OpenLCB / NMRAnet

Progress Report to NMRA Board Winter 2013

The What

NMRAnet is a new open accessory / throttle bus designed by modellers for modellers to work along side DCC.

Its goals are to be simple and easy for small layouts, but also extensible for larger, more comprehensive or sophisticated layouts, including the specific challenges of modular club layouts.

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The What, cont'd

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It also provides a compatibility path for new products to be developed to that will lead to a time when we can share/mix-n-match best-of-breed equipment on layouts much like we can with DCC locos and Accessories.

It is being developed in public by the OpenLCB Development team, and being reviewed and vetted by the NMRAnet group.

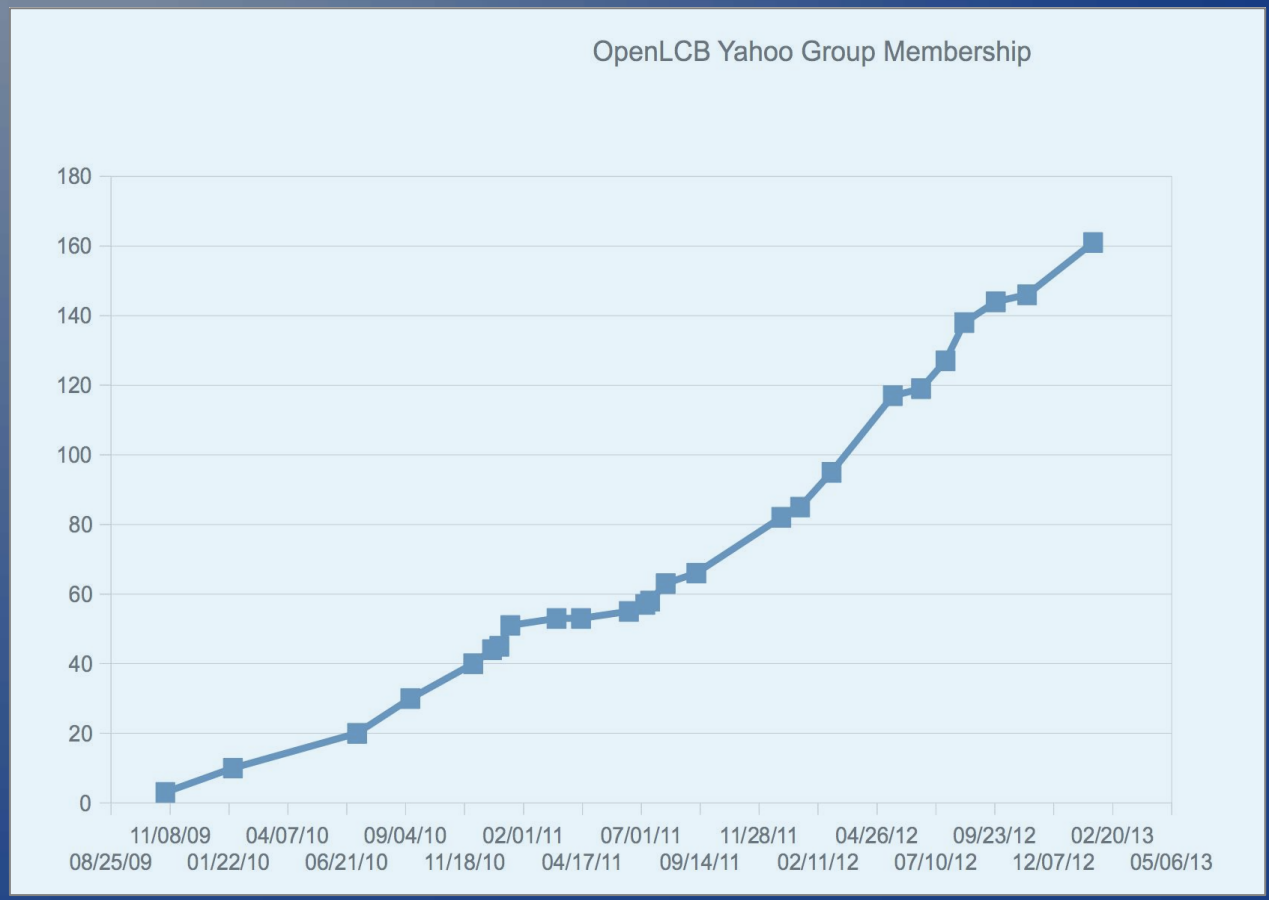
The Who

There are two groups developing and ratifying the NMRAnet Standards:

- The OpenLCB Development Group which uses an egroup and Sourceforge to develop these.
- The NMRAnet Group which uses an egroup and the NMRAnet webpages to publicize and review proposed NMRAnet Standards documents.

Participation

Membership in the OpenLCB egroup continues rise above 160 members. The NMRAnet egroup has 52 members.



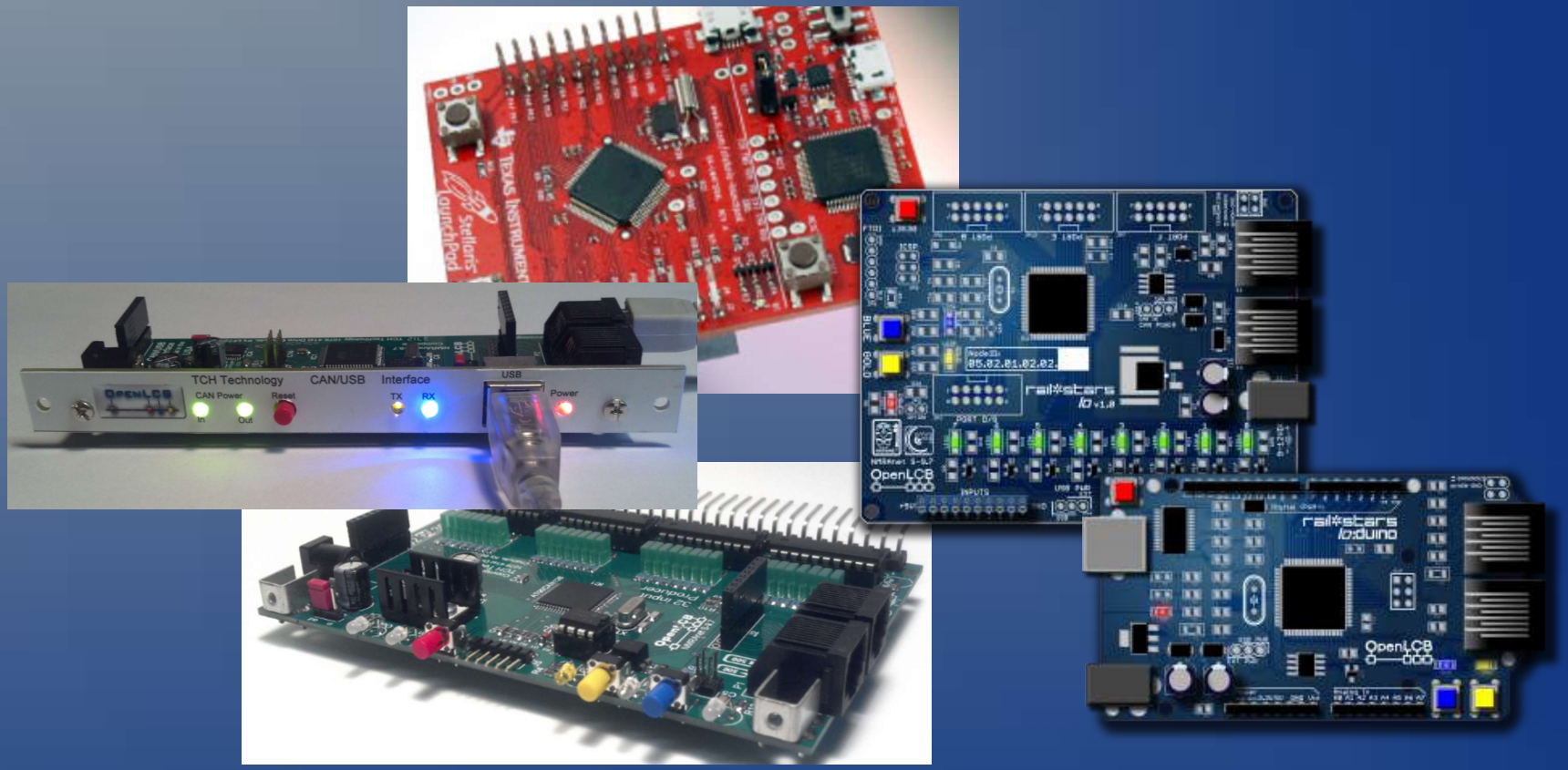
The Process

1. The OpenLCB Development Group designs and documents the standards and their supporting technical notes, and develops reference hardware, firmware, and software.
2. As the standards are completed and adopted, they are forwarded to the NMRAnet website and egroup for public comment and discussion.
3. The Standards and other documents are then forwarded to the NMRA Board for consideration for adoption.

Activities -- NMRAnet / OpenLCB DevKit

The development kit was designed, built, assembled, and distributed around the world, including USA, Canada, New Zealand, Australia, Holland, Spain, Denmark and the UK.

Activities - Hardware

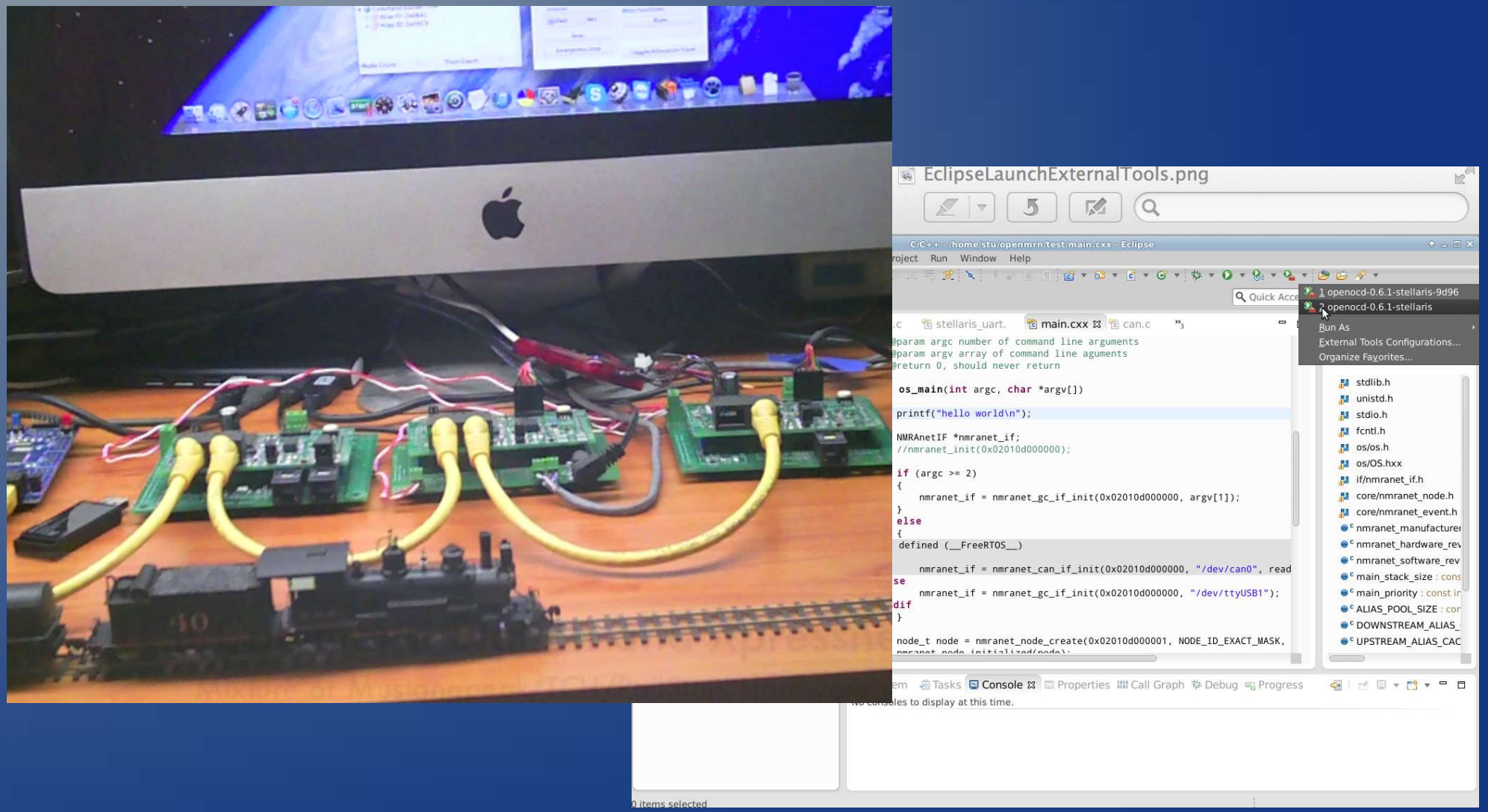


Activities – Software/Apps

Activities - Shows

- NMRA 2012 Grand Rapids
- Springfield 2013 Show
- New Zealand AMRA Show

Activities – Software/Firmware Development



Articles

“NMRAnet” in the NMRA Magazine, by Don Goodman-Wilson:

NMRANET

article by Don Goodman-Wilson and photographs by Stephen M. Priest, MMR

Standard 9.7 — NMRAnet — is a new networking technology aimed at making complex layout behaviors dead simple. This technology, developed by the OpenLCB Project, simplifies the necessary wiring, configuration, and operation of layout control devices such as turnout drivers, signal aspects, block occupancy detectors, and more. NMRAnet offers a deep level of flexibility, along with a human-centered design that allows you to take advantage of this flexibility. Best of all, NMRAnet is designed to work with your current layout, all while preparing it for tomorrow's technologies.

NMRAnet offers many advantages to currently available buses. First and foremost, NMRAnet is an open standard — the standards documents are freely available to view and to implement. What this means for you is that you will have the broadest choice of manufacturers' products to choose from and the peace of mind that no matter your choice, they will work together properly and seamlessly. For those that enjoy DIY, open standards make it easy for you to get involved making your own custom NMRAnet hardware and software.

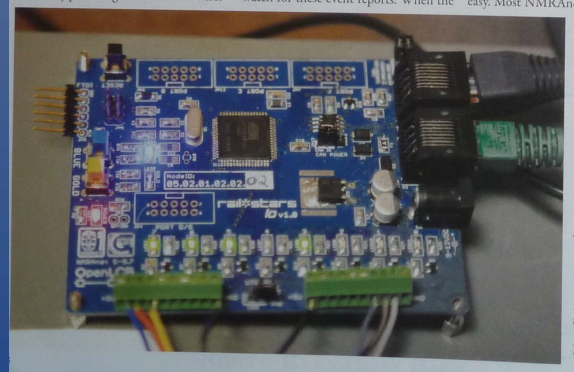
NMRAnet offers unprecedented flexibility for your layout. NMRAnet works in essence by providing a set of virtual "wires" that you can use to connect sensors and actuators in any conceivable combination. Sensors — what we call "producers" — sit on your layout and watch for a layout event, perhaps a block becoming occupied, a turnout moving into position, or a button being pressed. Once an event of interest is detected, the producer produces an event report that is broadcast to the entire layout. Actuators — what we call "consumers" — watch for these event reports. When the consumer sees an event report it is configured to watch for, it can then take some action, perhaps setting a signal aspect, throwing a turnout, even starting an animation, or changing the lighting in the room. But this is only the start.

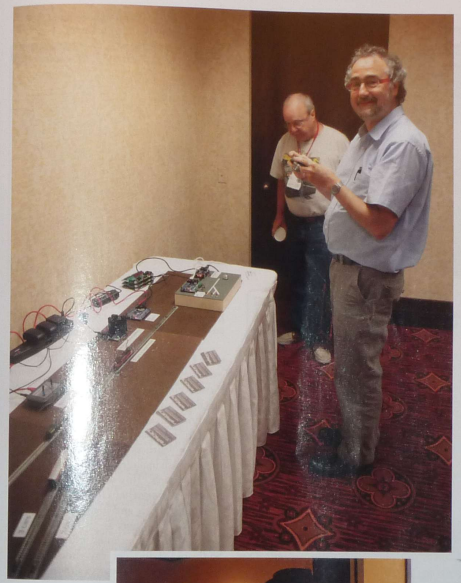
This flexibility is worthless if it can't be easily configured. NMRAnet is designed from the ground up to make configuration easy. Most NMRAnet boards will have a simple built-in interface for configuring producer-consumer relationships. For more complex configuration tasks, however, every piece of NMRAnet hardware contains all the information necessary to create an easy-to-use interface to its configuration. Currently, JMRI 3.0 has built-in NMRAnet configuration tools, but watch for support in RocRail, and apps for your smart phone and tablet too.

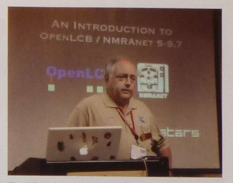
The best part of NMRAnet is that it is designed to work well with DCC — and DC, DCS, Selectrix, and even wooden trains. NMRAnet is not tied to any particular train control technology, but works hand-in-hand with each, protecting your investment in your locomotive roster.

Layout control is only the beginning. NMRAnet will soon include support for train control as well, providing a flexible and human interface to your trains, whether they are DC, DCC, or something we haven't even invented yet. And with inexpensive gateways, you will even be able to continue using your existing DC and DCC throttles.

We're very excited about the potential NMRAnet holds for layout and train control. Welcome to a new age of model railroading!







Top: **NMRA President Charlie Getz weighs in on the importance of S9.7 at an NMRAnet clinic.**

Left: **David Harris (foreground) and Karl Kobel enjoy operations the NMRAnet Demonstrator Layout. Every element of this layout is controlled by NMRAnet modules.**

Opposite page top: **Don Goodman-Wilson gives an introductory clinic on NMRAnet at the 2012 Grand Rapids meeting.**

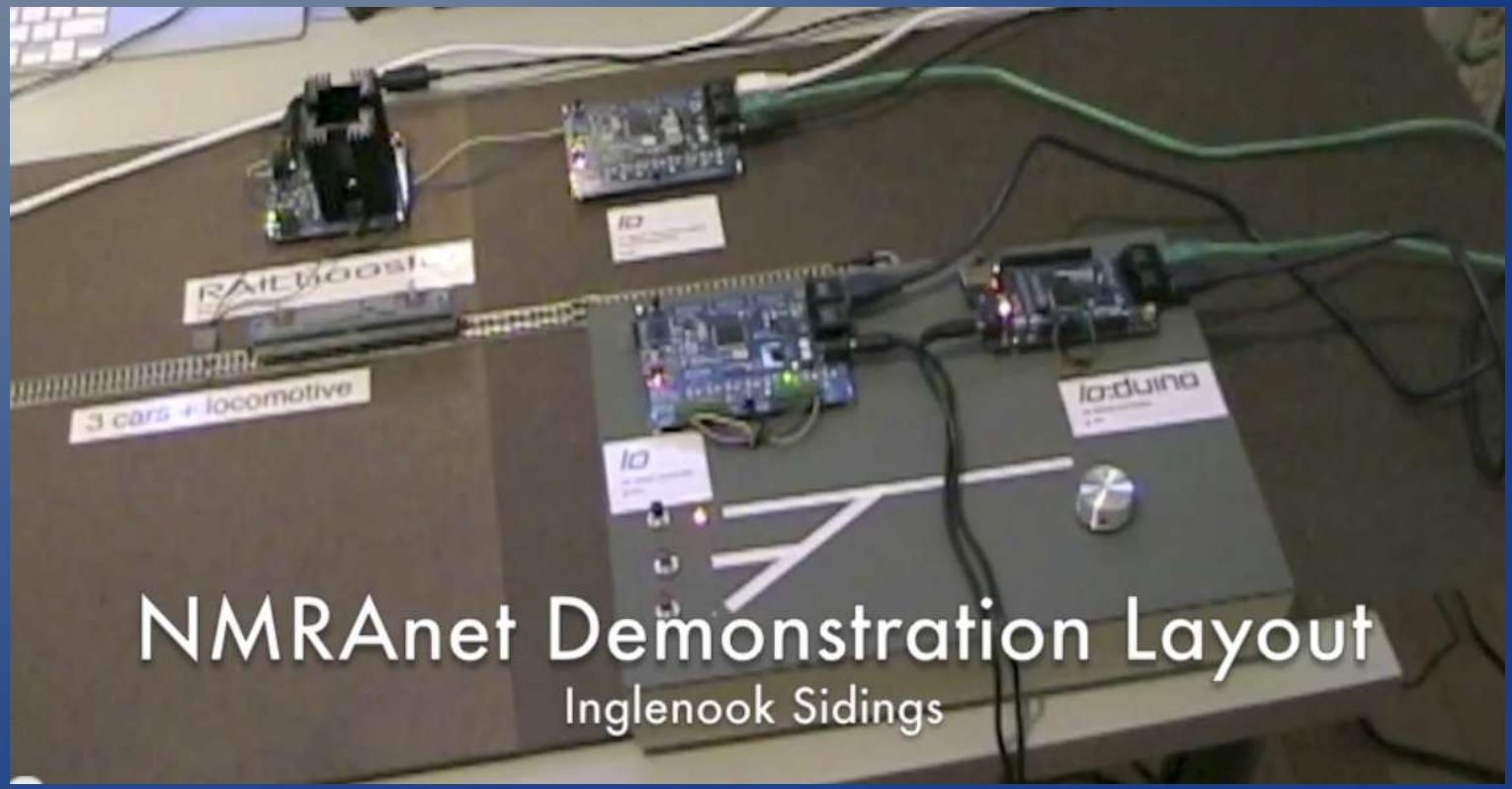
Opposite page bottom: **Railstars Io, hard at work on the NMRAnet Demonstrator Layout. Io is the first of soon to be many commercially available NMRAnet modules**

Right: **Brian Barnt, Don Goodman-Wilson, and an interested convention-goer discuss TCH Technology's and Railstars's commercial NMRAnet modules.**

The NMRA successfully trademarked

NMRAnet®

With help from some early NMRAnet adopters.



Today

For the Board's INFORMATION:

The OpenLCB Development Group has completed a package of Standards and Technical Notes, which it has forwarded to the NMRAnet egroup to review.

This package is expected to be presented to the NMRA Board, at their meeting at the 2013 National Convention in Atlanta, for their consideration for adoption.

NMRAnet Standards

Previously PASSED:

- S-9.7.1 NMRAnet® Physical Layer Standard
- TN-9.7.1 NMRAnet® Physcial Layer Technical Note

NMRAnet Standards, Cont'd

SUBMITTED to the NMRAnet group:

- General Common Information TN
- General Glossary TN
- Unique Node Identifiers TN
- CAN Frame Transfer S/TN

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NMRAnet Protocols Cont'd

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- CAN Frame Transfer S/TN
- General Event Transport S/TN
- General Datagram Transport S/TN
- Message Type Indicator Allocations Table

What is Needed from the NMRA

Promotion --

- Clinics
- Advertisements and notices in NMRA magazine
- Follow-up articles

Superstructure --

- Testing and licencing
- Link to NMRAnet from the NMRA website

OpenLCB / NMRAnet

The End

NMRAnet.org

OpenLCB.org