

FOR IMMEDIATE RELEASE

Next generation vegetation and infrastructure digital monitoring trialled on East Coast Main Line



- 12-month Network Rail pilot project underway to automate detection of potential hazards such as overhanging trees, leaves and subsidence that risk disruption.
- ‘Front-Facing CCTV’ digital monitoring will optimise safety and maintenance of infrastructure and vegetation using AI technology from CrossTech.
- Digital asset monitoring project has been facilitated by Hitachi Rail, applying CrossTech technology to LNER Azuma trains.

London, July 15, 2024 – Network Rail, LNER, CrossTech and Hitachi Rail are collaborating to trial the latest in digital asset monitoring to observe the natural environment and track, including vegetation and embankments.

Monitoring areas in real-time further enhances safety, helping detect potential hazards like overhanging or invasive tree species, leaves on the track, or embankment subsidence that could cause harm or delays. Network Rail previously [estimated](#) that vegetation-related incidents cost up to £3 million annually in the Southern region alone.

The new forward-facing CCTV camera (FFCCTV) has been installed inside the driver’s cabin of a LNER Azuma train for the 12-month trial, which started in May. The operational Azuma train now has a key role in digitising infrastructure monitoring and maintenance on the East Coast Main Line. This solution uses the very latest in Artificial Intelligence (AI) camera sensor technology.

Automating the detection of potential hazards, combined with pinpointing where maintenance is necessary, enables a proactive approach to infrastructure maintenance. Equally, the trial will provide insights and guidance to optimise when and where maintenance is needed on the East Coast Main Line.

Hitachi Rail is helping to convene the pilot project, using its digital supplier CrossTech. The UK SME is one of Network Rail’s AI technology success stories, using computer vision technology to live monitor tracks and the surrounding environment, via data that comes directly from the forward-facing video camera.

The FFCCTV monitoring solution was developed by combining CrossTech technology, with Hitachi Rail’s digital expertise to assist with integration, operations and customer interface.

This is an excellent example of a global rail business incubating and supporting British SME innovation.

FFCCTV is the latest development in a wider suite of Hitachi digital asset monitoring solutions which can live-monitor [tracks](#), [overhead lines](#) and [the train itself](#). These digital solutions, working either independently or in combination, allow for automated and more accurate monitoring to help modernise the railways.

Johanna Priestley, Route Engineer at Network Rail, said:

“Vegetation is the only living asset on the railway network and as such understanding the potential risk to trains is ever changing. Using forward facing footage allows us to ‘see’ from the driver’s perspective. We can use this technology to understand where vegetation is encroaching on the operational railway and at risk of making contact with either trains or fixed infrastructure such as overhead electrified wires. We can also identify where vegetation growth has compromised the driver’s view such as on the approach to signals or level crossings. This initiative will allow us to make passengers’ journeys more reliable and help minimise the risk of disruption on the network.”

Linda Wain, Engineering Director at LNER, said:

“At LNER, we are always looking at how we can further enhance our performance and innovate to provide our customers with an even better experience when travelling with us. We are delighted to be working with our industry partners on this digital trial, with technology fitted in the train cab that will provide real-time information and updates on infrastructure, helping to highlight any potential issues.”

Nick Hughes, Senior Director, Sales UK & Ireland at Hitachi Rail, said:

“We are proud to play a role in this digital monitoring solution which could reduce disruption and support more convenient journeys for passengers. The trial demonstrates how Hitachi Rail is a trusted partner to deliver value and collaboration which supports digital innovation and UK SMEs. FFCCTV is the latest in a series of digital asset monitoring solutions that together have the potential to revolutionise real-time data collection and visualisation by trains running across the UK, generating valuable insights that drive better decisions.”

Haydon Bartlett-Tasker at CrossTech, said:

“The team at CrossTech is thrilled to be working with our partners to introduce market-leading computer vision infrastructure inspection analytics to the East Coast Mainline. The project is a testament to our long-standing collaboration with Network Rail's Eastern and Southern Regions. It marks a significant advancement for frontline teams with passengers and freight customers continuing to benefit from Network Rail's adoption of forward facing CCTV computer vision technology to support a safer and higher performance railway.”

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Notes to Editors:

- FFCCTV demonstration video available to [download here](#).
- The FFCCTV digital monitoring solution will be able to detect:
 - Leaves on track
 - Overhanging trees
 - Invasive and hazardous tree species
 - Low ballast signal and level crossing and signal sightings
 - Embankment and track condition, including subsidence.

- Network Rail are sponsoring the pilot project. LNER, Hitachi Rail and CrossTech are delivering the trial.
- CrossTech FFCCTV technology has been trialled by Network Rail in their 'Hubble' project in the Eastern and Southern regions. More information can be viewed [here](#)
- FFCCTV will be installed on a Azuma train to ensure total coverage of the East Coast Mainline route.
- CrossTech technologies includes use of Intelligent Vision™ capability to detect trees and shrub species and habitats to help mitigate adhesion risk and support net biodiversity gain across the routes.
- More information on Hitachi Rail digital track monitoring [here](#).
- More information on Hitachi Rail intelligent bogie system [here](#).
- More information on Hitachi Rail digital overhead line monitoring [here](#).

Topics

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About Hitachi Rail:

Hitachi Rail is committed to driving the sustainable mobility transition and has a clear focus on partnering with customers to rethink mobility. Its mission is to help every passenger, customer and community enjoy the benefits of more connected, seamless and sustainable transport.

With revenues of over €7bn and 24,000 employees across more than 50 countries, Hitachi Rail is a trusted partner to the world's best transport organisations. The company's reach is global, but the business is local - with success built on developing local talent and investing in people and communities.

Its international capabilities and expertise span every part of the urban, mainline and freight rail ecosystems – from high quality manufacturing and maintenance of rolling stock to secure digital signalling, smart operations and payment systems.

Hitachi Rail, famous for Japan's iconic high speed bullet train, draws on the digital and AI expertise of Hitachi Group companies to accelerate innovation and develop new technologies. Hitachi Group is present in 140 countries with over 270,000 employees and global revenues of €54.55bn / ¥8,564 bn.

For more information, visit hitachirail.com

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