

Sydney's Powerhouse Museum Maker Faire

The first Sydney maker was held at the Powerhouse Museum on Sunday the 24th November.

The Manly Warringah Radio Society (MWRS) and the WIA both attended the event and were located together in an external courtyard, along with the amateur rocket society.

Rather than have a conventional amateur radio display, the intention of the WIA was to showcase some of the more unusual aspects of the hobby, so we contacted the Operation Helios high altitude balloon team from Tamworth, NSW, and the University of NSW Student BLUEsat low-earth orbit satellite project. Both activities are based on amateur radio.



John Press, VK2YGV came down from Tamworth for the weekend and, with the assistance of an LCD TV, put together a very interesting display on high altitude ballooning. John was also asked to give a presentation in the Museum theatre, something he obviously enjoys doing.

John, VK2YGV discussing the finer points of high altitude ballooning

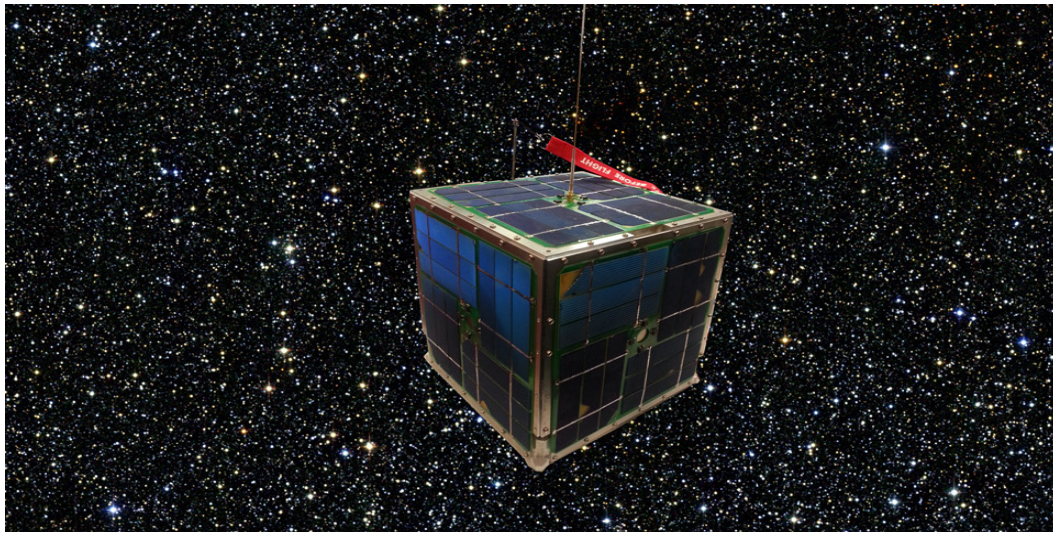
The Manly Warringah Radio Society display included a variety of home constructor radio projects including their "retro-style cardboard radio maker", commercial and home brew SSB and CW transceivers, portable APRS equipment, and when the OH&S tag and test people moved away a Jacobs ladder in a large glass jar.



The MWRS club have a bunch of very keen younger generation amateurs, many who work in IT, electronic design and communications.

MWRS display of home built radios and constructor projects. The Jacobs ladder is in the large jar.

The Uni-NSW BLUEsat team set up on the table next to John and fielded lots of questions during the day about their student satellite project, which apparently is redesigned regularly as students leave the University and new students bring new ideas.



Also located outside with us was the amateur rocket association, with a collection of quite impressive toys that go woosh .. and bang. These are serious rockets with guidance control systems, telemetry, and GPS tracking for retrieval, using one Watt spread spectrum radio data modules in the 900MHz ISM band. Because of the altitude they have no need for higher power.

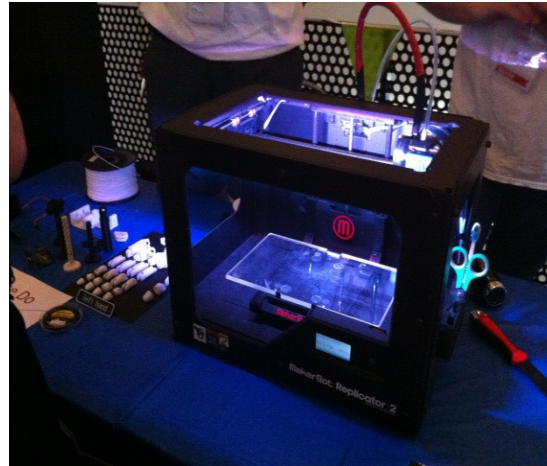
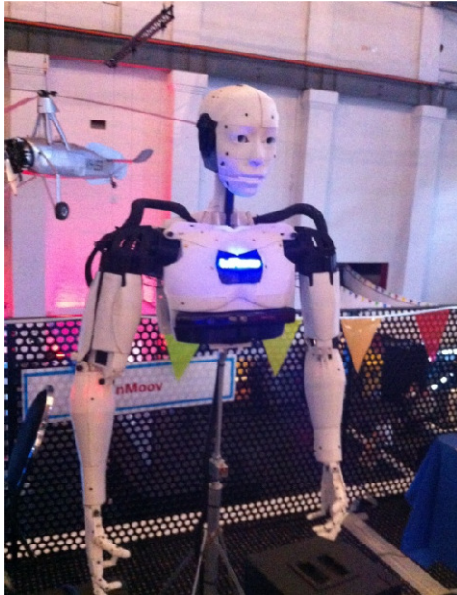


Various Rockets on display



This gentleman will tell you that size does matter!

Almost a hundred 'Makers' stands were scattered around the inside of the Museum, with robots, 3D printers, electric cars, Arduino and Raspberry-Pi computer projects, micro-satellites and arts and crafts displays. The Scouts had a long table of soldering irons with people off-the-street assembling simple pc board projects.



This voice command following robot is fully home-made, using a 3D printer (right) for the body plastics and gearing.

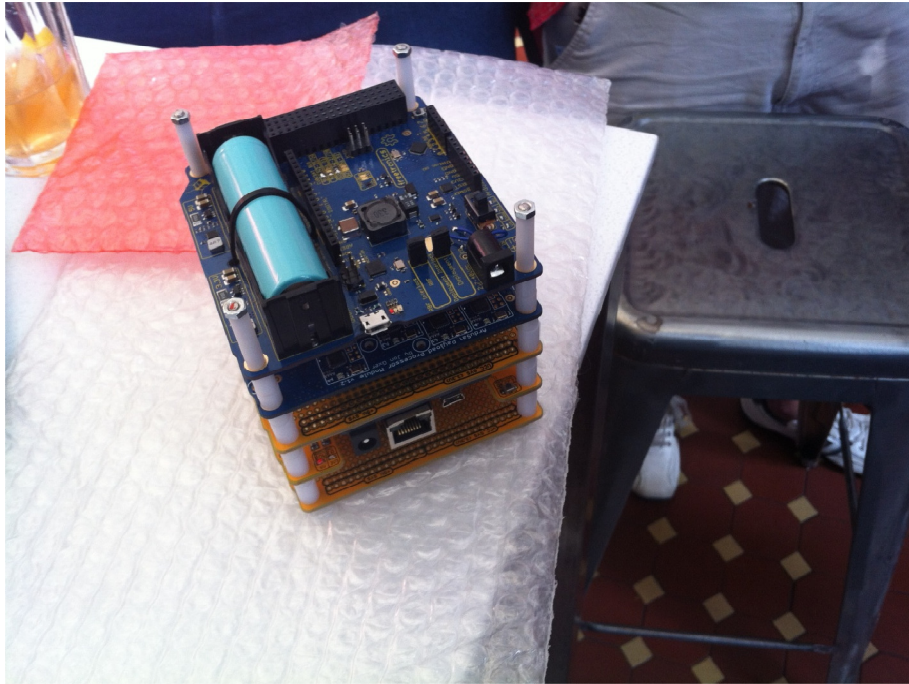
The guys from Freetronics had one of the new ArduSat based micro-satellites. These devices, about the size of a brick, have been funded by a worldwide funding drive and are now being deployed in low-orbit from a spring loaded launcher on the International Space Station.

See:

<http://www.freetronics.com/collections/ardusat>

<http://amsat-uk.org/2013/09/15/eevblog-ardusat-arduino-cubesat/>

Each of these micro-sats contains a ArduSat payload process module that can run 16 processor nodes, each connected to its own sensors such as gravitational, IR, magnetic, visual etc. Schools and hackers can develop their experimental software, sent it for testing prior to upload to the micro-sat, and then run an orbiting experiment for only \$300 per week! All this uses amateur radio frequencies on 2metres and 70cm.



The insides of a ArduSat micro-satellite.

Observations:

It was unfortunate we were placed outside away from the main traffic area, and numbers were definitely down compared to inside (which was at times packed), however the quality of passes-by was high.

There was little interest in the traditional aspects of amateur radio, or radio kit building, or brochures and hand-outs. As there was no interest in on-air radios, and it would have been better to forgo the chance to erect antennas and be located inside the Museum, closer to the action.

The balloon and satellite displays were definitely the main crowd-drawers with strong interest from all ages. Some older/middle-aged people were interested in the traditional amateur radio equipment. Being located close to the rockets was also a plus.

This was certainly a successful day for the powerhouse Museum and the 'Makers' in general, and will probably be repeated on a yearly basis. It was certainly a successful day for us too, because we did speak to a lot of people about amateur radio and we learnt more about the 'Maker' market, especially what we need to do to promote amateur radio to this prime target group.

The concept of downplaying the traditional aspects of amateur radio and up-playing new technologies seems spot-on with this group. The 'Maker' application is very much about

telecommand and telemetry, and amateur radio offers higher power (more range) and access to universal worldwide spectrum.

Some 'Makers' already have a Foundation license but see little application because they get greater usage from low-cost ISM radio modules, where there are no mode restrictions. They have little use for an analogue voice-only radio!

A digital extension to the Foundation Licence is definitely required to attract these new tech savvy people into amateur radio.

All in all a very good day, followed by a brief get together in the pub.