Building the intralogistics metaverse

Aspiring to create the next generation of smart warehouses

The challenge: The future of the warehouse is digital. Driverless transport vehicles with modern sensors, such as laser scanners and cameras, are already being used in intralogistics and production plants. But their data isn't always being used to its full potential. What other possibilities could be unlocked? In 2021, STILL and its cooperation partners LeddarTech, the Karlsruhe Institute of Technology (KIT), and the STARS Lab at the University of Toronto launched the ARIBIC ("Artificial Intelligence-Based Indoor Cartography") project. The project's aim is to build a live digital twin for warehouses, that can collect and analyze telemetry data, and help create the next generation of autonomous, smart warehouses.

Why Google Cloud? With a platform offering a full range of solutions for data and machine learning, Google Cloud was a natural fit for the ARIBIC project. Google Cloud can host the huge quantities of videos and 3D data from forklifts and use them to train and run machine learning models. Working with Google Cloud also ensures that the ARIBIC project is ready for the future, for example, when it will deploy to n-customers and warehouses by using Kubernetes.

The solution: ARIBIC builds a digital twin of a warehouse. Data is collected from sensors integrated in forklifts or stationary machines to create a digital representation of the environment. This is then transferred into the cloud and enriched with semantic information. The enriched map now represents the warehouse at a single point of time. As forklifts move through the actual warehouse the map is updated in real-time to become a living 3D digital twin. The next step will be to provide applications for localization, load tracking, inventory, damage detection, warehouse optimization, and much more. For example, if a customer wants to get the current status of goods in a warehouse, they can simply press a button and get it right away from the warehouse's digital twin. This will form the intralogistics metaverse.

Image credit: STILL

> " We were looking for a platform that offered a wide range of services for data and machine learning. Google, along with Google Cloud, its broad product portfolio, and expertise in 3D mapping, was the ideal partner for our project."
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> Frank Müller, Senior Vice President, STILL Brand Management

About STILL: STILL offers customized intralogistics solutions, and implements the intelligent teamwork of forklift trucks and warehouse technology, software, and services.