

The Company transcends 「hyper」
Technology 「Techn-」
Scientific studies 「-ology」

Hypernology Inc.

Company Profile



The Company transcends 「hyper」
Technology 「Techn-」
Scientific studies 「-ology」



01 **Company**

02 **Business**

03 **User Case**





Hypernology



Established on February 22, 2022



Eight members



Gyeonggi-do Suwon

Certifications, Intellectual Property Rights

- Venture Company Certification
- Company-affiliated Research Institute Certification
- ISO 9001 / 14001 Certification
- 1 Patent Registered
- 3 Patents Published
- 7 Program Registrations
- 2 Product Registrations
- 8 Products Published



Supplier Registration

중소벤처기업부 KOSME 중소기업 혁신바우처 플랫폼

데이터바우처

AI 바우처

KOSMO

COMPANY





Lee NamHui **CEO**

Work History

2022- CEO of Hypernology

2019-2022 Senior Researcher, SFA R&D 2 Center

2018-2019 Researcher, Intelligent Systems Research Institute, Sungkyunkwan University

2016-2018 Senior Researcher, Podosoft

2014-2016 Researcher, Orange Digit Korea

2012-2014 CEO of JN Solution

2010-2011 Chief of Technical Support Department, Nets Korea

Education

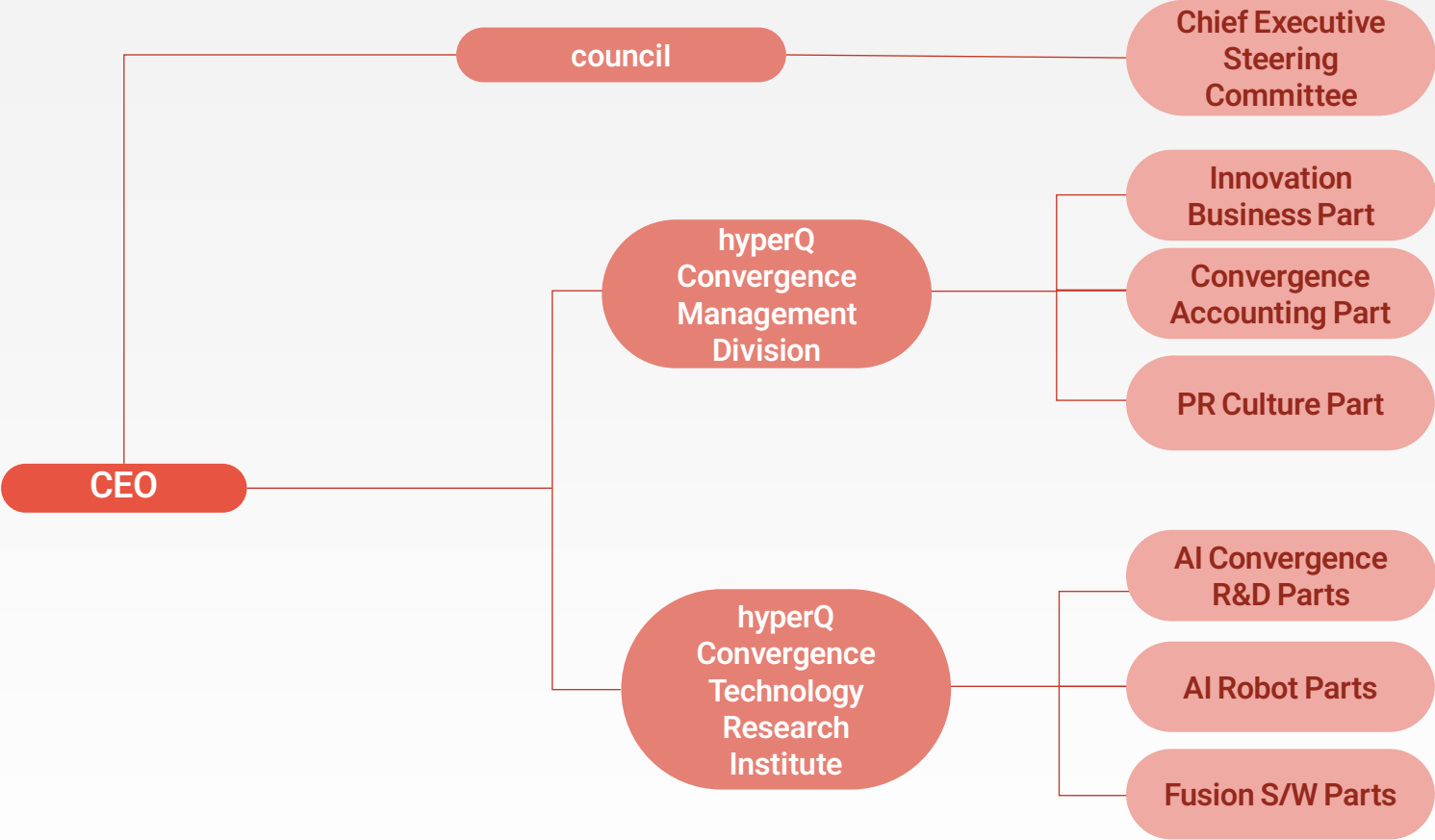
2020 Sungkyunkwan University Graduate School of Software, Ph.D. in Artificial Intelligence

2016 M.F.A. IN KNOWLEDGE INFORMATION ENGINEERING, AJOU UNIVERSITY

2011 Bachelor of Science and Multimedia Engineering, Hansung University

COMPANY

Hypernology supports customers' innovation through the Convergence Management Headquarters and the Convergence Technology Research Institute.



COMPANY

Hypernology works with customers in various areas.
We are also building networking for continuous technology development.



AI & vision



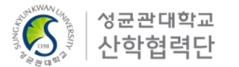
Business



Clients



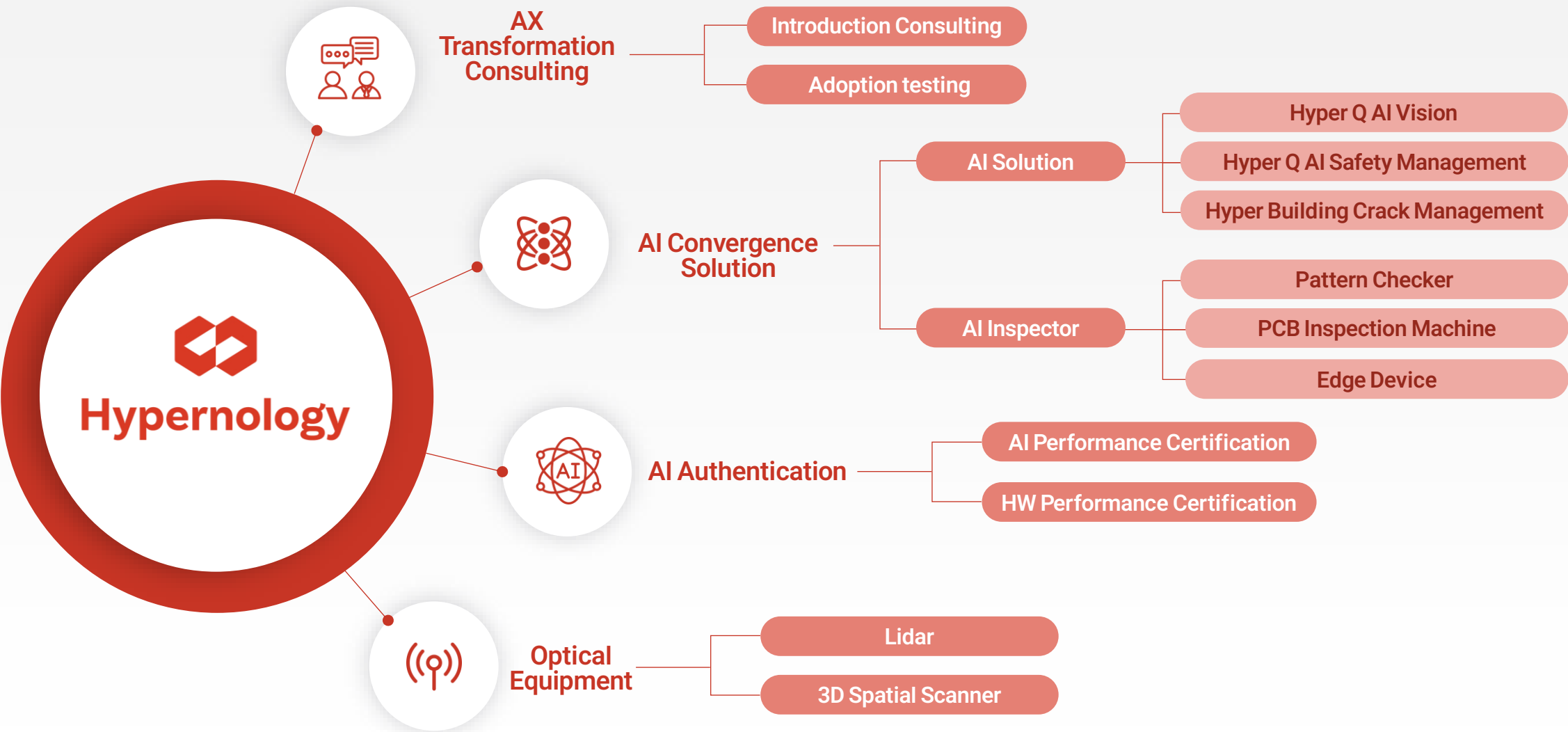
R&D



COMPANY



Hypernolog offers everything from transition consulting for effective introduction of AI to on-site application of solutions and inspectors, to certification. We support all areas of our customers who want to adopt AI.





AX Transformation Consulting

AX (AI Transformation) is centered on artificial intelligence to achieve the vision that customers want.
Hypernology is an AI company that helps customers innovate with AX.

Process Consulting

We support the implementation of intelligence/automation of business processes to introduce AI into work.

Solution Consulting

Considering the customer's current situation and needs, we propose and support the optimal solution.

Productivity

Automate repetitive and time-consuming tasks to help improve productivity

Efficient processes

We support innovation through a collaborative process of people, robots, and artificial intelligence.

Harness your data

We analyze the data held by the company and propose AI services that can be developed.

Adopt custom AI

We support the introduction and application of AI solutions that reflect the characteristics of customers.

Solution Validation

We support simple testing of the solution that customers want so that they can check the actual implementation results in advance.





AI Authentication

Through authoritative tests based on international standards, we support the certification of AI that customers can trust.

Software Certifications

Verifies AI system security, vulnerabilities, and performance to ensure AI reliability.

Hardware Certification

Tests AI hardware durability, environmental resistance, and repeatability to guarantee hardware quality.



Software International Standards



ISO/IEC 25051



ISO/IEC 25058



ISO/IEC 25059

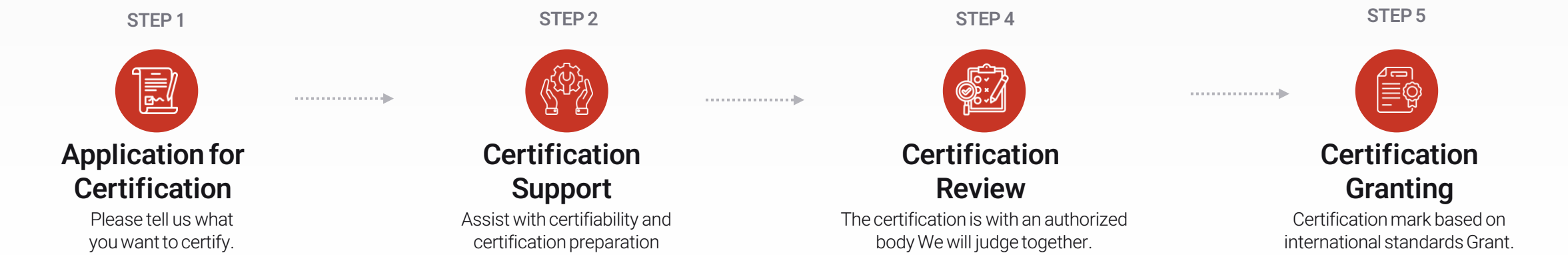
Hardware International Standards



IEC 60529



IEC 60068





A solution that utilizes AI analysis of image or video-based data for various industries, including quality inspection in manufacturing, safety management, and building crack detection.

It is applied to detect micro defects in irregular defect types in the manufacturing industry, fire detection in workplaces using CCTV, identification of hazardous worker behaviors, and crack detection in buildings.





An AI vision solution for inspecting irregular defects, detecting various defects that are difficult to quantify, including appearance, dimensions, shape, and fastening issues.

AI supports **atypical micro-defect detection solutions.**

AI convergence solutions

AI Convergence Solution

HyperQ AI Vision Solutions

HyperQ AI Vision Solutions

Inspection Support

2D and 3D Vision Inspection Support

Defect Detection Rate

High defect detection rate of over 99%

Defect detection size

Micrometer-level resolution detection
* Adjustable according to product characteristics

Implementation time

From data collection to deployment — completed within 2 months.

- Supports appearance, dimension, shape, and fastening inspections
- Lot-based data storage and management
- Provides defect statistics dashboard (by lot/type)
- Bilingual support (Korean & English)



It is a comprehensive safety management solution that simultaneously detects worker anomalies and the work environment through real-time video.
It detects and distinguishes between fire hazards and fire, ensures compliance with restricted areas, and detects various industrial accidents affecting workers.

We support **workplace and worker safety management** through AI.

AI convergence solutions

AI Convergence Solution

HyperQ AI Safety Management Solutions

HyperQ AI Safety Management Solution

CCTV

AI detection based on CCTV
* compatible with existing CCTV systems

Day/Night Fire Detection

24-hour fire detection

Anomalies Advance prediction

Prediction of worker anomalies based on vital signs

Risk detection

Bumps, falls, falls, etc. Serious Accident Detection

Fire/hazard distinction

Detection of protective gear compliance

Adherence to safety regulations

App & Web Dashboard PUSH Notifications



A building crack management system based on images of building exteriors, using AI models to accurately detect real cracks. It inspects not only internal cracks of existing buildings but also detects fine cracks on the exterior.

AI supports building crack inspection solutions.

AI convergence solutions

AI convergence solutions

HyperQ AI Building Crack Inspection Solutions

HyperQ AI Building Crack Inspection Solutions

Drone Photography

Based on drone images Crack detection

High detection rate

Minimizes false positives on windows and pipes for high accuracy

External crack detection

Beyond interiors — detects exterior cracks on high floors

Universal across existing and new architectures

Inspection solutions for both existing and new buildings

3D Mapping Viewer provided

Crack location coordinates

Crack dimension information (length & width)

BIM(Buidding Information Modeling) integration support

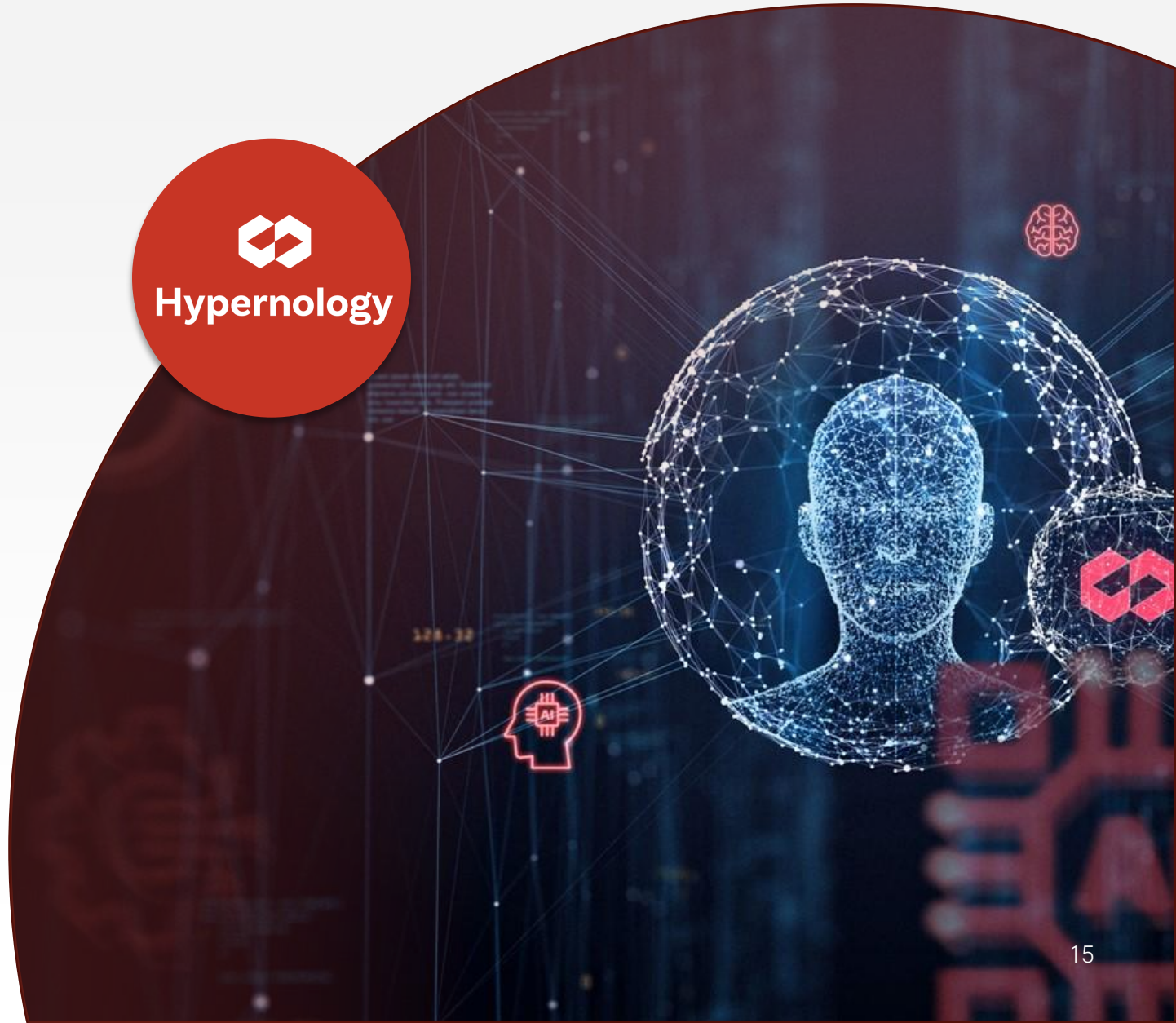


HyperQ AI is a fully automated inspection system optimized for target and purpose, delivering fast and accurate defect detection.

Hypernology's AI Inspection Solution

HyperQ Vision solution is applied,

It supports the inspection of various items such as pattern inspection, OCR inspection, barcode inspection, defect inspection, and misassembly inspection.



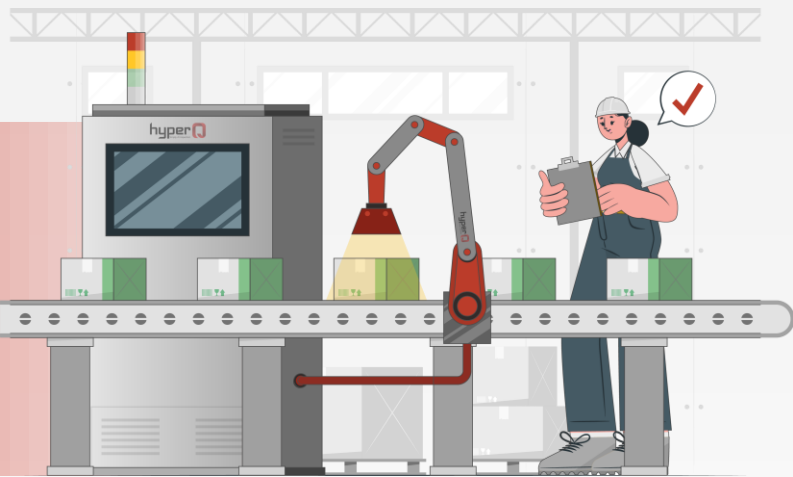


Product Overview

Inspects products by comparing surface patterns with reference models to detect defects

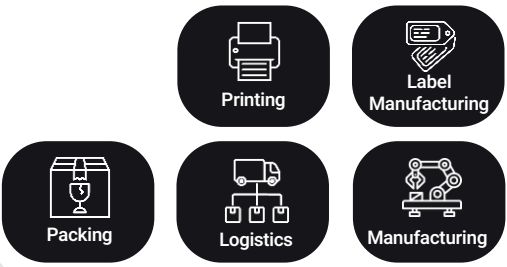
In the Box

monitor	15-inch Touch Monitor	lens	Changes depending on the object to be inspected
PC	i5-11th Gen and above	lighting	Strobe or fixation
camera	5MP or more, Global Shutter	Other	Warning beacon, keyboard, mouse

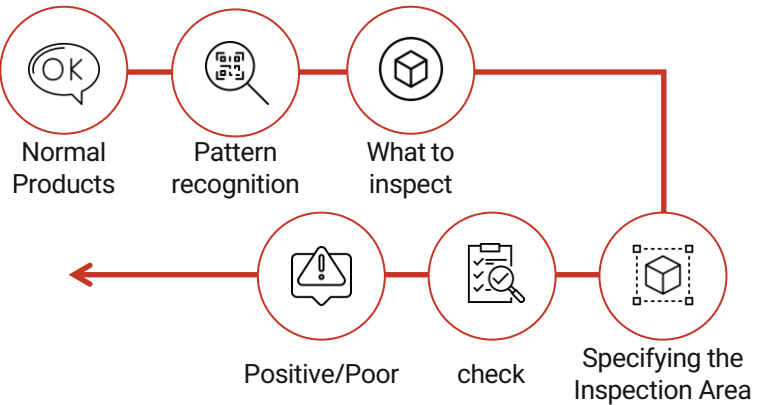


Application Industries

Used for checking typos, typos, missing barcodes, mixing, etc.



Inspection Process



Inspection Support Function

Barcode pattern

Detects text, patterns, or barcodes. Instantly deployable inline without training.

Barcode misplacement

Supports EAN(8,13), UPC(A,E), CODE(128) barcode reading
**Additional code available upon request*

OCR

Korean, English characters
Typo, typographical entry, mixing, etc.



Product Overview

AOI to detect visual defects on PCBs
(Automated Optical Inspection)

In the Box

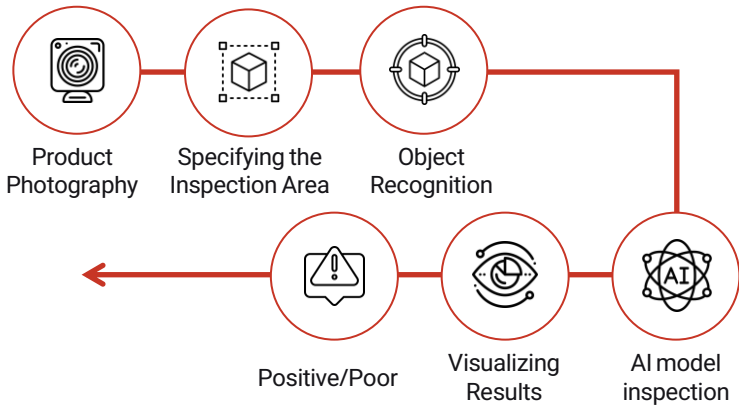
monitor	24-inch Touch Monitor	lens	Changes depending on the object to be inspected
PC	i5-11th Gen and above	lighting	Strobe or fixation
camera	5MP or more, Global Shutter	Other	Warning beacon, keyboard, mouse

Application Industries

Utilized for single-sided, multi-layer, double-sided PCB component and lead inspection



Inspection Process



Inspection Support Function



Inspection of various components such as devices, resistors, and transistors for missing



Checking the normal placement of components, such as devices, resistors, and transistors



Inspection for abnormalities such as lead deformation or incorrect attachment



Product Overview

With an edge-based camera with an embedded NPU chip, Upload and use AI models that meet your needs

In the Box • Camera and lens can be changed according to customer request

NPU	500Hz Max 1TopS	Power	12V DC
camera	2MP WDR 1920x1080P	WIFI	USB Dongle (Options)
network	Ethernet	storing	SD card (Options)

Application Industries

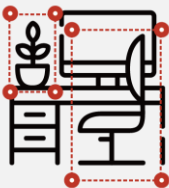
Can be used in various industries such as manufacturing, security control, and vehicles



Inspection Support Function

Object and object recognition

Recognize objects and objects in the trained database and count them



Real-time mosaic

Real-time face mosaic for personal protection



Behavioral Awareness

3D pose estimation provides behavioral recognition of objects



USER CASE



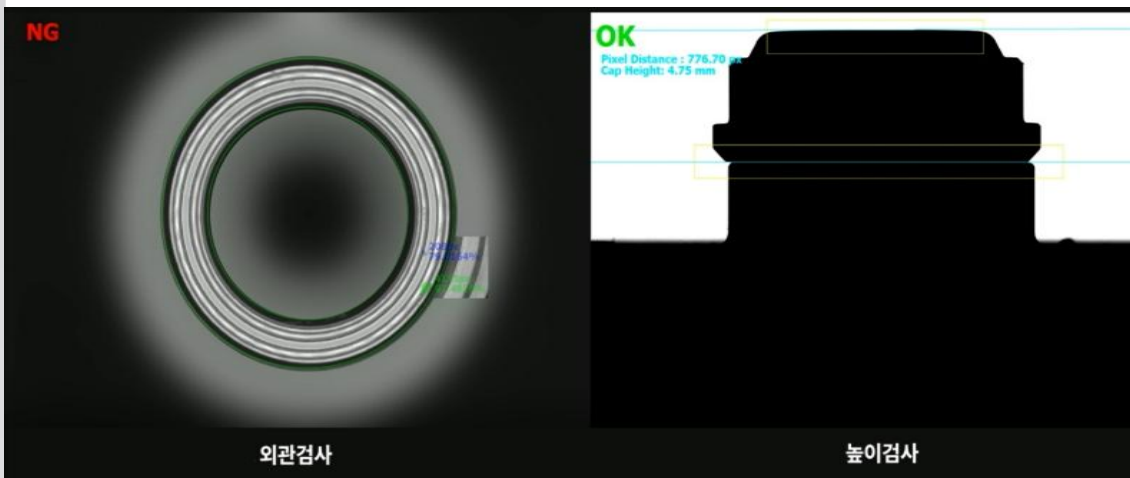
Semiconductor Special Valve

Application Solution

HyperQ AI Vision Solution

Inspection Function

- Detection of disqualification reasons such as stamping, scratches, and crushing of SUS materials
- Dimensional inspection of product height, diameter, etc.



Introduction Period

2 weeks to apply the solution

Detection Rate

99.9%

Inspection Speed

Within **0.8 seconds** in Full HD

Resolution

10 μm

*Precision unit resolution possible when changing cameras



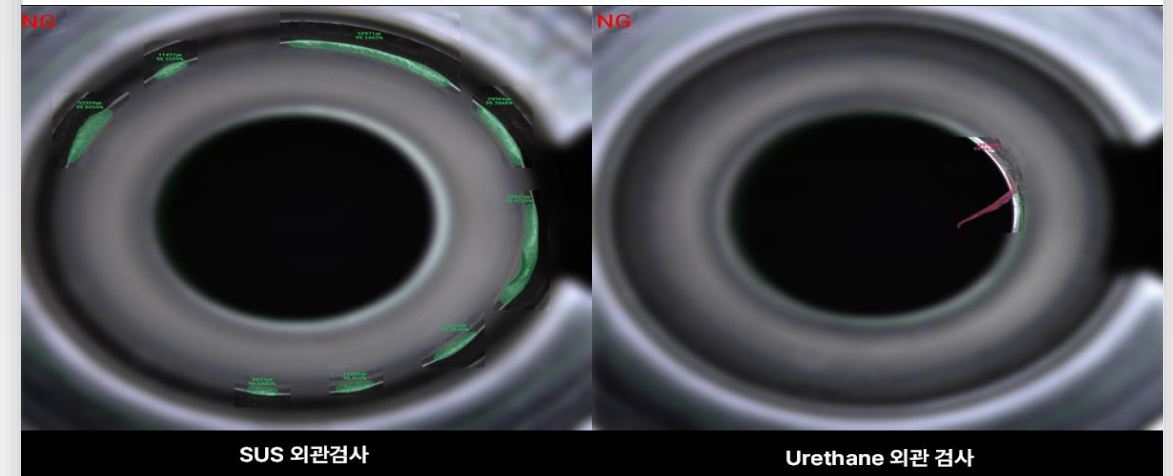
Semiconductor Assembly Sockets

Application Solution

HyperQ AI Vision Solution

Inspection Function

- Detection of disqualification reasons such as stamping, scratches, and crushing of SUS materials
- Detection of disqualification reasons such as dents, scratches, and burrs made of Urethane material



Introduction Period

2 weeks to apply the solution

Detection Rate

99.9%

Inspection Speed

Within **1 seconds** in Full HD

Resolution

10 μm

*Precision unit resolution possible when changing cameras

USER CASE



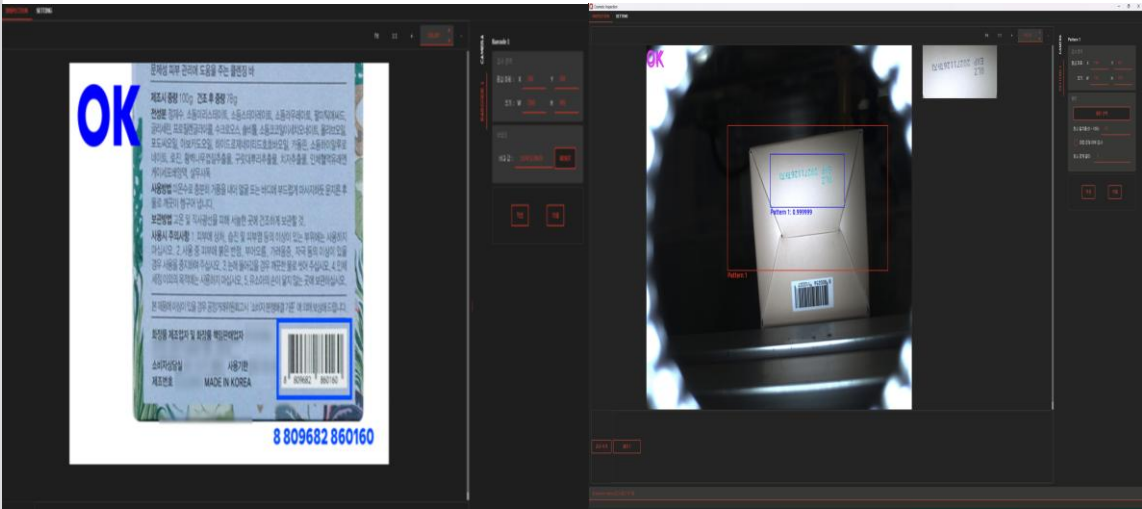
Packaging Inspection

Application Solution

Pattern Checker

Inspection Function

- Typos, missing markings, and barcode inspection support



Introduction Period

Solution Application Takes **two weeks**

Implementation cost

Separate Consultation

Features

- **Immediately applicable to the line** without any training required
- It can be used in **various** areas such as poor mixing, typos, omissions, etc.



Crack inspection of new apartments

Application Solution

HyperQ AI Building Crack Inspection Solution

Inspection Function

- Inspection of building exteriors for cracks



Introduction Period

Solution application takes **1 month**

Implementation cost

Separate Consultation

Features

- **Provides information on the actual crack location through** the 3D viewer
- Based on drone images, **minimizing manpower input**

USER CASE



Safety Management Solution

Application Solution

hyperQ AI Safety

Inspection Function

- Fire detection, collapse, worker abnormal behavior, vital sign analysis and notification



Introduction Period

Solution application takes **1 month**

Implementation cost

Separate Consultation

Features

- Utilizing existing **CCTV**
- App & Web Dashboard **PUSH Notifications**



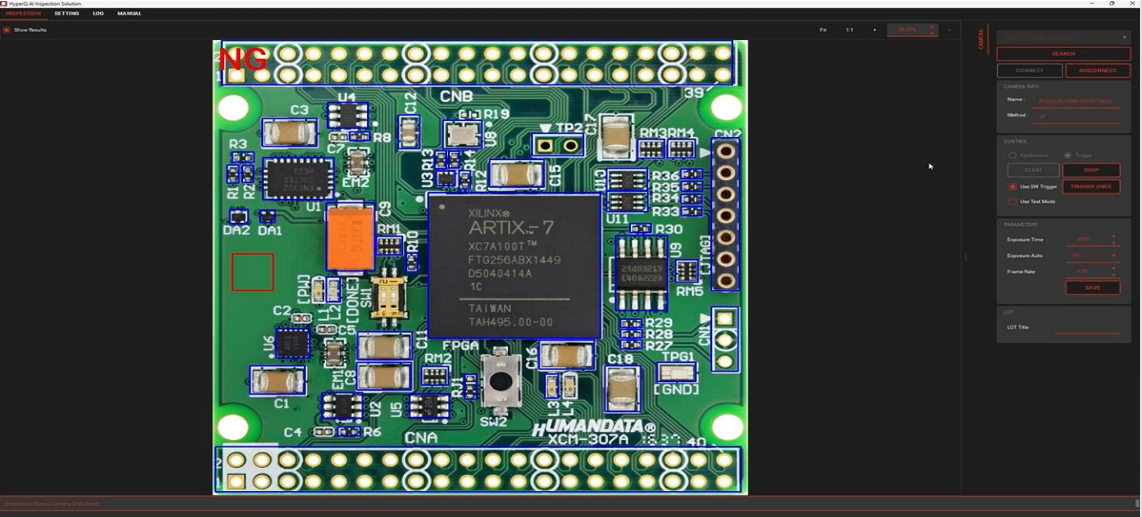
PCB Inspection

Application Solution

HyperQ AI Vision Solutions

Inspection Function

- Missing components, component misassembly, lead inspection



Introduction Period

2 weeks to apply the solution

Implementation cost

Separate Consultation

Features

- **Single-sided, multi-layered, double-sided** PCB Applicable
- **Immediately applicable to the line** without any training required

USER CASE



Clamp Ring Plating(PoC)

Application
Solution

hyperQ AI Vision Solutions

Inspection
Function

- Inspection of S45C material with poor nickel/galvanization condition



Inspection
Range

- Existing visual identification is not possible **Plating condition inspection**
Cameras, lights, etc. **No sensors required**
- **Electroless nickel plating, electro nickel plating, electro galvanizing.**
Hot-dip galvanizing can be inspected



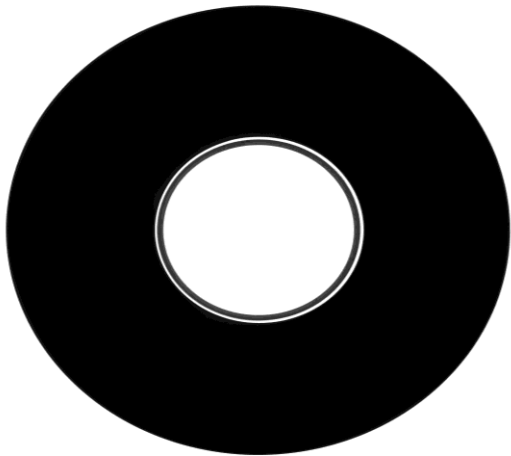
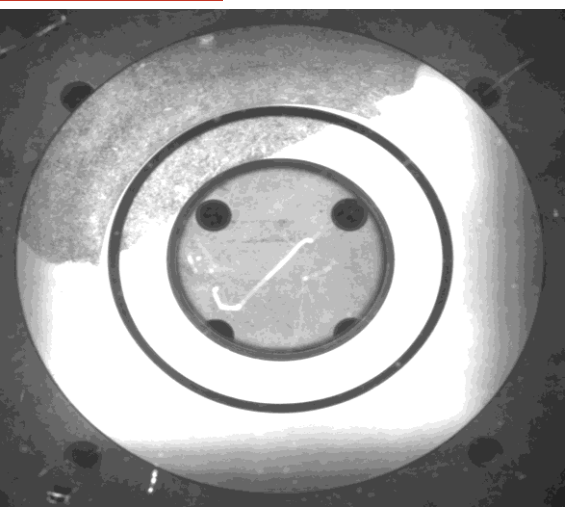
Automotive Discs(PoC)

Application
Solution

hyperQ AI Vision Solutions

Inspection
Function

- Inspection of brass material for disqualification such as dents, scratches, and foreign substances
- Inspection of the inner and outer diameter dimensions of the product



Inspection
Range

- Diffuse reflection **Foreign object inspection of brass materials**
- Of the shape with many bends **Internal/external dimension inspection**



year	Institution	Project Details
2022	Poongsan System	R2RProcess Film Quality Inspection PCControl Module Development
	INCMT	Development ofdedicated PCprogramthatworkswithLMSSystem
	Linkon Korea	Maintenanceoffacilities andsoftwareadvancement
	FAST	Machine ToolCCNCSystem CNCEquipment Control&Communication Program Design & Configuration
	Humantech	MESSystem Interlocking Equipment Communication Program
	INCMT	LMSsystem interworking PC program
	JungwonEnplus	Signal Controland Protection PCBBoard ControlSoftwareinBMS
2023	Aitek Auto Motors	Machine ToolCCNCSystem CNCEquipment Control&Communication Program Design & Configuration
	INCMT	Industrial Control PCs and Custom Software
	MechaniControlTech Solution	Real-time monitoringofcycletime(CT) ontheproductionline, integratedmanagement systemforfacility data
	INCMT	ControlPCandprogram, real-time controlproductiondatasystem
	FAST	Controlfunctioncustomized productprogram
	INCMT	ControlPCandprogram, assembly process automationcontrolsystem
	MechaniControlTech Solution	Manufacturingprocess automationandqualityinspection integrated system
	FASTCo	3D Lidar Pin Inspection Vision Quality Inspector
	KyungdongNavien	Integrated systemforreal-time collection ofproduction informationandqualityhistorymanagement bylinking product inspection equipment and MESsystem
	STS	Surface Defects (Scratches, Stamps, etc.) ofGLANDPartsfor SemiconductorFitting Valves Vision Inspection, Dimensional Inspection Vision Solution
	BBMC	LMSSystem
	Goodbridge	Cosmetic Defect Solution and Inspection Equipment Integrated System
	Goodbridge	Alvision learning video datacollection andprocessing



year	Institution	Project Details
2024	Sungkyunkwan University Industry-Academia Cooperation Center	R2R Inspection Platform Enhancements and Systems
	University of Ulsan College of Science and Technology Industry-Academic Cooperation Foundation	Building a cloud platform dedicated to artificial intelligence learning data that can store and manage building exterior analysis data and analysis results
	Engineering College Brother's Gathering Place	AI Vision Solution Introduction Technical Advice
	Goodbridge	Detection of access to designated area, real-time perimeter monitoring of intrusion occurrence AI vision solution
	Goodbridge	Alert detection of intrusion at night or in environments with difficult visibility AI vision solution
	Goodbridge	AI solution for collision avoidance and safe operation of robots in the workplace boundary detection
	Ulsan University of Science and Technology Industry-University Cooperation Foundation	Automatic analysis of the appearance condition of the building's exterior wall (cracks, pollution, falling out, etc.) AI solution, 3D viewer provided
	TASS	Vision inspection solution for detecting irregular appearance defects (scratches, dents, dents) of FITTING HEAD parts for semiconductor fitting valves
	TASS	AI vision inspection solution for micro-defect detection of semiconductor valve internal insertion SEAT parts (scratches, dents, shape abnormalities)
	DIOH Bio	AI Quality Inspection Device
	KBBE	AI inspection solution that can be mounted on inspection equipment for manufacturing
	Wonil	AI pattern checker that automatically detects anomalies in repetitive product patterns
	Wave Gloss	Process automation at manufacturing sites, data linkage, AI Adoption AX Strategy Establishment Consulting
	The Next AI	Automatic detection of various types of appearance abnormalities, multi-variety manufacturing quality inspection, HyperQA solution
2025	Agile Growth	Determine the appearance of a product, learn AI experiment data
	Wonil	Detect product surface micro-pattern anomalies AI-equipped all-in-one hardware inspection machine
	WIT	High Speed Moving Product Surface Pattern Anomaly Precise Detection Strobe Light Vision Inspector
	WIT	Surface Pattern Vision Inspection of Metallic and Glossy Materials Polarized Lighting Inspector
	DEEP INSIGHT	Automatic detection of whether workers are wearing hard hats AI safety management solution



Innovation for customers,
HyperNology is here for you.

Contact Us.

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