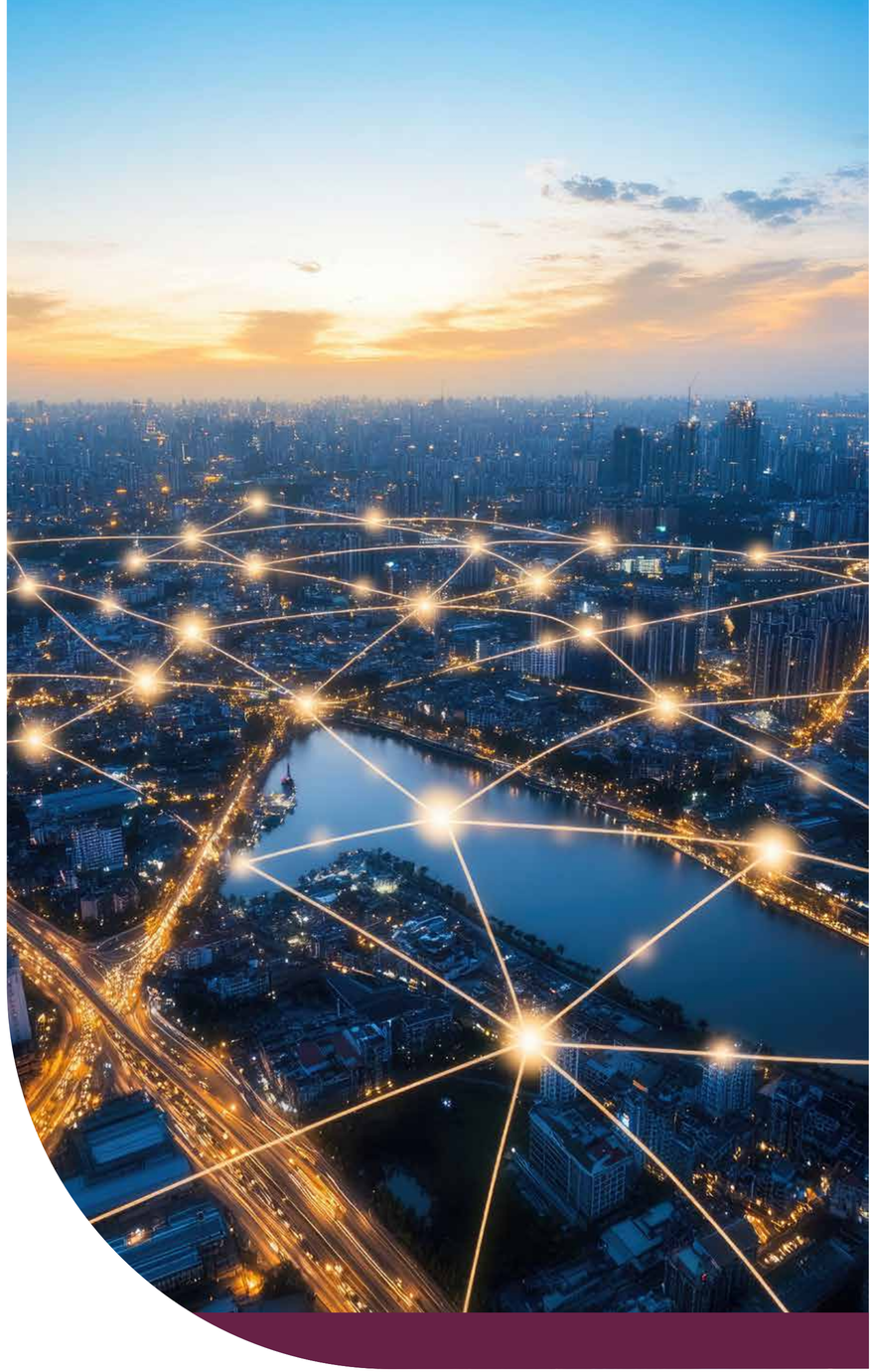
AXIOMTEK

NVIDIA Preferred Partner

Edge AI Success Stories

Edge AI Systems Powered by NVIDIA® Jetson™



Smart Choices, Intelligent Outcomes

Axiomtek's Edge AI Array

Axiomtek has developed edge AI platforms, powered by the full spectrum of NVIDIA® Jetson modules, such as the NVIDIA® Jetson Nano™, NVIDIA® Jetson Xavier™ NX, NVIDIA® Jetson AGX Xavier™, NVIDIA® Jetson Orin Nano™, NVIDIA® Jetson Orin™ NX, NVIDIA® Jetson AGX Orin™, and NVIDIA® Jetson Thor™. These platforms cater to a diverse range of AI applications, including robotics, computer vision, autonomous systems, and intelligent video analytics.

AIE015-AT

Up to 2070 TFLOPS

NVIDIA® Jetson Thor™:
NVIDIA® Jetson T5000™
NVIDIA® Jetson T4000™

Physical AI & Robotics | 1 x QSFP28 | 8-CH GMSL | LPDDR5X | Smart Ignition

- Ideal for NVIDIA Isaac™, Holoscan, and Metropolis
- Easy management: USB and PoE device power control
- One QSFP28 & 8-CH GMSL for camera and sensor fusion
- Seamless speed: 5G, Wi-Fi 6E, and GbE
- Support multiple purpose of AI model for robotics and physical AI

Selection Guide

Edge AI System

Model	 AIE015-AT	 AIE100	 AIE110	 AIE510	 AIE800	 AIE810	 AIE900A	 AIE900B
AI Accelerator	Jetson Thor	Jetson Nano Jetson TX2 NX Jetson Xavier NX Jetson Orin Nano with Super Mode Jetson Orin NX with Super Mode	Jetson Xavier NX Jetson Orin Nano with Super Mode Jetson Orin NX with Super Mode	Jetson Orin Nano Jetson Orin NX	Jetson Xavier NX	Jetson Orin Nano with Super Mode Jetson Orin NX with Super Mode	Jetson AGX Orin	Jetson Orin Nano with Super Mode Jetson Orin NX with Super Mode
I/O Connectivity	6 USB 1 QSFP28 1 GbE 2 COM/CAN 16-CH DIO 8-CH GMSL	2 USB 1 GbE 1 PoE	2 USB 1 GbE 1 PoE 8-CH DIO	2 USB 2 PoE 1 GbE isolated DIO (4-in/4-out) COM/CAN 4-CH GMSL	2 USB 1 PoE 9-36 VDC	2 USB 2 PoE 8-CH DIO	2 USB Dual 2.5GbE 8 PoE 2 COM/CAN 8-CH DIO 8-CH GMSL	4 USB 1 GbE 4 PoE 2 COM/CAN 8-CH DIO 8-CH GMSL

AI-Based Livestock Health Monitoring System in Dairy Production

Challenge

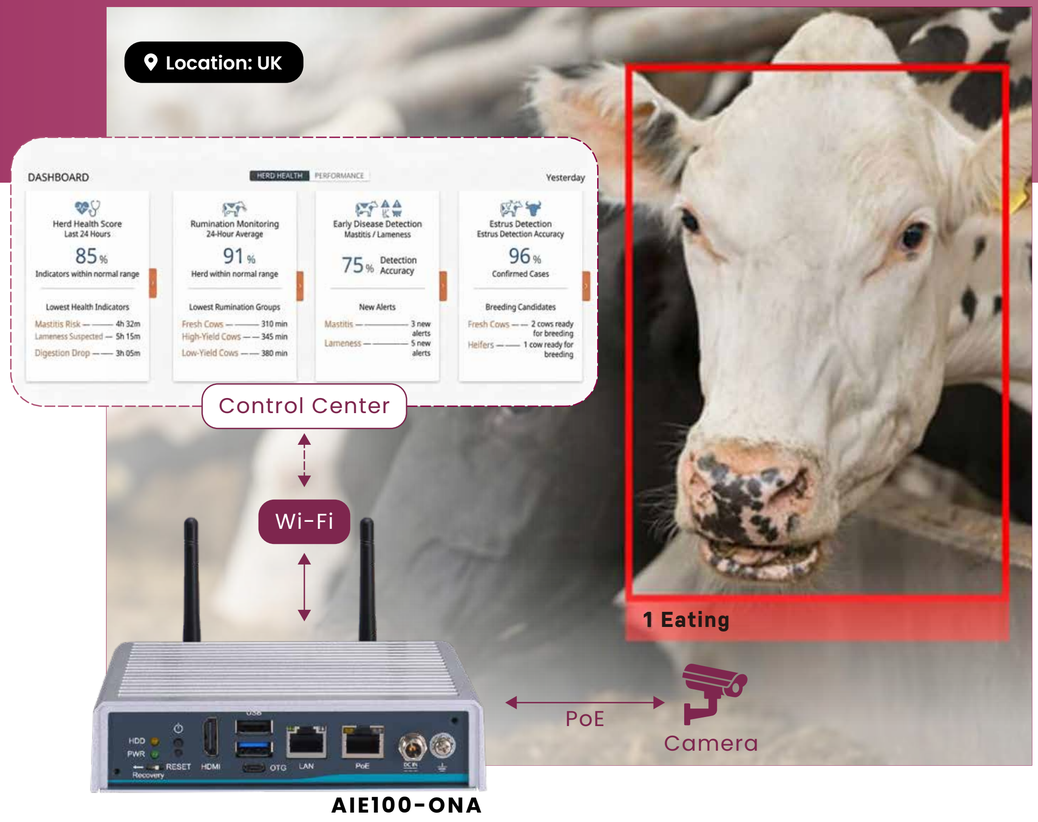
The customer was looking for an edge AI system leveraging high performance NVIDIA Jetson Orin Nano for on-farm livestock health monitoring using AI algorithms. Key features encompass PoE support for IP cameras, 24/7 remote monitoring, and image analysis for tracking individual cows' food, water intake, and activity levels — addressing labor shortages in the livestock industry.

Solution

The customer applied **AIE100-ONA** with an on-farm camera to capture cows and their feed movements 24/7. Its image analysis capabilities would be employed to identify individual cows, monitor their food and water intake, and track activity levels. This comprehensive solution approach directly influences milk production, as the well-being of the cattle is directly correlated with the milk yield.

Result

- 24/7 AI-based monitoring of cow behavior (feeding, resting, activity) at the edge.
- Early detection of abnormal behavior, enabling timely health intervention and reduced disease risk.
- Improved herd management efficiency and dairy yield stability through automated insights.



Intelligent EV Charging Solution

Challenge

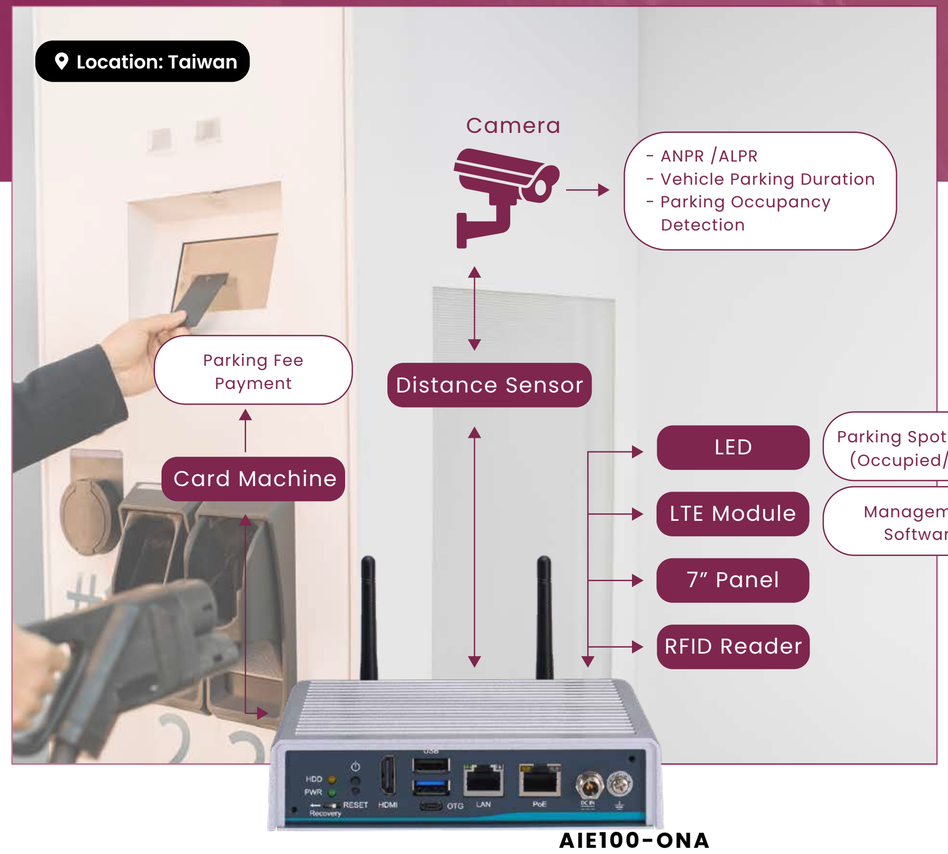
The customer aimed to develop a next-generation intelligent EV charging solution with AI-powered services such as real-time image recognition and payment integration. However, traditional charging deployments often face limited on-site power, complex installation, and high infrastructure costs, making fast and scalable deployment challenging.

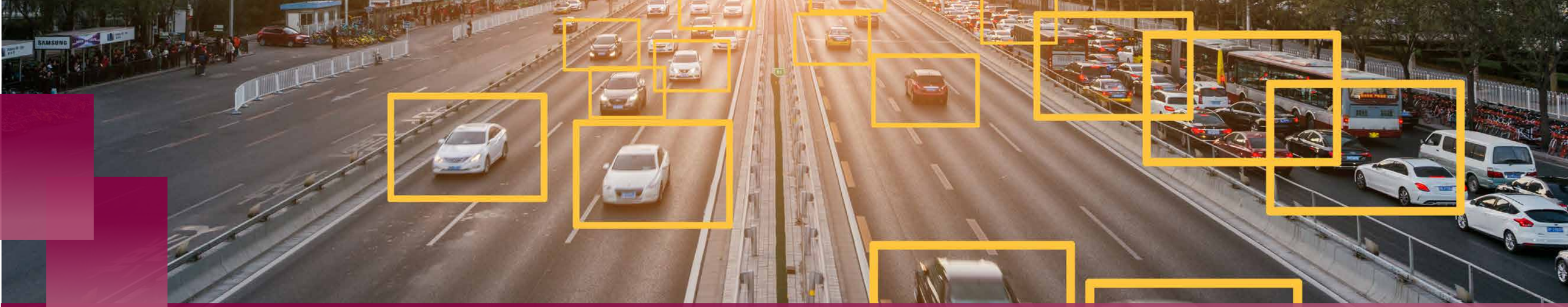
Solution

To address these requirements, Axiomtek deployed the **AIE100-ONA**, a compact edge AI system powered by the NVIDIA® Jetson Orin Nano™. With PoE port, the system enables simplified installation and reliable standalone operation in distributed EV charging environments. It supports real-time image recognition and payment processing, enabling the customer to deliver a seamless EV charging experience.

Result

- Deployment of over 1,000 intelligent EV charging bollards within one year, enabled by edge AI–based system integration.
- Reduced construction and operational costs through simplified installation and automated parking management.
- Extended system lifecycle and improved sustainability by supporting long-term, eco-friendly EV infrastructure deployment.





AI-Powered Traffic Event Detection in Taiwan

Challenge

The customer was seeking an edge AI system for Traffic Event Detection for the Transportation Department of the New Taipei City Government. The solution needed to support NVIDIA Jetson Orin™ NX with NVIDIA JetPack™, include PoE LAN for camera deployment, and be made in Taiwan to meet government safety requirements.

Solution

The customer applied the **AIE100-ONX** for traffic event detection, including parking in red zones, stopping in yellow zones for more than 3 minutes, failure to yield to pedestrians, illegal U-turns, and vehicles crossing the stop line. The system processes video streams at the edge to perform real-time AI analysis and event detection. This enables faster response and improves overall traffic management efficiency.

Result

- Real-time detection of unusual traffic events lasting over 3 minutes.
- Automated identification of high-frequency infractions, reducing reliance on manual monitoring and review.
- Improved traffic order and road safety through consistent, data-driven traffic event detection.

AIE100-ONX

Railway Track Inspection System

Challenge

To enhance railway safety and inspection efficiency, the customer required a compact yet powerful edge AI system capable of detecting track defects in real time—without interrupting active rail service. The solution also needed to withstand harsh environments while processing large volumes of video data continuous railway inspection.

Solution

The customer deployed the **AIE900A-AO**, powered by **NVIDIA® Jetson AGX Orin™**, in a custom enclosure mounted on rail inspection vehicles, enabling edge AI deployment in harsh railway environments. The system analyzes real-time video from cameras and performs onboard AI inference to identify track defects and anomalies. By analyzing data at the edge, the solution supports uninterrupted inspections while minimizing latency and transmission.

Result

- High-speed, uninterrupted railway track inspection using multi-camera streams, enabling real-time analysis during operational runs.
- Instant detection and flagging of track anomalies, enabling automated, data-driven maintenance decisions.
- Reduced risk of critical failures and maintenance costs through early defect identification.

AI-Powered Personal Protective Equipment Checking Device

Challenge

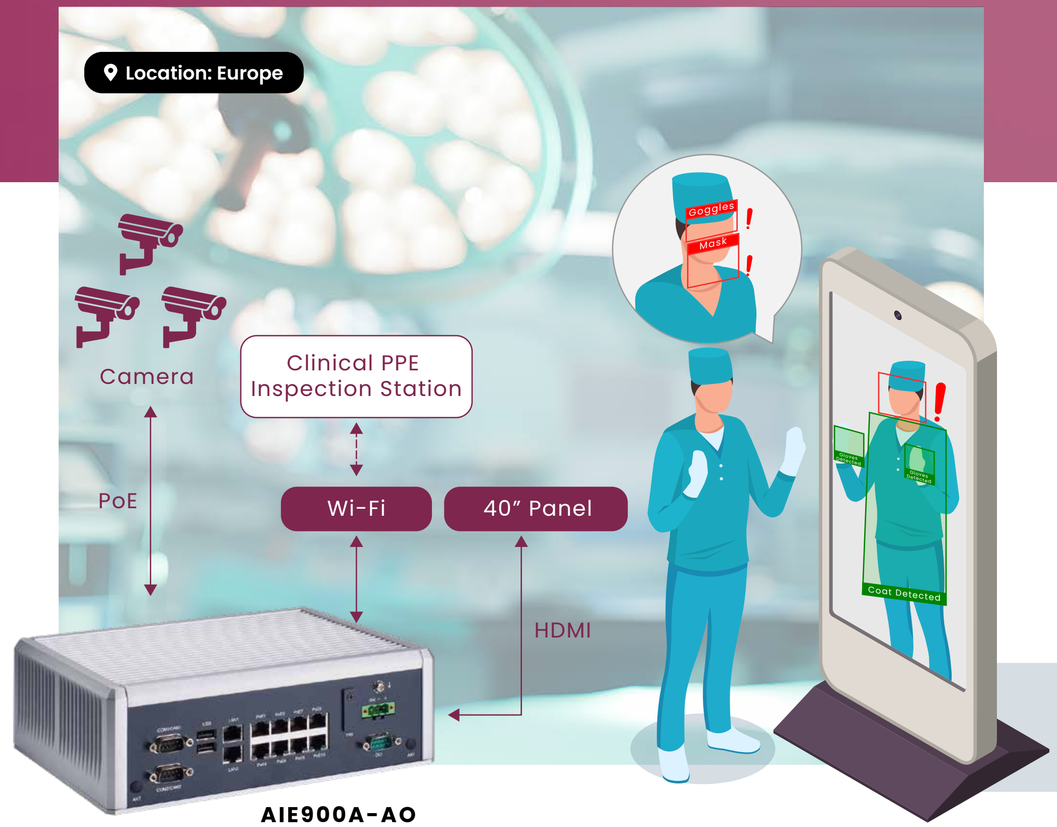
The customer was looking for an Edge AI system for automated PPE (Personal Protective Equipment) checks, powered by the NVIDIA® Jetson AGX Orin™ with up to 200 TOPS of AI performance and supporting PoE or LAN connectivity for cameras. The solution aimed to replace error-prone, time-consuming manual inspections, improving accuracy, speed, and safety compliance while maintaining operational efficiency.

Solution

The **AIE900A-AO** was embedded into an AI-based PPE checking device to perform real-time edge video analytics. The system runs on-device inference to detect PPE as personnel pass through checkpoints, enabling low-latency responses without cloud dependency. This architecture ensures fast decision-making and reliable operation in safety-critical environments.

Result

- Real-time PPE compliance verification at checkpoints, validating required items (mask, gloves, goggles, cap) per individual.
- Automated detection of missing or incorrect protective equipment, reducing manual checks and human error.
- Improved workplace safety and regulatory compliance through consistent, AI-driven inspection.



AIE900A-AO

Roadside Unit and Smart Traffic Management

Challenge

To scale next-generation intelligent traffic systems across cities, the customer required millisecond-level edge AI processing for real-time video analytics while avoiding cloud latency and high data transmission costs. The solution also needed an integrated all-in-one design to simplify deployment and reduce infrastructure costs. Most importantly, 24/7 outdoor operation demanded high system stability and advanced remote management to minimize on-site maintenance.

Solution

Axiomtek deployed the **AIE900A-AO** fanless edge AI system, powered by NVIDIA Jetson AGX Orin 32GB, to deliver high-performance AI inference for intelligent traffic applications. Built-in PoE, GMSL support, and a wide-temperature fanless design simplify deployment, while Allxon Out-of-Band (OOB) remote management enables remote recovery and reliable large-scale outdoor.

Result

- Up to 275 TOPS edge AI performance enabling real-time traffic analytics at the edge.
- Simplified deployment and reduced infrastructure costs with integrated PoE and GMSL connectivity.
- Reliable 24/7 operation enabled by Allxon OOB remote management and edge-based processing.

Unmanned Parking Lot Management

Challenge

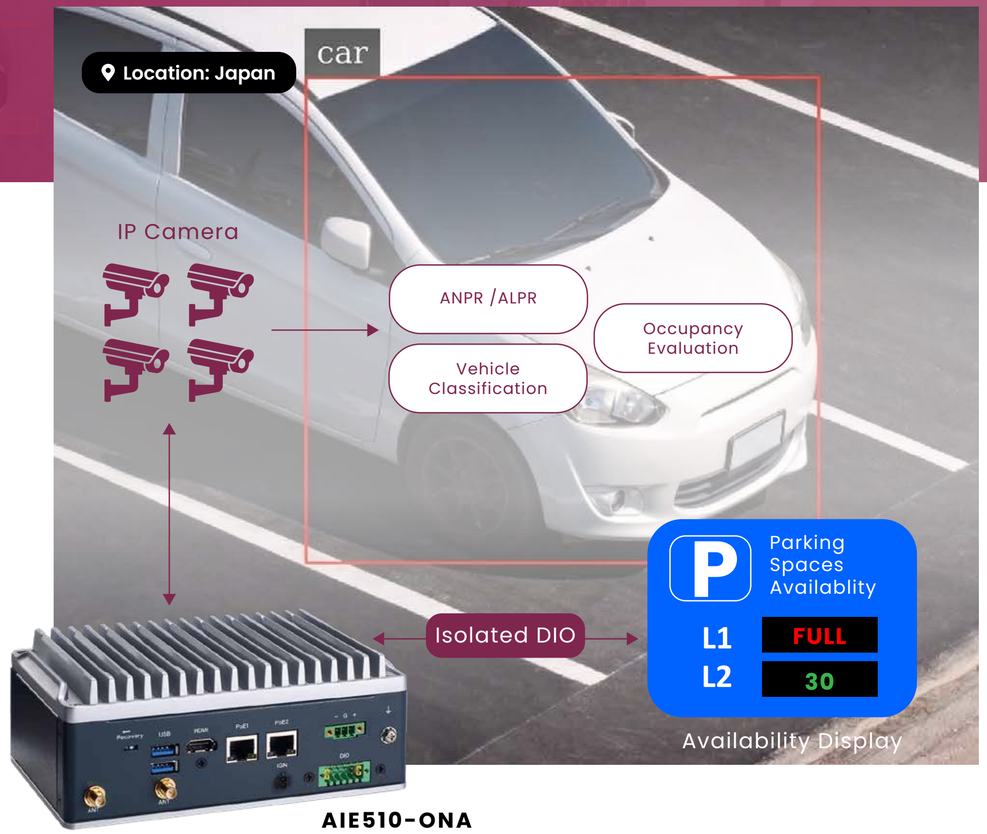
The customer relied on multiple standalone systems such as gates, cameras, license plate recognition, ground locks, and payment terminals, resulting in complex integration and high deployment costs. The fragmented architecture also led to inconsistent vehicle identification and inefficient parking management, impacting overall operational efficiency and system reliability.

Solution

Axiomtek deployed the **AIE510-ONA**, powered by NVIDIA Jetson Orin Nano, to enable a fully integrated unmanned parking system with GPU-accelerated AI. The platform consolidates license plate recognition, vehicle classification, parking space detection, and visitor management into a single system, streamlining operations, improving accuracy, and reducing hardware complexity and deployment costs.

Result

- Real-time AI-powered parking analytics enabled by NVIDIA Jetson Orin Nano for faster and smarter decision-making.
- Reduced deployment complexity and infrastructure costs through an all-in-one integrated system.
- Achieved stable 24/7 autonomous operation with minimized downtime and maintenance efforts.



AIE510-ONA

Service & Nurse Assistant Robot

Challenge

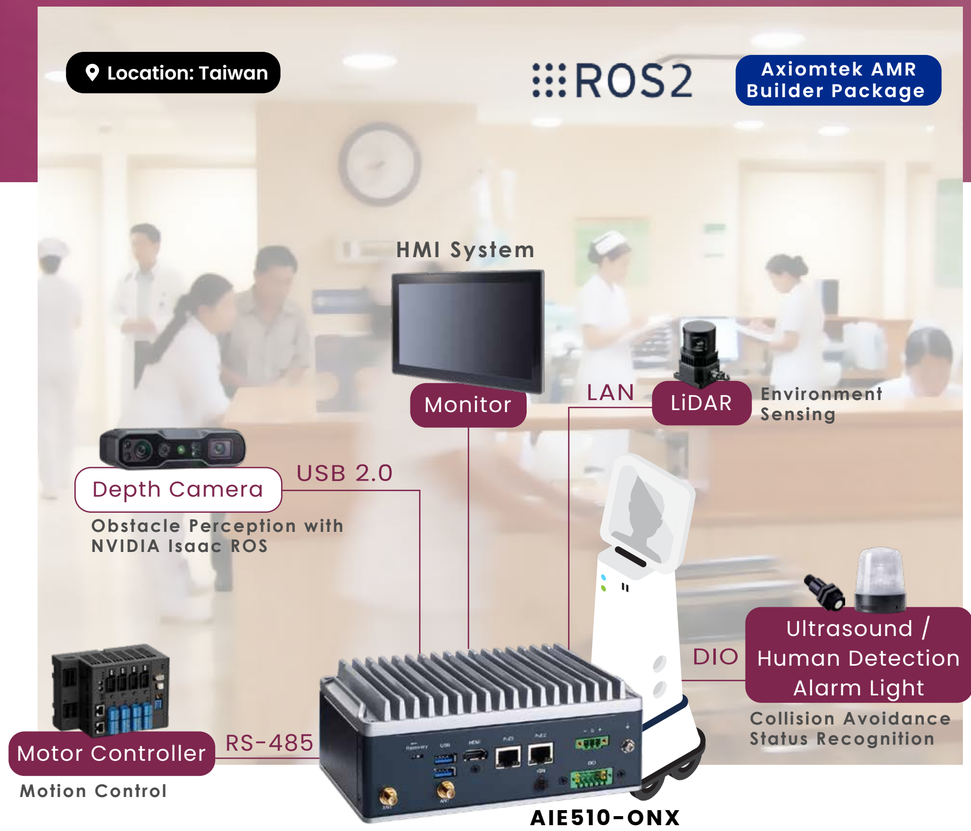
The customer aimed to reduce the workload of nursing staff by minimizing repetitive and low-complexity tasks in daily hospital operations. Nurses were required to repeatedly provide ward orientation, patient education, and medication-related guidance, which consumed valuable time and limited their ability to focus on critical care and consistent follow-up across shifts.

Solution

Axiomtek deployed the **AIE510-ONX**, powered by NVIDIA Jetson Orin NX, as part of the **Axiomtek AMR Builder Package** to enable AI-powered service robots in hospital environments. Built on ROS 2 with NVIDIA Isaac, the system combines depth cameras, LiDAR, and ultrasonic sensors for real-time perception, navigation, and collision avoidance, while supporting motion control and HMI interaction. The solution automates routine patient services and streamlines workflows at the nurse station.

Result

- Reduced nursing workload by automating repetitive patient communication and guidance tasks.
- Improved consistency and accuracy of patient education and medication follow-up.
- Enhanced operational efficiency at nurse stations with AI-assisted service workflows.
- Enabled reliable 24/7 service support with minimized manual intervention.



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