

September 15th, 2022

Kudan Inc.

Kudan releases KdVisual2 ROS for AMR, a new Visual SLAM software ROS package for Autonomous Mobile Robots (AMRs)

Kudan Inc. (headquartered in Shibuya-ku, Tokyo; CEO Daiu Ko, hereafter “Kudan”), a leading provider of Artificial Perception / SLAM technology across a variety of applications, is pleased to announce the release of KdVisual2 ROS for AMR, a new Visual SLAM software package focusing on AMR use cases. Kudan has developed this major update for its well-established Kudan Visual SLAM (KdVisual) software in order to respond to evolving market needs while delivering additional value to customers. The company has been validating the features and performance with several customers and the feedback so far has been overwhelmingly positive.

Kudan Visual SLAM

KdVisual2 ROS for AMR package
Released Sept. 2022



New package addresses scenarios where 2D-Lidar SLAM struggles.

As more and more AMRs are deployed in industrial applications using 2D-Lidar SLAM to navigate, AMR users and OEMs are looking for more opportunities to improve the overall productivity and efficiency of their operations. However, they face certain limitations with the 2D-Lidar SLAM based approach. Some of the challenges include:

- **Scenery changes:** if the scenery inside warehouses or factories changes compared to the time when the original map was created, AMRs using 2D-Lidar SLAM can struggle to recognize their position.
- **Dynamic objects:** in any situation where numerous moving objects surround a robot, it can struggle to recognize its position.
- **Global relocalization:** if a robot is turned off and/or moved and then re-activated, it is often difficult for it to recognize its position except when located at a limited number of pre-defined points.

KdVisual2 has been developed precisely to help AMRs overcome these challenges by applying sensor fusion, proprietary algorithms, and various modes of operation. (An example [demo](#) can be seen on the Kudan YouTube channel). AMRs can either be equipped with KdVisual2

in addition to their existing 2D-Lidar SLAM system or KdVisual2 can fully replace the 2D-Lidar SLAM.

Robustness, accuracy, and demanding hardware specs.

Visual SLAM is viewed by many as the “next-generation” SLAM approach. However, at the same time, many people view it as still not practical because open-source approaches do not meet the requirements of all AMR applications, especially regarding issues related to robustness and hardware specifications.

Kudan’s previous visual SLAM (KdVisual) already surpassed these requirements but KdVisual2 has created an even greater performance boost

- **Absolute accuracy***: Better than 2D-Lidar SLAM
- **Repeatability**: <1cm repeatability achieved
- **Robustness***: maintains accuracy under scenery-changing conditions or with dynamic objects present
- **Processing requirement**: 2x - 10x faster than ORB-SLAM 2&3
- **Memory requirement***: 10%~20% of ORB-SLAM2&3 and mechanism to limit the memory usage under a certain threshold

** These items are the most prominent improvement from our previous version.*

Enabling disruptive speed of integration by supporting files and documentation

Finally, a key feature of this brand-new package is not just its performance but also its enhanced usability compared to our previous version. Kudan packages the software and documentation in a way customers can integrate KdVisual2 into their AMR system without requiring significant tuning, back-and-forth iteration, or troubleshooting. Kudan provides presets of parameters and also helps users to apply ROS navigation modules together with SLAM, which eliminates concerns about obstacle detection and avoidance.

KdVisual2 can be used either as an add-on to existing 2D-Lidar SLAM systems or as its full replacement depending on the customer's preferences. Furthermore, it now supports ROS noetic and melodic, and is scheduled to support ROS2 by the beginning of October.

Please feel free to contact Kudan for more details and also if you want to try out the new package.

About Kudan Inc.

Kudan (Tokyo Stock Exchange securities code: 4425) 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 using its high-level technical innovation to explore business areas based on its own milestone models established for deep tech which provide wide-ranging impact on several major industrial fields.

For more information, please refer to Kudan's website at <https://www.kudan.io/>.

■ Company Details

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Securities Code: 4425

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■ For more details, please contact us from [here](#).