

KENMEC Computex Taipei 2024 Show】 Press Release

AI gathers the innovation, KENMEC leads the trend

KENMEC advances AI innovation with new immersion-cooling and simulation solutions

At Computex Taipei 2024, KENMEC will collaborate with partners to conduct real-machine verification of its second-generation two-phase immersion-cooling solution. At the same time KENMEC, is developing its high-efficiency water-to-air cooling mainframe Sidecar for AI high-density liquid-cooled server cabinets. Additionally, KENMEC will showcase its practical applications of liquid-cooling solutions in charging stations and 5G base stations. In response to the expanding market demand for AI applications and the increasing deployment of high-performance data centers, KENMEC's thermal solutions Division not only provides liquid-cooling solutions for customers but also undertakes the design of customers' server rooms and data center construction projects. This assists customers in purchasing high-performance server cabinets while also offering energy-saving solutions for server room construction, achieving the benefits of "increased computing power and energy savings."

At this exhibition, leveraging group synergies, KENMEC's subsidiary, KENTEC, will showcase its logistics fleet management solutions. These include a fleet management system and an AI intelligent driver assistance system, aiming to achieve "intelligent transportation management" and "safe driving." The fleet management system serves as a unified platform for vehicle management, integrating GPS tracking and driver management to enhance vehicle dispatch efficiency and fleet safety. It allows for real-time monitoring of vehicle status. The AI intelligent driver assistance system incorporates advanced driver assistance systems (ADAS), driver monitoring systems (DMS), and 2D/3D around view monitoring (AVM). It has also passed relevant certifications based on Taiwan's VSCC standards and regulations. This system enables smart driving, hazard prediction, and real-time abnormality alerts, assisting drivers in responding to various driving conditions. It effectively enhances driver awareness and reduces the occurrence of accidents, ensuring driving safety.

KENMEC Smart Logistics Center is composed of automation equipment such as Unit load ASRS, Mini Load SRS, Sorter, Smart Palletizer and de-palletizer, intelligent vision robotic arms, Circle RGV, unmanned forklifts, automatic bundling machines, and coupled with KENMEC's excellent logistics center smart platform, which provides customers with amazing logistics center solutions and implements the first intelligent architecture with the motto "Flexibility, Intelligently, Reliability, Stability and Timely," which is applied to the large logistics center in Taichung built by Giant Group.

KENMEC smart logistic centers solutions are developed on NVIDIA Isaac Sim, an application framework based on NVIDIA Omniverse and NVIDIA Isaac Manipulator to conduct automated solution simulations. This includes the establishment of smart warehousing 3D simulation fields, automatic warehousing logic and model creation, field and equipment digital twins showcasing virtual and real integrated simulations, and the automatic generation of 3D scene technology. Has been successfully developed for more than 10 generative models integrated into independent plug-ins. Manufacturers can use generative models to import 2D plane layout diagrams to automatically generate 3D warehousing field spaces, significantly reducing 3D personnel modeling time and achieving highly efficient simulation results. For 3D simulation of automatic warehousing equipment, a warehousing equipment model was established using the OpenUSD framework, and integrated into In the generated 3D field. The technology then successfully verified the simulated operation of the automatic warehousing system in the NVIDIA Omniverse platform. The whole process starts from the logistics center Unit Load ASRS for storage, automatic replenishment to the Mini Load SRS, and the use of intelligent visual robotic arms to pick the goods., which are then sent to the corresponding convenient store chutes through the smart high-speed sorting equipment for consolidation and outbound delivery, which is fully presented. Logistics value chain was verified from linbound to Ooutbound, including the retrieval, storage, handling, and sorting of goods such as pallets, cartons, boxes to pieces.

The NVIDIA Omniverse development platform brings great benefits to planning, commissioning, manufacturing and actual operations, including cost and , time savings and the reduction of heavy or inefficient work.

In the planning stage, the 2D to 3D modeling time will be greatly optimized from 278 hours to 4 minutes. If a high-end GPU such as the NVIDIA A100 Tensor Core GPU is used, this is expected to be further shortened to 1 minute. In addition, plans for different configurations of the same field can also be provided. It provides a variety of layout designs very efficiently, and after incorporating the actual system parameters, the best configuration is selected. Design solutions that previously took engineers several weeks to complete can be easily completed in one day, which greatly improves the efficiency of time to market.

In the Smart Robotic picking stage, users can tap Isaac Manipulator, a reference workflow designed for robotics operations that leverage advanced AI algorithms and simulation technologies to optimize robot motion and task execution efficiency. KENMEC AI partner Solomon has integrated the Isaac Manipulator, resulting in a 20.41% improvement in success rates compared to before. This means that the robots

on the production line have significantly improved in terms of the quality and accuracy of tasks such as assembly and sorting. In addition to the increase in success rates, work efficiency has also seen a notable improvement. Work time has been reduced by 43.42%, mainly due to the efficient task planning and rapid execution capabilities of Isaac Manipulator. This reduction in production line operation time also leads to decreased energy consumption and operational costs, thereby enhancing overall production efficiency.

Using the solution powered by Omniverse, Issac Sim and Isaac Manipulator is expected to create great benefits. It combines synthetic data and generative models to significantly shorten the cost and time of 3D field creation. It also integrates Issac Sim and MetAI generative models to create AI automatic simulation environment creation services. The operating logic of automatic equipment can be changed through parameter adjustment, and simulation and computing environments can be easily provided to customers. The model is highly scalable, and through KENMEC original data and MetAI synthetic data generative models, an endless stream of data objects is provided to generate models. After its establishment, the model can continuously accumulate and generate data , advancing in the direction of large-scale language models (LLMs), becoming one of the world's first LLMs for smart logistic and warehouse solutions.