

Humatics and Hitachi Rail successfully complete Advanced Train Odometry Solution pilot to create an enhanced digital railway

Waltham, MA (June 21, 2022) - Humatics in partnership with Hitachi Rail, are pleased to announce the successful completion of a year-long pilot project evaluating the technical and economic benefits of the Humatics Rail Navigation System (HRNS).

The HRNS is the industry leading navigation system based on sensor fusion algorithms that leverage the optimal sensors to solve challenging navigation problems for automated rail vehicles. Ultra Wideband (UWB) along with sensors such as Inertial Measurement Units (IMU) and GNSS are fused together to provide incredibly precise position, direction, speed, and acceleration data to train control systems such as CBTC, PTC, and ERTMS.

The key potential benefits from the partnership could include:

- Reduced installation, inspection, and maintenance costs by eliminating difficult to access under train equipment and the need to install balises in the middle of the track
- Faster retrofitting of vehicles – cut from around a month to less than a week – in preparation for CBTC brownfield projects due to easier installation of HRNS equipment
- Reduced system tuning activities and commissioning time
- Improved odometry accuracy since the system is not affected by slip and slide phenomena
- Simplifying brownfield depot modernizations
- Enabling advanced functions such as integration with platform screen doors and other precision scenarios.

The project scope included deploying the HRNS on 1.5km of Hitachi Rail's test track in Naples, Italy and on one test vehicle, integrating with a Hitachi Rail Communication Based Train Control (CBTC) simulator and completing a series of test cases to determine positioning and speed performance—all of which were successfully completed on schedule and remotely across 6 time zones due to the coronavirus pandemic.

The results were then compared to highly accurate ground truth sensors and evaluated against Hitachi Rail's CBTC requirements. Based on this analysis, Hitachi Rail concluded that not only did the HRNS meet all CBTC odometry requirements but also identified several additional value-added applications where the HRNS sensor fusion technology will provide a competitive advantage and additional features over traditional solutions.

“This is an incredible milestone for Humatics and Hitachi as we both look to provide innovative solutions for the signaling industry.” says Shawn Henry, Chief Executive Officer of Humatics. “Both teams overcame incredible challenges that forced us to find ways to get things done while being apart to achieve these impressive results. Humatics looks forward to continuing our



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excellent partnership with Hitachi and offering innovative signaling solutions for our mutual customers.”

Humatics was identified, evaluated and selected as the best technical and most cost effective solution through a competitive procurement process to evaluate next generation odometry solutions. Humatics and Hitachi Rail are actively moving forward on next steps to bring the joint solution to market and to prove its capabilities for other applications.

Leonardo Impagliazzo, Chief Director, Digital & Innovation, Hitachi Rail, said:

“The Humatics Rail Navigation System is a viable option for future integration with Hitachi Rail’s CBTC signalling systems, and part of our wider Digital Railway strategy. We also see its potential application with Global Navigation Satellite System (GNSS) based signaling systems such as Positive Train Control (PTC) and European Rail Traffic Management System (ERTMS) and for light rail, monorail, and people mover applications. In addition to technology, the execution, delivery, and collaboration with our team sets Humatics apart as an innovative leader in the industry and we look forward to continuing to collaborate.”

In addition to these key benefits Humatics HRNS technology provides cost and operational efficiency advantages and benefits over traditional legacy systems from signaling system Installation and Commissioning, Operational efficiency, Maintenance and Sensor fusion capabilities for incorporating value-added capabilities and efficiency improving features to the end solution.

About Hitachi Rail: Hitachi Rail is a fully integrated, global provider of rail solutions across rolling stock, signalling, service & maintenance, digital technology and turnkey solutions. With a presence in 38 countries across six continents and over 12,000 employees, our mission is to contribute to society through the continuous development of superior rail transport solutions. We are proud of our global achievements, from our world famous ‘bullet trains’, to our signalling solutions and turnkey projects, state-of-the-art traffic management and digital solutions. Drawing on the wider Hitachi Group’s market-leading technology and research-and-development capabilities, we strive for industry leading innovations and solutions that can deliver value for customers and sustainable railway systems that benefit wider society. For information about Hitachi Rail, visit www.hitachirail.com.

About Humatics

Founded by world leaders in AI-assisted piloting, autonomous navigation, and high-precision radar, Humatics is headquartered in Waltham, Massachusetts with an office in Huntsville, Alabama. The Humatics team is composed of world-renowned navigation experts and transit industry veterans who create breakthrough navigation solutions including the HRNS, which enables transit systems to precisely locate their vehicles using advanced sensor fusion algorithms and integrate with train control systems. Customers use Humatics’ systems to solve mission-



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critical localization and navigation challenges in harsh environments where other technologies fall short such as in metros or urban rail transit.

For further information please see: https://humatics.com/mobility_solutions/ or contact transit@humatics.com