Wireless throttles with JMRI.

For many years I have longed for a decent wireless DCC system I have looked at several solutions from various manufactures and have found them to be either too expensive or lacking in features. So I have put up with having to "connect" to my layout by a cable.

Now there is a solution which is very inexpensive and has the more features than the latest duplex radio systems at a fraction of the cost. If you have JMRI, a wireless router and a Smartphone you are set to go.
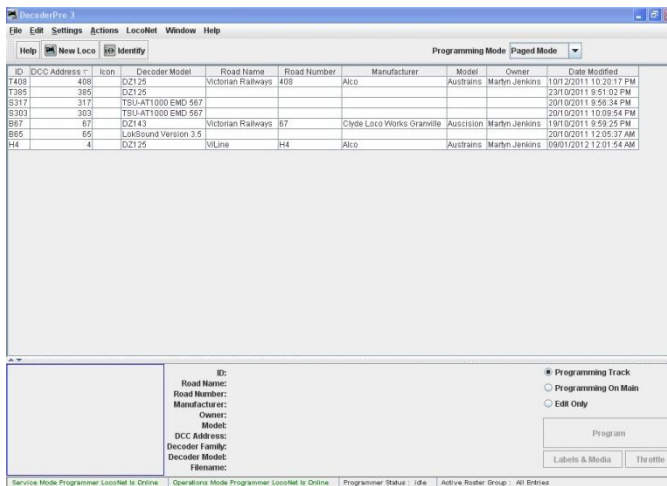
 A selection of Smartphone's

What is JMRI

JMRI is a software program suite consisting of two major programs called Decoder Pro and Panel Pro. The best part this software suite is free to download and use from the following link. http://jmri.sourceforge.net/

Decoder Pro was initially designed to allow easy method of programming DCC decoders via a graphical interface. It has been the most popular program for this task for many years. The current version Decoder Pro3 has seen a complete re design and is always improving. Many articles and clinics have been produced on using this software to program and fine tune DCC decoders.

Panel Pro is used to create CTC panels and control trains automatically with the use of scripting in the Jython language. I will prepare an article on the Panel Pro software and scripting in the future.

Within the Decoder Pro and Panel Pro software packages their resides some gems like WiThrottle, Operations and many others.

Decoder Pro3 main screen

WiThrottle explained.

WiThrottle is a method of controlling trains via a mobile device like a Smartphone or tablet PC. It turns your Smartphone, tablet device into DCC throttles.

What is a Smartphone and tablet device you may ask?

A Smartphone is one of the new touch screen phones such as the Apple iPhone or one of the Android devices. But basically if you have a touch screen phone you have a Smartphone and the system should work. A tablet device relates to the Apple iPad, iPod and equivalent devices.

As this system resides in JMRI environment it will operate on any DCC system that is capable of being controlled by JMRI. No need for specific manufactures equipment I have seen this system work on most DCC system including an obscure ZTC system that I am asked to do repairs on.

How to get the software.

The WiThrottle application for the Apple iPhone, iPod and iPad is available from the Apple Apps Store. WiThrottle is available in two versions for the Apple devices a LITE version which has limited functions and is free. And the full version which will cost approx $12.00 a copy to install.

http://itunes.apple.com/us/app/withrottle/id344172578?mt=8

You will need to download the app to your phone and follow the instruction regarding installation.

If you own device that runs the Android operating system you will need to download the Engine Driver app from the Android Market. And follow the instructions for installation.

There is only one version of the Engine Driver app and it is a fully functional version which is completely free.

http://enginedriver.rrclubs.org/

Apple vs Android

The two main software operating systems for Smartphone technology are iOs from Apple and Android from Google. There seems to be a war between the two main manufactures of Smartphone software similar to that of the VHS vs Beta wars of the late 70's and the Windows vs Mac war of the 80's.

I use and Android device and several members of our local club have Apple devices these work seamlessly within WiThrottle simultaneously.

How to set up the system.

You will need to ensure that a couple of things are in place before we can proceed. This will vary due to the type of PC you have and the way your mobile device connects to different systems.

- You will need a model railway which is connected to a DCC system.
- Next a PC will be required which is connected to your DCC system and the wireless network router.
- A mobile device which is also connected to the same wireless router as the PC.

As the above hardware can change from system to system depending on what PC you have and what operating system you use etc...

I have provided some links to external website which will help you to connect PC and mobile device to the wireless network.

Connecting mobile devices to wireless networks.
http://www.howtogeek.com/howto/23707/connect-your-iphone-ipod-touch-or-android-phone-to-a-wi-fi-network/

Connecting a PC to a wireless network.

http://www.ehow.com/how_4707184_connect-computer-wireless-network.html

Connecting a model railway DCC system to JMRI.
http://jmri.sourceforge.net/help/en/html/hardware/index.shtml

Verify your mobile device can connect to your JMRI PC via the WiFi network and obtain an IP address.

How to use the Engine Driver WiThrottle.

On your mobile device, start the Engine Driver app and wait for your computer's address to show up in the *Discovered Services* window.

Discovered Services

Click on the *discovered address* which applies to your network. Or you can enter the address and port of your WiThrottle server directly. (Using the values shown on the WiThrottle server window in JMRI.)

On the web there is also a "demo" server at the following address jmri.mstevetodd.com, port 44444 that you can use for testing.

Start JMRI on your PC. The app is in both Decoder Pro and Panel Pro so starting either will give you access to WiThrottle. When JMRI is up and running launch the WiThrottle server part of the program from *Actions-WiThrottle server*.

When the *WiThrottle server* is started the following screen will be displayed. After a short while the IP address and port number wil appear along witht the name of the PC that JMRi is running on.

In the example below the IP address is 10.0.0.1 and the port number is 3960

As your mobile devices connect to the WiThrottle server the names and IP addresses will be displayed in the Device name and Address window. If your mobile device does not appear in this window you are not connected to the server and will need to re enter the IP address and port number.

When the mobile device is connected to the JMRI WiThrottle server the mobile device will go to the Throttle page.

Now it's time to load a loco into the throttle. Touch the *Press to select* button and the JMRI roster will appear.
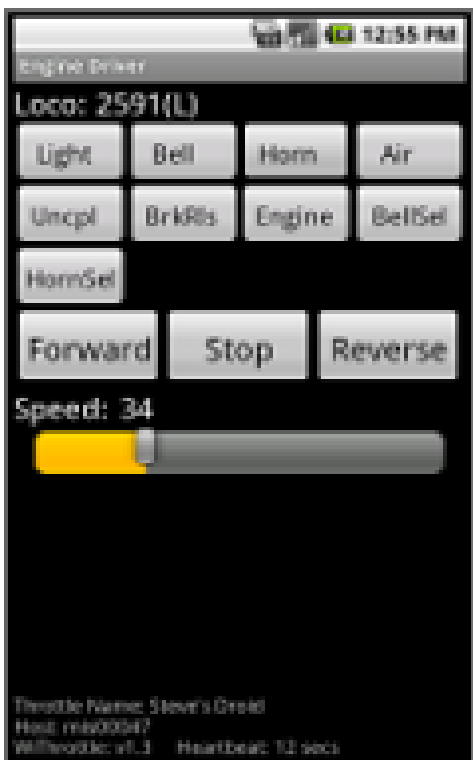
Select your loco from the JMRI roster. If the loco is not in the roster just type in the address in the area provided and select if it is long or short type. Then touch the *Acquire* button. You can see if you load a photo into the JMRI roster the photo will be displayed in the throttle roster.

If you touch and hold and entry in the roster more information will be displayed.

Now you have loaded a loco into the throttle. It is possible to operate 2 trains from Engine Driver.
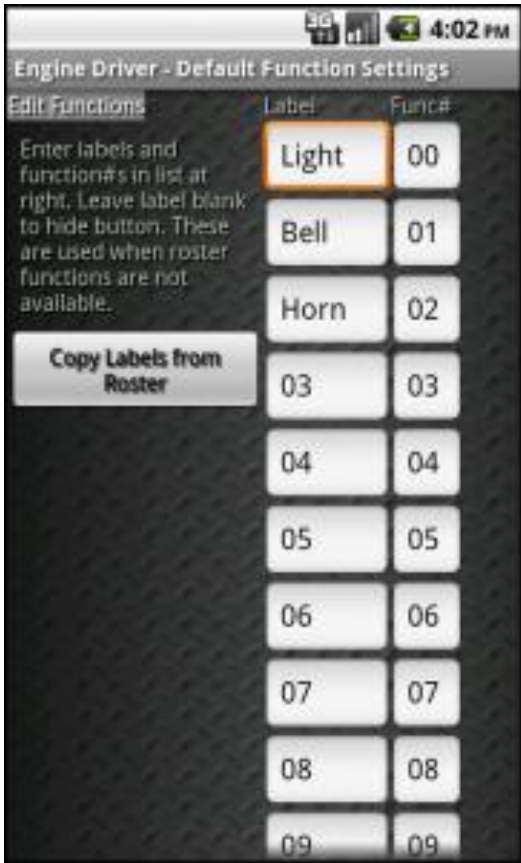
To load an additional loco touch the *Press to select* button at the bottom and select a loco from the roster or enter another address.

To operate the functions on the loco just touch the relevant buttons. The labelling of the function buttons is done in the JMRI roster on the PC.

Touching the direction or stop buttons will change the direction and apply the brake if fitted.

To accelerate the loco just drag the bar graph under the Speed indication to the required speed. You can also change the speed by using the volume control on the mobile device. I believe this function is only available in Engine Driver app.

You can change the default names for the functions or copy the function labels from the JMRI roster.

Very handy for locos with special functions installed like flickering firebox and other animations.
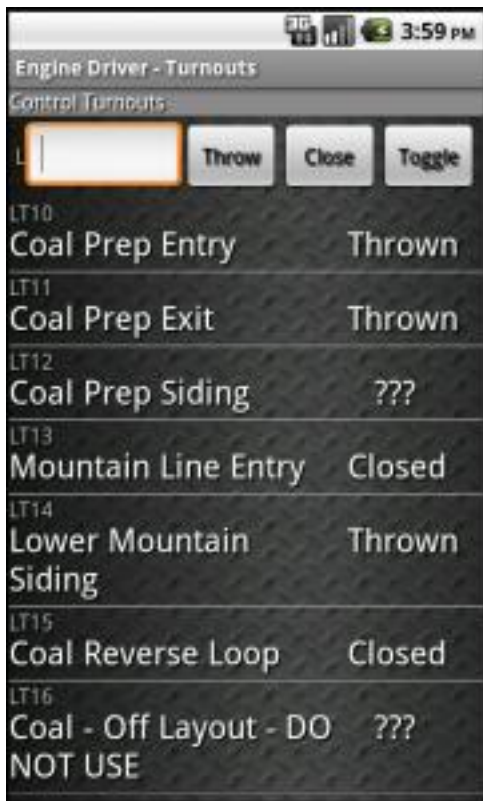

If you have a CTC panel made in JMRI Panel Pro this can be displayed on the WiThrottle.

You can also access all routes and turnouts associated with the track plan.

Just touch the required point to change it state.

You can also access the turnout register in JMRI and control your turnouts from there.

Notice that the turnout feedback will tell you the state that they are in when operated for the first time. Un operated turnouts will show "???" until operated.

In the preference screen you can specify the name of the throttle hide and limit certain functions. This is handy when giving the throttle to an inexperienced user.

What's in the future.

Several DCC manufacture are currently developing WIFi solutions to connect your mobile device directly to their DCC systems without the need for a PC and a wireless router.

Lenz is the only manufacture who has this device commercially available at the moment.

You can find more information on JMRI and layout automation software on my website

www.martynstrains.com