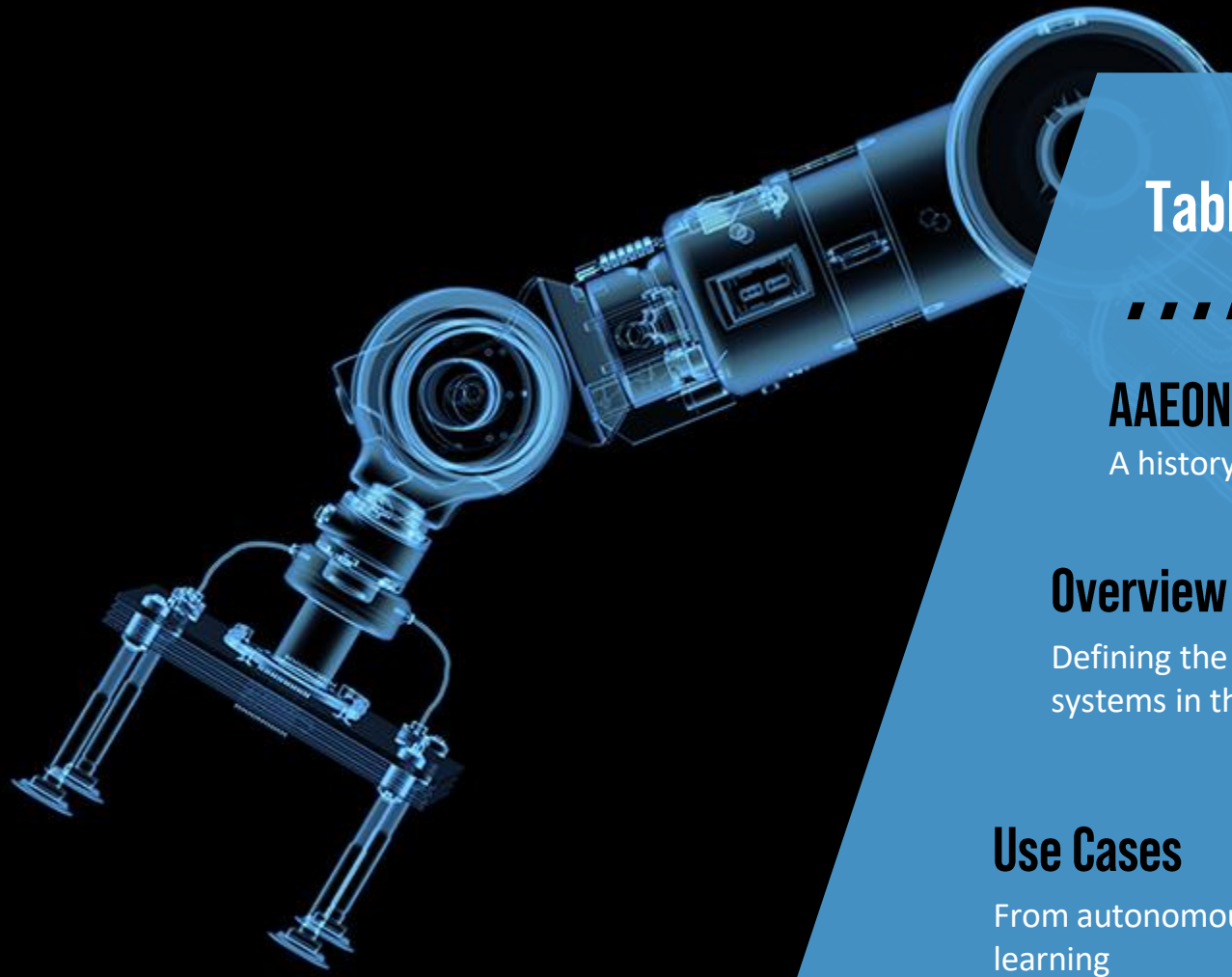
Smart Manufacturing Playbook

AAEON Always Agile, Always Ahead.



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Defining the role of edge AI and embedded systems in the industrial sector

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Get an Edge with AAEON
Discover the benefits for your business

AAEON Introduction

01 Founded

AAEON Technology Inc. was founded in 1992 and is recognized worldwide for pioneering edge AI computing solutions tailored for advanced manufacturing environments.

02 Expertise

The company integrates state-of-the-art technology from top chip manufacturers to develop cutting-edge hardware that empowers manufacturers to implement smart manufacturing practices effectively.

03 Solutions

AAEON offers a comprehensive range of AI-driven solutions designed to optimize manufacturing processes, enhance operational excellence, and facilitate automation across diverse industrial applications.

Overview

AAEON stands as a pioneer in the development of both edge AI and more efficient computing platforms capable of transforming how different functions within manufacturing operate. Far from simply automating processes, AAEON's products elevate them with the objective of increasing operational excellence across multiple areas.

AI Quality Inspection

Autonomous Maintenance Devices

Control Systems

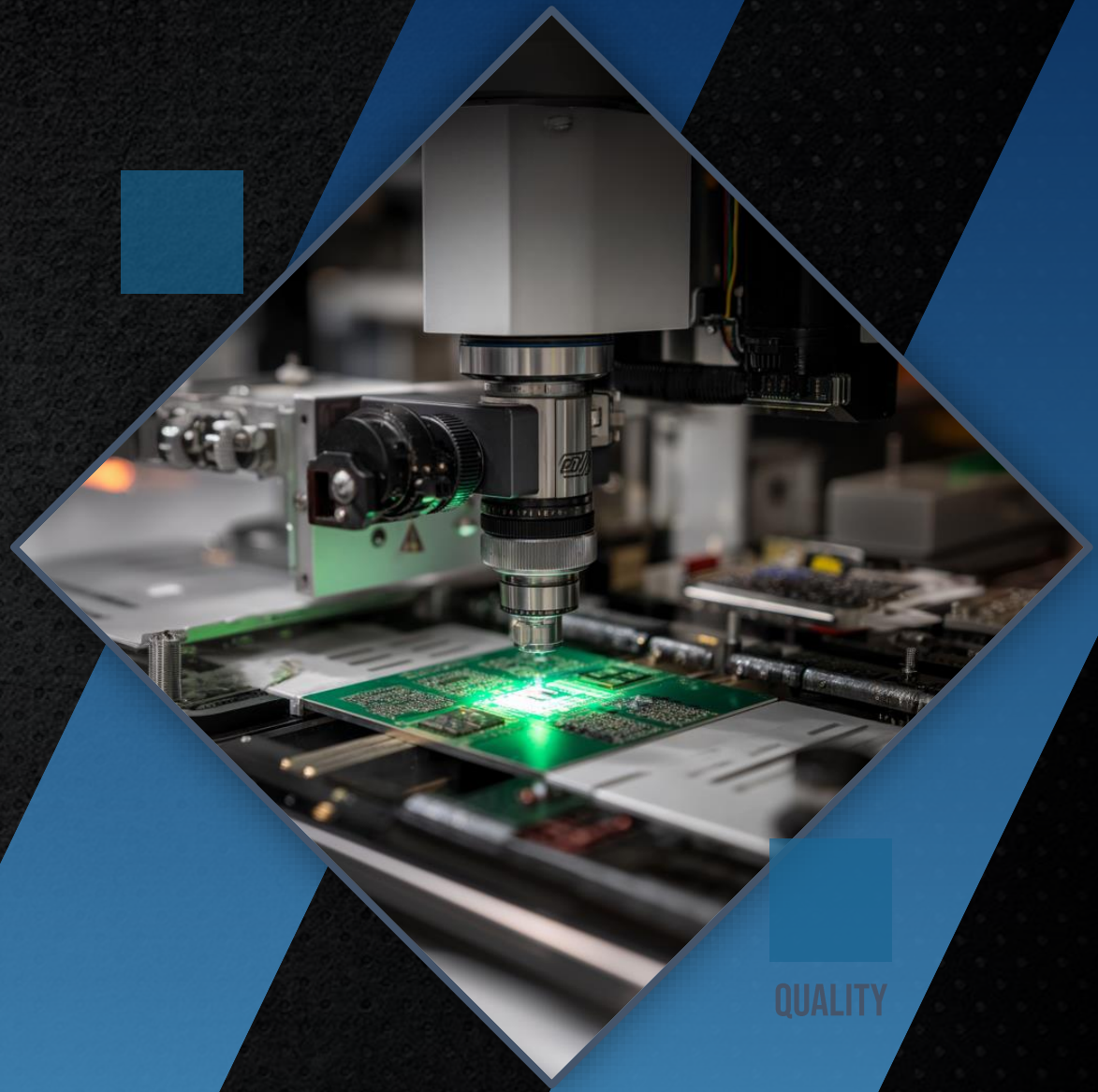
AMRs & AGVs

Case Studies

Use Case 01

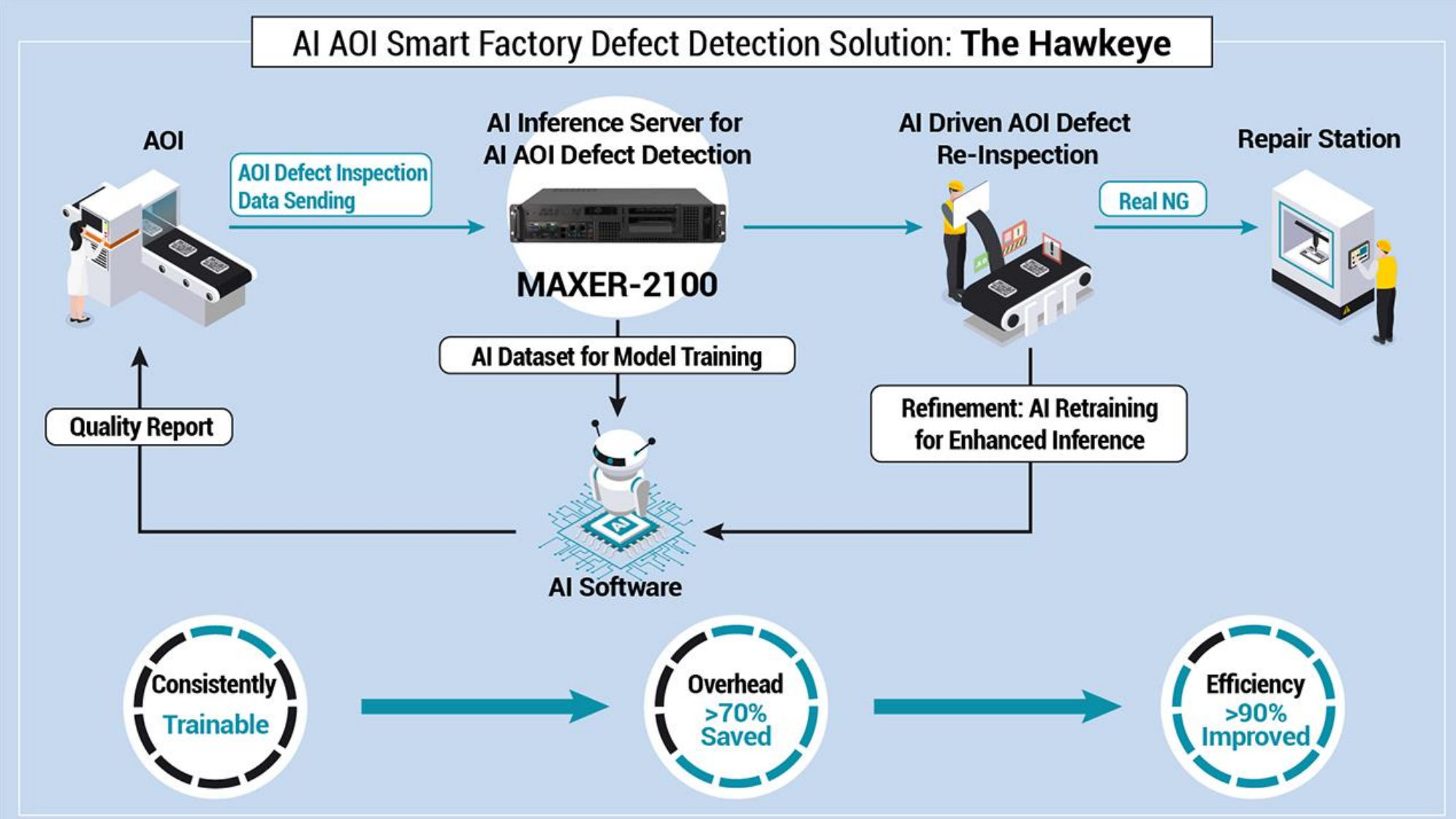
Automated Optical PCB Inspection

An automated optical inspection system that leveraged the MAXER-2100, an AI inference server equipped with a Intel® Core™ i9-13900 Processor and an integrated NVIDIA RTX™ 6000 Ada GPUs to perform defect detection during the printed circuit board manufacturing process.



QUALITY

Application Architecture



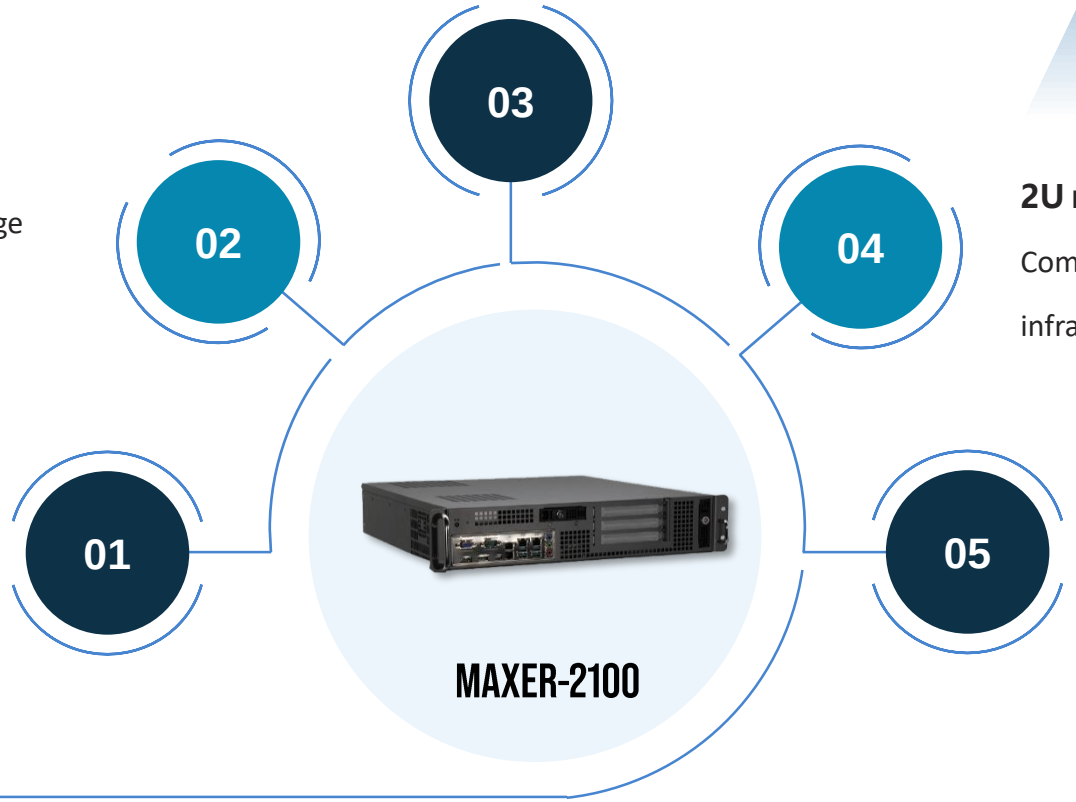
Key Product Features

Built-in 1000W power supply

Robust power delivery for continuous operation

NVIDIA RTX™ 6000 Ada GPUs

Accelerated AI inferencing for real-time image processing



2U rackmount for flexible deployment

Compact form factor for integration into existing infrastructure

Intel® Core™ i9-13900 Processor

High-performance CPU for complex computational tasks

Front access I/O design

Simplified maintenance and connection management

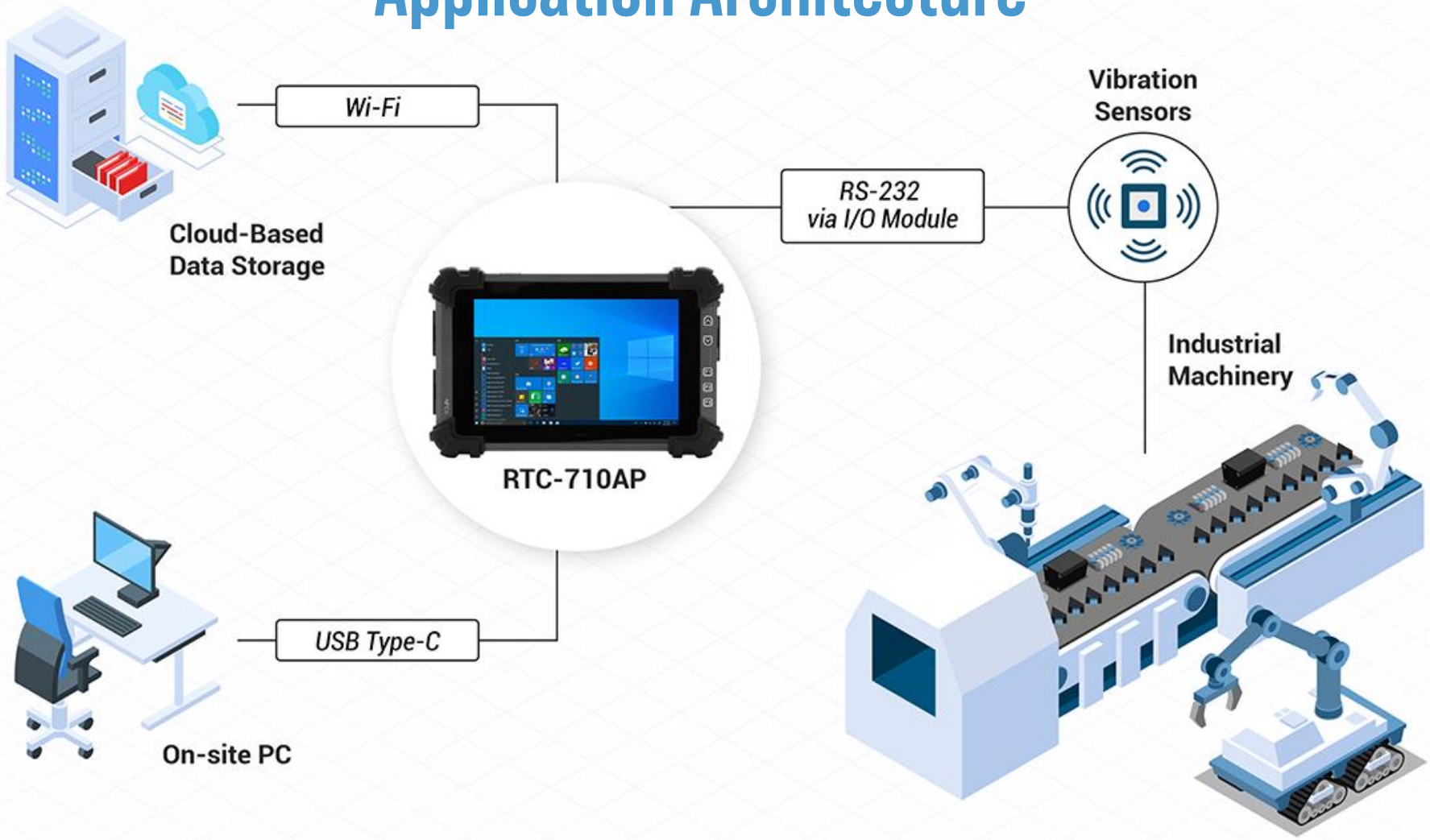
Use Case 02

Portable Equipment Safety Tester

Portable industrial vibration analysis unit with AAEON's RTC-710AP as its controller. Using the 7" rugged tablet's industrial design and compatible interfaces, it was able to integrate sensors and other vibration monitoring equipment and remotely report diagnostics from the field to the data center.

SAFETY

Application Architecture



Key Product Features

01

MIL-STD-810G certification

Military-grade durability for industrial environments

02

IP65 rated

Protected against dust and water ingress

03

Wi-Fi 802.11 b/g/n

Reliable wireless connectivity for remote diagnostics

RTC-710AP

04

700-nit, 7" multi-touch display

Sunlight-readable screen for outdoor use

05

Eight-hour hot-swappable battery

Continuous operation throughout shifts

06

RS-232 for sensor integration

Direct connection to industrial measurement devices

Use Case 03

AI-Assisted Waste Sorting Unit

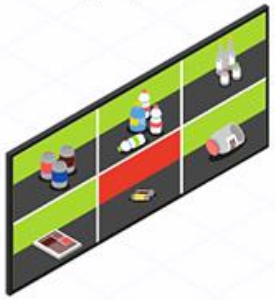
BOXER-6647-MTH powered automated AI-powered system to screen recycled material streams at sorting facilities. The system would detect hazardous items and classify materials into categories, making it easier to separate and prepare them for remanufacturing.

SORTING

BOXER-6647-MTH

Depth Camera

Display Panel



AI Algorithm

Application Architecture

Key Product Features

BOXER-6647-MTH

01 **Intel® Core™ Ultra 7 Processor 155H**

Integrated CPU, GPU, and NPU for efficient AI processing

02 **Extensive I/O capabilities**

Four USB 3.2 Type-A and three RJ-45 ports for camera integration

03 **Flexible power requirements**

9V to 36V input range for compatibility with various power sources

04 **Wide temperature tolerance**

-20°C to 60°C operation in harsh industrial environments

05 **Fanless design**

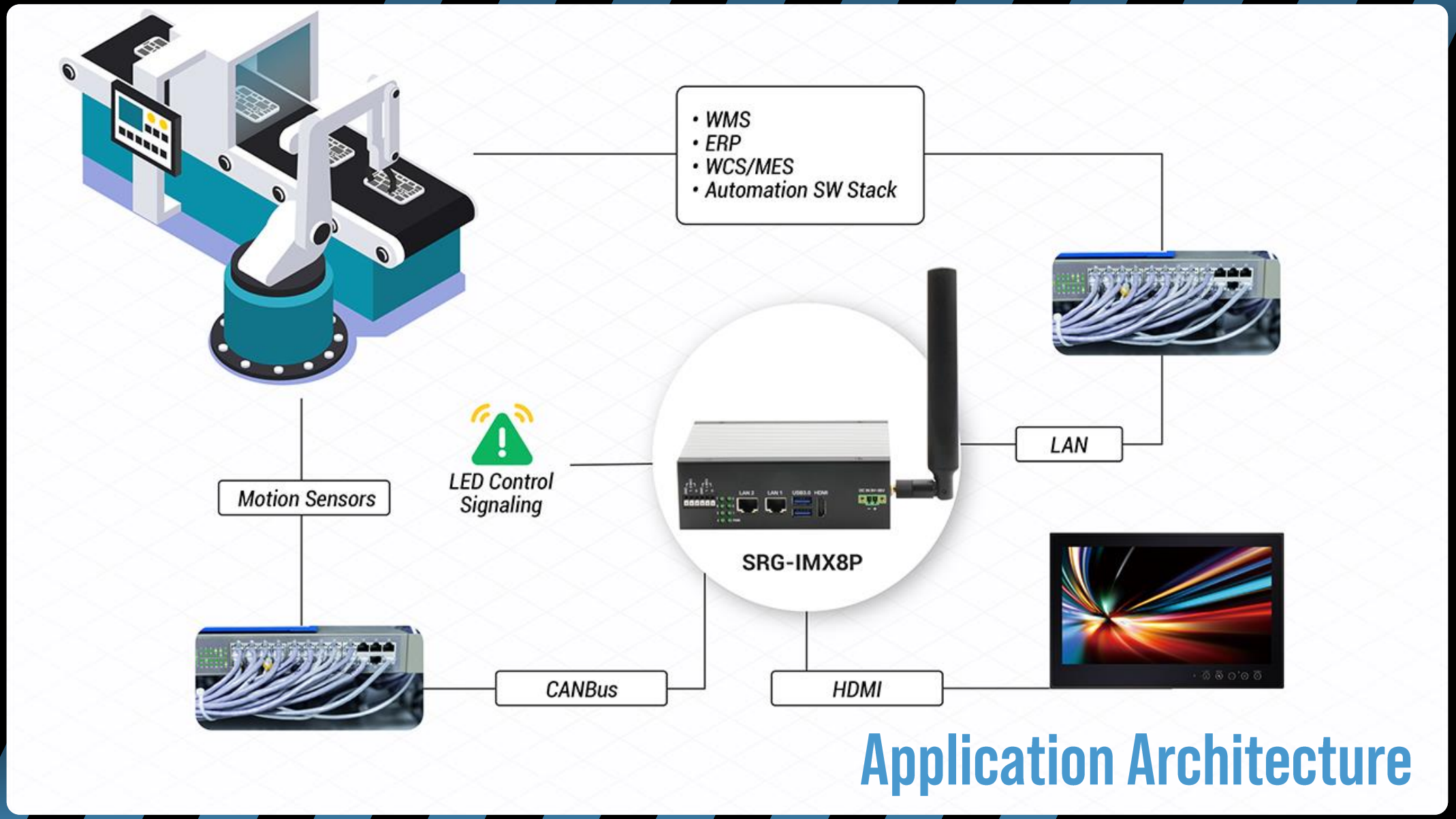
Reliable operation in dusty recycling facilities

Use Case 04

Programmable Logic Controller (PLC)

A modular industrial automation system that combines the SRG-IMX8P, proprietary software, and existing factory infrastructure to enhance efficiency, scalability, and real-time factory control while minimizing downtime.

CONTROL



Application Architecture

Key Product Features

01 Powerful Processing

Quad-Arm® Cortex®-A53 with 2.3 TOPS NPU for AI-driven automation

02 Industrial Environmental Rating

-20°C to 70°C operating range & 9V-36V power input for harsh industrial settings

SRG-IMX8P

03 Versatile Connectivity

Dual LAN, CANBus, RS-232/422/485, HDMI for comprehensive industrial control

04 Status Monitoring

7 programmable LEDs for at-a-glance system diagnostics

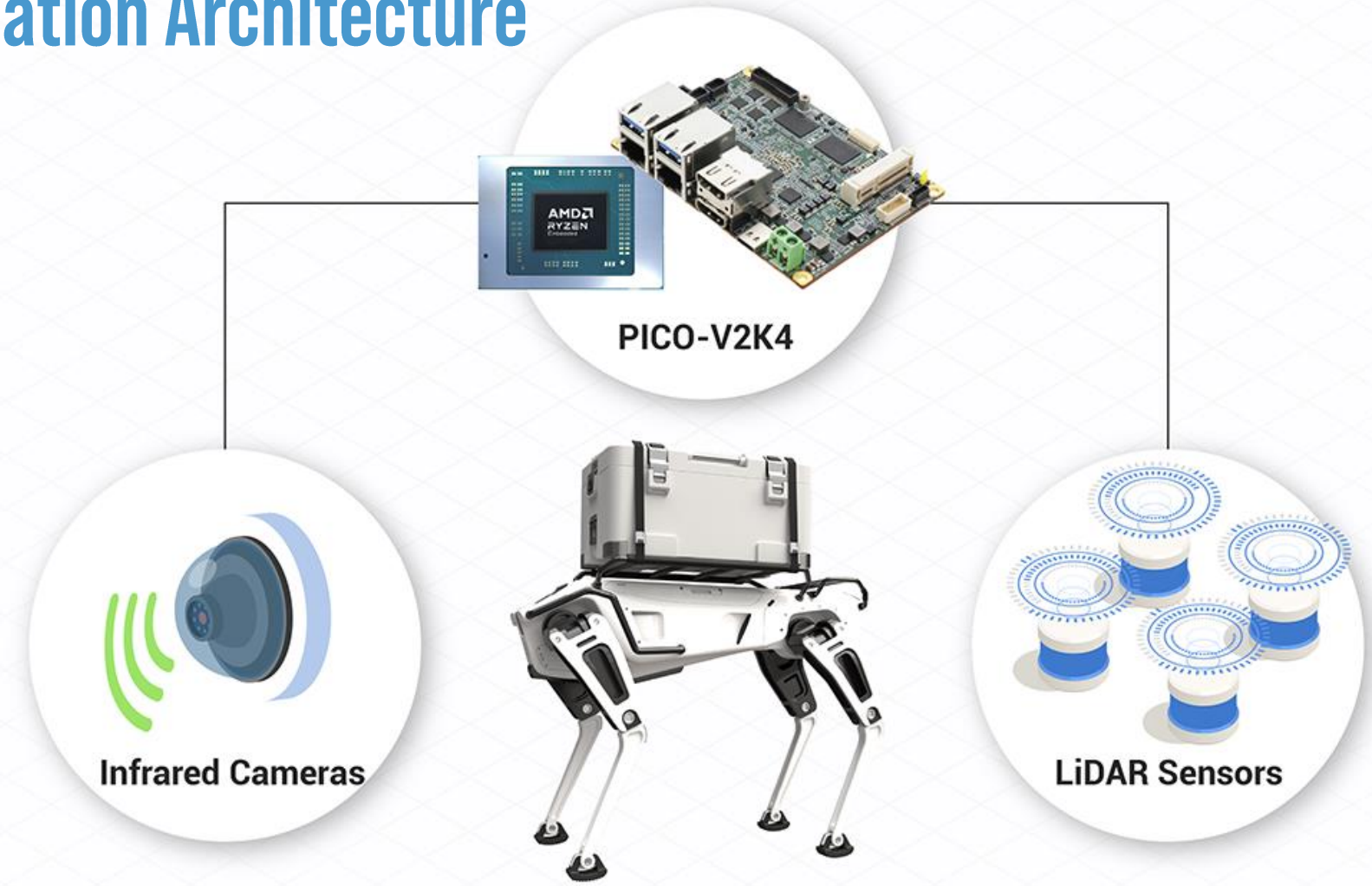
Use Case 05

Autonomous Power Station Maintenance Robot

A four-legged robotic unit powered by the PICO-V2K4 was deployed to undertake equipment testing and maintenance in power stations, traveling large distances and performing analyses of complex equipment in tight, potentially hazardous spaces

MAINTENANCE

Application Architecture



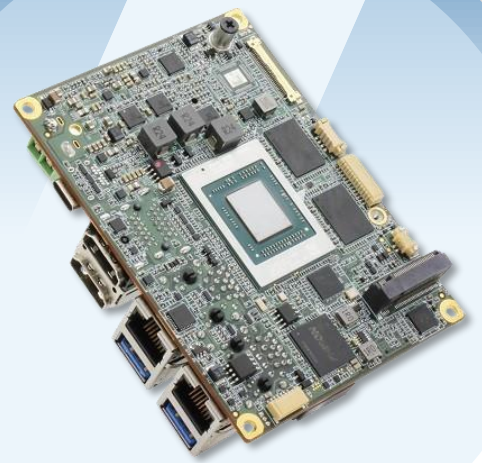
Key Product Features

01
Extreme temperature tolerance
-40°C ~ 85°C range for operation in hazardous environments

02
Powerful processing capabilities
AMD Ryzen™ V2000 series CPU for complex data analysis

03
Advanced graphics processing
AMD Radeon™ 7 graphics for equipment defect detection

04
Comprehensive I/O options
Full-function I/O for infrared camera and LiDAR integration



PICO-V2K4

Operational Efficiency through Smart Manufacturing

Improved Quality Control
AI enhances defect detection, ensuring higher quality outputs.

Streamlined Processes
AI-driven solutions optimize workflows, reducing waste and inefficiencies.

Reduced Downtime
Autonomous maintenance minimizes equipment outages and increases productivity.

Enhanced Flexibility
Smart systems adapt to changes in production needs swiftly and efficiently..

Real-time Monitoring
Control systems provide instant insights, aiding prompt decision-making.

Cost Savings
Automated solutions lower operational costs and improve the bottom line..

Get an Edge with AAEON

Contact your AAEON representative to optimize your industrial setup today.

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Request a Consultation

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