

Customer Story

Mobile Mapping Vehicle Paves the Way for the Future Launch of Autonomous Cities



Overview

Located in Seoul, South Korea, Mobiltech is an AI-based geospatial information service startup established in 2017. By developing a 3D space scanner that replicates space as it is, Mobiltech supplies 3D spatial information, hardware and software solutions for smart cities.



Mobile Mapping Enables the City of Tomorrow with Precise 3D Mapping

In 2018, Mobiltech launched Replica City, a realistic digital twin city in preparation for the creation of a smart city. This comprehensive digital map of precise urban geospatial information and updated city data will be used for the development and application of smart cities. As a leading player in autonomous driving technology, Mobiltech's development of Replica City lays the foundation that informs precise mapping for autonomous driving, creating a digital twin for urban planning and developing a public facility database for facility management. Replica City is able to deliver 3D city data, always using the data through continuous renewal - not a one time acquisition. This digital recreation of the entire city provides urban developers with accurate blueprints and maps that inform new development planning, and ensures all infrastructure is properly managed for maintenance, replacement and expansion.

By launching Replica City, autonomous driving services can be introduced, urban development planning can be facilitated and public facilities can be maintained in optimal conditions. Mobiltech is reliant on highly detailed, precise and accurate mobile mapping data in real-time, to achieve their vision.

Challenge

Capturing and Managing Precise Data

Mobiltech began creating a comprehensive digital map by focusing on the densely populated Gangnam district in Seoul, South Korea. To fully capture city data that changes daily, Mobiltech needed to create a tool with the ability to synchronize and calibrate data across multiple sensors, specifically GPS, LiDAR and camera. Mobiltech built their own mobile mapping services (MMS) vehicle, but was further challenged with the significant amount of data acquisition, processing and matching required to build accurate maps. "The Replica City service launched in the Gangnam district [in Seoul], where the population is concentrated and complex. We needed a streamlined approach to data acquisition along with the ability to handle massive data processing and matching in urban areas," said Jason Kim, CEO of Mobiltech.

Mobiltech's MMS vehicle was able to acquire fluctuating high-precision city data by synchronizing and calibrating multiple sensors mounted on the vehicle, but they were faced with the challenge of ensuring the data is precise. It is particularly difficult to assure data accuracy with multi-sensor synchronization and system building.

Solution

Superior Mapping Solution Delivers Precise Data and Turnkey Processing

To acquire dynamic city data, Mobiltech created a custom solution with multiple sensors, including camera, LiDAR and GPS. With GNSS/INS mounted on their MMS vehicles, Mobiltech turned to Trimble Applanix for use of their LV420, LV220, LV210, LV125 and APX15.

To further increase the precision of the 3D mapping data gathered, Mobiltech also used Applanix Pospac post-processing technology.

“Trimble’s Applanix products are guaranteed to have precision and offer advantages in various product lineups, therefore we can use them according to the situation.”

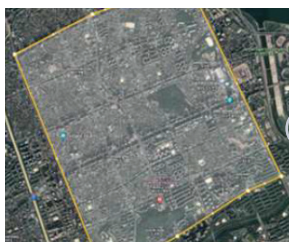
- Jason Kim, CEO of Mobiltech.

With Applanix products for mapping and post-processing, Mobiltech is able to achieve its goal of creating massive 3D city data. This data can be used for mapping, monitoring and planning for urban utilities, sensors and assets. The technology allows for the launch of smart mobility services such as autonomous shuttles and delivery robots.

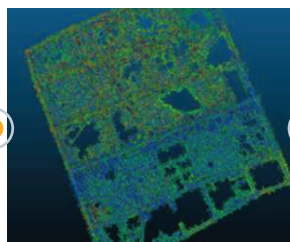
Results

Delivering Consistent Real-Time Mapping Solutions in an Ever-Changing City

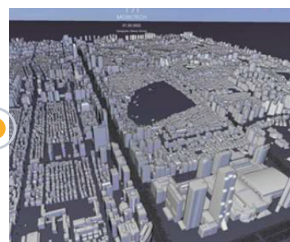
With the integration of Trimble’s Applanix products, Mobiltech can create an immersive 3D city that provides services for city management, as well as city infrastructure for the introduction of services such as autonomous shuttles, delivery robots and unmanned trucks. With exceptional 3D mapping capabilities, Mobiltech continues to supply 3D spatial information, as well as hardware and software solutions for smart cities. The company is now capable of accurately capturing HD mapping within a centimeter error range compared to the real world. This highly accurate 3D map, captured in real-time, helps Mobiltech to further attain its goal to deliver industry-leading technology that accelerates the development of smart cities.



Target Area



Point Cloud



City-Scale Modeling



Realistic City Modeling

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