News Release

Kudan Visual SLAM Completes Integration with latest NVIDIA Isaac Perceptor, Demonstrating Clear Benefits in Real-World Deployment

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Kudan Inc. (headquartered in Tokyo, Japan; CEO Daiu Ko, hereafter "Kudan"), a global leader in 3D spatial intelligence technologies, is pleased to announce the successful integration of its Visual SLAM (VSLAM) technology with latest NVIDIA Isaac Perceptor, marking a significant advancement in indoor autonomous mobile robot (AMR) capabilities. This package is now evaluated in dynamic operational warehouse environments, demonstrating clear operational benefits compared to the traditional 2D-LiDAR-based approach.

Building upon our prior collaboration with NVIDIA, where Kudan's CUDA-accelerated VSLAM enhanced performance by leveraging the 3D perception functions of Isaac Perceptor, including AI-based depth perception and real-time 3D reconstruction with a cost map, this latest integration further solidifies our commitment to delivering cutting-edge solutions for AMR developers together with NVIDIA.

Optimized Software Architecture for Seamless Integration

The integration of Kudan's VSLAM with NVIDIA Isaac Perceptor offers a robust software package that combines high-precision visual localization with advanced obstacle detection and navigation capabilities. This fusion enables AMRs to perceive, localize, and operate effectively in unstructured, complex environments, enhancing their autonomy and efficiency.

Proven Benefits in Operational Warehouse Environments

Extensive testing in active warehouse environments has demonstrated clear benefits of this integration updates, including:

- **Cost Efficiency –** Eliminates reliance on 2D LiDAR, using 3D cameras for both localization and obstacle detection, reducing hardware and maintenance costs.
- **Enhanced Mapping & Awareness –** Generates accurate, real-time 3D costmaps with automated dynamic obstacle filtering, offering superior spatial understanding over traditional 2D maps.
- **Superior Obstacle Detection & Collision Avoidance** – Detects low-lying, overhead, and unexpected obstacles missed by 2D LiDAR, improving safety and operational reliability.
- **High-Precision & Robust Localization** – Maintains stable tracking even in long trajectories, dynamic environments, and lighting variations.

- **Adaptability to Complex Environments** – Handles structural changes, moving objects, and tracking recovery better than single-plane 2D LiDAR, ensuring cost-efficient and scalable real-world deployment.

Unlocking Future Innovations in Visual-Data-Driven AMRs

The integration of Kudan Visual SLAM with Isaac Perceptor marks a key step toward the next generation of intelligent, vision-driven AMRs. By combining deep learning and multi-modal AI, AMRs will move beyond basic mapping to true environmental understanding, enabling real-time adaptation, predictive decision-making, and autonomous problem-solving in complex industrial settings.

Future advancements will also enhance human-robot collaboration, with AMRs capable of interpreting natural language commands, recognizing unseen objects, and optimizing workflows. These innovations will elevate AMRs from automation tools to proactive, intelligent agents, driving efficiency and safety in logistics, manufacturing, and beyond.

Anticipating Upcoming Deployments

With this integration validated, plans are underway for end-user deployments in operational facilities. These implementations are set to showcase the transformative potential of visual-data-driven AMRs in real-world applications.

Stay tuned for further updates as we continue to revolutionize autonomous navigation with advanced Visual SLAM technology with Isaac Perceptor.

Want to learn more?

We have released a deep dive technical blog covering the architecture and software integration, performance testing result, and key insights from this integration.

Read the full technical deep dive here:
https://www.kudan.io/blog/a-technical-deep-dive-into-visual-data-driven-amrs-powered-by-kdvisual-and-nvidia-isaac-perceptor

Kudan at NVIDIA GTC 2025

Kudan is participating in NVIDIA GTC 2025, the world's premier AI technology conference. Together with Vecow, a leading provider of smart Edge AI platform solutions and a key partner of both Kudan and NVIDIA in Taiwan, we are showcasing this latest software package integrated with our mobile robot development kit.

Exhibition Details:
Date: March 17 - 21, 2025
Venue: San Jose McEnery Convention Center, CA, USA
Booth No.: #237

Visit us at the booth to experience cutting-edge advancements in AI-powered robotics and spatial intelligence.

About Kudan Inc.
Kudan is a leading provider of Artificial Perception and Artificial Intelligence technologies, enabling next-generation solutions in mobile mapping, digital twins, robotics, and autonomous driving. With its advanced visual navigation, perception and spatial intelligence technologies, Kudan is at the forefront of digital transformation, empowering businesses to bridge the physical and digital worlds seamlessly, and ensuring scalable deployments of autonomous machines in dynamic environments with great accuracy and reliability.
For more information, please refer to Kudan's website at https://www.kudan.io/.

■Company Details
Name: Kudan Inc.
Securities Code: 4425 (TSE Growth)
Representative: CEO Daiu Ko

■Contact Information
For more details, please contact us from here