# Cordel unveils groundbreaking AI-powered autonomous infrastructure monitoring on High Speed One

March 25, 2024

In a significant leap forward for railway infrastructure management, Cordel is proud to announce that it has deployed a cutting-edge AI-generated Autonomous Infrastructure Monitoring system on the UK's High Speed One (HS1) line. This innovative solution, commissioned in February 2024, marks a new era in railway asset management and offers unparalleled efficiency and insight through end-to-end automation which has been tailored to the unique requirements of HS1.

Leveraging its extensive experience in railway operations and with a successful track record with passenger train installations, Cordel equipped a Network Rail High Speed multi-purpose vehicle with state-of-the-art hardware. This advanced system seamlessly transitions to data collection mode during movement, capturing high-resolution video and survey-grade LiDAR (Light Detection and Ranging) data. These data sets align with the network's linear reference system, creating a precise digital twin of the railway infrastructure that is updated monthly.
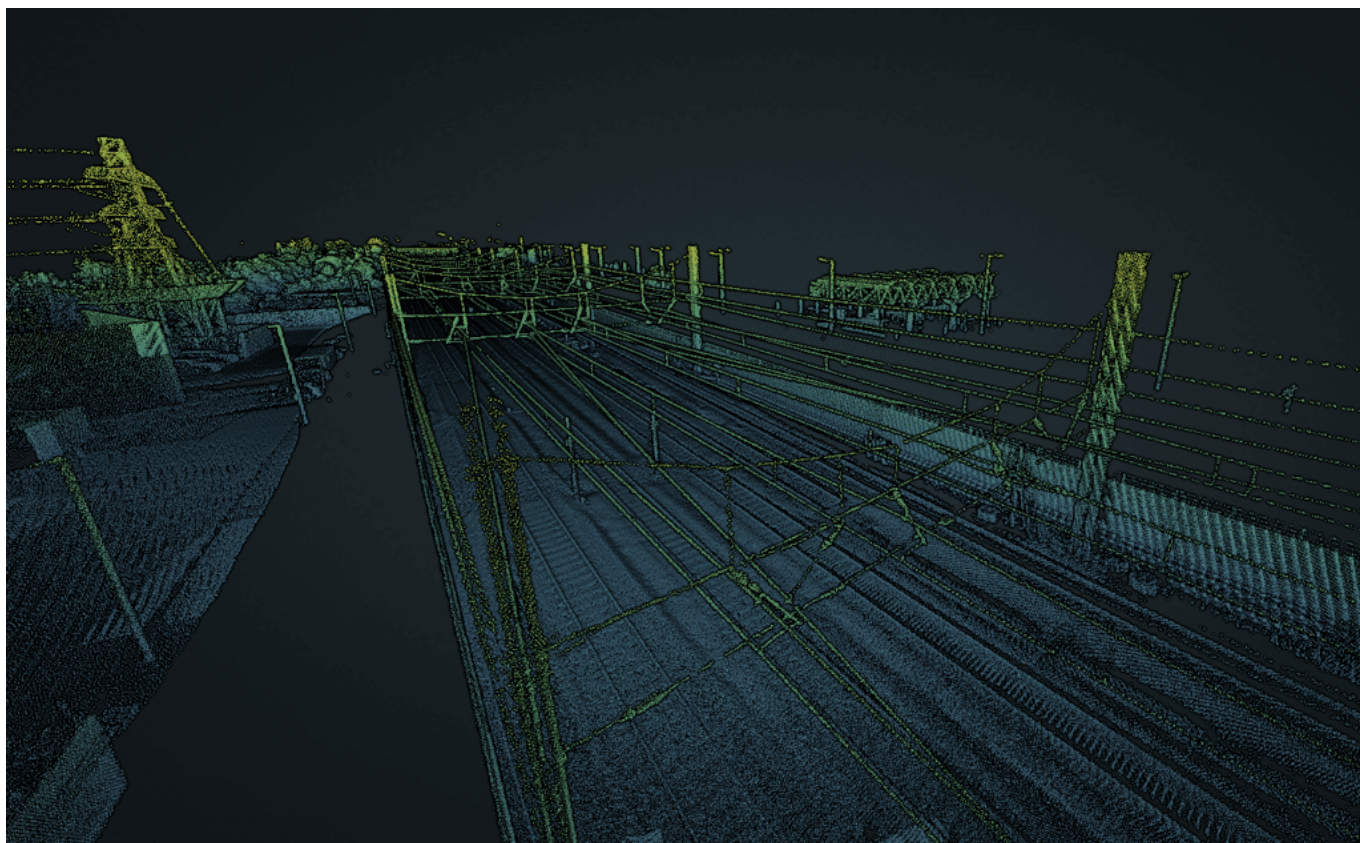
Credit: Cordel

At the heart of the solution is Cordel's proprietary AI platform, which transcends traditional data analysis by rapidly transforming raw LiDAR and video inputs into actionable engineering insights. Cordel's AI processing has been finely tuned to meet Network Rail High Speed's operational standards which focus on automating overhead line equipment (OLE) inspections. This approach ensures compliance with day-to-day standards and facilitates proactive asset management through precise change detection and trend analysis. There is also the added safety benefit of getting 'boots off ballast'.

Nick Smith, VP of Europe and Middle East at Cordel, emphasised the transformative impact of its AI-

powered solution: "Our work on OLE asset management represents a significant milestone in the automation of the industry. We are thrilled to offer this innovative solution to Network Rail High Speed, enabling high-frequency data capture and analysis for enhanced asset condition assessment and standards compliance.

Charlie Usher, Engineering and Safety Director at Network Rail High Speed, said: "At Network Rail High Speed we're committed to using research and development to explore innovative, safer and more efficient ways to maintain the high speed rail infrastructure. Working with partners like Cordel on automated infrastructure monitoring opens up possibilities to transform how we maintain and manage the railway into the future."

Cordel said that its deployment on HS1 exemplified its commitment to leveraging its in-house railway expertise and advanced data management capabilities. It added that, by integrating diverse data sources, its provides a comprehensive and actionable overview of railway infrastructure, aligning maintenance efforts with service requirements and paving the way for a more agile, automated future in rail inspection.