



CODEVISION Inc.

AI-Specialized R&D Company

1. CODEVISION Introduction

Company Overview / Business / Partners



Pioneering a Better Future with AI AI R&D Company, Codevision Specializing in Image & Signal Processing

Codevision delivers **AI software solutions** across diverse industries using deep learning-based technologies.

Leveraging real-world field data, we develop core AI technologies and services to provide customized solutions tailored to client's needs.

AI One-Stop Solution : Data / AI Tech / AI Platform & Application
Developing customized AI solutions based on deep learning

Trusted AI R&D Leader
Selection of Numerous R&D Projects and Proven Successful Outcomes

Global AI Expertise Partner
Extensive on-site experience
: Facilities / Equipment / Partner Companies Ready

| | | | | |
|---------------|---|----------------|--------------------|-------------|
| Name | Codevision Inc. | | | |
| CEO | Eungyeol Song | | | |
| Establishment | 2018 / 11 / 10 | | | |
| Address | - 396 WorldCup buk-ro, Mapo-gu, Seoul, Republic of Korea Nurikum Square R&D Tower 803 - 16F 29, 33, Pyeongsan-ro, Uichang-gu, Changwon-si, Gyeongsangnam-do, Republic of Korea | | | |
| Business | Data | AI Tech | AI Solution | SaaS |

Business

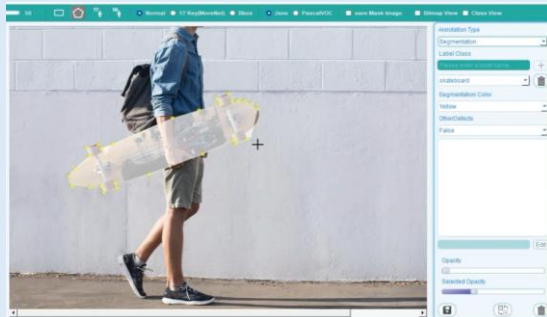
We provide **deep learning-based, customized AI technologies** tailored to clients, built on data collected directly from the field.

AI One-Stop Solution

AI Data

Industry Tailored High-Quality Dataset Construction Service

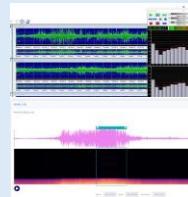
- Expert consulting by data specialists
- Custom data processing platform
 - Field-optimized dataset



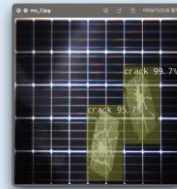
AI Tech

AI Research & Development for Vision / Signal Processing

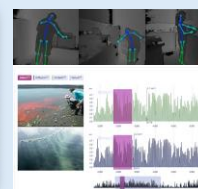
- Custom AI development for server, cloud, edge environments
- Data-centric problem solving for diverse data types
- Easily integrable as APIs for various systems and workflows



1-Dimensional (ultrasound, IoT)



2-Dimensional (image, video)



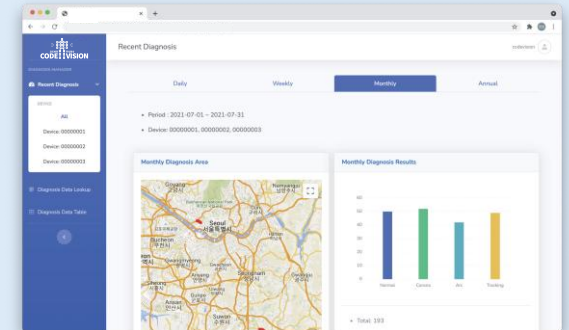
3/multi-Dimensional (Depth, Lidar)



AI Solution

AI Platforms & Application Development

- AI training, model management, and monitoring
 - MLOps-based platform for continuous operations
- Intuitive tools accessible even to non-experts



Our experts cover the entire AI pipeline, from data acquisition to full operational deployment of AI solutions.

Partners

Clients who have partnered with CODEVISION



02. Manufacturing AI Monitoring Solution



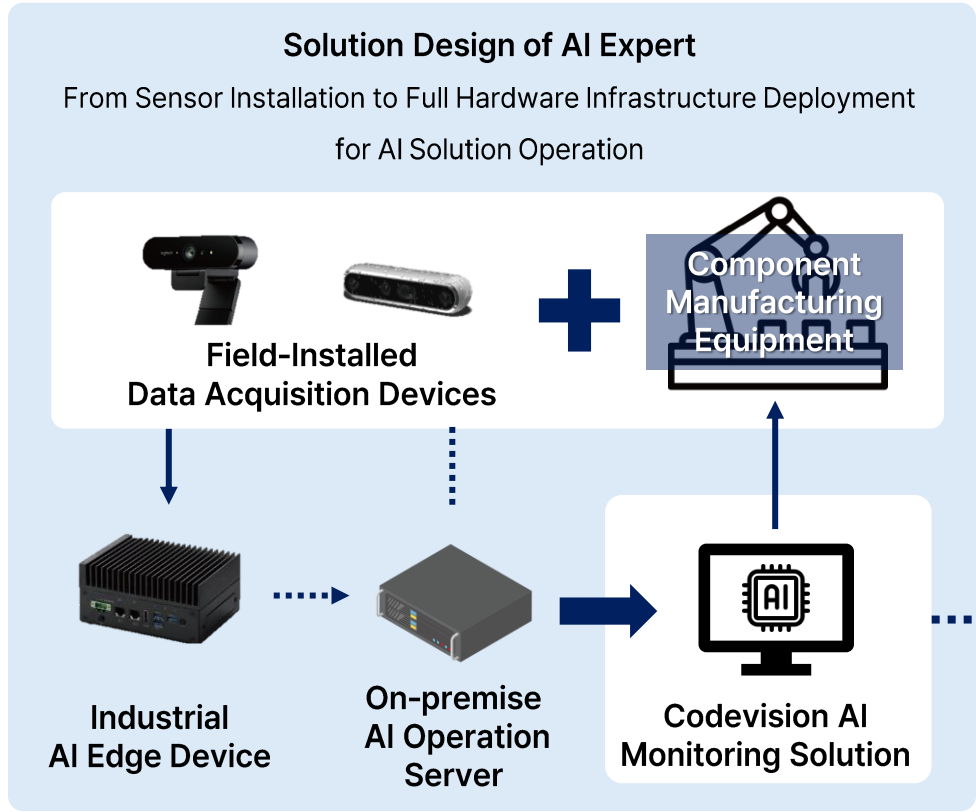
Manufacturing AI Monitoring Solution

AI Transformation (AX) for Smart Manufacturing

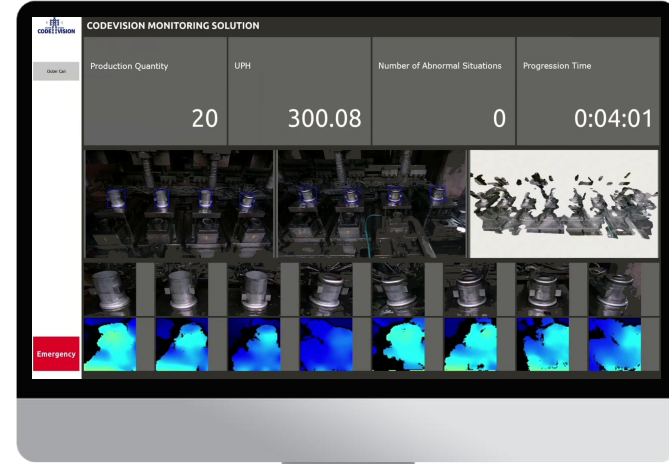
Vision AI for Real-Time Detection of Defects in Production Sites and Components

Auto-stops the operation and **notifies** operators upon abnormal events

System Architecture

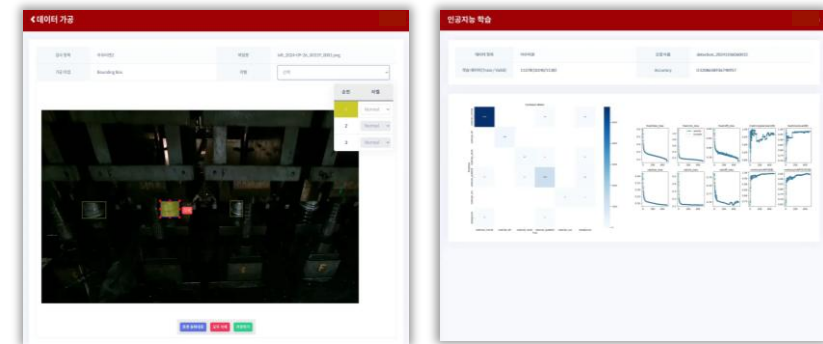


Inspector Monitoring Device On-Site Real-Time AI Monitoring Platform

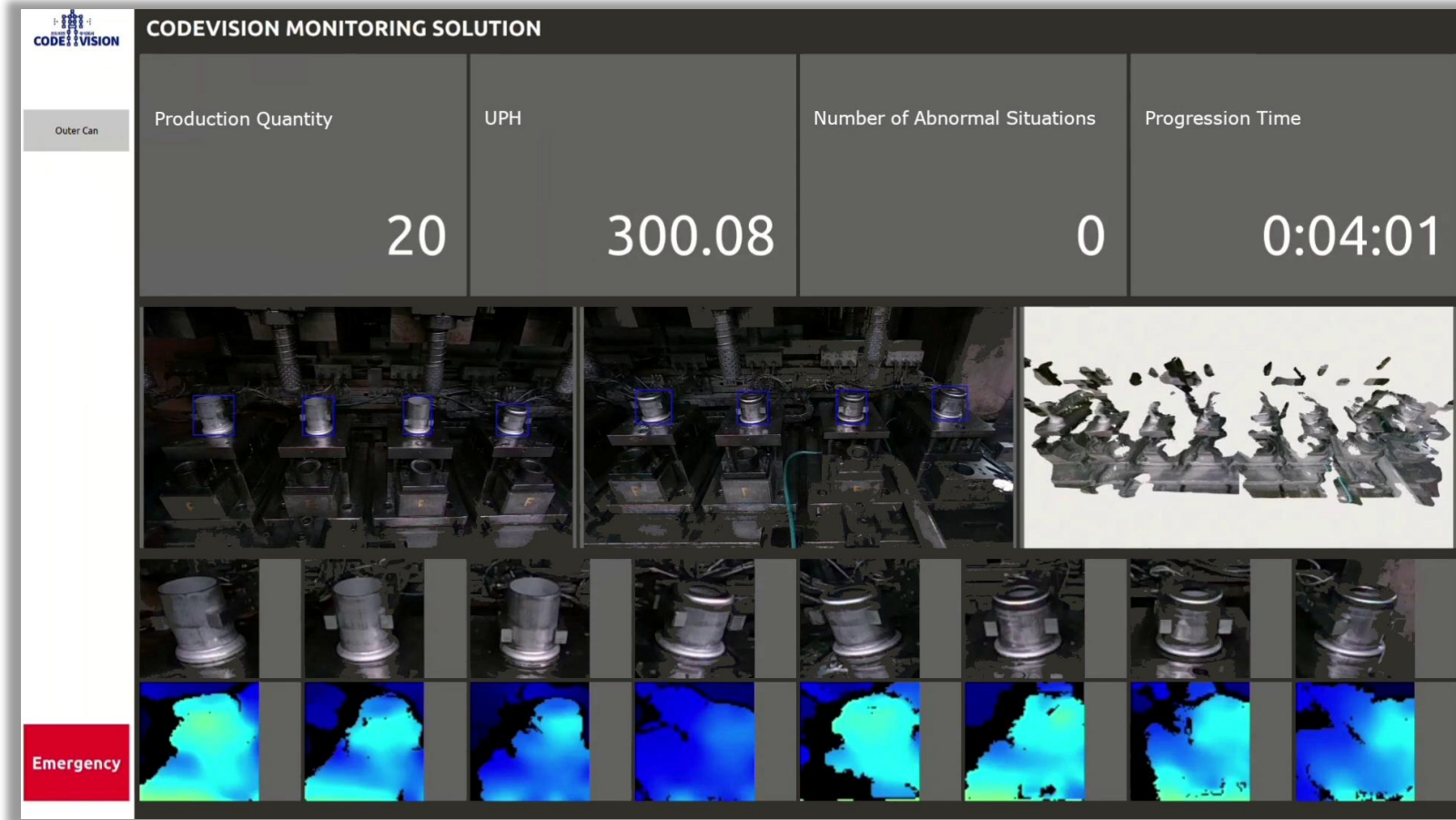


Supervisor PC

AI Model Management MLOps Platform



On-Site Real-Time AI Monitoring Platform



The screenshot displays the CODEVISION Monitoring Solution interface. At the top, it shows the company logo and the title 'CODEVISION MONITORING SOLUTION'. Below this, a dashboard provides key performance indicators for 'Outer Can' production: Production Quantity (20), UPH (300.08), Number of Abnormal Situations (0), and Progression Time (0:04:01). The main area features a grid of images: two large images showing the production line with blue bounding boxes around components, a large image showing a 3D point cloud of a component, a row of eight small images showing individual components, and a row of eight small images showing heatmaps of the components. A red 'Emergency' button is visible in the bottom left corner of the interface.

Real-Time Monitoring

- Real-Time Monitoring of manufacturing operations

Detect Anomalies

- Automated manufacture process monitoring and analysis with AI

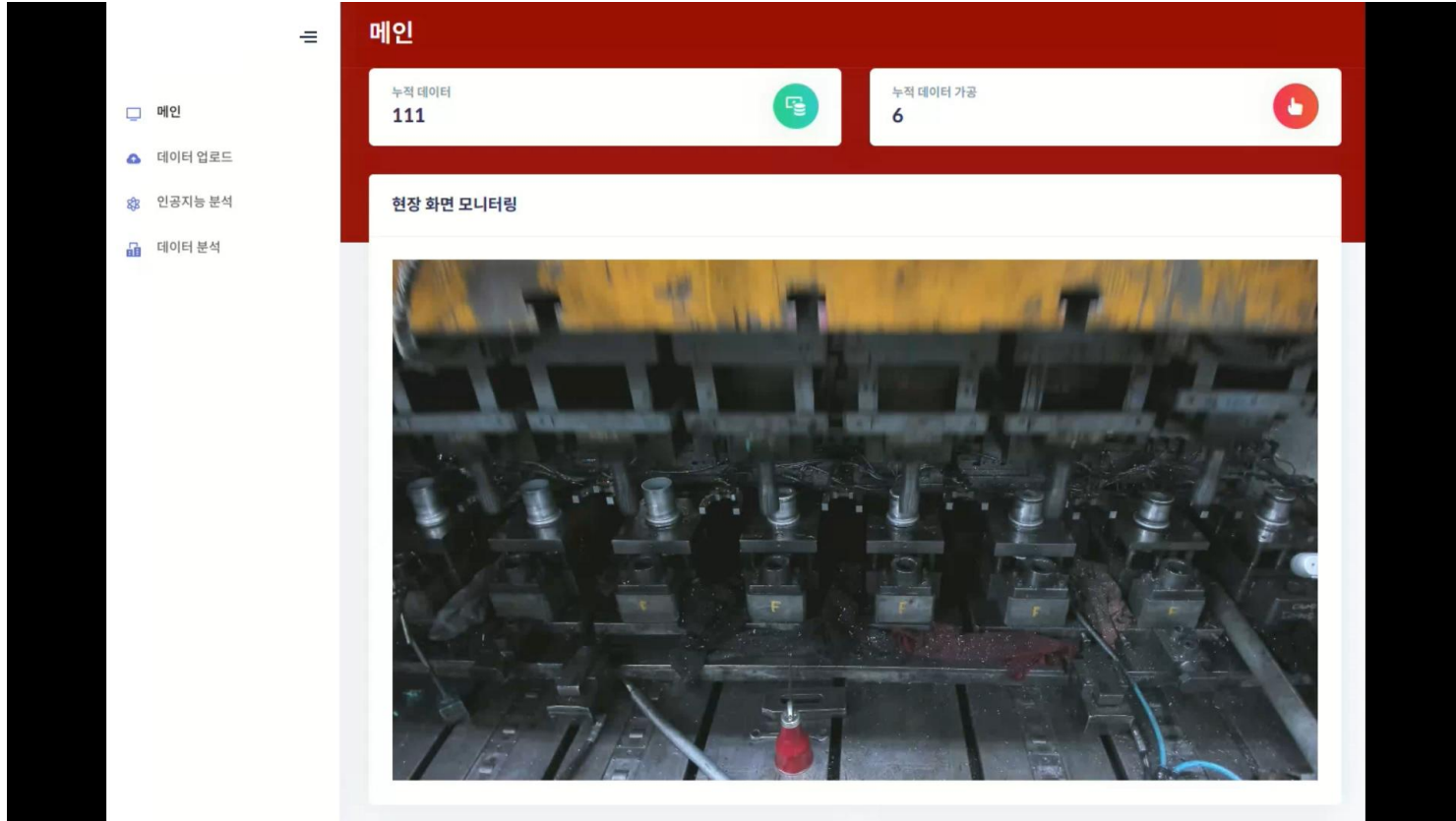
Alarm & Auto-Control

- Alarm & Auto-stop upon anomaly detection for worker

Reliable AI

- Certification model performance based on ISO/IEC
- Certification of AI Trustworthiness (CAT)

AI Model Management MLOps Platform



Data Analysis Page

- Management of additional data collected during on-site operations

Data Labeling Page

- Data labeling for AI model training available

AI Training Page

- AI model performance monitoring
- Performance enhancement through continuous AI re-training

AI Model Management Made Simple : Anytime, Anywhere, for Anyone

- **Maintenance solutions** for reliable AI operations

- Maintain **high-performance AI services** through continuous **model optimization**

Representative Case

Outer Can Metal Molding Process Monitoring

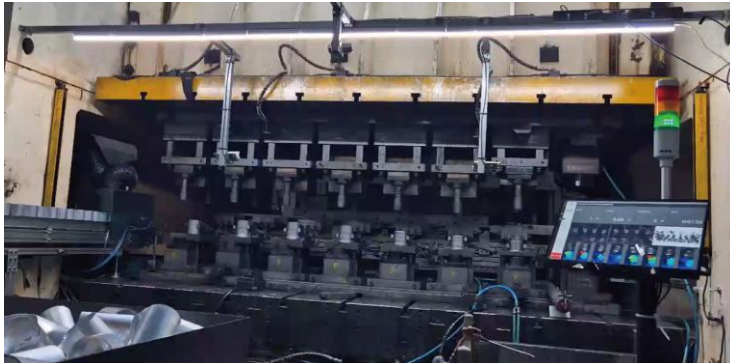
Client [South Korea] Automotive Parts Manufacturer

Target Aluminum outer can (EV part)
- Manufacturing method : Deep drawing



AS-IS **Manual visual inspection** by workers at each production stage
- Defective part occurrence → Mold damage → Production line halt

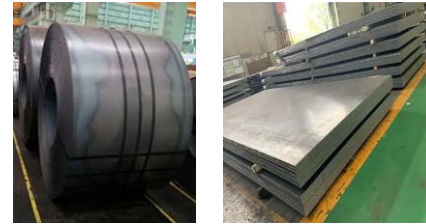
TO-BE **Automation of ejection defect inspection**
Proactive prevention of mold damage → Production downtime is reduced
Accurate pre-calculation of delivery volume → Resolved delivery delays
System designed to operate without disrupting existing workflows



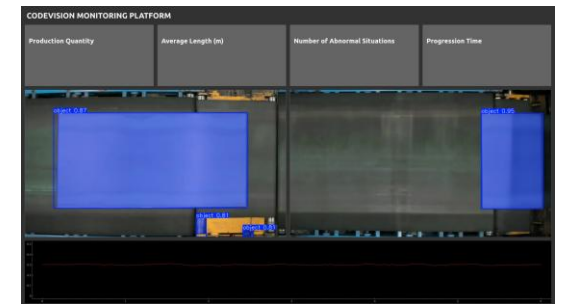
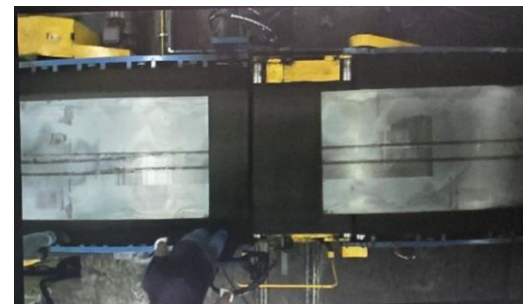
Steel Sheets Defect Monitoring

Client [Jakarta, Indonesia] Metal Manufacturing Company

Target Steel sheets cut from hot-rolled coils



Tech **Vision and laser sensors used to classify steel sheets and monitor coil production defects**
System design optimized for overseas factory environments
- On-site visit for customized consulting & solution development
- Infrastructure tailored to local conditions, including sensors / data acquisition devices / equipment / servers, etc.

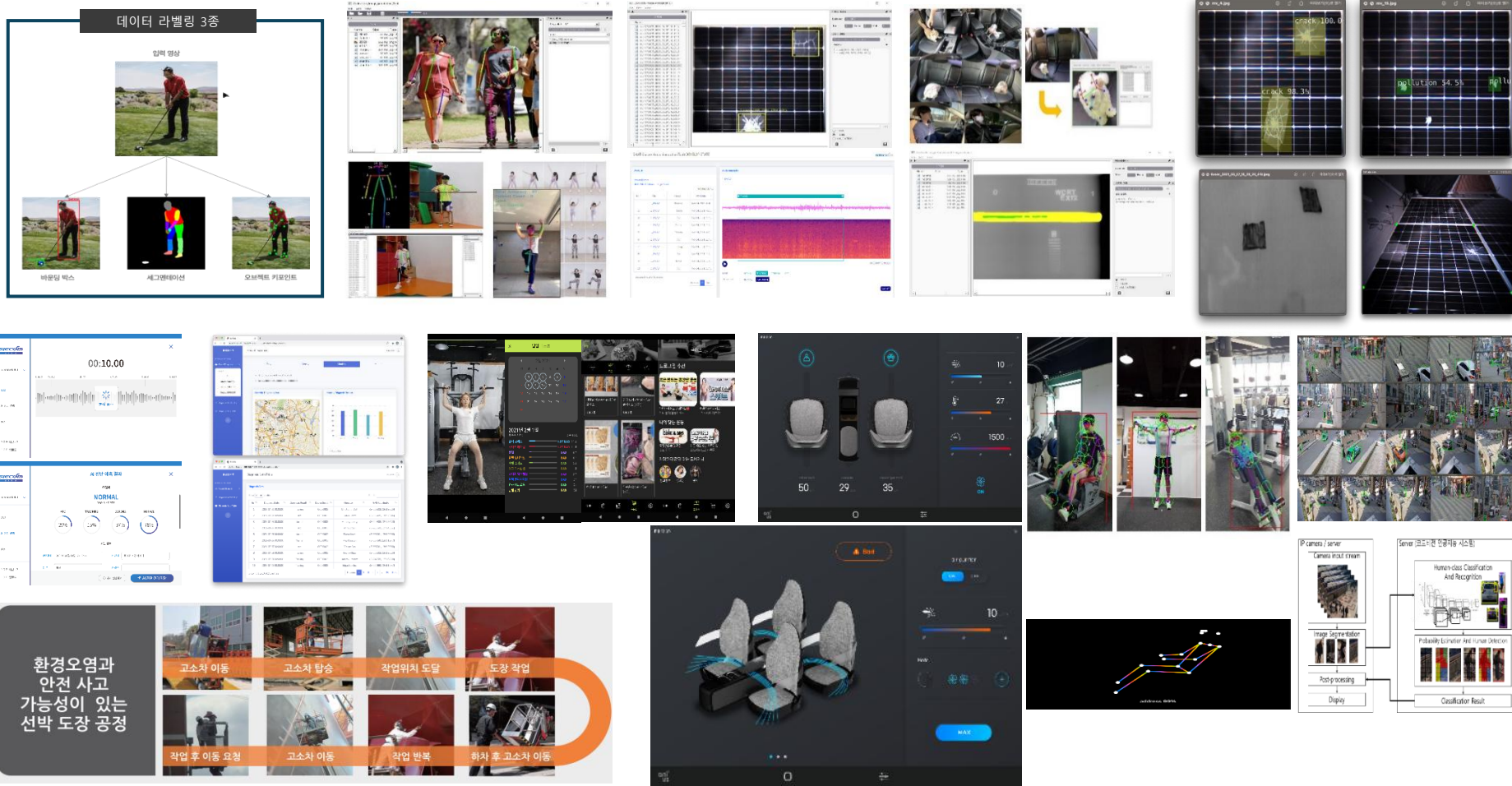


03. Manufacturing AI Development Case



Case

Our expertise has been validated through successful projects in diverse sectors such as manufacturing, mobility, environmental technology, and healthcare.



CODEVISION Homepage
Check exhibition materials

Innovate the industry with CODEVISION !

Various Custom AI Solution Options

“AI infrastructure and operational systems optimized for client’s environment”
we deliver tailored AI solutions based on each client’s needs.

On-Premise Server

AI system deployed within the **client’s internal infrastructure**

Enhanced security and flexible operation within a private environment

Independent operation over internal network

Ideal for handling sensitive data & integrating with internal systems



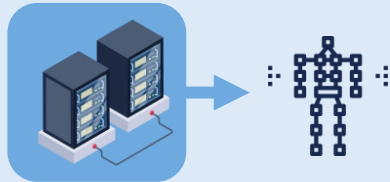
Ex. security-critical industries such as healthcare, finance, etc.

Codevision-Owned Server

Operates and manages dedicated GPU servers (e.g., NVIDIA A100, H100)

Provides custom server specifications based on **client requirements and usage**

Offered at a **cost-effective price** point



Ex. GPU hosting service for AI model training & inference

Cloud Servers

Training, Deploying, and Operating AI Models & Solutions using **domestic and global Cloud Providers servers**

Elastic scalability on resource demands & Flexible infrastructure



Ex. AWS, GCP, Azure, etc.

Edge AI



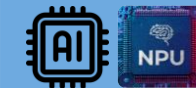
- **Distributed architecture that runs AI directly on-site** where data is generated
: Real-time, low-latency inference

On-Device AI



AI execution within **standalone devices**
Ex. Smartphones, Cameras, Drones

Embedded AI



AI running on **ultra-compact, low-power embedded chipsets**
Ex. IoT, NPU, MCU

Various Custom AI Solution Options

“AI infrastructure and operational systems optimized for client’s environment”
we deliver tailored AI solutions based on each client’s needs.

On-Premise Server

AI system deployed within the **client’s internal infrastructure**

Enhanced security and flexible operation within a private environment

Independent operation over internal network

Ideal for handling sensitive data & integrating with internal systems



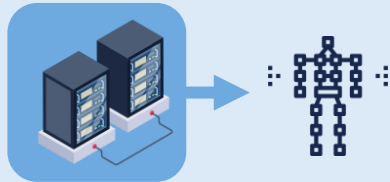
Ex. security-critical industries such as healthcare, finance, etc.

Codevision-Owned Server

Operates and manages dedicated GPU servers (e.g., NVIDIA A100, H100)

Provides custom server specifications based on **client requirements and usage**

Offered at a **cost-effective price** point



Ex. GPU hosting service for AI model training & inference

Cloud Servers

Training, Deploying, and Operating AI Models & Solutions using **domestic and global Cloud Providers servers**

Elastic scalability on resource demands & Flexible infrastructure



Ex. AWS, GCP, Azure, etc.

Industrial AI



- Applied in industrial environments for **process optimization, defect detection, and predictive maintenance.**
- It analyzes sensor and vision data in real time, featuring high-performance hardware and high stability.

On-Device AI

Edge Devices

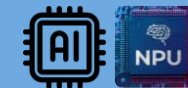
(smartphones, IoT, cameras, etc.)

AI inference possible without cloud connectivity.

Key features: minimized latency, enhanced security, low-power operation.



Personal AI



A Mini PC with an NPU connected via **USB-C** enables AI functioning

- **Personalized services** based on user data in daily life
- Applied to education and simple home automation

Detection & Recognition Solution

Vision AI Technical Skills

Applicable across **various industries** through the deployment of AI-based detection and recognition models

- Even without pre-existing data, we can development AI solutions by constructing the necessary datasets.
- Easy access and usage through intuitive app/web-based platforms
- Reliable AI model trained on high-quality data



Use Cases



Anomaly Monitoring



Defect and Fault Detection



Automation & Operator Assistance

Key Features

[Model]

20+ AI algorithms for detection & recognition

- Optimized for on-premise, cloud, and edge deployment.

[Speed]

Real-time detection powered by lightweight, optimized models

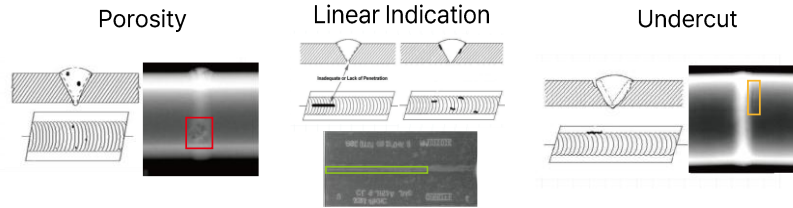
[Accuracy]

High-precision detection results

Weld Defect Detection Solution for Radiographic Testing (RT)

Digitalization & Automation of Manual Visual Inspection in Non-Destructive Testing (NDT)

→ Automated detection & interpretation of weld defect **types / sizes / locations**



AI defect interpretation based on **ASME and ISO industrial standards**

AS-IS

Manual Film Interpretation by Experts

X-ray Inspection → Film Development → Human Visual Inspection

Inefficiencies

- High inspection cost
- Long interpretation times
- Complex workflow

Heavy Dependence on Highly Skilled, Certified Inspectors

- Labor-intensive process with risk of human error

TO-BE

AI Digital Transformation(DX) of Weld Inspection

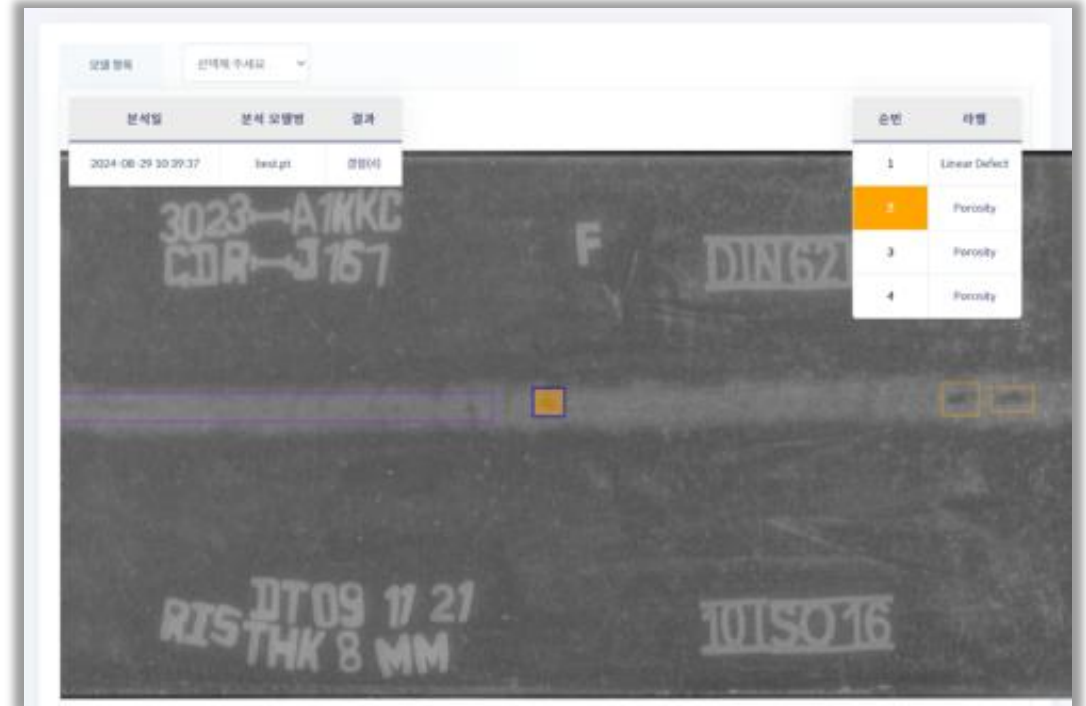
Upload film data to server → Vision AI → Auto-interpretation

Significant Reduction in Inspection Time

- Minimizes downtime of industrial facilities

Improved Objectivity & Consistency

- Enhanced inspection reliability and trustworthiness



| Client | AI Tech | Target | Device |
|-----------------------------------|-----------|---------------|--------|
| Welding Defect Inspection Company | Detection | RT X-ray Film | Cloud |

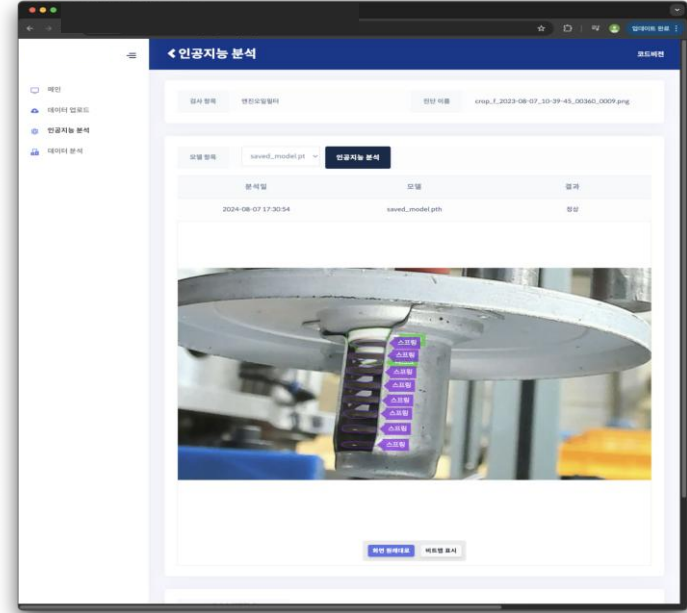
Engine Oil Filter Plate Defect Detection Solution

AI monitoring system for the manufacture process of lower plates in car engine oil filters

Maximizes production efficiency through automated defect inspection of faulty components

Detects **Discs & Springs** Using **Segmentation AI Models**

- AI models are verified through QC/QA & performance validation by process managers and on-site operators.
- Built as a **low-power, lightweight embedded solution** using **NPU**



| | | |
|-------|--|--|
| AS-IS | <h3>Traditional Manual Visual Inspection</h3> <p>Prone to variability, labor intensity, and human error</p> | |
| | | |
| TO-BE | <h3>AI-based Monitoring System for Automated Inspection of Defective Parts</h3> <p>Digital Transformation (DX)</p> <ul style="list-style-type: none"> - Improved productivity & operational efficiency - Factory automation | <p>Automatically Classifies 5 Distinct Defect Types in Real Time</p> <ul style="list-style-type: none"> - High-quality dataset acquired from real-factory conditions |



| Client | AI Tech | Target | Device |
|-------------------------------|-----------|-------------------------------------|----------------|
| Automotive Parts Manufacturer | Detection | Automotive Parts (Oil Filter Plate) | Cloud Embedded |

Solar Panel Defect Detection

Automated Detection & Classification of Damage, Contamination, and Defects in High-Risk Solar Panels

- AI edge computing for real-time, on-site analysis
- Lightweight CNN-based object detection model optimized for embedded systems

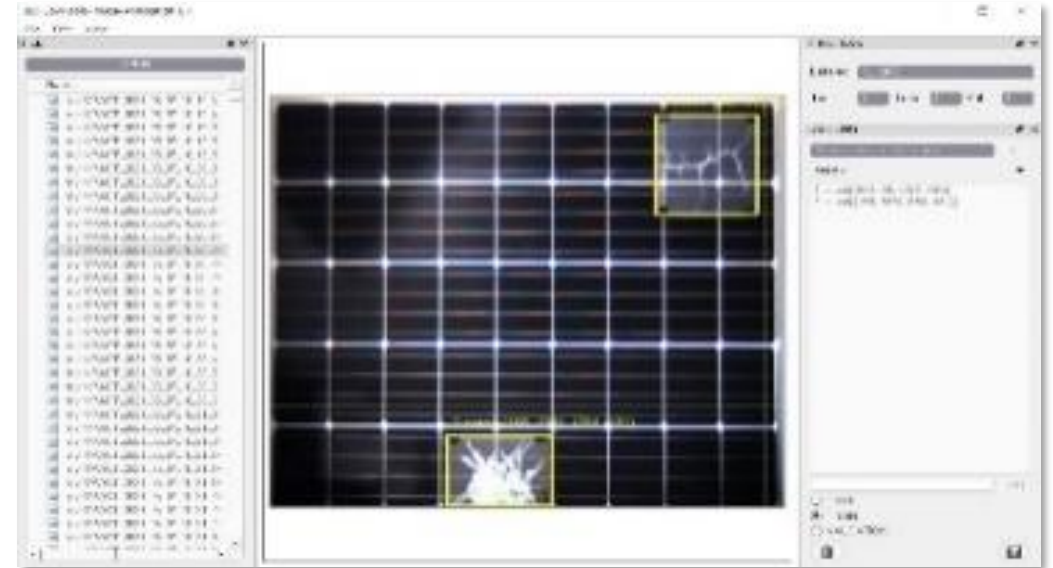
Fine-Grained Classification of Defective Cases

[Damage]

- Detects critical defects in frames, glass, and other high-risk components

[Contamination]

- Identifies non-failure contamination such as dirt or residue on frames and glass surfaces



| Client | AI Tech | Target | Device |
|---|-----------|--------------|-----------------|
| Electronic Technology Development Company | Detection | Solar Panels | Edge On-Premise |

Predictive Maintenance Solution

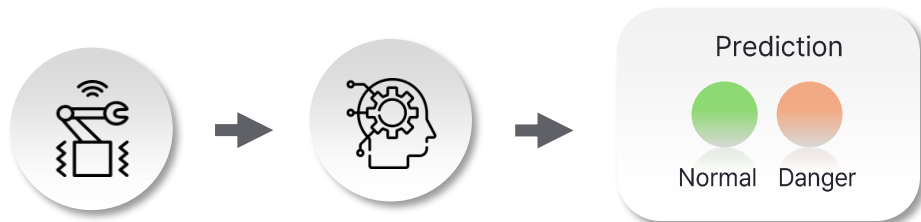
What is Predictive Maintenance?

A **maintenance strategy** that analyzes equipment data to detect **early signs of anomalies** and take **preemptive action before failures occur**.



PHM (Prognostics & Health Management)

- A system designed to enable predictive maintenance through continuous health monitoring and fault prediction.
- PHM supports informed decision-making by predicting the health status and Remaining Useful Life (RUL) of equipment.



Use Cases

- Smart Factories
- AI-Based Monitoring of Industrial Equipment

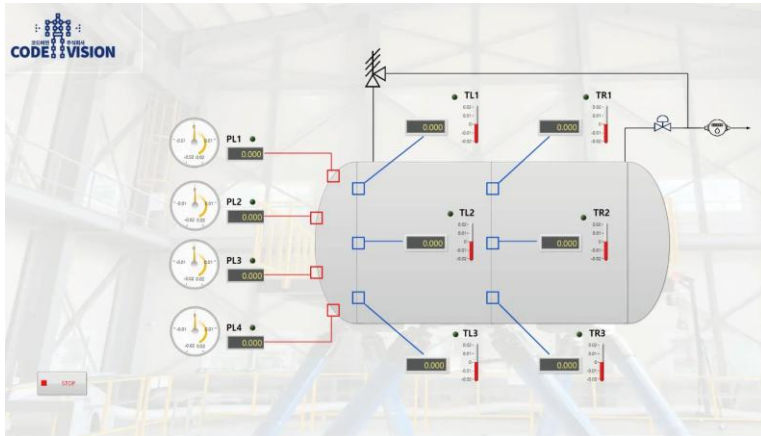
Key Features

- Detects & analyzes **abnormal signals** generated by **equipment defects**
- **Predicts failures before they occur**, enabling **significant reduction in maintenance costs**
- Provides optimized solutions for **multi-dimensional signals (vibration, temperature, etc.)**

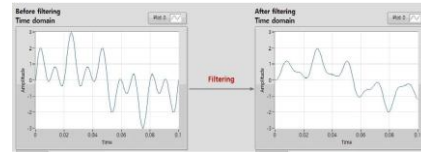
LNG/LH2 Ship Cargo Tank Monitoring Solution

Integrated Thermal Performance Analysis System and Evaluation Technology Based on Large-Scale Cloud Computing for High-Efficiency Design and Performance Enhancement of LNG/LH2 Ship Cargo Tanks in Real-World Operating Conditions

DAQ Manager

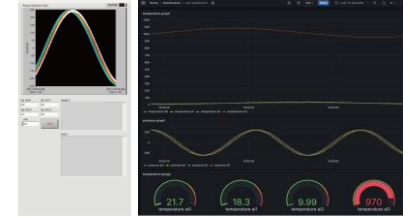


CODEVISION Monitoring Platform



Built-in Data Processing Functions for Signal Conditioning : Filtering, Noise Reduction

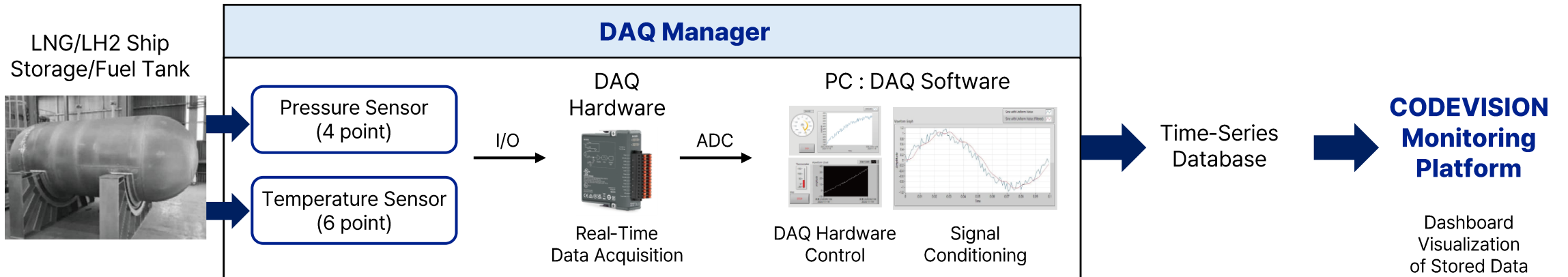
RESTful API-based Time-Series DB Design : easy scale-out expansion



Web-based GUI Monitoring Solution

Data Visualize via Dashboard for Stored Database

System Architecture



PHM (Prognostics and Health Management) Solution for Motor Operating Valve(MOV)

AI-based PHM System for Motor Operating Valve(MOV)

Monitoring & Diagnosis

- Predicts faults caused by **Overstress, Wear-out**

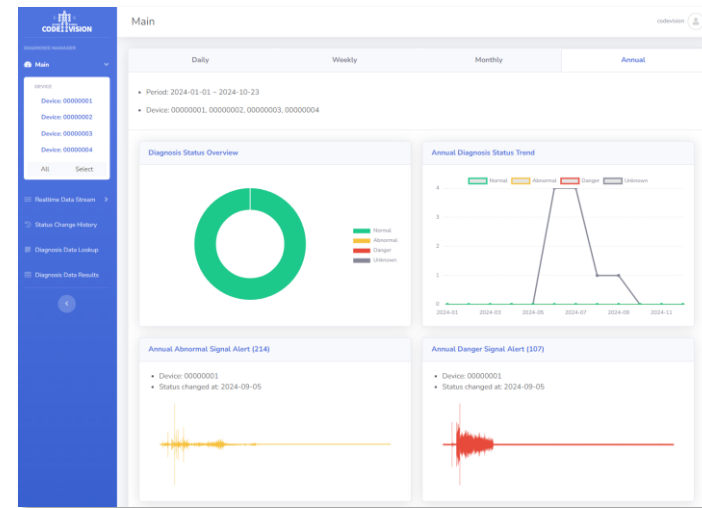
Anomaly Detection Algorithm

- Analyzes distinctive **vibration signals** generated by **defects** in individual components
- Sends alerts when potential failure conditions are detected

Full End-to-End PHM System

: from sensor installation to platform development

Administrator Dashboard



Automated report generation & summarized diagnostic insights



| Client | AI Tech | Target | Device |
|---|------------------------|--|------------------|
| Facilities Operating Industrial Equipment | Predictive Maintenance | Motor Operating Valve (MOV) Vibration Sensor | Cloud On-Premise |

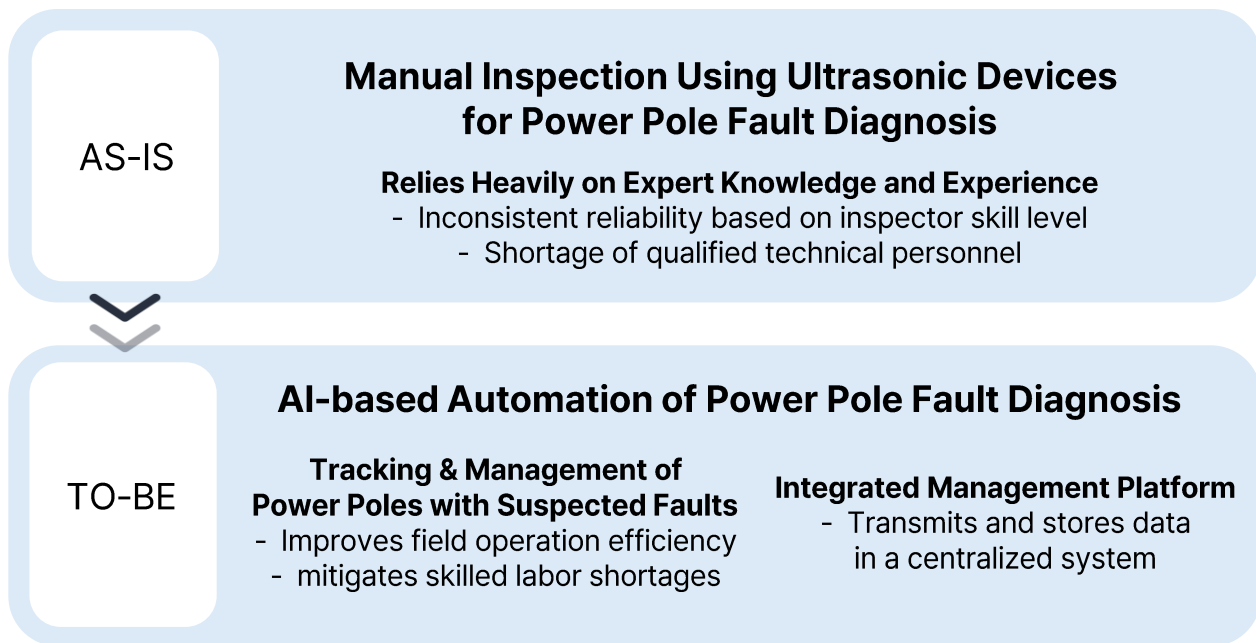
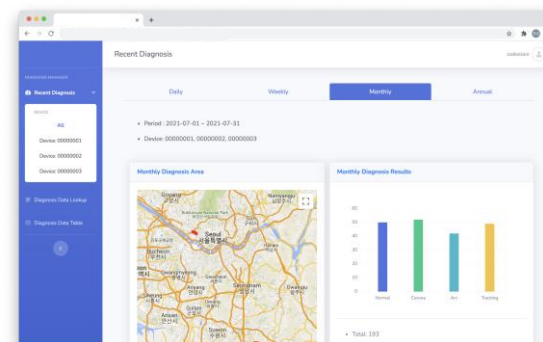
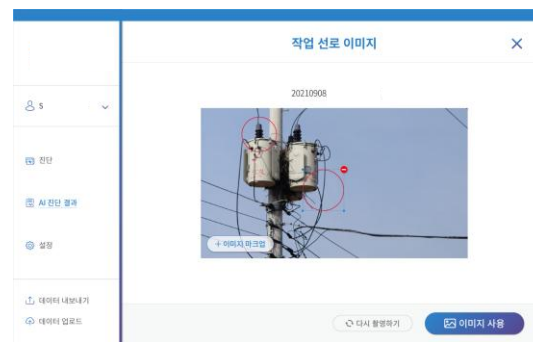
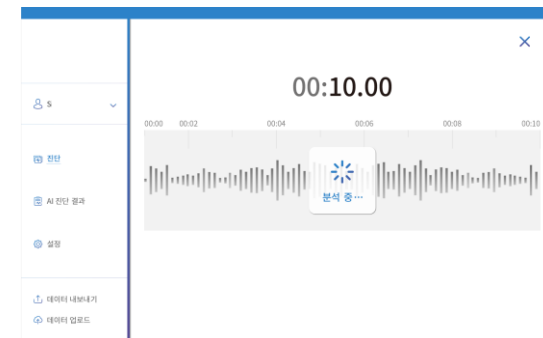
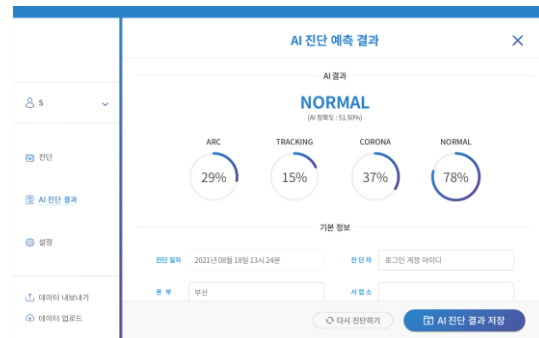
Electric Power Equipment Failure Detection

AI-Based Fault Stage Classification for Electric Power Equipment

AI Transformation (AX) of Manual Expert Diagnosis

Mobile Diagnostic App Solution

- Integrated with **ultrasonic diagnostic devices** for on-site power pole inspection
- Real-time AI analysis of **ultrasound** to detect defects and classify fault types
- Available as a **tablet-compatible & on-premise server-based version**



| Client | AI Tech | Target | Device |
|----------------------|------------------------|-----------------------------------|------------------|
| Power System Company | Predictive Maintenance | Power Pole Ultrasonic Sensor Data | Cloud On-Premise |

04. Development Case



Medical / Healthcare

Tongue Analysis Solution for Digital Health Diagnosis

AI Tongue Analysis Solution for Personalized Digital Oral Health Curation

TECH

Tongue Region Segmentation

Tongue Coating Index (TCI) Evaluation for bacterial coating analysis

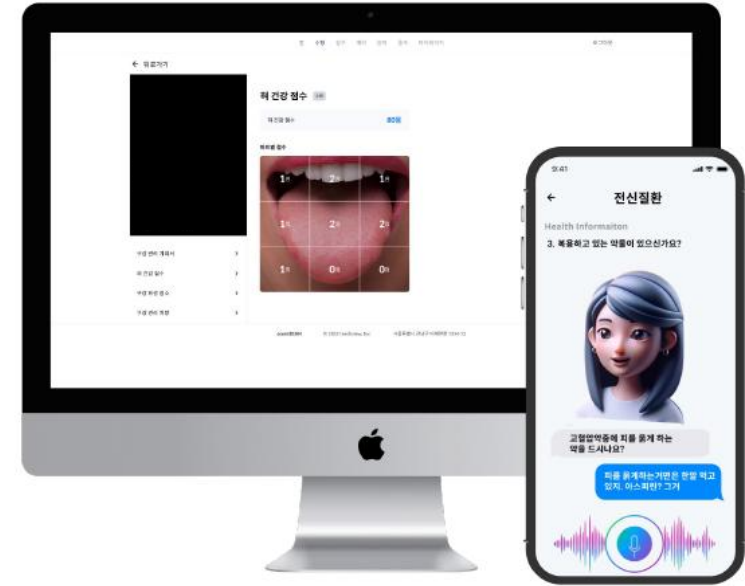
Built-in LLM AI Solution with Symptom Inquiry Service

AI Tongue Health Analysis

- **Automatically analyzes tongue images** using segmentation & TCI classification AI models
- Enables integrated diagnosis by combining AI results & clinician evaluations
- Validated in collaboration with **dental clinics as a clinical testbed**

15,000 Tongue Images Processed Based on Expert Oral Health Criteria

- Custom data processing platform developed for original **TCI labeling**



AI Results (Tongue Segmentation)

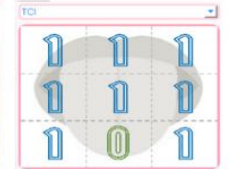
Original Data



AI Inference Result



TCI Results (Tongue Coatsness Index)



Tongue Region Segmentation

Automated Evaluation of (TCI)

| Client | AI Tech | Target | Device |
|-----------------------------------|---------------------|----------------|------------------|
| Digital Dentistry Service Company | Detection Diagnosis | Tongue Coating | Cloud On-Premise |

Medical / Healthcare

Polysomnography(PSG) Analysis & Diagnosis Assistant

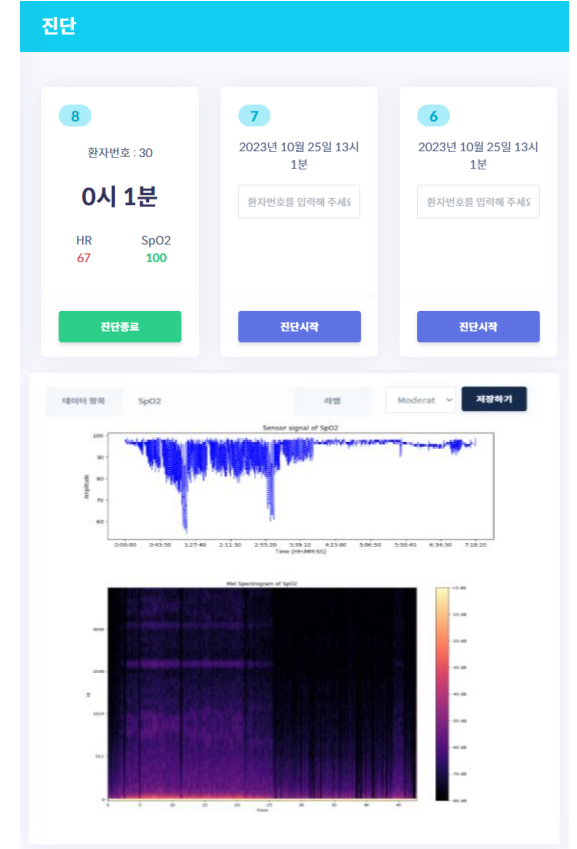
Diagnoses to **Severe Sleep Apnea** Using **Oxygen Saturation(SpO2)** & **Electrocardiogram(ECG)** Sensor Data

Enables early screening of sleep apnea patients in ICU and Stroke Units (SU)

Deployable on mobile and wearable devices

Trusted & Validated AI

- **Co-developed with neurologists** and validated through testing by hospital medical staff
- **Sensor data using actual FDA-certified medical equipment**
: Collected **1,750** Medical Data Records



AS-IS

AI Analysis & Diagnosis System for PSG Data

Inefficient Workflow in Interpreting 7+ Hours of Sleep Data

- Complex manual scoring and annotation process
- Long diagnosis time and delayed results
- High potential for human error

TO-BE

AI-Based Automated Interpretation and Diagnosis

Efficiency

- Reduces analysis time to under 10 minutes

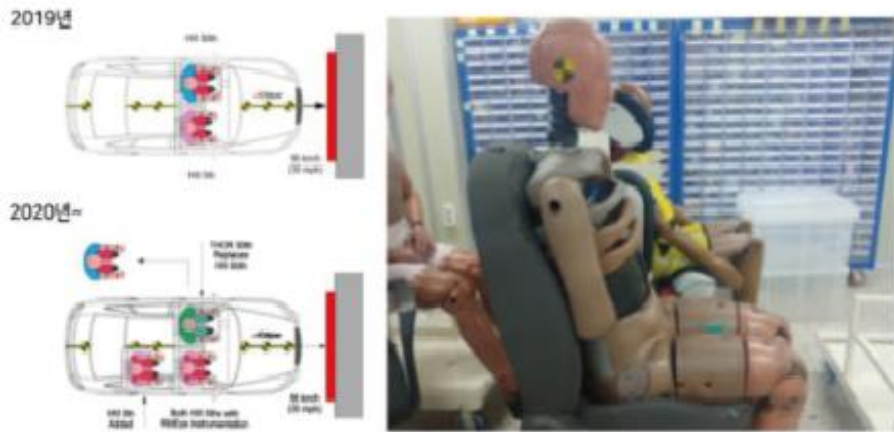
Introduces Objective & Quantitative Standards for Supporting Diagnosis

- Enhances diagnostic accuracy and consistency

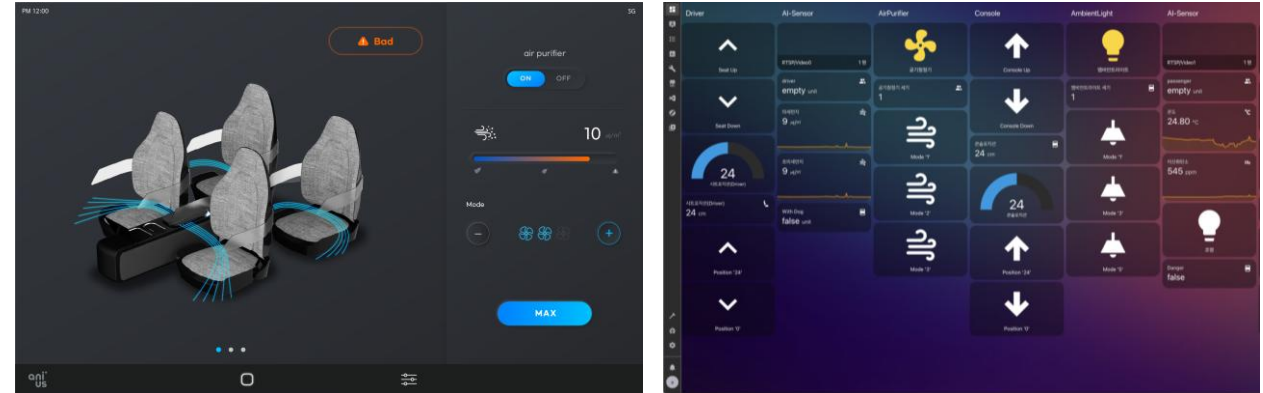
| Client | AI Tech | Target | Device |
|----------------------------------|-----------|----------|--------|
| Neurology Department at Hospital | Diagnosis | PSG Data | Cloud |

Mobility

Car Crash Test Evaluation and Dummy Analysis



Mobility Occupant Recognition and Indoor Analysis



In-Vehicle Human & Pet Behavior Recognition

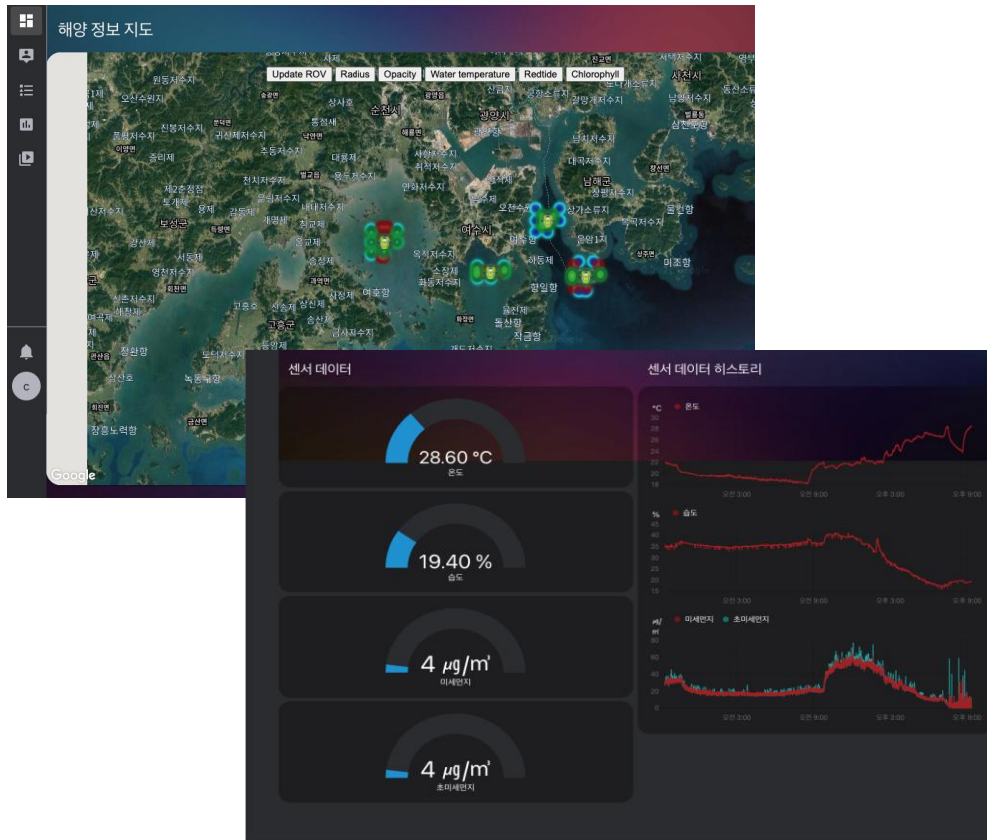


Skeleton-Based Pose Estimation



Ecology / Environment

Underwater Monitoring and Red-Green Algae Prediction Using Marine Robots



Digital Lifestyle

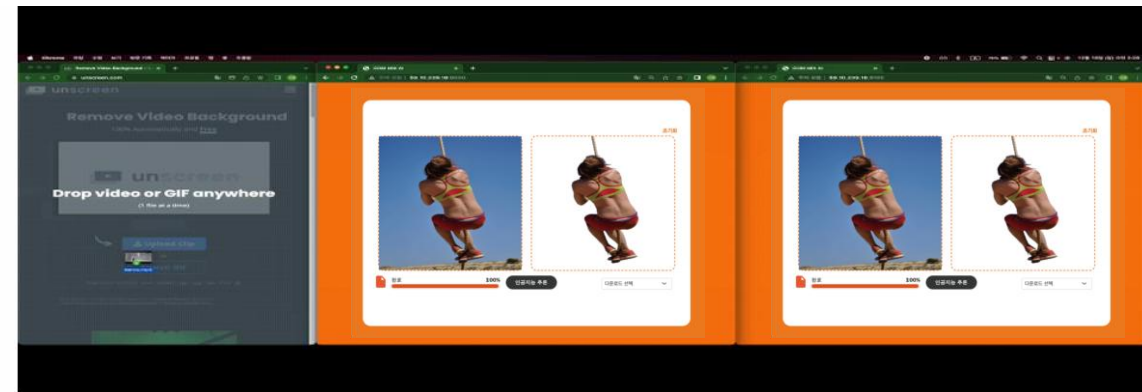
Video Background Removal Solution

AI SaaS Video Editing Solution

- Seamless background removal
- Accurate object recognition

Optimized AI Models with Distributed Processing

- **Over 50% faster than competitors**



Global Competitor (Unscreen)

Processing Time : **37m**

CoVi Tool Single Process

Processing Time : **22m**

CoVi Tool Multi Process

Processing Time : **13m**



CONTACT

Homepage : <https://codevision.kr/en>

Email : help@codevision.kr

[Headquarter] 396 WorldCup buk-ro, Mapo-gu, Seoul, Republic of Korea Nurikum Square R&D Tower 803

[Branch office] Yonsei University Engineering Research Park 250, 50 Yonsei-ro, Seodaemun-gu, Seoul, Republic of Korea

[Gyeongnam office] 16F 29, 33, Pyeongsan-ro, Uichang-gu, Changwon-si, Gyeongsangnam-do, Republic of Korea