

June 26, 2025
Kudan Inc.

Kudan and Taiwan-based MacroInsight deepen their collaboration, advancing the application of Digital Twin Command Centers in next-generation intelligent shipyards.

Kudan has announced that it will deepen its technical collaboration with MacroInsight Innovation Ltd. (Headquartered in Taipei City, Taiwan; CEO: Mingta Tu, "MacroInsight"), a company based in Taipei, Taiwan, for the next-generation intelligent shipyard project led by the Taiwanese government. The two companies will jointly advance the digital twin command center that integrates Spatial Perception technology, mobile sensing system, deep learning, and generative AI. This command center will support smart patrol inspection, industrial safety monitoring, and predictive maintenance.

Through this system, on-site information will be comprehensively and instantly aggregated in the command center via digital twins reflecting all sensor data, enabling real-time decision-making and precise management. This initiative will accelerate digital transformation in the shipbuilding industry.

Past Achievements of the Collaboration

- Enhancing Smart Patrol and Safety Monitoring

Through their ongoing collaboration, the two companies have significantly enhanced digital monitoring capabilities within shipyard environments. AI-driven analysis of sensing data has led to improvements in hull installation accuracy and operational safety. Additionally, the stock detection system automatically monitors the storage status of hull components, reducing human error and optimizing production scheduling.

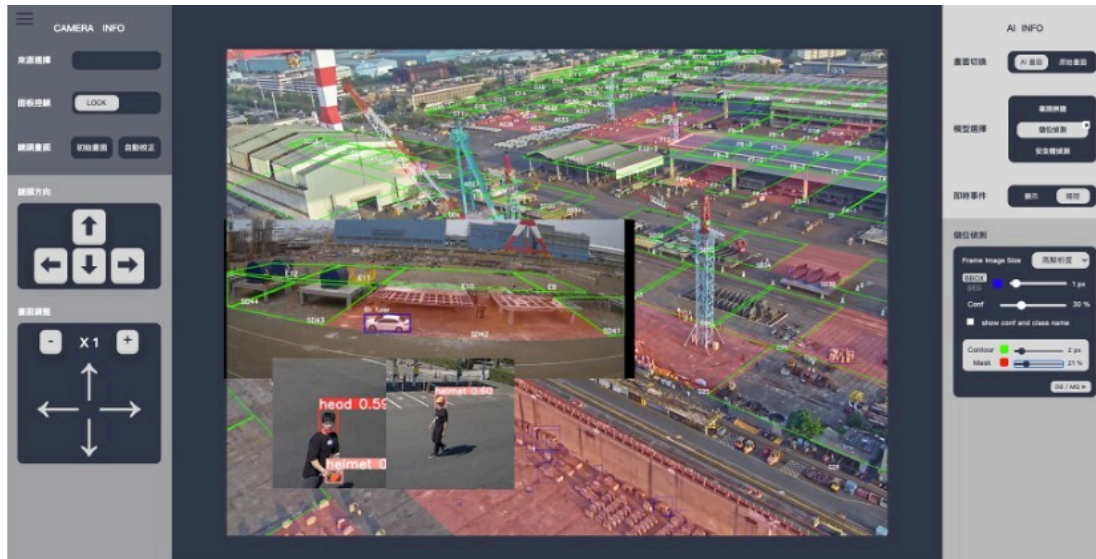
The fall detection model monitors worker movements during patrols and instantly detects incidents such as falls or slips, triggering immediate alerts. Furthermore, the safety incident monitoring system uses AI models to detect abnormal behavior, safety incidents, rule violations, and equipment anomalies. It provides both alerts and visual records, significantly enhancing accident prevention capabilities.

In addition, technologies such as license plate recognition and access control strengthen the tracking and management of vehicle and personnel entry and exit, achieving both improved safety and operational efficiency.

- Building a Digital Twin Command Center and Integrating AI Analysis

At the core of the two companies' collaboration is the construction of a “Digital Twin Command Center” that consolidates all sensor and AI analysis data into a unified platform. The predictive maintenance system uses AI to monitor compressor operations and forecast anomalies. These machines play a vital role in shipbuilding, heavy industry, and energy sectors, sometimes accounting for 30–50% of total factory power consumption due to their long operational hours.

Optimizing operating parameters through AI and data analysis reduces energy consumption, extends equipment lifespan, and prevents unplanned downtimes, thereby enhancing production stability.



Conceptual Image of a Digital Twin Command Center for Intelligent Shipyards

- Real-Time Response Enhancement with Edge AI

To improve on-site management efficiency, this integration includes Edge AI, enabling real-time processing and response to sensor data. Safety-related anomalies can be rapidly reported to the command center, allowing for immediate judgment and action by administrators.

Moreover, the integration of SLAM technology and mobile sensing systems facilitates real-time 3D environmental modeling, strengthening the ability to pinpoint hull positions, manage equipment, and monitor safety. Enhanced data integration enables comprehensive visualization of all shipyard elements on the digital twin.

Future Outlook: Driving Full-Scale Digitalization of Next-Generation Intelligent Shipyards

Through the deepening of this technological collaboration, Kudan and MacroInsight will jointly accelerate the development of digital twin systems for intelligent shipyards. The partnership will enhance interoperability between on-site equipment and sensors, further supporting the visualization of production data and intelligent decision-making.

Additionally, by leveraging AI and edge computing, the capabilities for real-time analysis in patrol inspection and backend management will advance, driving greater efficiency in data processing. Looking ahead, the system is expected to provide real-time monitoring, anomaly simulation, and risk forecasting functions, elevating automation management standards in intelligent shipyards.

Deployment of this technology in intelligent shipyards is planned for this year and beyond. The collaboration also envisions expanding into other high-energy-consuming manufacturing industries, setting new standards for industrial digital transformation and ushering in the next phase of smart industry.

(Future Outlook)

We estimate that this release will only have a minor impact on the company's financial performance for the fiscal year ending 31 March 2026 at this time. We will promptly make an announcement if any event requiring disclosure arises.

About MacroInsight Innovation Ltd.

MacroInsight is a technology startup specializing in image and data analysis. The company focuses primarily on smart healthcare, developing AI-powered automated diagnostic support systems and medical quality assessment tools to help improve diagnostic accuracy and streamline clinical workflows. Beyond the medical field, MacroInsight is expanding into areas such as energy, agriculture, and smart manufacturing, providing sustainable solutions by integrating AI, IoT, and big data analytics. The company is committed to driving industrial advancement through technological innovation while actively pursuing both environmental sustainability and social value.

About Kudan Inc.

Kudan is a leading provider of Spatial Perception technologies, enabling next-generation solutions in mobile mapping, digital twins, robotics, and autonomous driving. With its advanced visual navigation and spatial perception 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/>.

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