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Kudan Inc.

Kudan Collaborates with a Leading Manufacturer to Successfully Complete Autonomous Mobility Demonstration Experiment with Accuracy Within 10cm – Addressing the Growing Demand for Automation in the Logistics Sector

Kudan has successfully completed a demonstration experiment on autonomous mobility for specialized transport vehicles used in factory operations, in collaboration with a leading Japanese manufacturing company. In this project, Kudan utilized its proprietary technology, Kudan SLAM, achieving high-precision localization with an accuracy of within 10cm, suitable for commercial applications.

In recent years, the aging of drivers and a severe labor shortage have significantly impacted supply chains in developed countries, including Japan. This challenge extends beyond public road transport, affecting intra-factory logistics, and highlighting an urgent need for supply chain optimization. As industries strive to seamlessly connect factory operations with external environments and advance the concept of smart factories, the global demand for autonomous mobility technology is expected to grow substantially.

Amid these circumstances, while the need for efficiency in transport operations is increasing, there remain significant challenges in achieving high-precision autonomous mobility in environments where GNSS (Global Navigation Satellite Systems) is ineffective, such as indoor facilities or hybrid environments spanning both indoor and outdoor areas.

This project also faced similar challenges. While GNSS was sufficient for a certain level of autonomous mobility outdoors, realizing autonomous mobility in indoor or hybrid environments presented technical hurdles.

To address these challenges, Kudan conducted a demonstration experiment using its proprietary artificial perception technologies, Visual SLAM and 3D-Lidar SLAM. The experiment successfully achieved the targeted localization accuracy of within 10cm in indoor environments.

In addition, the following strengths of Kudan's SLAM technology were confirmed during this project:

1. High Technical Flexibility
   Kudan SLAM can be easily retrofitted to existing vehicles and systems, minimizing the need for new investments while enhancing performance

2. Adaptability to Changing Environments

Even in dynamic indoor environments, such as factories where conditions change significantly due to inventory fluctuations, Kudan SLAM enables high-precision localization using a single pre-generated 3D map.

3. Scalability of Technology
   Kudan SLAM is not limited to indoor environments but can also seamlessly support autonomous mobility in outdoor or hybrid environments, enabling deployment across diverse industrial sectors.

Building on these results, Kudan aims to expand the scale of its demonstrations and conduct further verifications in more complex environments, working toward the transition to full-scale operational deployment. Furthermore, Kudan will continue to support operational efficiency in a wide range of industries by leveraging robotics and digital twin technologies, driving innovation to meet societal needs with cutting-edge solutions.

About Kudan Inc.
Kudan is a deep tech research and development company specializing in algorithms for artificial perception (AP). As a complement to artificial intelligence (AI), AP functions allow machines to develop autonomy. Currently, Kudan is licensing its technology for next-generation solution areas such as digital twin, robotics and autonomous driving.
For more information, please refer to Kudan's website at https://www.kudan.io/.

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