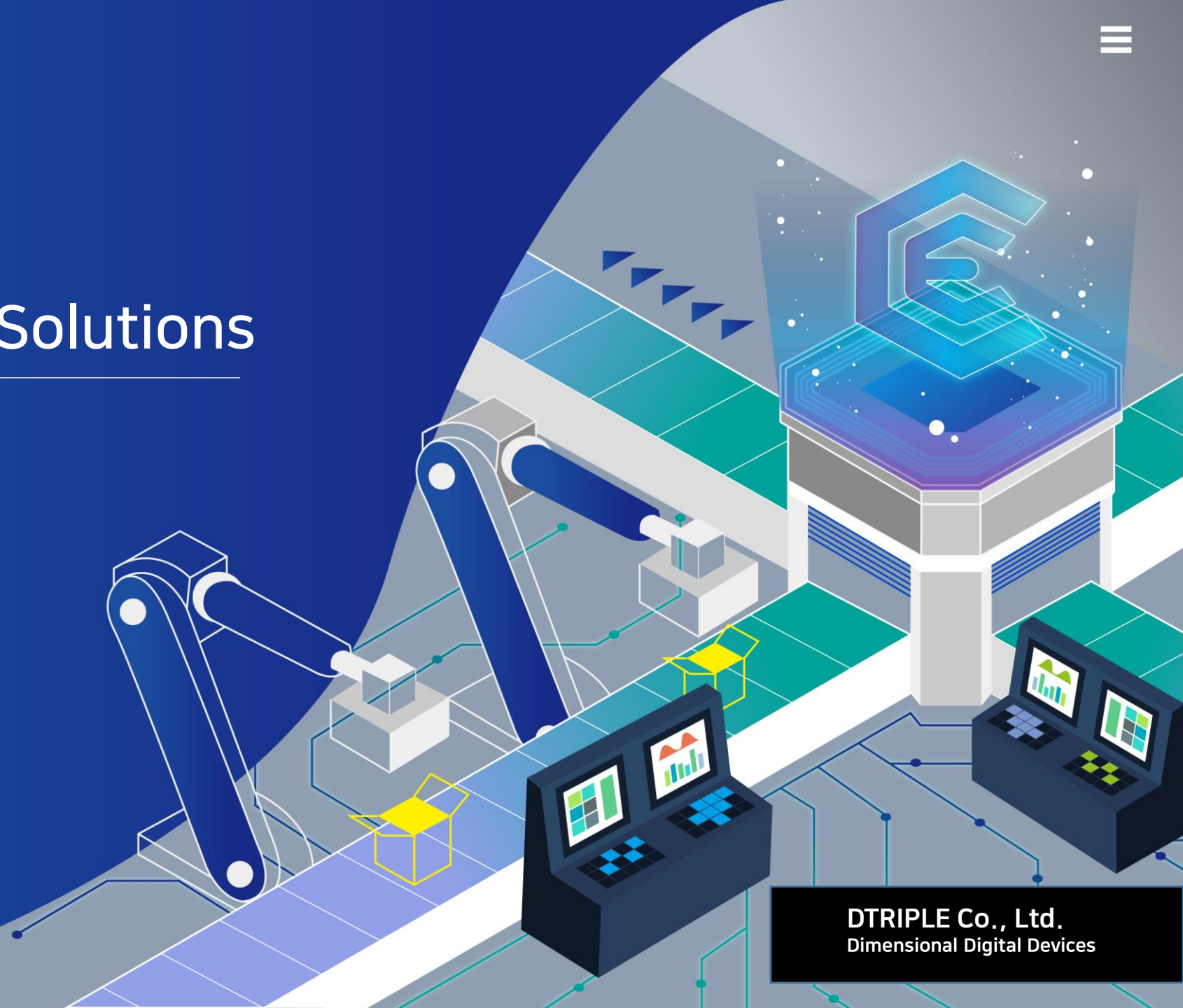


DTRIPLE's Smart Solutions

Aug, 2024

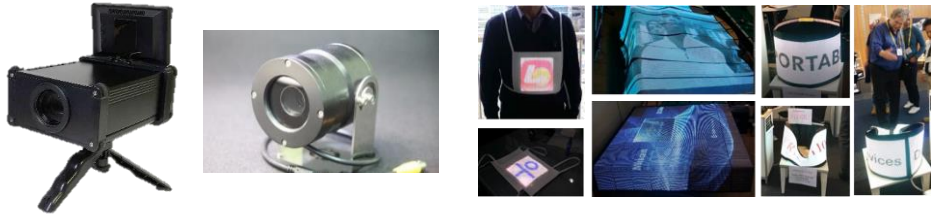


INDEX

1. Smart Solution Division Overview
 2. Smart Factory Solutions
 3. Vulture-Eye Framework
 4. AIoT Service solutions
-

» AIoT Service Solutions

Night Vision Camera & LED Display



||| DNV-500 Portable System

||| Wearable & Flexible LED display

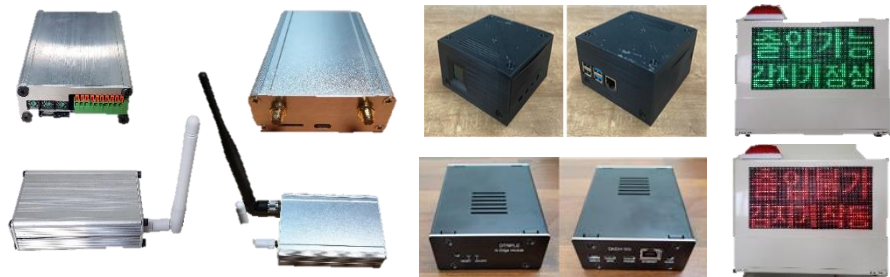
Wearable Camera & Smart-band



||| Wearable Camera (ODM)

||| Smart Wrist-worn Band

Wireless IoT Sensor Monitoring System



||| DWS-100/DWG-100

||| Edge-DL module

||| DEA-100

AI-based Inspection System



||| Safety Alarm & Vision AI Inspection System



Smart Factory Solution

The DTRIPLE solution provides a foundation for integrating, analyzing, and managing all resources of corporate activities.

Manufacturing Execution System



Smart MES
Manufacturing execution system

progress management against plan through production plan and performance tally and tracking management by lot, providing information to optimize production activities from order to delivery

Enterprise Resource Planning



Smart ERP
Enterprise Resource Planning System

A management innovation that seeks to maximize the utilization of human and material resources within a company by integrating independently operated systems across all divisions of the company into one system.

Warehouse Management System



Smart WMS
Inventory Management System

QR code generation and printing, stock/delivery management using PDA/Pad, warehouse management support system

Project Management Information System



PMIS
Proj. Manag. Inform. system

Project Management Information System supports strategic planning for upper-level project management through performance analysis based on real-time statistical data.

Quality Management System



QMS
Quality Management System

As a statistical quality control solution for product inspection through measuring instruments, SPC management, defect detection/classification using Vulture Framework and AI, and equipment predictive maintenance management.

AGV/AMR Control System



ACS
Mobility Control System

A system for integrated control of the location and schedule of moving objects in conjunction with MES when operating multiple AGV in a manufacturing space or logistics site.

Data Collection System



DCS
Process data collection system

An official big data framework that collects machine data, Audio Visual data, and environmental data generated from process equipment or facilities, PLC, edge sensors and IoT system.

Vulture-E AI Framework



PMIS
AI Model Learning Framework

Artificial intelligence development framework, including pre-processing and processing of collected process data, video and audio data, development of AI learning model, and lightweight execution

» Major customers

MEC **Manhee Electric Co.**
Electricity , electronic import
Smart ERP build

TRELLEBORG **TS Korea Co.**
Sealing import / distribution
Import / distribution management system build

Steel-all (주)유석철강 (주)기인철강 **Yuseok Steel Co.**
Steel distribution
ERP Smart ERP build

Bayer Crop Science **Bayer Crop Science Korea**
Life sciences , seedlings , chemical
manufacturing, import and
distribution Establishment of
marketing analysis management
system

MECSYSTEM **MSYSSTECH**
electricity , electronic
manufacturing Smart MES
implementation

CEAS **Seas Co.,**
Cutting tool processing
Manufacturing Smart
MES implementation

STS **STS**
SMT equipment A/S man
agement solution
Establishment of service
management system

삼양화학산업 (주) **Samyang Chemical Industry Co., Ltd.**
Establishment of distribution
management system
and distribution

PC (주) 풍진화학
글로벌아일루미늄(주) **Pungjin Chemical**
Metal heat treatment
plating and painting
Shipping management
system build

에센텍 **이주에센텍**
Semiconductor package PCB
3D AI inspection system

RICHLAND **Richland**
Bedding production and
Distribution Smart MES
implementation

SAMCHANG **Samchang Trading**
Machinery , Electronic
Import Offer , Distribution
Import / distribution manage
ment system build

LMK **LMK Co., Ltd.**
FCCL film material , biosensor
manufacturing Smart MES
implementation

MI **Myungjin Electronics**
electricity , electronic manufacturing
Smart MES implementation

SIGNTELECOM **Sign Telecom Co.**
Intelligent transportation system ,
bus information system ,
Smart city , smart display
Smart MES implementation

DONGSEO **Dongseo Machinery Co., Ltd.**
Machine & Tools
AI-based automobile
parts inspection system

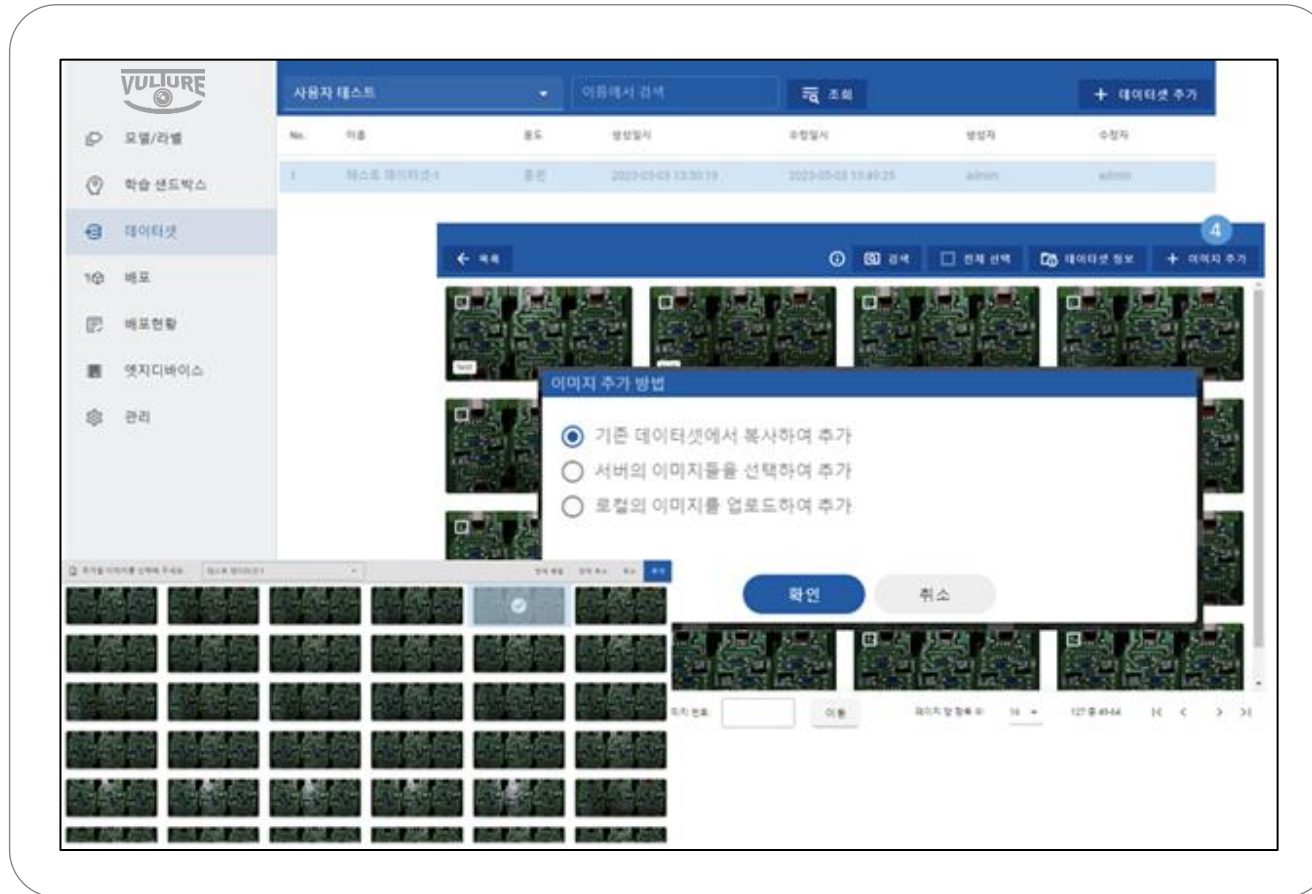
Construction Case Diagram

PMIS/MES
[Project Management Information System]

TCP/IP Internal Network

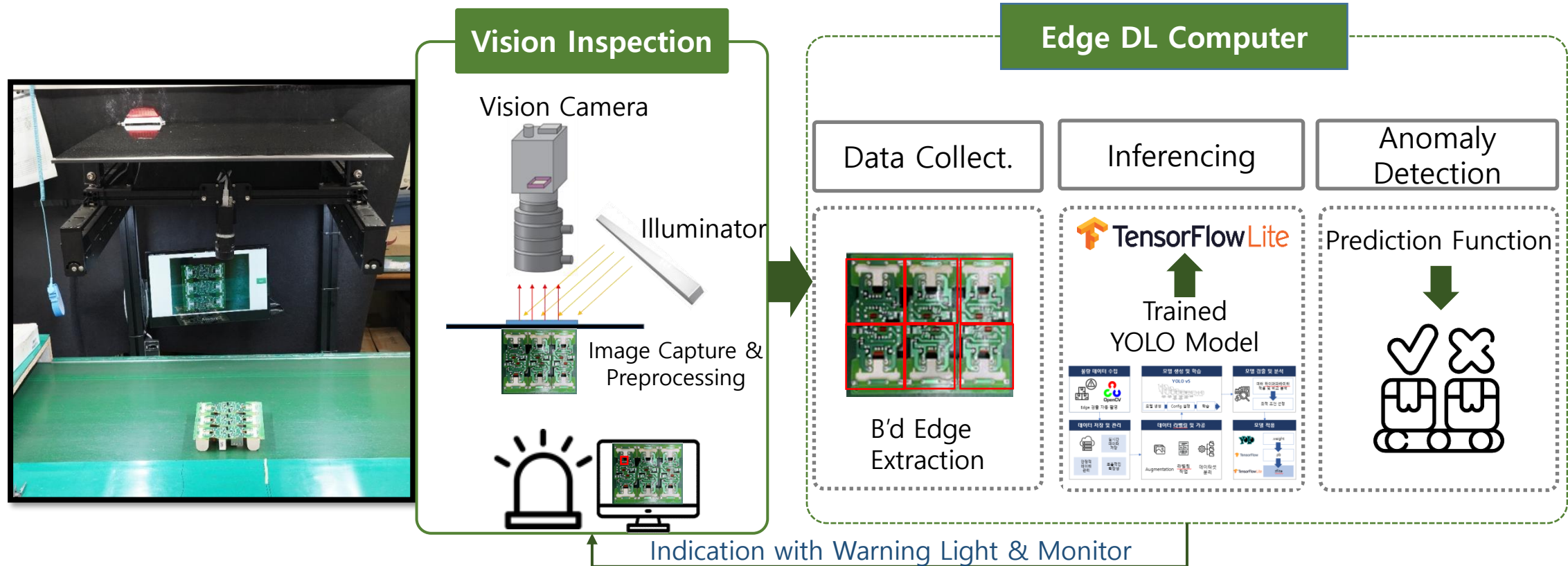


▶ Vulture-Eye Artificial Intelligence Total Solution Framework



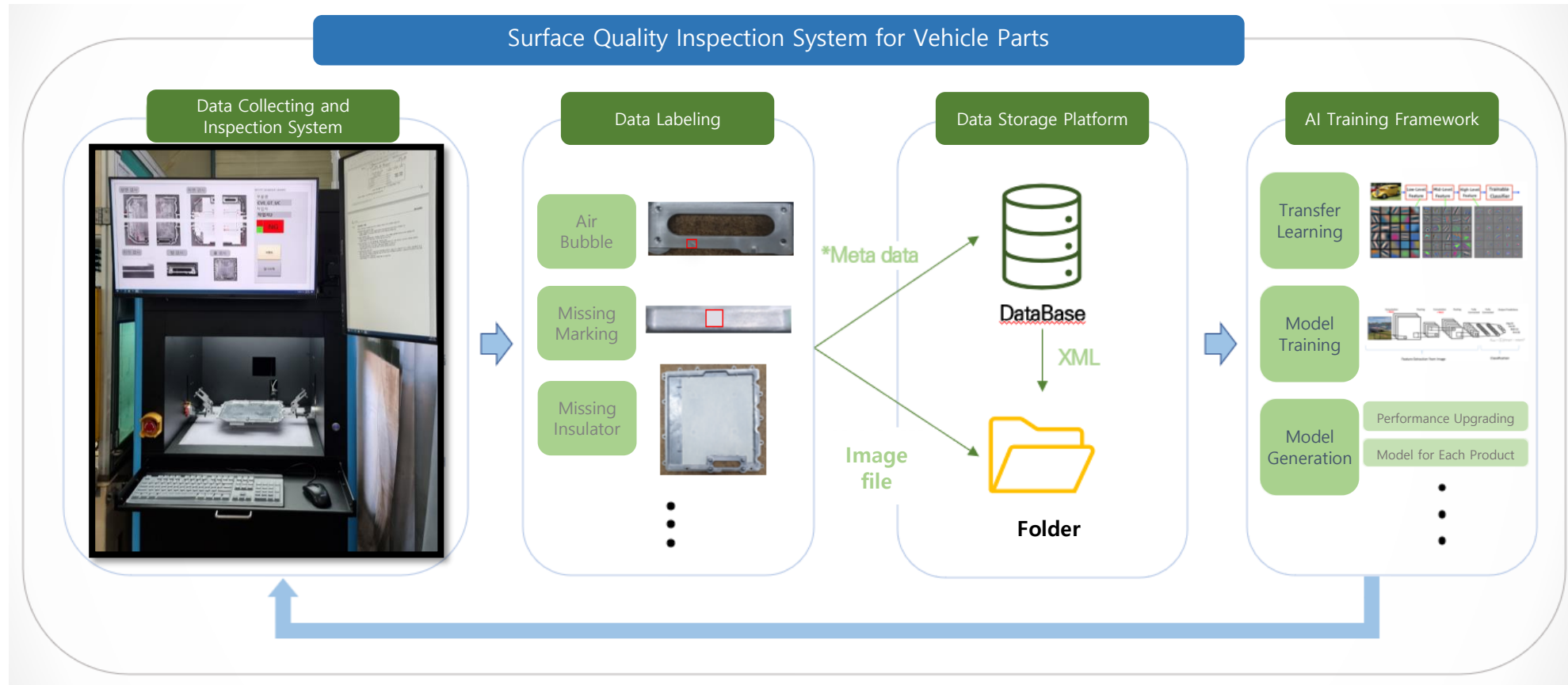
- ❖ **Data collection, pre-processing, labeling (processing, annotation), model learning, and performance analysis are processed in one framework.**
- ❖ **Distribution management of conversion and inference executable files for lightweight accelerator utilization**

▶ **PBA Soldering Defect Inspection System**



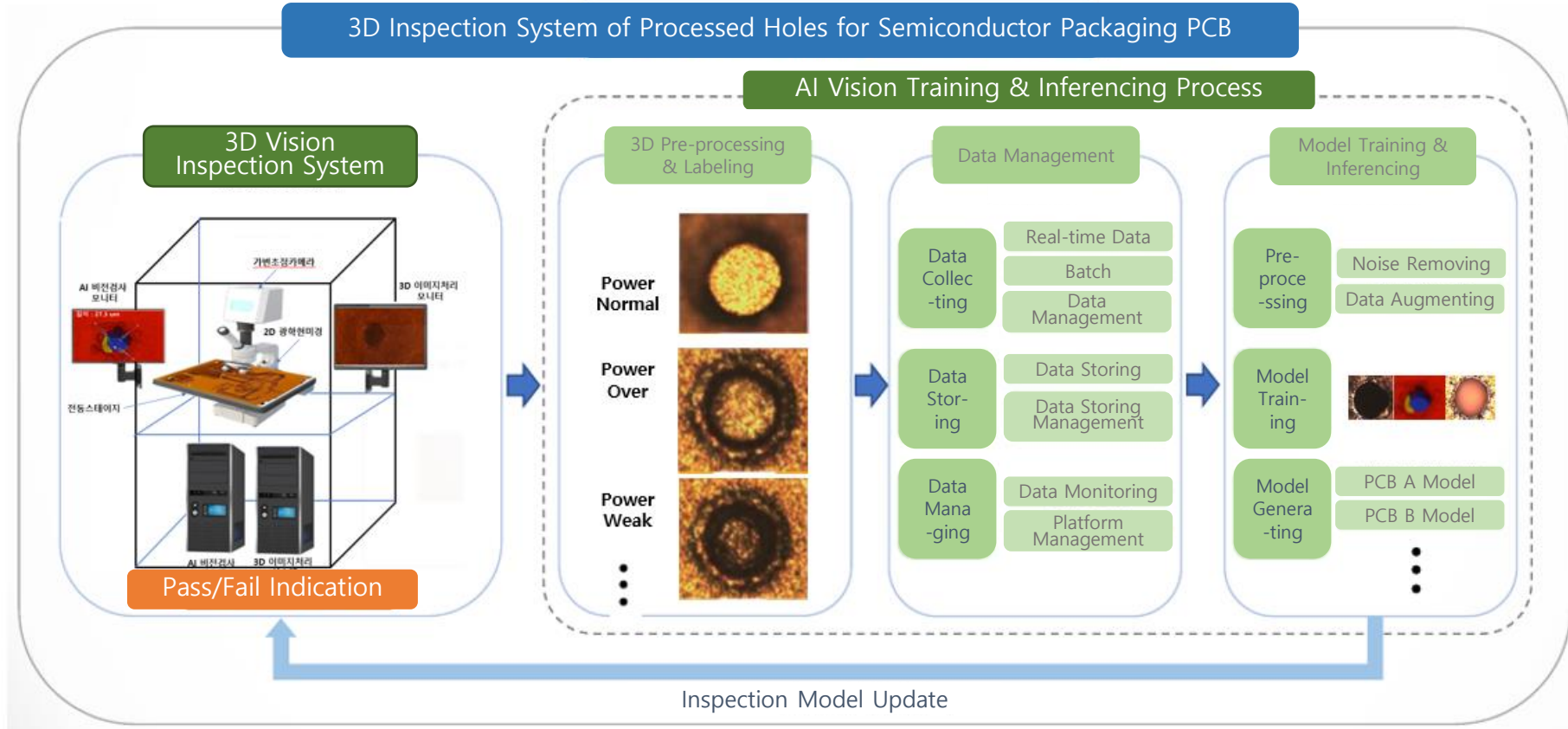
- Inspection of soldering defects (mis-soldering , cold soldering , under-soldering, over-soldering)

▶ Automobile Parts Inspection System

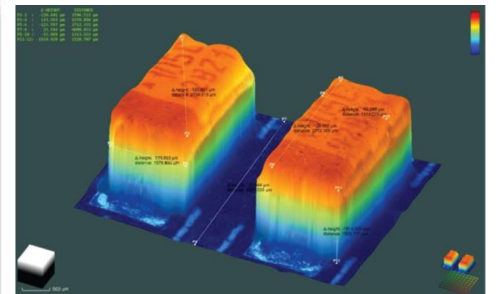


– Detection of surface defects (steps, dents, scratches, bubbles, burrs), missing guide pins, missing hole processing, tap hole processing, insulation paper inspection

▶ Semiconductor Packaging PCB 3D AI Inspection System



3D image processing technology

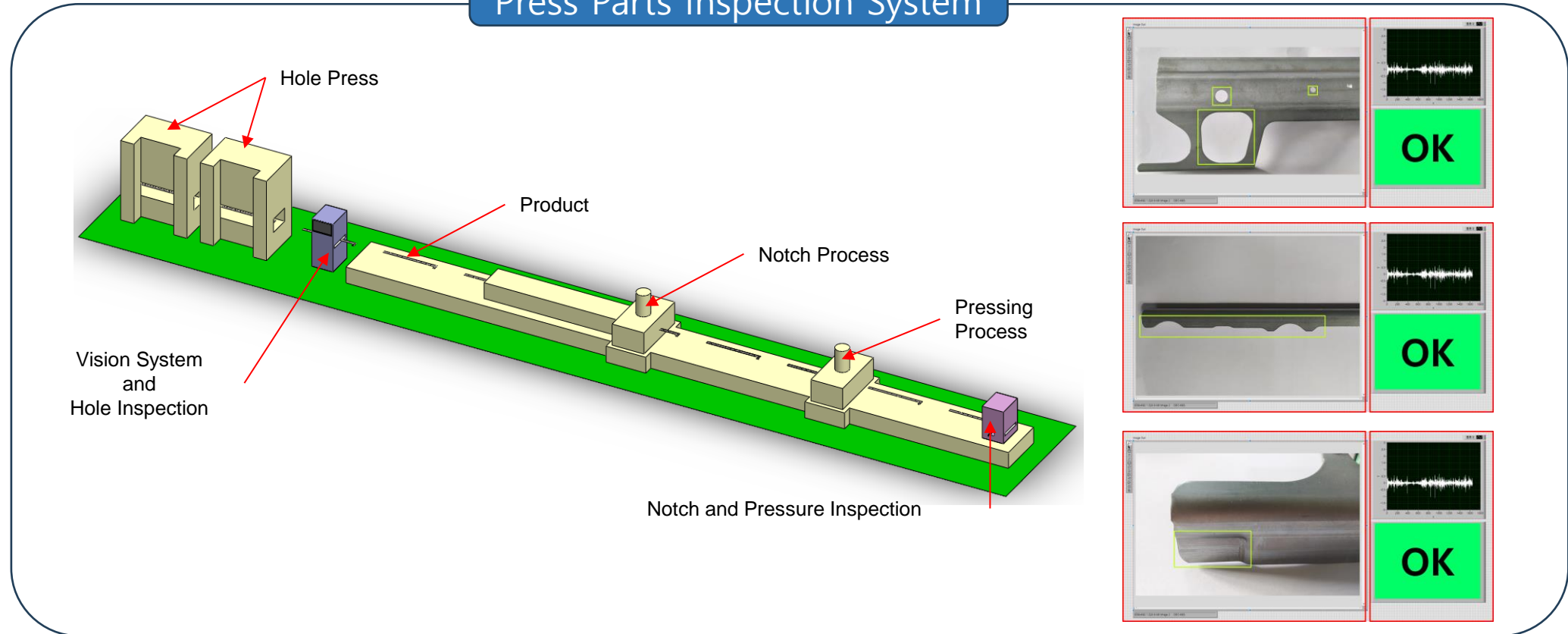


결과		
3D EDof	상단 : 42.7 um	하단 : 28.1 um
3D DOF	깊이 : 27.3 um	

– Hole diameter top and bottom(40um-80um), depth, roundness, eccentricity measurement and inspection

▶ Press Inspection System for Electric Vehicles

Press Parts Inspection System

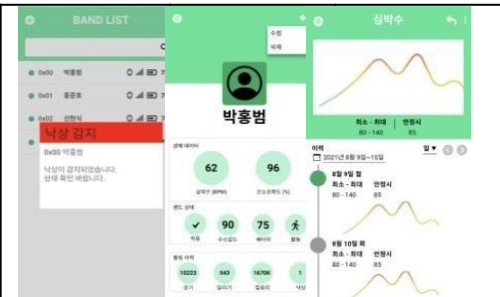


– Holes , notches , and press-formed sheet metal parts Press molding inspection

▶ Smart Band-based Health and Safety Management Service


User / Guardian's App

- User's Information
- Vital Signs Measure Mngt.
- Activity Data Magt.
- Alarm Risk / Event / Falling
- Web-based App.



Dashboard and Management Platform

- User/Device/Position
- Data Collect./Trend/Alarm



Smart Wrist-band

- Various Model of Safety/Care
- Network Interface & Sensor

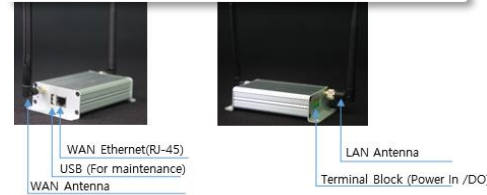


Functional Part	
MCU(Main/RF)	ARM Cortex-M3
Wireless Standard	IEEE802.15.4e/g
Frequency Band	917~923MHz ISM
Data Rate	200Kbps
TX power	14dBm
Vital Signs Measurement	HR, SpO2, HRV
Activity Information	Step, Run, Calorie, Fall Detection
Battery	3.7V/50mA, Li-ion

Environmental Part	
Operating Temperature	-40°C ~ 85°C
Operating Humidity	95% RH (w/o condensation)
Power Consumption	Max 0.05 watt
Weight(inc. Strap)	35 g
Size(Body, Exc. Strap)	37.8 x 50.5 x 14.8 mm

Wireless IoT Network (Gateway)

- IoT Network Establishing
- Direct LTE-M/WiFi Infra.



Functional Part	
MCU Type	ARM Cortex-A7 Quad core
Memory	DDR 512MB, NOR Flash 2MB
WAN(wired)	Ethernet(IEEE802.3i/u, 10/100Mbps.)
WAN(wireless)	IEEE802.11a/b/g/n
LAN(wireless)	IEEE802.15.4e/g, 868/915MHz ISM
Storage	Micro-SD card / 32GB max.
Ext. I/O	DO Isolated 1CH

Environmental Part	
Operating Temp.	-20°C ~ 50°C
Operating Humi.	95% RH (w/o condensation)
Power Input	24VDC, Terminal Block
Power Consump.	Max 2.0 watt
Enclosure Mater.	AL60xx
Weight	250 g
Dimension	75 x 110 x 31 mm

- Elderly falls and activities, health information management solution

▶ Smart Wrist-band for Firefighter Safety Management Service

Features & Specifications

Features



Measuring VSs & Activities

HR, SPO2, Temp, Run, Step, and Falling

Outdoor/Indoor Positioning

Seamless location recognition of FFs to avoid and alert of Risk

Awareness of Abnormality

Anomaly of VSs and activities, and falling

Mobile IoT Network

Connected with LTE-M(cat. M1) and BLE

Connectivity Redundancy

Pursuing connectivity redundancy with Lifesaving Alarm Device

Specifications

Functional Part

MCU(Main/RF)	ARM Cortex-M4F/M3
PAN Wireless	BLE 4.x
PAN Data Rate	1Mbps
WAN Wireless	Cat. M1(LTE-M)
Vital Signs Measuring	HR, SpO2, TEMP, HRV
Activity Measuring	Step, Run, Falling
Positioning	Sea Level, Distance between FFs
Battery	3.7V/400mA, Li-ion

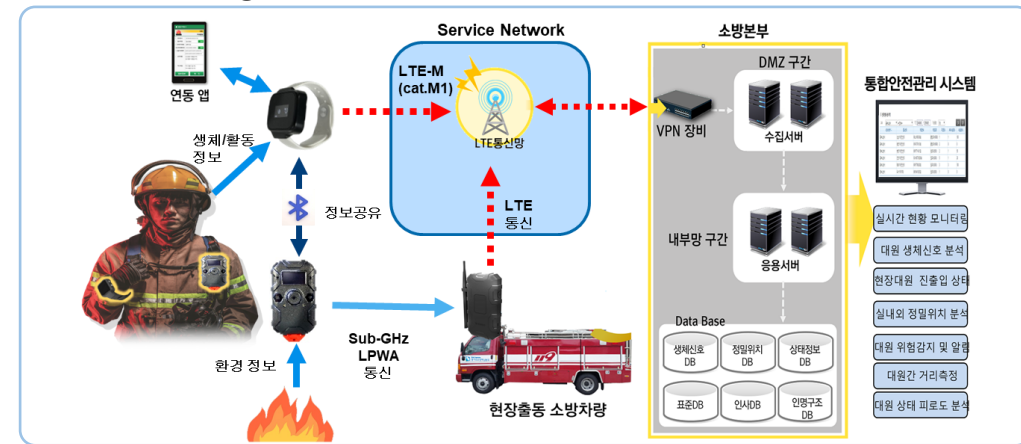
Applications

Specifications

Environmental Part

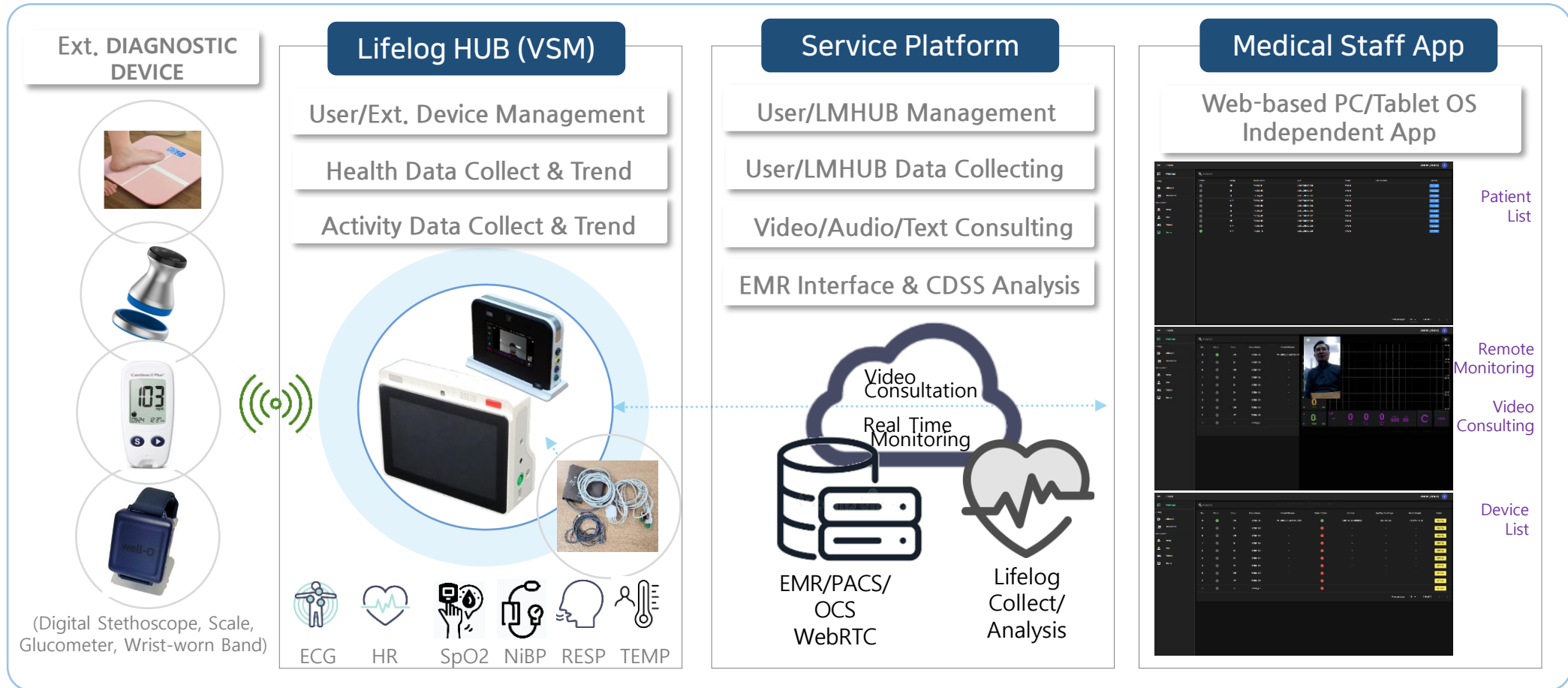
Operating Temperature	-20°C ~ 55°C
Operating Humidity	95% RH (w/o condensation)
Power Consumptions	Max 0.1 watt
Weight(Inc. Strap)	32 g
Size(Body, Exc. Strap)	260 x 40 x 15 mm

Service Configurations



- Solution for Measuring Vital Signs abnormalities and Outdoor/Indoor Positioning Technology

▶ Portable Video Consultation VSM for Remote Health Management Service



– 6-parameter Vital Signs Monitoring, Video Consultation device and Service Solution

We will do our best for your success.

Thank you!