Wi-Tronix provides products and services to wirelessly monitor high-value mobile assets such as locomotives, industrial equipment and marine vessels. Mobile assets of this class are typically the workhorses of an enterprise. In the past, mobile meant disconnected. Being disconnected causes great inefficiencies in an enterprise that counts on mobile assets for its core business operations. Advanced commercially available wireless technologies now enable all types of assets to be connected throughout most of the world. Wi-Tronix's mission is to integrate these technologies to enable businesses to improve the operational efficiency, service reliability and safety of high-value mobile assets.

Our products are designed to solve your most difficult challenges with minimal disruption to your operations. Some suppliers only have pieces of the overall puzzle. Wi-Tronix assures that you have an end-to-end solution.

For additional information, please email info@wi-tronix.com or call (888) WI-TRONIX.
Wi-Tracker
Increase the productivity of your high value mobile assets 3% by answering two questions "Where are my mobile assets?" and "Are they ready for service?" Wi-Tracker augments your existing planning systems with timely location and status information. Increased utilization of your existing mobile assets reduces your need for additional capital investment.

Wi-Downloader
Eliminate the cost and inconvenience of manually collecting asset operational data across your fleet. Wi-Downloader allows periodic and on-demand download. Increase the speed and efficiency of incident investigations, operator evaluation and mobile asset certifications. Wi-Downloader augments your installed data recorders with wireless download capabilities.

Wi-FuelSaver
Decrease your fleet's fuel costs by up to 10%. Wi-FuelSaver will quickly get your newest operators on board with your fuel efficient operating practices. Wi-FuelSaver's available email and web-based 'trip report cards' gets feedback to where it can have the most immediate impact on your bottom line.

Wi-FuelSensor
Track the fuel levels and refuel history of your mobile assets with the Wi-FuelSensor. Using this highly ruggedized fuel monitoring system, you can log and access fuel information at any time.

Fuel Efficiency Monitor
Interested in monitoring fuel consumption of your mobile assets? The Wi-Tronix Fuel Efficiency Monitoring system enables fuel consumption monitoring of all your vehicles accurately and in real-time.

Services
Consulting
Through our consulting services we provide you a unique combination of expertise in deployment of wireless solutions and integrated, on-board electronic systems. We know first hand the importance of seamlessly integrating operational data into your business systems. Wi-Tronix consulting services are a core component of our goal to help you 'cross the finish line.'
The Wi-Tronix Cellular Device Detection System is integrated into the Wi-PU to detect a transmitting cell phone, or other electronic devices (IPAD, Tablet, etc) in the cab of a locomotive. Upon detection, customizable rules are applied to determine if a safety violation has occurred. If a violation has occurred, Wi-Tracker technology generates a log and sends an immediate email alert to specified individuals or departments.

This System Detects:

- Placing a Phone Call
- Answering a Phone Call
- The Presence of Portable Cellular Based Wi-Fi Hotspot
- Sending Text Messages
- Receiving Text Messages
- Data Transmission (Email Updates, Browsing the Internet)
- Cell Phone Detector is integrated into the Wi-PU

WI-TRONIX®
Communication and Signal Article

Onboard monitoring technology continues to provide railroads with better ways to monitor and track cars and locomotives

By Desires J. Harford

Rail executives are always minding their respective roads’ bottom lines, but the current state of the economy makes doing so all the more imperative. Through Sept. 12, carload traffic was down 18.4 percent and intermodal traffic fell 16.9 percent compared with the year-ago period.

“I think the simple reality of life right now is with this massive downshift in the economy, it’s really having an effect on the industry,” says Marshall Beck, senior vice president of marketing and sales for New York Air Brake Corp.

In short, Railroad officials have kicked the efficiency drive up a notch, whether they’re searching for ways to streamline when reviewing their operational processes or their balance sheets.

For help, many are tapping onboard monitoring technology. The devices and systems provide railroads with tools to be more efficient, which in turn is better for their bottom lines. The technology can be used to track everything from how much fuel is being used to how efficiently an engineer navigates a long, winding curve. The data that’s gathered enables rail planners to make real-time adjustments to a train that’s well into its route or changes on a route that’s still weeks away.

For an update on a range of onboard monitoring technology that railroads have at their disposal, Progressive Railroading recently checked in with a cross-section of suppliers, who shared descriptions of their product and system offerings.

Bach-Simpson Corp.

Bach-Simpson Corp. offers the 5400 Series Event Recorder. The information gathered by the recorder can help freight and passenger railroads develop more effective preventative maintenance programs, monitor fuel usage, train handling and overall performance, and support accident investigation efforts. All of the data can be downloaded for analysis. The 5400 Series unit can monitor and record as many as 64 digital channels, 16 analog channels and four frequency channels, says Paul Weber, Bach-Simpson’s general manager.

The recorder also features an internal hardened memory module that can withstand accidents and fires, enabling data to be retrieved despite adverse conditions.

“All this allows our customers to meet the necessary requirements, but also provide them the basic health monitoring for a freight or rail locomotive,” Weber says. “That helps provide them information for assessing efficiency, safety and maintainability.”

Bach-Simpson also can synchronize the event recorder system with a video recorder.

“If you go into a court case, the video data can be discounted because the other side will say that the event shows something happened at such-and-such times and the video recorder shows another time,” Weber says. “We can synchronize that information and it helps in an incident.”

Invensys RailSafetran
Inverays Rail/Safetran offers the Communications Management Unit (CMU), which monitors locomotive operating parameters and periodically transmits the data to a railroad central office that can track locomotive status and location. The CMU comprises custom-designed and off-the-shelf components to "minimize the cost of the system," Director of Marketing John Maynie said via email. More than 2,400 CMUs are installed in the field.

Two wireless paths are used, depending on the data type and quantity of data to be sent. An 802.11 wireless connection is used to upload new or revised CMU software and download larger data files generated from the Federal Railroad Administration event recorder and various fault logs. A cellular connection is used to periodically send GPS location, fuel level and locomotive status. A message is immediately transmitted if an alarm condition is detected, such as low battery voltage, hot engine, traction motor overcurrent or other situations. Several spare inputs, and the business rules associated with them, are configurable to user requirements, Maynie said.

As these devices become more prevalent on the railroads, analysis of the periodic position messages and the event recorder data logs will enable locomotive operators to assess their asset utilization and compliance with operating rules, Maynie said. Future enhancements via additional communication pathways and the integration of wayside equipment status information will give railroads "an overview of their entire rail network and allow them to proactively plan for the optimum movement of trains across the network," he said.

IONX L.L.C.

IONX L.L.C. offers the IONX Edge® and Connect® asset monitoring systems that enable railroads to track and monitor rail cars and locomotives, respectively. IONX systems include a communication management unit, status and event sensors, and a user-friendly Web interface. The systems employ satellite and cellular technology to provide "the best coverage possible," according to a statement posted on the company's Web site.

For locomotive and fleet vehicle monitoring, IONX Connect can: detect excessive idle times with immediate violation alerts; track fuel use, including refuel locations and amounts; monitor overspeed impact via an internally mounted accelerometer; and detect speed violations and "run down," the latter being an option for remote-control-equipped locomotives.

For rail car monitoring, the IONX Edge system features ultra-low power telematics technology to monitor and track freight car assets. The IONX system is designed to deliver location and condition status reports via satellite or cellular connections to help shippers and others improve shipment safety, security, turn cycles and fleet utilization. Sensors can monitor load, hatch status, temperature and pressure status.

"Whether a car is empty or loaded and to what extent it’s loaded has implications for the service environment and the service life of certain components, as well as implications for assets utilization and velocity," says Patrick Ameen, vice president and general manager of IONX, a business unit of Amsted Rail.

The company's most recent addition — IONXlive Interactive Dashboard for Locomotives — enables train operators to get a "complete bird's eye view" and drill into the specific metrics, says William LeFebvre, IONX's chief technology officer.

Lat-Lon L.L.C.

Lat-Lon L.L.C.'s latest onboard monitoring device is the LMU2, a second-generation locomotive monitoring unit designed for short lines and switching locomotives, says Chief Executive Officer David Baker.

The LMU2 features three-axis impact detection and two control relays. Per customer request, the LMU2 also has more inputs than the LMU, including 12 digital and four analog inputs. LMU customers quickly used up their four inputs, so Lat-Lon decided to expand the number with the LMU2. "We thought, "Let's just put more in there and not have people worry about it,"" Baker says.

Lat-Lon also offers a solar tracking unit and customers can opt for up to 10 wireless sensors that can track hatches, valves, temperature and more. The company recently launched a Web site that's formatted for mobile use: "It's designed to be easily readable and usable via cell phone, BlackBerry or iPhone-type devices. The site can tell operators where a train is at any given moment," Baker says.

New York Air Brake Corp.

New York Air Brake's Locomotive Engineer Assist Display Event Recorder (LEADER) is a real-time onboard monitoring tool designed to enhance the locomotive engineer's train-handling capability. LEADER helps engineers make critical evaluations of operating parameters and can "greatly increase fuel efficiency, reduce equipment wear, and promote more profitable procedures and techniques," the company says.
With LEADER, every train trip is recorded and the engineer's performance is measured so that information can be analyzed to see how well the train is meeting specific safety, speed and operating criteria.

"What we're all about is optimized train handling, with a view to optimizing energy usage by looking at all the energy used or put into a train — either by man with fuel or Mother Nature by going down a hill," Beck says.

If a railroad can eliminate the differences among engineers and crews in the way a train is operated, it's possible to reduce fuel usage by 15 percent on a typical train, he says.

There isn't much a railroad can do to lower the amount fuel being consumed when a train is on a flat route for several hundred miles, Beck says, "but when it comes to train handling, anticipating where you use momentum and keeping the speed modulated, there are many things you can do to address the energy issue."

Railhead Vision Systems

Railhead Vision Systems offers digital video recorders, products the company has improved through the introduction of H.264 compression for better video quality and smaller bandwidth for wireless use, said Tom Poulsen, director of sales and marketing, via email. Railhead also is working on onboard monitoring equipment that can withstand head-on collisions.

"It is important that the equipment used in the rail industry is shock dampened and fire resistant," Poulsen said.

Meanwhile, Railhead earlier this year received a contract from Southern California Regional Rail Authority's Metrolink to install inward-facing cameras on all locomotives and cabooses. The cameras will record activities of engines and other train staff for forensics and investigative purposes, and be used to deter the "type of unauthorized activities" identified in the September 2008 Chatsworth, Calif., accident investigation, Metrolink officials said in a prepared statement. The contract marked the first time Railhead had been asked to monitor the audio and video within the cab of the locomotive, Poulsen said.

As the technology evolution continues, customers can expect to see lower acquisition costs, higher frame rates, increased storage from solid state technology and live video, Poulsen said.

"They are also going to be interested in obtaining as much information as possible in one simple and easy-to-use software format," he said, adding that Railhead has partnered with other companies that provide these features.

Ultra-Tech Enterprises Inc.

Ultra-Tech Enterprises Inc.'s newest onboard monitoring offering is a continuous Onboard Hot-Bearing Detection (HBD) Unit.

"The primary function of the HBD Unit is to monitor the temperature of the eight wheel bearings of the car via sensors located at each wheel bearing and to provide a total warning system in the event of a fault within itself, or any one of, or all of the bearing sensors," Ultra-Tech Enterprises President Paul Benton said in an email.

Simultaneously, the self-contained, microprocessor-based unit will signal local audible/visual and train-line alarms for over-temperature wheel bearings or for system failure.

Looking ahead, Benton expects 2010 to be "very promising." in part due to pent-up demand.

Wi-Tronix L.L.C.

Wi-Tronix' L.L.C.'s Wi-Tracker tracks asset locations via an onboard GPS and reports information via wireless communications. Location data is coupled with the company's Universal Event/Data Recorder Interface technology to provide a complete and up-to-the-minute mobile asset "snapshot," the company says. Information is available via a secure Web site and integrated mapping tools.

With the Wi-Tracker, speed, throttle position, direction and more can be monitored, tracked and updated using wireless, satellite or cellular technologies, notes Fred Cozzi, vice president of sales and marketing. Amtrak uses all three technologies, while many Class Is use cellular technology, he adds.

"And since we interface to event recorders, we can let the back office know about items such as speed," Cozzi says. "We are also interfaced with camera systems, making sure a camera is recording properly. We interface with all types of different components."

Earlier this year, Wi-Tronix obtained a contract from Amtrak to provide remote monitoring systems for the national intercity passenger railroad's entire fleet of diesel-electric...
locomotives. The supplier will provide a complete turnkey system that will include the Wi-Tronix Wireless Processing Unit, Wi-Fuel Sensor, Wi-Fuel Display, Wi-Cab Display, and Locomotive Digital Video Recorder and Camera. Wi-Tronix also will install the 282 systems on GE P38-8a, P42s GeReas and EMD F59-PhI locomotives.

Wi-Tronix is at the "cutting edge" of technology, looking to help railroads wherever it can. Cozzi says. For example, a railroad that routes trains through California, which has strict locomotive emission regulations, can monitor emissions and fuel burn while traveling in the state.

"We can monitor for locomotive utilization inside the set perimeter determining how much fuel was burned in the state," Cozzi says. "This enables the customer to report exactly how much fuel they burned while in the state and enabling them to only pay for the tax for that amount."

**ZTR Control Systems**

ZTR Control Systems offers SmartStart II, an updated version of the company's SmartStart, an automatic engine shutdown/startup idle reduction technology.

SmartStart II meets the U.S. Environmental Protection Agency's requirements regarding emissions on remanufactured and new locomotives that took effect in January. Under certain conditions, SmartStart II limits idle time to 30 minutes. With the new SAVER option, remote data downloads allow for automated reports on fuel savings, emission reductions and any maintenance needed to improve shutdown time, according to information provided by the company.

Now more than ever, railroads are looking for ways to reduce costs, including fuel costs, and comply with emission requirements, says Len Auer, marketing manager for ZTR Control Systems.

"Customers are going to be ready when the economy picks back up to make the investments," he says. "We're seeing customers who are really being able to define how the investment will reduce their costs, and that's the real point at which the investment begins to make a lot of sense to them."  

Desiree J. Hanford is a Chicago-based free-lance writer.

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Cellular device detection system

November 5, 2013 by lcblet5 | Leave a comment

Brothers and Sisters,

UPDATED.... 02/01/13

This wi-tronix system is here in Los Angeles. We have not seen them on Union Pacifics locomotives YET!, but the Second out Unit which was a BNSF Locomotive on the ZCIG1 was equipped with this device. turn your phone off. Do not use the internet PERIOD. You will lose your job over this! It's not worth it.
the next phase of big brother is here...leave the cell phones /ipads or any other electronic devices off and stowed.

please click on the link below

Wi-Tronix
This is some advice from a FELA attorney on the subject of cellphones

The alarm is sounding again regarding cell phone use while on duty on the railroad. The cell phone rules on the railroad have not changed, but the railroads have devised a new approach to ensnare unwary railroaders.

TRIED AND TRUE RECOMMENDATIONS

Given the severe penalties regarding cell phone use while on duty, we recommend you leave your cell phone in your vehicle or locker when you come on duty. As that isn’t always practical, we also advise if you absolutely must have your cell phone on your person or in your grip, be aware your cell phone could be electronically detected by the railroad or the Federal Railroad Administration (FRA) inspectors. These facts still holds true.

NEW CELL PHONE TRAP

As discussed throughout the industry, railroad officials and/or FRA inspectors have boarded trains and asked to see railroad workers' cell phones. In most of those situations, the railroaders' cell phones were “off” and, therefore, there were no problems. When the cell phones were “on”, railroaders tried to offer legitimate reasons as to “why” the cell phones were in use. - You must remember that you
can be fined by the FRA even if the railroad gave you the “o.k.” to use your cell phone.

The new trap set by the railroads is that after a supervisor has asked to see your cell phone and finds it is “off”, the official will ask you to turn it “on” and show him the “placed and received” calls and “text” screens to determine if you used your cell phone while on duty. If you used your cell phone while on duty, disciplinary charges will probably follow.

The issue raised is whether you are obligated to turn on your cell phone and show the screens? At the time of this publication, we have not been able to find a rule addressing this cell phone issue.

WHAT YOU SHOULD DO

If you comply and your cell phone shows usage while you were on duty, your railroad career can be as good as over unless you are within one of the permissible reasons to use a cell phone on duty.

If you refuse to show your cell phone to a railroad officer when asked, you will surely face charges of insubordination and/or failure to comply with instructions. If you are asked by a FRA inspector, you may be subject to a monetary fine.
Either way you lose.

We recommend you take the cell phone battery out when you go on duty and put it back in when you go off duty. This way you can’t receive an unwanted call or text, but you still have the battery available if you are in a situation where cell phone use on duty is allowed. Now, you can show the battery-less cell phone to anyone without fear of discipline or fines.

If you have a smart-phone where removing the battery is difficult, your only protection is to not have the smart-phone with you... our original recommendation. Putting your smart-phone in airplane mode will not protect you. If you must have the smart-phone with you, the best advice I can offer is do not place or answer any calls or text while on duty.

While I believe there may be an interesting discussion of Constitutional protection for you concerning your cell phone, it is simply not worth the risk of finding out the hard way. Remember when it was argued that inward facing cameras on a locomotive were an invasion of your right of privacy? Recent court decisions have held that railroaders do not have a reasonable expectation of privacy while in the cab of a locomotive. The same reasoning could hold true for cell phones on the railroad.