

DECLARATION OF NATHANIEL E FRANK-WHITE

1. I am a Records Request Processor at the Internet Archive. I make this declaration of my own personal knowledge.

2. The Internet Archive is a website that provides access to a digital library of Internet sites and other cultural artifacts in digital form. Like a paper library, we provide free access to researchers, historians, scholars, and the general public. The Internet Archive has partnered with and receives support from various institutions, including the Library of Congress.

3. The Internet Archive has created a service known as the Wayback Machine. The Wayback Machine makes it possible to browse more than 450 billion pages stored in the Internet Archive's web archive. Visitors to the Wayback Machine can search archives by URL (i.e., a website address). If archived records for a URL are available, the visitor will be presented with a display of available dates. The visitor may select one of those dates, and begin browsing an archived version of the Web. Links on archived files in the Wayback Machine point to other archived files (whether HTML pages or other file types), if any are found for the URL indicated by a given link. For instance, the Wayback Machine is designed such that when a visitor clicks on a hyperlink on an archived page that points to another URL, the visitor will be served the archived file found for the hyperlink's URL with the closest available date to the initial file containing the hyperlink.

4. The archived data made viewable and browseable by the Wayback Machine is obtained by use of web archiving software that automatically stores copies of files available via the Internet, each file preserved as it existed at a particular point in time.

5. The Internet Archive assigns a URL on its site to the archived files in the format http://web.archive.org/web/[Year in yyyy][Month in mm][Day in dd][Time code in hh:mm:ss]/[Archived URL] aka an "extended URL". Thus, the extended URL http://web.archive.org/web/19970126045828/http://www.archive.org/ would be the URL for the record of the Internet Archive home page HTML file (http://www.archive.org/) archived on January 26, 1997 at 4:58 a.m. and 28 seconds (1997/01/26 at 04:58:28). The date indicated by an extended URL applies to a preserved instance of a file for a given URL, but not necessarily to any other files linked therein. Thus, in the case of a page constituted by a primary HTML file and other separate files (e.g., files with images, audio, multimedia, design elements, or other embedded content) linked within that primary HTML file, the primary HTML file and the other files will each have their own respective extended URLs and may not have been archived on the same dates.

6. Attached hereto as Exhibit A are true and accurate copies of screenshots of the Internet Archive's records of the archived files for the URLs and the dates specified in the attached coversheet of each printout.

INTERNET ARCHIVE
archive.org

7. I declare under penalty of perjury that the foregoing is true and correct.

DATE: September 14, 2023

Nathaniel E Frank-White

Nathaniel E Frank-White

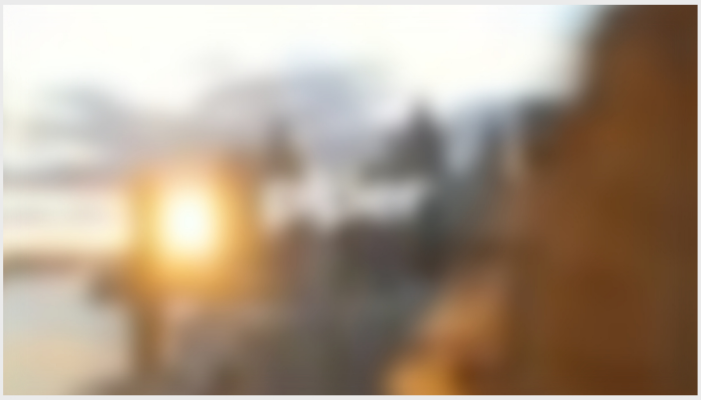
EXHIBIT A

https://web.archive.org/web/20211026212904/https://www.pipernetworks.com/asset-tracking-rtls-solutions/

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Reliably Innovative Transit Solutions

Piper Networks is an innovative rail engineering solutions provider and systems integrator specializing in the development of transportation technologies. We have four primary product lines that serve the industry, including: Vital Train Positioning, Maintenance of Way (MOW) Protection, Automatic Train Protection (ATP), and Passenger Information Display Systems (PIDS). Our proprietary Ultra Wideband (UWB), GPS-RTK, and patent-pending TrackSight™ LiDAR image positioning technology are designed to operate in some of the most challenging transportation environments while maintaining pinpoint accuracy that improves performance for train operators and train control suppliers.



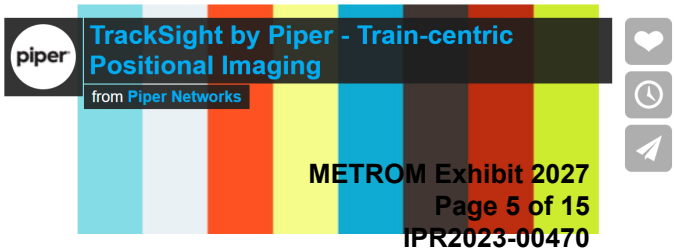
Vital UWB Train Positioning

Piper has developed the world's first SIL4 Safety Certified Ultra Wideband (UWB) Positioning System. Piper's ETLS™ (Enhanced Transit Location System) uses UWB Technology to track the location and movement of trains, vehicles, equipment, people and other objects in real-time for various location awareness needs. Piper believes that the use of UWB in train control systems is an important evolutionary leap forward for signaling. Because UWB equipment is installed on the wayside and in the interior control cabinets on the train (as opposed to the track bed and the undercarriage of the rolling stock), the positioning systems required to manage train headways can be deployed faster, at lower cost, and with minimal disruption.

Download Whitepaper to Learn More

TrackSight™ LiDAR Positioning

TrackSight™ is Piper's latest innovation that employs patent-pending positional imaging to determine the location of trains and other vehicles within transit systems. The train-centric



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solution is the next evolutionary step that moves rail operations from the trackbed to the train itself which makes deployments and maintenance faster, safer and more cost effective. TrackSight™ is a fully deterministic solution that uses Piper's Solid State LiDAR technology to compare real-time imaging to an onboard database. It can also be installed alongside UWB and provide consistent and redundant positioning data to an onboard CBTC system. And because it requires no track or wayside components, installation and maintenance costs are dramatically reduced.

Download Whitepaper to Learn More





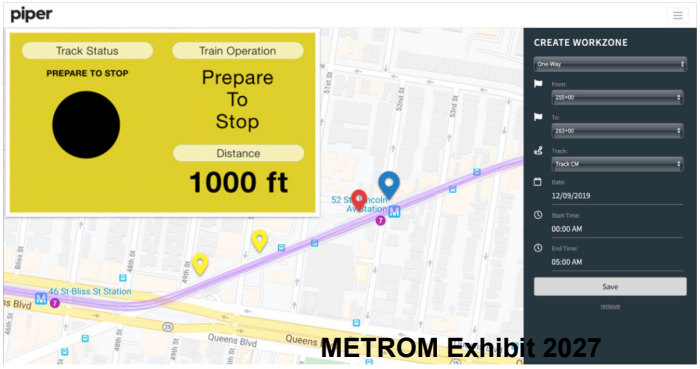
Helix™ MoW Solutions

Helix™ is an advanced, multi-sensor Limits Compliance and Collision Avoidance System (LCCAS) that uses LiDAR, UWB and other positioning technologies. The Maintenance of Way (MoW) safety solution allows for fleets of rail-bound and hi-rail equipment to be accurately detected and tracked on the railroad in real-time, thereby reducing the potential for worker injury, equipment damage, and operational disruptions resulting from accidents or major rule violations. The solution provides: Limits Compliance, Collision Avoidance, Collision Detection, Object & Worker Detection, Live HD Video, and Real-Time Employee-in-Charge & Operator Communication.

Download Whitepaper to Learn More

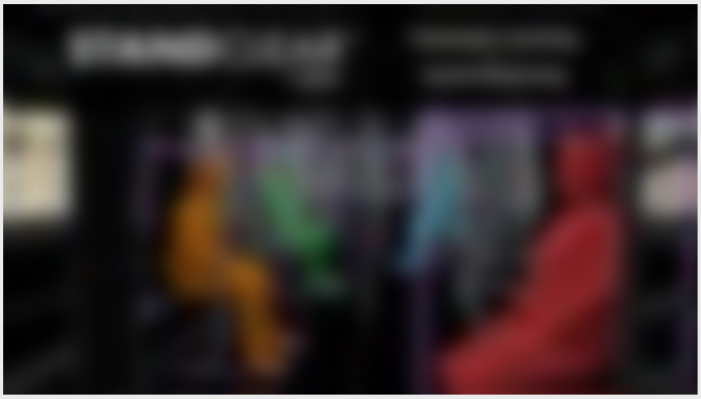
SecureTrack™ Work Zone Awareness

Piper's SecureTrack™ solution allows for remote, real-time set up of dynamic work zones. An in-cab alerting system delivers audio/video alerts to train operators indicating proximity to the approaching flagging points. Railway workers are positioned in the system with the use of UWB wearables on their PPE that communicate passively with a portable base station. Track



work leaders are issued ruggedized handheld Android devices so that they can communicate directly with the train operator, letting them know when they can release the train and resume movement. The system was designed in accordance with industry standard flagging rules.

Download Whitepaper to Learn More



StandClear™ Passenger Counting

Piper has introduced a new social distancing solution called StandClear™ that will renew confidence for passengers to return to mass transit. StandClear™ is a passenger counting solution, designed specially for transit agencies, that uses LiDAR to detect train car crowding. The solution uses Piper's Solid State LiDAR technology to capture passenger crowding on trains and platforms. It does so without compromising Personal Identification Information (PII) or by capturing facial recognition information. The valuable data is communicated in real-time to riders via mobile applications and our newest innovation, LED light pipes on the platforms. This information will direct passengers where they can stand so they can choose to board less crowded cars and improve their social distancing efforts.

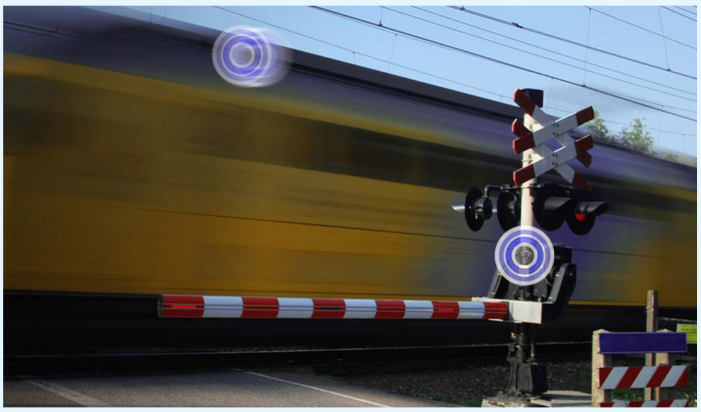
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Track Worker Safety

Two-way communication between devices on trains and wearables worn by workers trigger safety alarms and lights to warn of the proximity between trains and workers. Flashing strobes in the cab and on worker armbands or vests create simultaneous passive alerts to help avoid injuries. This same technology can be used to locate workers in the event they are lost or incapacitated.



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Grade Crossing Detection

Piper's Grade Crossing Detection system uses Ultra-wideband and LIDAR to detect if people or vehicles that are entering a grade crossing could potentially cause a safety issue. Ultra-wideband devices on the train and at the crossings communicate with each other in real-time and trigger the train and operator to follow the appropriate safety protocol.

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About this capture

ETLS & Asset Tracking Solutions

Piper's proprietary technology, dedicated talent, and desirable partners enable us to help transportation customers reach their asset tracking goals with confidence. Our experience with on-board systems integration and thorough understanding of Ultra Wideband (UWB), Bluetooth Low Energy (BLE) and other RTLS technologies like RFID has led to successful deployments for major transit authorities. Piper's new Enhanced Transit Location System (ETLS) is also designed specifically to meet the challenging requirements and environments of railway systems.



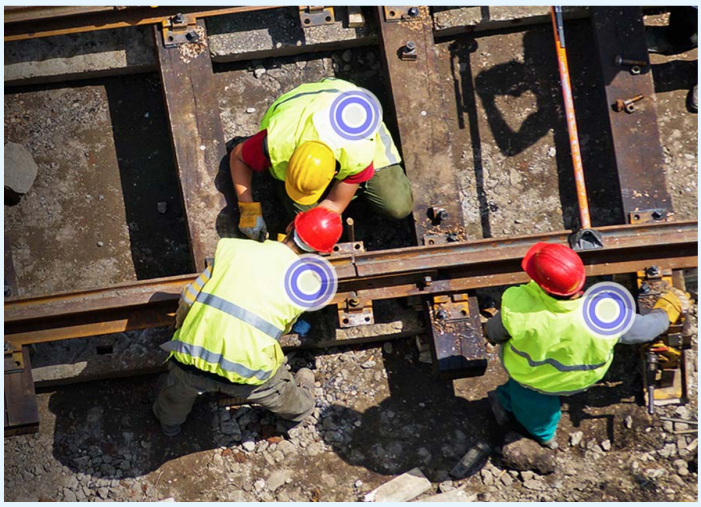


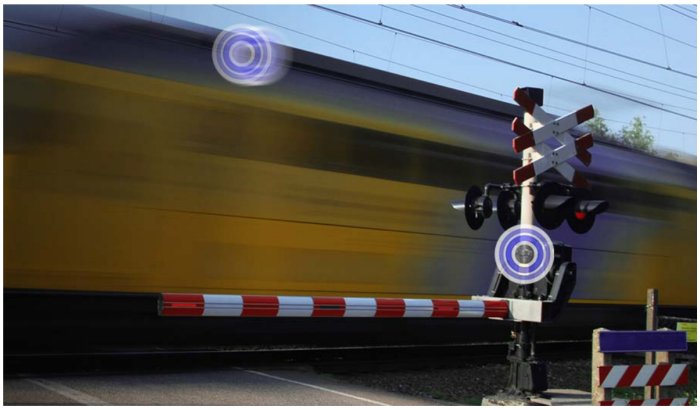
ETLS Train Positioning

Piper Networks ETLS (Enhanced Transit Location System) helps transit authorities track the locations of their trains to within 10cm and in real-time. Rail and subway clients can use this data to run trains closer together and more frequently which increases rider throughput. They can also use the data for countdown clocks that predict when trains will arrive at stations, and for improving safety of track workers and grade crossings.

Track Worker Safety

Two-way communication between devices on trains and wearables worn by workers trigger safety alarms and lights to warn of the proximity between trains and workers. Flashing strobes in the cab and on worker armbands or vests create simultaneous passive alerts to help avoid injuries. This same technology can be used to locate workers in the event they are lost or incapacitated.





Grade Crossing Detection

Piper's Grade Crossing Detection system uses Ultra-wideband and LIDAR to detect if people or vehicles that are entering a grade crossing could potentially cause a safety issue. Ultra-wideband devices on the train and at the crossings communicate with each other in real-time and trigger the train and operator to follow the appropriate safety protocol.

Data Communications

Piper's proprietary methods utilize Ultra-wideband and Bluetooth Low Energy technology to effectively communicate information for your mission critical applications. Our team of engineers have produced reliable communication systems in some of the most challenging environments, like subway tunnels, and can adapt it to your requirements.





Warehouse Asset Tracking

Track your assets in real-time using our online dashboard with map-based interface for easy visualization. Generate automatic reports, activate alarms or alerts, and search for assets instantly with at-a-glance views. Choose from a variety of low cost devices with various form factors and power options.

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Grade Crossing Enhancement Systems
- Crossing Warning Enhancement System (CWE)

Track Monitoring Systems
- SenTrack™ Track Monitoring System

Vehicular Collision Avoidance Systems
- AURA™ Collision Avoidance System

Communication Tower Systems
- 32' Folding Communication Tower

Weather Protection Systems
- Ice & Snow Breaker

Custom Solutions

AURA™ Collision Avoidance System

A WORK VEHICLE SAFETY AND PRODUCTIVITY TOOL

The Metrom Rail AURA™ System is designed to safeguard railway work equipment and operators by detecting spacing of work vehicles to a resolution of just inches. The system offers the flexibility of operator-defined detection and alarm criteria, with integrated, expandable hardware options and the ability to function in all environments and terrain – even tunnels.

AURA™ also offers several productivity tool options, such as: location tracking, key machine function monitoring, and remote data reporting (spreadsheet or custom database) capabilities.

The system is designed for installation into current legacy equipment, and also new vehicles from the production floor.

CALL US: 855.943.8726

Or contact us to learn more about our products & services.

DOWNLOADS

System Specifications (PDF)

INDIVIDUAL COMPONENTS



USER INTERFACE (UIM)

Features a 2 x 16 alpha numeric display for messages and programming, numeric displays of following distances both front and rear, variable audio feedback for alarms, indicator lights for alarm conditions, tactile feedback control panel, contained within an aluminum housing.



CONTROL ELECTRONICS MODULE (CEM)

Utilizing sealed automotive grade connectors, the UIM, TSM and 2.4 GHz radio interface with this main control module which is mounted within the cab of the vehicle. This module also contains expansion ports for connection to work vehicle sensor inputs which can be utilized for productivity measurements.



TRANSMITTER / SENSOR MODULE (TSM)

Located on the roof of the work vehicle, this module contains the Ultra Wide Band (UWB) radio system, and GPS modules. Constructed of aluminum and specific molded Radome materials, this module is installed upon a modular base which can accommodate all vehicles and mounting locations.

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