Mike G3JKX 01952 299677 mjstreetg3jkx@blueyonder.co.uk



Going Commando On The Hills – A SOTA Expedition

By Richard M1RKH

I have recently taken an interest in the SOTA initiative that is running. **Summits On the Air** is an independent organisation running in several countries, started in the UK. It aims to promote portable operation in the Hills using equipment that can be carried to the summit. The great thing about it is that it not only promotes the “activation” of summits (more on this later), but it also encourages people to chase the activators, from their warm shacks. There are awards for both activators – Mountain Goats, and for chasers – Shack Sloths

What Makes A Summit ?

Not all hills make it into the list. There is a objective list, classifying hills as “Marilyns” (as opposed to the well known Monroe classification of hills over 3000ft) if it has a drop all around it of at least 150m. For a hill to count it must also be impossible to devise a route between it and another SOTA peak that requires a descent of less than 150m. Alan Dawson originally devised this list which has stood the test of time and is used as the reference:

<http://bubl.ac.uk/org/tacit/marilyns/> . This lists the relative hills of Great Britain. This is the list used by the British side of SOTA, other organisations may use subjective criteria to determine qualifying hills.

How Do You Activate A Summit?

Speaking now from an activators point of view and quoting the General Rules available at: <http://www.sota.org.uk/docs.htm>

“The Activator claims the Summit points on an expedition basis, regardless of the total number of QSOs made above the qualifying minimum. A Summit may be activated as often as desired but an individual Activator can only claim points for operation from a particular Summit once in any calendar year.”

So basically you must go up and make at least 4 contacts from the summit in order to claim points and be able to say you have activated the Summit. Chasers claim the points by talking to the summit expedition, no matter if they fulfill the activation requirements. Different peaks have different points, and there are some Winter weightings to increase points value. You can only activate one summit in one year.

Summit Expedition to WB-010: The Wrekin

So having read the rules and gathered together a bit of kit I wanted to make an expedition to WB-010. WB stands for Welsh Borders, other regions are also classified. 010 is The Wrekin. This list is maintained on the SOTA documents pages.

I decided to do my expedition on the 27th December, as recorded on the SOTA website at [http://database.sota.org.uk/\(kemsrb45qnlq0c45kb0bnrj\)/ActivatorLog.aspx?userid=1103](http://database.sota.org.uk/(kemsrb45qnlq0c45kb0bnrj)/ActivatorLog.aspx?userid=1103) .

I started off at the car park at the bottom of the hill a bit later than planned as my assistant (Daniel, Jnr Op—Ed) was taken ill along the way. The temperature was about 3C and the weather at the top was clear but windy. I made it to the top a bit later than planned, by over an hour, but quickly set about setting up the station.

2m was first and contacts were made with our local TDARS shack sloths and also over to a guy in Derby who had been watching my spots on the SOTA web site. One great thing about this scheme is that you can spot yourself (with a mobile phone) as the aim is not to expose yourself on top of a mountain waiting for contacts.

I quickly made my 4 contacts on 2m FM and switched to SSB for a while with a few new contacts and some repeats to the calls I had before on FM. The furthest away was a contact into Derby, coming through 5 and 9 plus. Funnily enough a guy mobile had a contact with me on his way to his own SOTA summit in Wales.

I switched to 40m for the close of the dxpedition with the V and didn't have much success, the batteries were running low and the 817 power had dropped to 0.5W, I didn't use the external battery as time was running on and I was freezing cold by now. So I packed up and walked back to my truck.

You should always have a mobile phone with you while out walking for safeties sake, this is especially useful on SOTA as you can self spot for yourself if your phone can open web pages. The process is described on the SOTA site. It was really easy as you just prepare a few bookmarks with some information in them and open them in your phone.

What kit to Take

It may be a small summit but this was a cold day, 3C in the sheltered base car park and a brisk wind on top means a heavy wind chill factor. I wore layers, leggings and trousers, vest, t shirt, fleece jumper, zip up fleece and gore tex rainproof. Taking them off on the way up, but wearing them all while up there including gloves and a hat. I wore walking boots with gaiters as it's a bit muddy, so it saves washing your walking trousers afterwards.

I had a small self inflating ground mat to sit on and I anticipated a bit of rain and had a small groundsheet I would have rigged up into a small bivvy. A primus stove: Gas is good, portable, but takes a long time to boil water, my primus stove runs off all fuels and heats water like a flame thrower. A steel mug and some sandwiches packed into some tins. I also had a few hand warmers to warm my digits. I took a pair of Tiki walking sticks up, purely to use as poles for my 2m antenna.

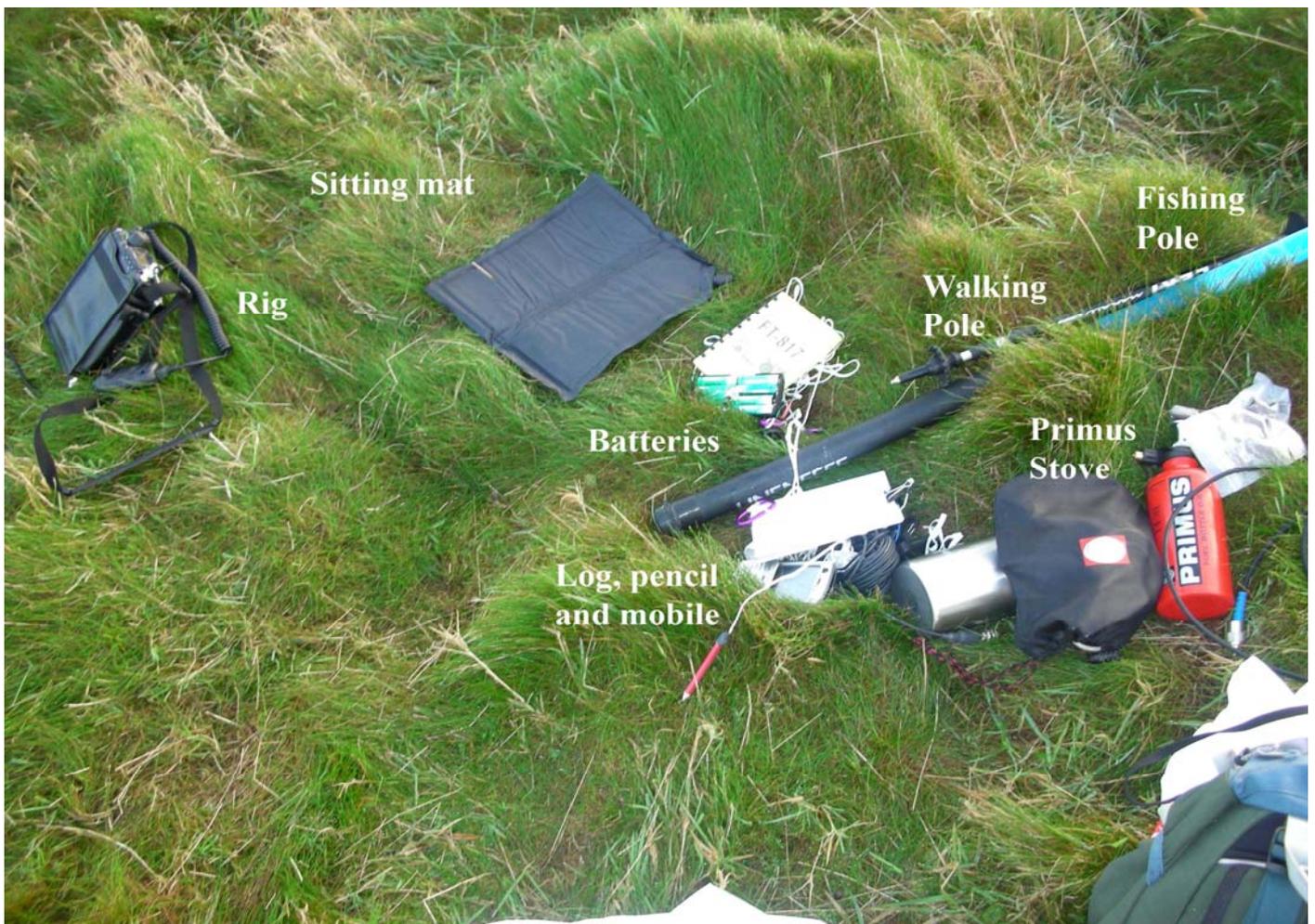
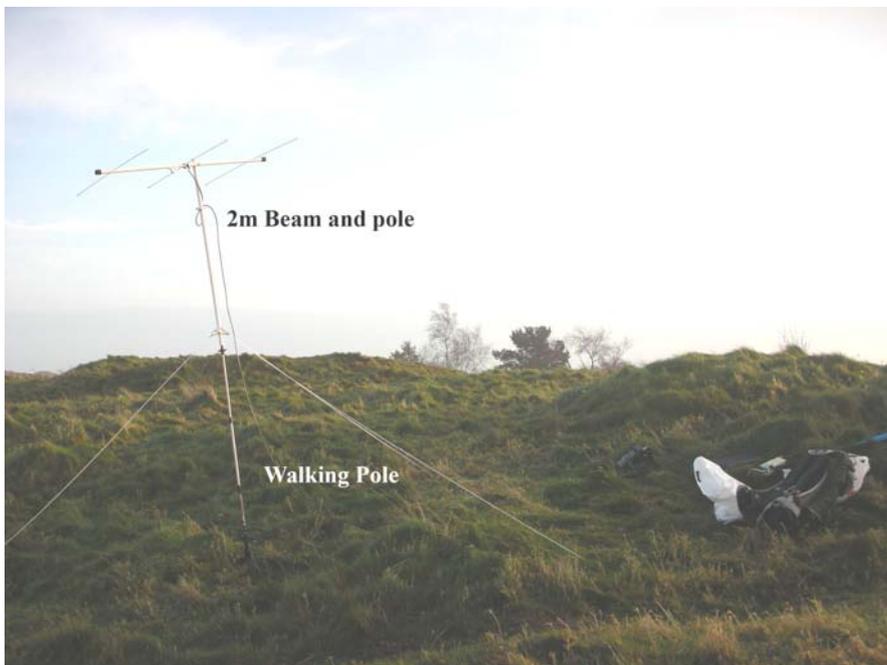
I chose to take my FT-817, working off internal batteries but also with a spare Lead Acid to power it if they ran out. My antenna system was very similar to the one we made last year from welding rod and pvc tubing, I purchased a very well made one from <http://www.sotabeams.co.uk/> . This can be turned around on its mounting to achieve vertical and horizontal polarization for SSB and FM. The beam can be mounted on top of Tiki walking poles, which I did.

In addition I had a 7m fibre glass pole and inverted "V" for 40m, which I tried using but didn't have much success with. Going up with 2.5W for 2m is fine, but for HF a bit more power is needed to punch through the noise. Remember you are sitting on top of a hill, exposed to the elements and don't have the time to wait for openings or be patient with people too much. I will be looking at some form of PA for 40m for future summits.

Since this was something of an experiment I took a long wire with a portable ATU. I only used the V. The advantage of the V is that it becomes its own guy ropes. One useful piece to take with you is some wire winders, there's nothing worse than a rats nest of antenna and fishing wire in your rucksack. They weigh next to nothing and speed up deployment and pack down.

All this packed into a day sack, which could be lighter on subsequent ascents, but pretty much contains close to the minimal set of equipment needed.

Oh, and don't forget some form of log to record the contacts on. Mine bulldog clips onto a small piece of aluminium to rest on my leg and has waterproof paper. Use a pencil and it won't matter if it rains, it will still work.



* **Message from Pete G4AUY...** "Perhaps getting members of the club interested in top band operation might create some interest in the club. Listening on several occasions I was impressed how little it was used; it was clear, not so noisy and stations on the continent could be worked and a decent coverage of the UK. Especially at night when working members have more time on their hands. Of course this would give members pause for thought on which type of aerial, and what they could manage to get up etc. in their property. I am sure you can see the idea of stimulation of thought, a challenge. "

The How and Why of Morse

By Martyn G3UKV

As those of you who subscribe to the TDARS Reflector (TDARS@yahoogroups.co.uk), I have been trying to raise the local profile of morse (known as CW).

Here's a message I circulated recently:

"GM all:

I have been scouring my old morse examiner files to remind me of the precise details of the 5 wpm and 12 wpm tests we used to undertake in Shropshire (alongside Alan G0AGC, John G0HQK and Mike G3JKX), usually at the Phoenix School, o/b/o the RSGB.

I've been asked by two TDARS members to give them a 'test' at 5 wpm as part of the local revival in the use of CW (morse), since a few weeks ago I suggested the Club would offer 5/12 wpm morse proficiency certificates.

I've now got all the info I need, and even worded a proposed certificate for the purpose. Receiving and Sending are both required, in "QSO format" - in other words, it mimics a typical two-way CW QSO on the HF bands. The 'novice' 5 wpm (as it was called under the old licence arrangements) used to use a tape cassette for the receiving, but we examiners always felt it was a bit of an insult to become a cassette button operator, rather than send with a key. The 12 wpm was always hand sent anyway. The thinking was that it's quite tricky to get exactly 5wpm sending, whereas 12 wpm is easier, and the RSGB (in their wisdom) thought that if morse was sent just a tiny bit too fast (eg 5.1 wpm), there would be complaints from candidates. We always erred on the safe side anyway, and our timings usually indicated we sent at about 10-11 wpm. So there were no complaints !

Incidentally, the pass rate was about 75%, and in most cases, failures were due to sending errors - another reason to get your hands on a key ASAP, and not leave it until receiving is mastered.

Suggested certificate wording:

CERTIFICATE OF PROFICIENCY IN SENDING AND RECEIVING MORSE CODE AT XX wpm,
PRESENTED TOON(date).

SIGNED(examiner)

COUNTERSIGNED(TDARS Chairman).

Morse is a uniquely valuable mode of transmission :-

- ▣ Requires a basic carrier transmitter only, on whatever band is required
- ▣ Requires only a conventional receiver with BFO—no software or machine decoding
- ▣ Is extremely effective in weak-signal or noisy band conditions:
- ▣ Very narrowband—hundreds of transmissions can co-exist in a 100 KHz bandwidth.
- ▣ It's international in character—the abbreviations & format are recognised in all languages

However, it still relies on an operator learning and being reasonably fluent in mentally de-coding the dot and dash characters in rapid succession. I know of no quick-fix, although some computer software probably takes some of the grad-grind out of learning it, and helps you to become gradually more proficient in its use. Also, there are morse sending and receiving programs available for free via the Internet, which can be interactive to ensure you make steady progress.

I think working in pairs is a good way forward—you motivate each other, and a bit of gentle competition can be quite beneficial. The usual E I S H (.), T M O (- - - -) and so on has stood the test of time to learn the alphabet and numerals. Find a morse key you like, which need only cost £10 or so, and do as much sending as receiving. Have an experienced CW op set up the key spacing and weighting correctly (very small gap, very light pressure required). Use thumb and next two fingers only on the key, and keep those fingers in continuous contact with the key as you send. Sending is educationally the sound approach—sorry for the pun, as the physical action and sound patterns re-enforce the link between dots/dashes and the resultant de-coding in your brain. You'll soon be told if your sending develops an uneven rhythm. Go for it!

One Laptop Per Child (OLPC) and Wireless. By Richard M1RKH

Some of you may have heard in the news the initiative to make a laptop for less than \$100. A formidable quest you'll agree, but one on which they are very close to succeeding. The project is pioneered at MIT (the Massachusetts Institute of Technology near to Boston on the East coast of the US). Various things have to be in place, such a cheap displays, Flash Memory drives, keyboards etc.

One interesting aspect of this technology is its use of Wireless to connect multiple users together or to an internet connection. With the OLPC initiative what they have implemented is a clever wireless mesh network, so multiple OLPC users can connect together, so even if the person you are sharing data with is not visible to you, you may be able to hop through someone else's computer to get to them, or even through multiple users.

The big advantage here is that an internet connection per computer is not needed, as long as one person in the mesh has one, other users can share.

This is an interesting way of networking. So now it's not a one to one but a many to many connection. The mesh network has the property of being self learning, so it has a protocol to recognise the topology formed as new users are added. It is also able then to heal itself if one link drops out or to find a different route to the end point.

Does this sound familiar ?— this is exactly what happens on the Internet but on a larger scale. Only in this case it is done with cheap wireless technology in the 2.4GHz range and with considerably less computing power. There are plans to extend this mesh use model further. Since the amount of memory on each computer is limited (for cost and power reasons) there are plans to have a central hard drive attached wirelessly in each village, which can by the mesh mechanism be accessed by all.

All this is good news for those poorer areas of the world. As we know knowledge rules these days and their standard of living will certainly be increased by access to even a small amount of the internet information available and with these peoples ingenuity they can make huge improvements to their quality of life. Such things as plans for pumps, simple tools, machines, electricity generation can become available.

And one other thing, minimum order quantity is 10,000.



