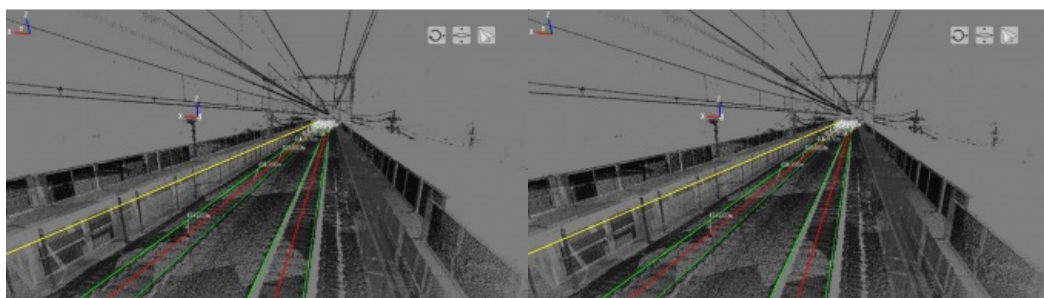


SITECO contributes to survey of Japan's Shinkansen railway network



Nippon Insiek and SITECO Informatica have announced the provision of an advanced road-scanner system to Japan's leading railway company, JR East, to support JR East's response to the quest for continuous innovation. This groundbreaking system will play a crucial role in monitoring the extensive 1,194.2km Shinkansen network on a regular basis. The joint project to develop a state-of-the-

art road-scanner system marks a significant milestone in SITECO's eight-year partnership with Nippon Insiek, a public service agency specializing in civil engineering, construction and a range of other public services.

In a rigorous testing phase spanning five years, the initial system was installed on a specialized experimental train provided by JR East. This unique platform facilitated the implementation and evaluation of innovative technologies. The newly introduced laser mapping system is set to be installed on a dedicated vehicle responsible for managing the Shinkansen network, connecting the Kanto, Tohoku, Joshinetsu and Hokuriku regions.

Executing this project presented numerous challenges for [SITECO Informatica](#) and Nippon Insiek engineers. The intricate process involved mounting laser scanners and cameras at the rear of the wagon, positioned 15m away from the controller rack situated in the cabin on the opposite side. Adherence to strict Japanese railway regulations governed the assembly and installation of the wiring.

Top-of-the-line components

A bespoke application release was developed specifically for this project, offering full automation to minimize operator effort during missions. To address challenging GPS outage conditions along the survey trajectory and in the initial and final phases within railway stations, new features were incorporated for effective data collection.

The system's integration featured top-of-the-line components available in the market, including [Applanix POS LV 620](#), [Z+F 9020](#) laser scanners and a highly responsive Baumer camera adaptable to low light conditions, ensuring optimal performance.

Collaborative testing

Testing of the inspection system, situated on the experimental train, was conducted collaboratively with JR East engineers. Despite the challenges posed by the COVID-19 pandemic, the implementation and testing phases were completed in 2020-2021 without significant delays.

The successful outcome led to the system's endorsement for systematic surveys across the entire railway network, commencing in 2024. This achievement reflects the exceptional teamwork and expertise of the personnel involved, meeting the stringent Japanese railway requirements and surpassing the expectations of all stakeholders.



Point cloud imagery captured by SITECO's advanced road-scanner system. (Image courtesy: SITECO)