

SLC Rail leverage digital twin for in-house design validation



Above SLC's digital twin of the site created using a 3D pointcloud visualised overlaid with CAD designs.

Challenge

SLC has worked on a feasibility study looking at enhancing maintenance and stabling capacity at an existing depot on behalf of a Train Operating Company (TOC). Given the multitude of existing operational assets and constraints, the project team wanted the ability to co-ordinate and validate proposed design concepts against a real-life photorealistic representation of the site and various assets.



Sensat's digital twin enables us to identify key risks and interfaces at an early stage, and gave the ability to easily highlight and communicate these to the client and stakeholders.

Andrey Smirnov

Principal Engineering Manager at SLC Rail



Solution

The forward-thinking team partnered with Sensat to create a 2D and 3D digital twin of the site, accessible from any desktop. Today it is being used by estimators, project managers, and engineers to create a single, visual environment to enhance decision-making.




A base map of the real world has been captured, visualised, and overlaid with project data and CAD designs. Using the digital twin environment, SLC test and review concept designs in-house without producing full drawings, thereby reducing time spent on developing unviable options. By integrating information sets in a real-world context, SLC is reducing data access barriers and unforeseen risk arising later on in the project.

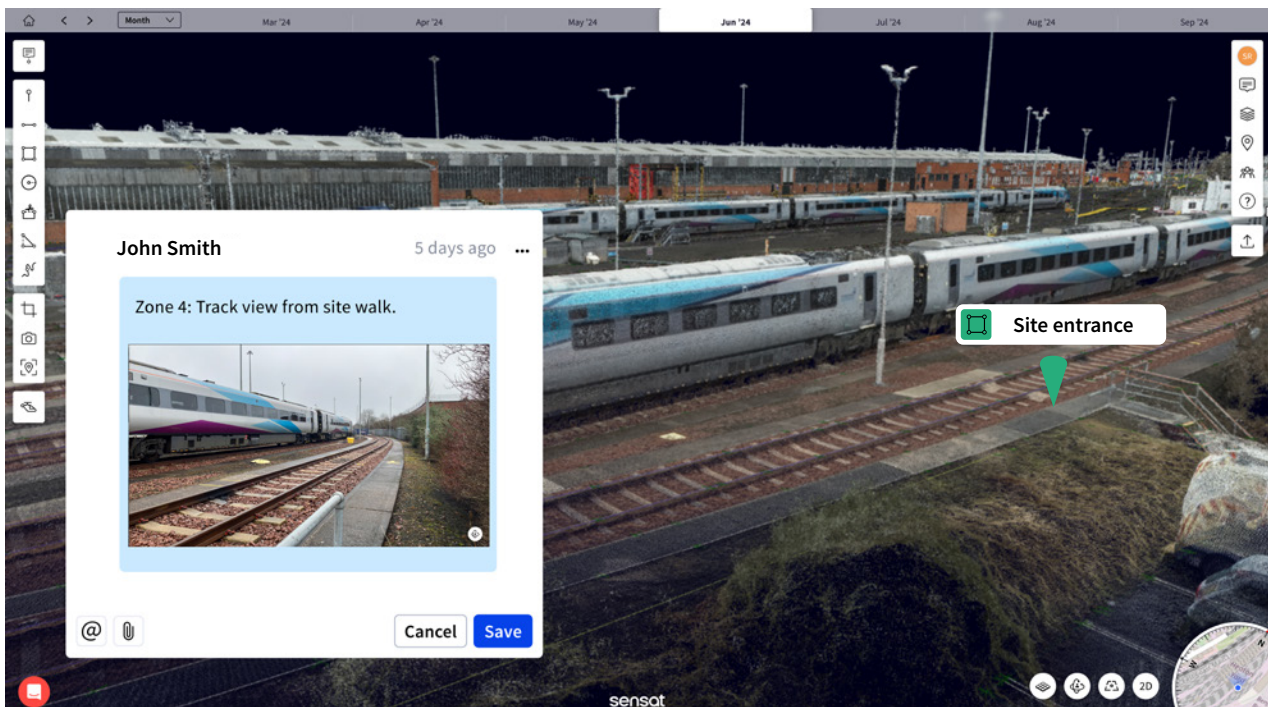
In one instance a fixed constraint (a fixed mast) was spotted in the 3D environment which was not shown in other constraint data. Teams were able to take this into design consideration from early-on which otherwise may have been spotted later down the line, slowing down design.

The digital twin environment not only aids teams in determining the best design options but also helps minimise the need for in-person site visits, enabling remote measurement and annotation of the project site from anywhere. This remote capability enhances safety, saves time, and reduces the need for track possession. When site visits are necessary, SLC uses Sensat’s Mobile App to capture and tag site constraints directly on the map.

SLC’s enterprise-level partnership with Sensat unlocks the capability to have multiple project sites hosted in Sensat. This provides a comprehensive and collaborative access to projects increases confidence and minimises risk by providing a clear, accessible, and collaborative environment for all stakeholders. ■

Use cases

 <h4>Remote site visits</h4> <p>Teams are minimising time spent boots on ballast by accessing a digital twin of the site from their browser. This helps to improve health, safety and efficiency where possible.</p>	 <h4>Constraint identification</h4> <p>The team use Sensat’s mobile app during track walks to upload and tag images within the digital twin environment, for better risk identification and communication.</p>	 <h4>Design validation</h4> <p>Design options are uploaded, and tested, against a backdrop of the real-world environment. This rigorous testing using reality enhances the quality of design output and decision-making.</p>
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Above SLC tagging photo locations from site walks in Sensat for enhances site understanding.

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