



OBAYASHI'S USE CASE

# Digital LiDAR for Cranes

Innoviz LiDAR solution automates cranes operation and provides enhanced safety features



## About the Customer

Obayashi Corporation is one of five major Japanese construction companies, dealing with construction planning, engineering, and management. Based in Japan, Obayashi has nearly 15,000 employees and more than 80 global subsidiaries.

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## Putting Cranes to Work

Obayashi is developing an autonomous crane for autonomous operation and to enhance safety in the construction environment. They are using a LiDAR (Light Detection and Ranging) sensor to detect objects, static objects, and moving obstacle in the crane's path and to provide information on the crane load. Data from the LiDAR will enable safe operation of the crane by providing enhanced information in different geographic locations and weather conditions. Cranes initially will be controlled on-site or by teleoperation and, ultimately, will be fully autonomous.

## The Need

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## The Challenge

Construction crane operation is expensive and carries a high risk for the crane, load, and surroundings. Information must be provided on the surroundings with a high level of confidence to detect crane positioning, as well as static and moving obstacles. Cranes must be set up to operate in various settings and conditions, including rain and fog that limit visibility.

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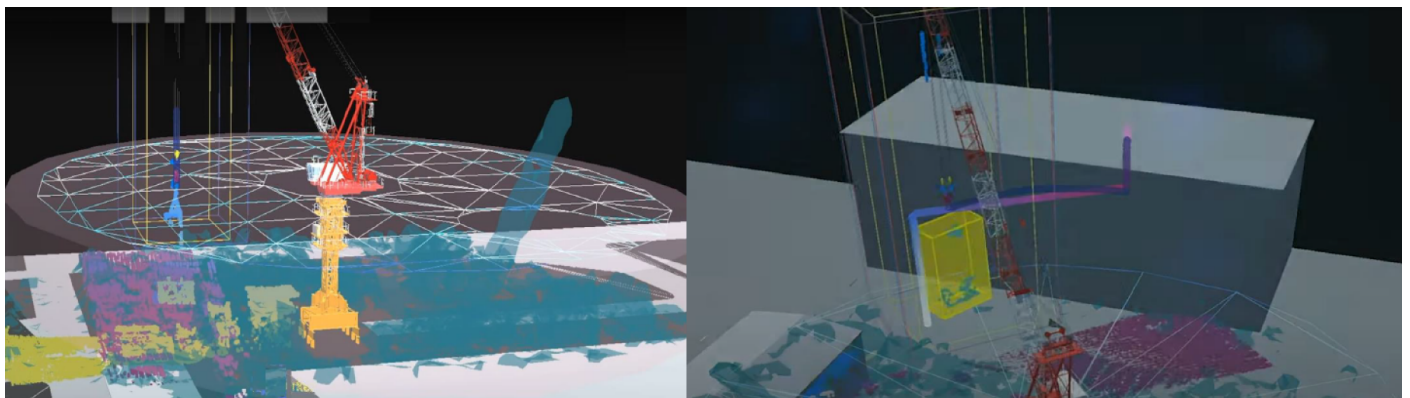
## The Solution

The LiDAR supplied by Innoviz Technologies is easy to install and configure on the crane. It is a field-proven, high-performance laser sensor which shoots laser beams at the scene in front of it. Immediately upon operation, the LiDAR starts to send and receive laser pulses. Laser signals that are reflected from the scanned area create what is called a point cloud, which is a three-dimensional (3D) visual representation of the scene. Artificial Intelligence (AI) technology is used to interpret the data contained in the point cloud and to identify the suspended load, objects, and obstacles in the crane's path. The system can be managed on-site or remotely via teleoperation.

## Project Details

Obayashi installed an InnovizOne LiDAR on the crane arm alongside a crane camera. An information center was set up in the crane control device to provide the point cloud created from the scanned area in real-time. AI is used to enhance the point cloud data with object detection and classification capabilities and thus identify the shape of the suspended load and surrounding areas and obstacles. Additional algorithms enable load path planning and maneuvering, automating the operation of the crane, and enhancing safety signals.

## Customer Benefits



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