

Case Study

Allxon Cloud Serial Console
Allxon swiftDR OOB Solution



OOB: The Key to Ensuring Uninterruptible Edge AI Video Detection

Reducing crime is a crucial priority for countries around the world, and video detection systems have long been valued as a key tool in this effort. Today, as AI technology advances, these systems are getting smarter, with AI capabilities significantly boosting their computing power.

This upgrade allows real-time analysis directly at the edge, using data from devices and sensors to improve response times to incidents. The future of AI-driven video detection systems looks bright, with market projections expected to reach tens of billions of US dollars over the next decade¹.

However, these advancements come with new challenges. The integration of advanced AI capabilities and more critical data means that extended downtime, breaches by unknown external parties, or even theft could result in significantly higher losses than in the past. As the Edge AI landscape evolves, industry players will need to focus on enhancing device security and streamlining remote device management to ensure 24/7 uninterrupted operation. However, most businesses still find this a complex challenge to tackle.



Challenges: High Security Risks and Rapid System Recovery

A leading North American security system manufacturer, with over a century of experience in the industry, has chosen the NVIDIA Jetson Orin platform to develop their AI video detection systems. Their goal is to enhance real-time computing and analysis of data from devices and sensors, enabling immediate alerts and decision-making suggestions during incidents, thus speeding up the troubleshooting process. However, they have encountered several challenges when selecting a remote management solution:

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Challenge 1:

Common remote device management solutions, such as SSH, are primarily software-based. If the main system crashes, these solutions become inoperable, forcing technicians to resolve issues on-site.

Challenge 2:

SSH remote connections rely on TCP/IP communication protocols and require TCP ports to remain open, which increases the potential risk of external intrusions.

Allxon stands out as one of the few companies offering [comprehensive In-Band \(INB\), Out-of-Band \(OOB\), and cloud technology services](#). Allxon deep integrations with various hardware manufacturers have effectively addressed the customer's pain points, earning their trust. In collaboration with [Premio, a leading American company with over 35 years of experience in ruggedized edge and embedded computing solutions](#), Allxon is developing the next generation of AI video detection systems for this major security system manufacturer.

Solutions: Allxon OOB Solution Empowers Comprehensive Remote Management Capabilities

The OOB Enabler of the Allxon [OOB solution](#) is the standout feature that attracted this customer. Integrated into the core layer of the Nuvoton [NUC980](#) microcontroller (MCU) chip, the OOB Enabler drives GPIO to send signals to perform actions on the main system, such as switching power on/off, detecting issues, and scheduling tasks. In case of a device failure, it can also force the main system to shut down. Moreover, the OOB with NUC980 operates independently, meaning it continues to provide services even when the main system is down.

Since any downtime in the video detection system can impact public safety, the customer values the ability of daily remote access to check device status through the safest, lowest-risk methods. Allxon's self-developed [Allxon Cloud Serial Console](#) meets this need, allowing technicians to remotely access devices at any time and operate the terminal through the Allxon Portal.

As Edge AI devices often require frequent AI model updates to maintain high performance, technicians can also remotely access the BIOS/UEFI interface to fine-tune hardware settings after these updates.

More importantly, for NVIDIA Jetson series devices, technicians can view the boot log through the Cloud Serial Console when restarting a malfunctioning system, which helps speed up issue diagnosis. If necessary, they can export the boot log data to reduce system recovery time. Additionally, software solutions like SSH require open TCP ports for remote device management, which can pose a high risk of intrusion and is often seen as a major concern for IT/OT administrators. To address this, the Cloud Serial Console retrieves data from the main system through the hardware serial port and encrypts data using MQTTS and HTTPS protocols, which alleviates users' security concerns.

[Learn More About Allxon's solution](#)

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Future Plans: Allxon as a “Connector” to Accelerate the Deployment of Edge AI Video Detection Systems

Allxon plays the key role of a “connector” in this collaboration, leveraging its expertise in software, hardware, and cloud technologies to bridge communication between the customer and Premio. This ensures that development ideas are aligned on both the software and hardware sides, reducing potential technical hurdles.

As a result, Allxon can quickly transform the customer’s specifications into integrated software-hardware-cloud system products on Premio’s [JCO-3000-ORN-A](#) hardware platform.

Through this partnership, Allxon showcases its unique technical capabilities and robust ecosystem support. Moving forward, Allxon will continue to assist partners in building Edge AI video detection systems, helping them effectively capitalize on the Edge AI trend.

Reference

¹[Global AI in Video Surveillance Market By Component, market.us](#)

[AI In Video Surveillance Market Size, Global market insights](#)

[AI In Video Surveillance Market Size, Share & Trend Report, Grand View Research](#)

Recommended System:

About [JCO-3000-Series](#) & [JCO-6000-Series](#)



About Premio

Premio is a global solutions provider specializing in computing technology from the edge to the cloud. Premio design and manufacture highly reliable, world-class computing solutions for enterprises with complex, highly specialized requirements for over 30 years. Our engineering specialty and agile manufacturing pushes the technical boundaries in [Embedded IoT Computers](#), [Rugged Edge Computers](#), [HMI Displays](#) and [HPC Storage Servers](#). With a state-of-the-art facility in Los Angeles, California ([ISO9001](#), [ISO14001](#), [ISO13485](#)) and strategic locations in Taiwan, Malaysia and Germany... Premio provides robust product engineering, flexible speed to market and unlimited manufacturing transparency.

For more Information, please visit premioinc.com