

2024.12

MuhanIT Business Introduction

A company specializing in intelligent spatial information services

비전

“ A smart future that connects with intelligent spatial information, lead digital innovation ”



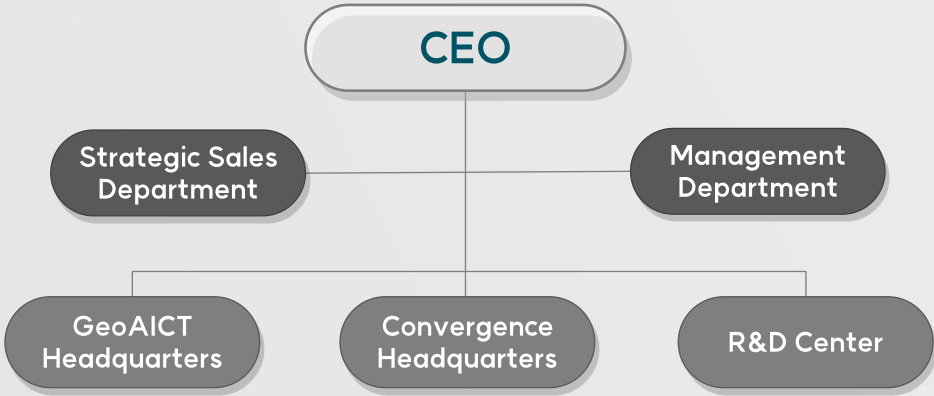
Leading spatial information through **convergence** of new technologies



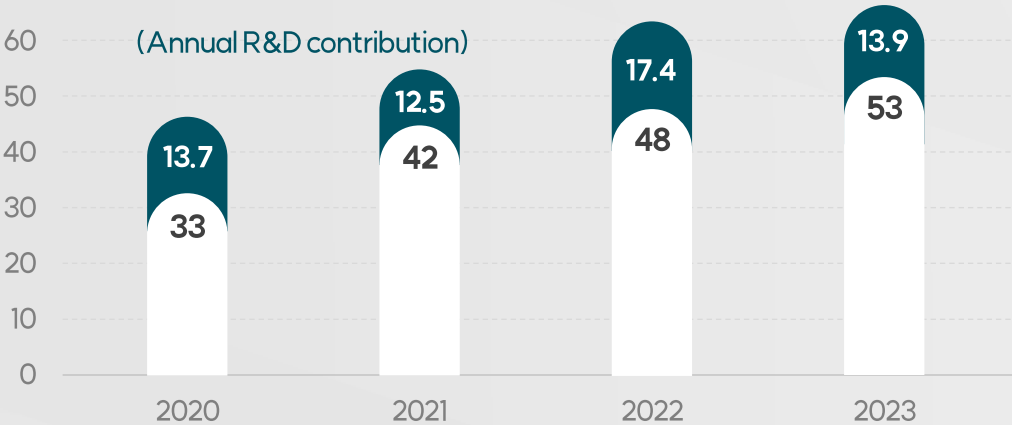
Ultra-automation reduces costs



Responding to Future **Forecasts** with AI Solutions



Annual sales trend (unit: KRW billion)



Technical grade : **T3-**

Date of establishment	November 11th, 2015
CEO	Bae Kyungrok, Lee Myunghwa
Head office	#706, 12, Dangsang-ro 2-gil, Yeongdeungpo-gu, Seoul, Republic of Korea
branch	#302, Gwangju Industrial-Academic Convergence Center, 365, Bitgreen Industrial Complex-ro, Gwangsan-gu, Gwangju, Republic of Korea
Personnel	50 people (as of December 2024)
Major Products	AiMAPS

Core Industry



Disaster

Provides solutions to minimize damage from natural disasters



Facility

Providing facilities management solutions such as water and sewage, bridges, and dams



Road

Provide road management solutions such as potholes, cracks, etc



Agriculture

Management of irrigation, irrigation, and growing conditions for growing open-field crops



R&D

Development of Deep Tech such as AI, Drone, 3D, IoT, etc



Overseas

Domestic GIS New Technology
Expanded Overseas Sales

nMAPS

Securing original technology

Big Data/Cloud

GIS

IoT sensor

Drones / Robots



**Possessing the highest technology
in the spatial information industry**

Global warming

Aging facilities

Aging population

DISASTER Field

Application Site

- Advancement of Inundation Prediction System in Seoul in 2024
- 2nd Construction of NIA Urban Infiltration Response System in 2023
- Construction of Inundation Prediction Information System in Seoul in 2023
- Metropolitan City Early Warning System (Gyeonggi Provincial Office and others 3)
- City, County, and District Early Warning System (Milyang City and 10 others)
- Establishment of a real-time disaster response system in Yeonggwang-gun in 2022
- The 1st Construction of NIA Digital Twin-Based Urban Infiltration Response in 2022
- 2020 Construction of the Seo-gu Disaster Situation Panel in Gwangju Metropolitan City
- 2019 Ministry of Public Administration and Security Establishment of Disaster Situation Panel
- Construction of Seoul Safety System in 2017

" With the recent frequent occurrence of extreme rainfall (1hr 50mm or more, 3 hours 100mm or more) caused by global warming, we provide a variety of solutions for real-time natural disaster response systems."

01

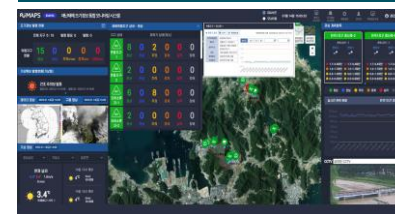
Disaster situation board



Integrated control of radar, rainfall, forecast information provided by the Korea Meteorological Administration, and related information such as CCTV's, rainfall, and water gauges in the situation room

02

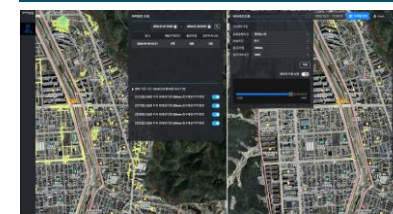
Disaster Warning System



Based on various sensor information collected by the Korea Meteorological Administration and the field, real-time disaster prevention and warning services such as setting thresholds, situation notifications, and situation propagation are provided

03

Urban Inundation Prediction

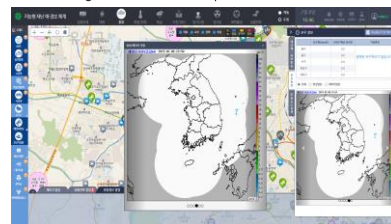


Based on the Korea Meteorological Administration's three-hour weather forecast, real-time urban inundation prediction and situation propagation service through runoff analysis using topographic maps, sewage pipes, and inundation history information

Key Features

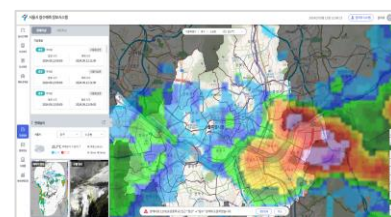
Meteorological Administration Information Linkage Service

Radar images, cumulative/expected rainfall, forecast



Real-time Urban Inundation Forecast

Prediction of flooding: 3-hour forecast, topographic map, sewer line, etc



Monitoring ICT sensor information on site

CCTV, Rainfall, Flowmeter, Pump Station Operation, etc



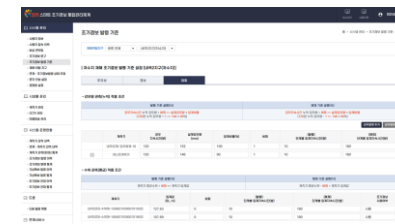
Inundation prediction simulation

Accumulated Rainfall, Estimated Rainfall-Based Simulation



Setting a Threshold

Pre-warning by setting the threshold of the ICT sensor



Real-time Situation Transmission

Real-time ICT information, predictive information-based situation propagation



ROAD Field

Application Site

- Construction of an Integrated Road Information System in Seoul
- Construction of Big Data System for Road Management in Seoul
- Construction of Gyeonggi-do Packaging Management System
- Establishment of monitoring team system in Good Motting Gyeonggi-do

R & D Performance

- Development of AI-based optimal road pavement method recommendation solution (Ministry of Science and Technology)
- Development of Total Platform for Road Management (Ministry of Commerce and Industry)

Key Features

- Road condition survey
- Selection of remuneration targets
- Selection of optimal construction method
- Construction quality control

As the annual increase in road aging and damage increases, we provide **a variety of road management support systems** that manage the life cycle of the road for budget reduction and optimal road management

01

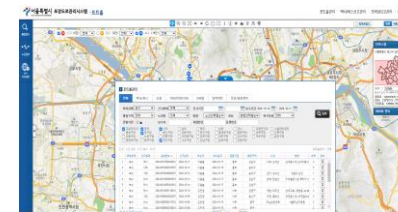
Road pavement management



- Registration and evaluation of packing status survey data
- Selection of repair target sections and derivation of construction methods

02

Managing Pothole Reporting



- Receiving the contents of the pothole report and inquiring about the current status
- Managing Pothole Location and Maintenance Information

03

Construction management



- Construction Material (Mixture) Registration Management
- Step-by-step test information suitability determination

04

Road management



- Inquiry of road facilities information
- Registration/inquiry of facility inspection and maintenance information

05

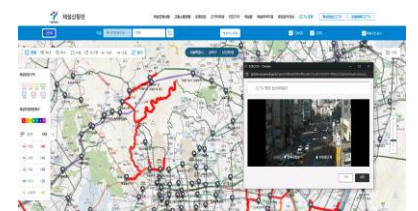
Road excavation and restoration



- Application and approval of road excavation and restoration permits
- Inquiry of excavation permit status and planning information

06

Snow removal site management



- Check real-time snow removal section and progress information
- Real-time snow removal resource status inquiry

FACILITY Management Field

Application Site

- Construction of a Computer System for the Management of Road Hamlets in Busan Metropolitan City
- Seoul Metropolitan Government Water Supply GIS Performance Improvement Project
- GIS DB of Underground Facilities in Jungnang Water Regeneration Center, Seoul
- A Study on the Appearance of Deokdong Dam Using Drone 3D Model
- A Study on the Appearance of Miryang Multipurpose Dam Using Drone 3D Model
- Application of Precision Safety Diagnostics Using Jukryeong Tunnel LiDAR Big Data
- Establishment of Intelligent Diagnostic System for Drone Image-Based Dam Facilities_Korea Water Resources Corporation
- Establishment of Smart Dam Safety Management Platform_Korea Water Resources Corporation
- A Study on the Risk Determination Method of the House Roof of a Digital Twin-Based House
- A Project to Establish a Digital-Based Safety Management System for Deteriorated Risk Facilities in Miryang

For the safety and maintenance of various old facilities, we provide a **smart facility management solution that supports budget reduction and efficient life cycle management**

01

Inspection of the exterior of large structures (dam)

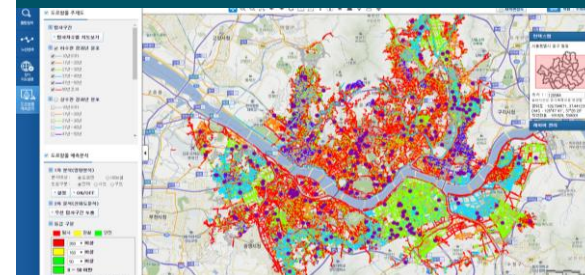


Provision of automation service for facility appearance inspection using drone image-based 3D modeling data

- Automate drone image-based 3D modeling
- Automatic matching of elevation orthogonal images and appearance survey network
- AI image reading infrastructure damage reading

02

Underground Safety (Cavitation) Management



Provision of analysis services such as underground safety management status, statistics, emergency notification, and cavitation occurrence prediction

- Support for GIS-based underground safety management
- Provide customized analysis data for co-occurrence prediction and analysis

03

Management of underground facilities

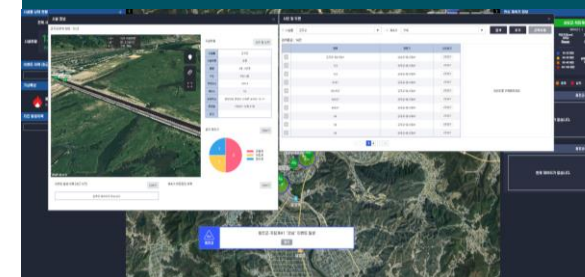


ARC GIS-Based Platform-Based Service Using Information on Topographic Map, 7 Underground Facilities, and Underground Structures

- Provides underground facility management register, history management function
- Mobile field support (AR) service delivery

04

Management of old facilities (bridge)



Safety management operation service that can prevent and respond to disasters/disasters early by utilizing IoT sensors for old facilities (bridge)

- Provides dashboard functionality to understand the status of facilities
- Provides GIS infrastructure information and event history inquiry function

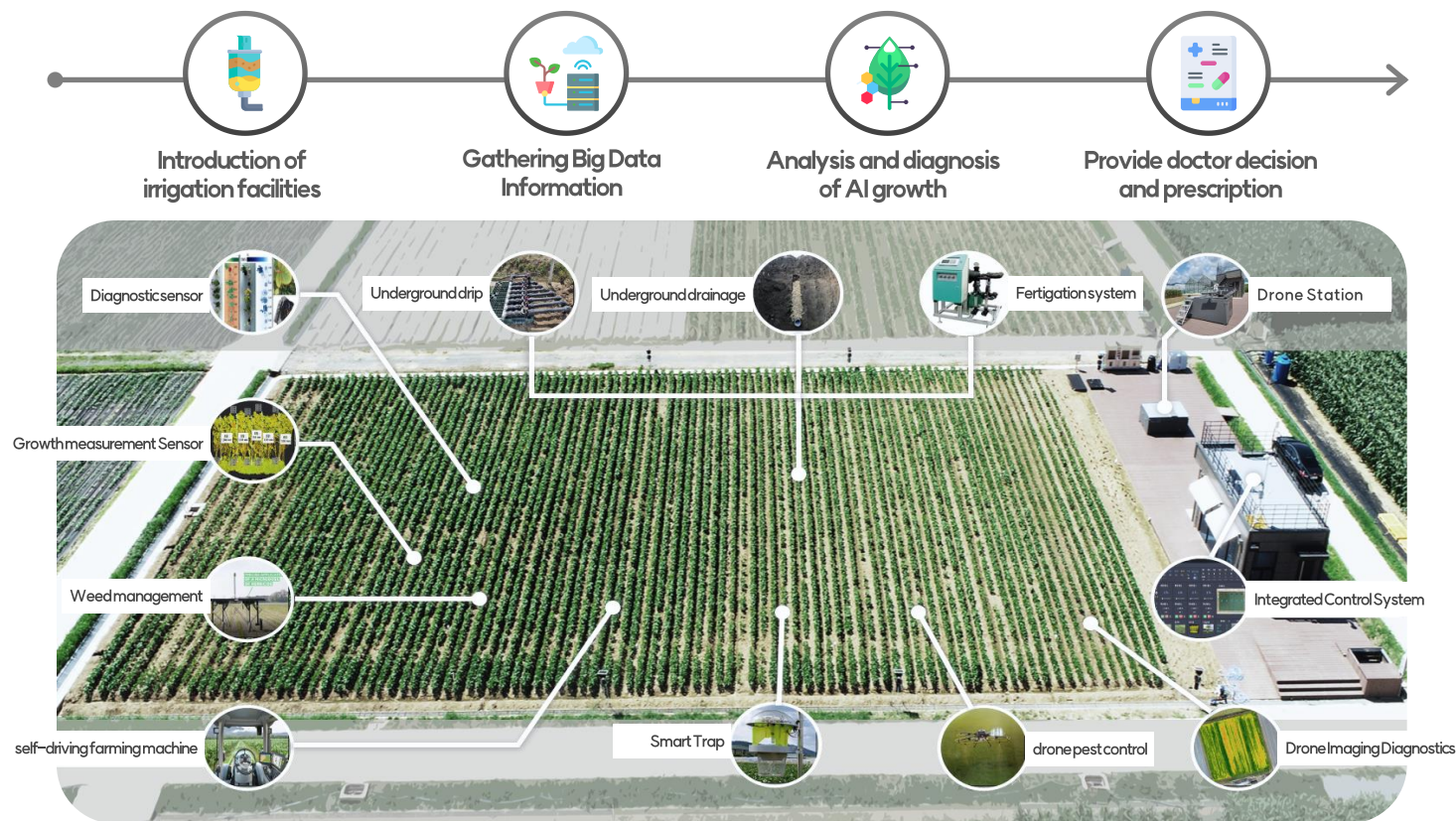
FARM Field

Application Site

- **Installation zones in 2022**
Goesan, Miryang, Gyeongju
- **Areas to be expanded in 2023**
Daegu, Jeju, Yeoncheon, Chuncheon, Osan, Yesan, Iksan, Jinju
- **Additional Installation Zones in 2024**
Naju

04

Establishment of **AI-based smart farm integrated control system** for optimal growth management of field crops



Design

Location analysis, topographic mapping, complex design, planning



Infrastructure construction

Piping and drainage facilities, underground construction, and underground drainage construction



Sensor installation-

Installation of 21 types of sensors, including soil, light quantity, and growth



Data Collection

Sensor, digital taps, CCTV



Drone

Drone Growth Prediction • Drone Control, Drone Station



Network

Integrated control based on wireless network (Wifi) in complex



Control room

Integrated Control Room

R&D Field

Vision

Leading the future by providing smart solutions with advanced technologies such as AI, drones, and 3D GIS.

Our Core Technology



Drone



3D



AI



IoT

05

MuhanIT's R&D achievements are applied to various industries

We are making practical results **through commercialization and demonstration**

field of study



Drone



3D



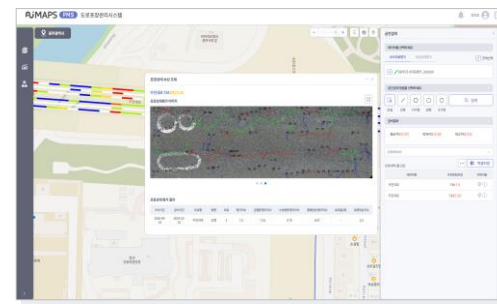
AI



New Business

Major Research and Development Performance by Industrial Sector

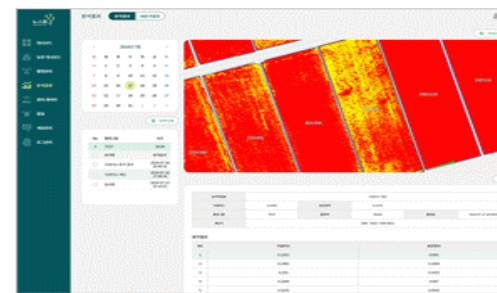
✓ Road



AI-Based Intelligent Road Paving Management Solution

- Collecting road surface image data using cameras mounted on ordinary vehicles
- AI-Based Road Paving Status Analysis

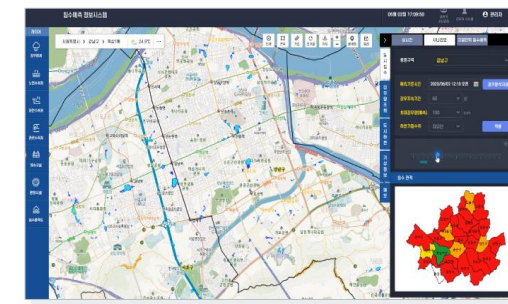
✓ Agriculture



Smart Farm Integrated Control Platform Service for Field crops

- Monitoring the Growth Status of Field Crops Using Unmanned Drone Technology
- Provision of smart irrigation and irrigation services with AI-based on-site crop growth prediction technology

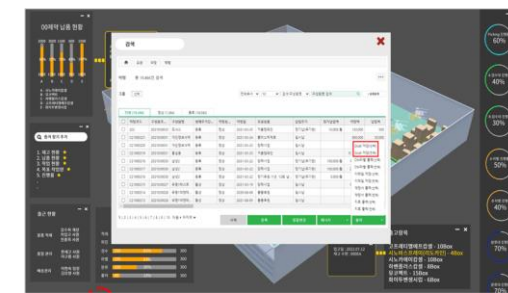
✓ Disaster



AI-Based Real-Time Urban Infiltration Prediction Solution

- Simulation Analysis of Urban Infiltration Prediction Using Information on Accumulated Rainfall, Sewage Pipeline Water Level, and Predicted Rainfall

✓ Distribution



Digital Twin-Based Pharmaceutical Storage Virtualization Management Services

- Simulation-based pharmaceutical management full-cycle support process
- Support for Digital Twin-Based Pharmaceutical Storage Virtualization Management Services

GLOBAL MARKETING

Effort to advance overseas.

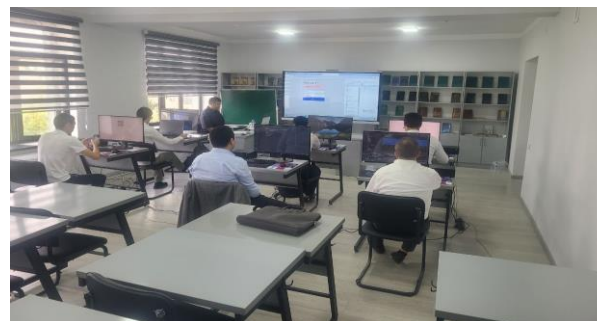
- Training of geospatial information experts
- Construction of a Spatial Information Education Center
- Dispatch of geospatial information experts
- Participation in international conferences, etc

06

Strengthen spatial information capabilities and make various efforts to enter the global market based on our superior solutions and advanced technology

01

Strengthen national spatial information capabilities



Construction of a training and education center for local experts is underway through a project to strengthen the capacity of Uzbekistan's national spatial information

02

Participation in overseas conferences



Participation in various events and dispatch of experts for overseas expansion such as the Eurasian Spatial Information Infrastructure International Conference (ESDI)

Major Activities



Uzbekistan

Establishment of a national spatial information capacity building system (training experts, establishment of an education center)



Colombia

Establishment of a national spatial information capacity enhancement system (dispatch of experts in preliminary feasibility studies)



ESDI(Eurasian Spatial Data Infrastructure)

Consultative body from seven countries, including South Korea and Mongolia, transfers and shares the current status of spatial information between countries and advanced cases in South Korea

Drone Service

Introduction of BODA Co., Ltd

Delivering a new lifestyle for drones

- NALIDA – Operation of Drone Matching Platform
- General Manager of Drone Training at Public Institutions
- Processing AI/drone data
- Overseas ↔ Domestic drone network

06

Subsidiary Corporation BODA provides **market-specific services** to customers based on expertise in education, services and AI

WE VALUE

Drone Data

Connection

Education

Drone Pilots



NALIDA

Connect a drone pilot with someone who needs a drone
Korea's First Drone Manpower Matching Platform **NALIDA**

1 Provide a stable automated flight system

Take-off and landing, flight approval, insurance registration, flight plan

2 Verified drone personnel and data

Save more than 80% on navigation

3 Provides optimal data analytics processing

Provides simplified drone data processing services



SOFTWARE

AiMAPS

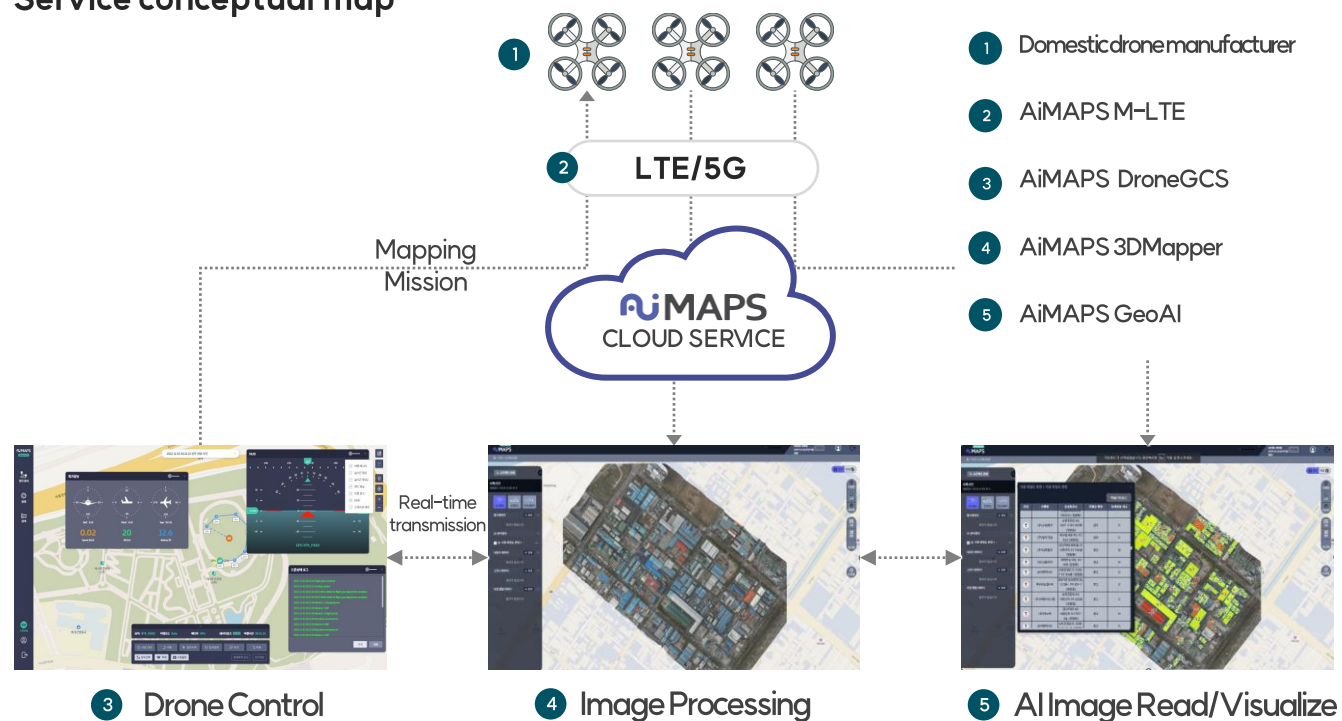
AiMAPS provides intelligent spatial information cycle services from investigation/collection to conversion, analysis, and visualization



One-Process support is possible from drone control to AI video reading by using **software made of pure domestic technology**.



Service conceptual map



SOFTWARE

MAPS DroneGCS

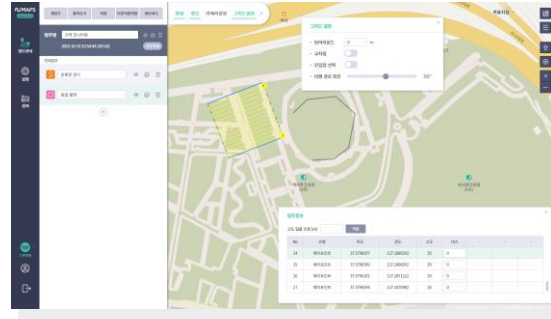
Unmanned control technology
for non-visible drone flight and various GIS
information linkage

- Drone control total solution developed with its own technology
- Support for cadastral survey work, survey and management of construction site terrain
- Implementation of Safety Inspection Diagnostics for Large Structures
- Multi-drone integrated control services

Key Customers

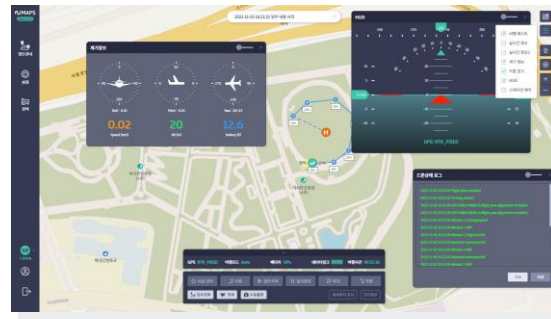
- LX Korea Land Information Corporation, Korea Water Resources Corporation, Ministry of Land, Infrastructure and Transport, local governments, etc

Providing an integrated drone flight solution
by linking unmanned control technology with real-time GIS information



Unit mission-based mission design

- Design flight missions in different patterns, consisting of multiple unit missions
- Support for many additional features such as turnaround, double grid shooting, entry point change, flight path rotation, etc



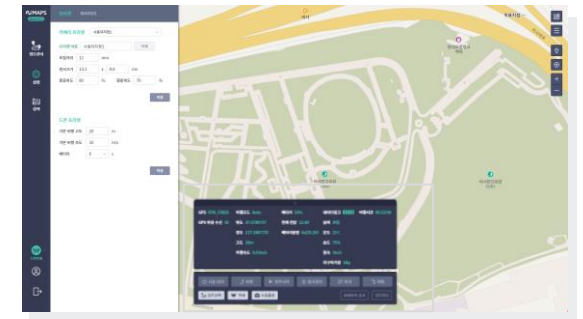
Output various drone flight information

- Graphic-based instrument information and HUD output for a quick view of drone flight status
- Text-based status log output received from the drone



Live streaming of drone video

- Real-time streaming of images obtained from drone-mounted cameras based on Web RTSP
- Automatically send images taken by drones to the server



Provides a user-friendly interface

- Provide weather information on the flight area (weather, temperature, humidity, wind speed, Kp)
- Camera Presets and Drone Parameters
- Manage user information and ratings

SOFTWARE

AI MAPS 3DMapper



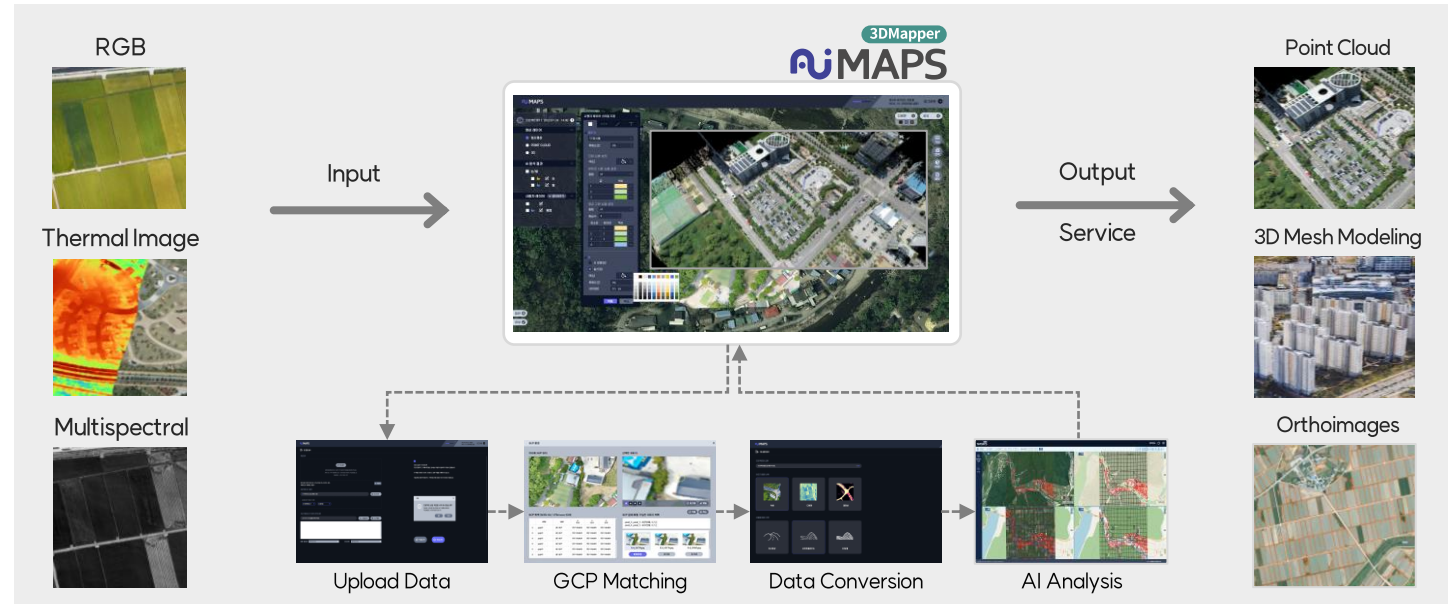
Drone mapping and photogrammetry software
for digital twin environment construction

- Support 3D modeling automation developed with its own technology
- Support for 3D mesh modeling automation with RGB
- RGB, thermal imaging, multispectral support
- Application of AI-based GCP Automatic Recognition
- AI MAPS 3DMapper v1.0 GS Certification Grade 1 Acquisition

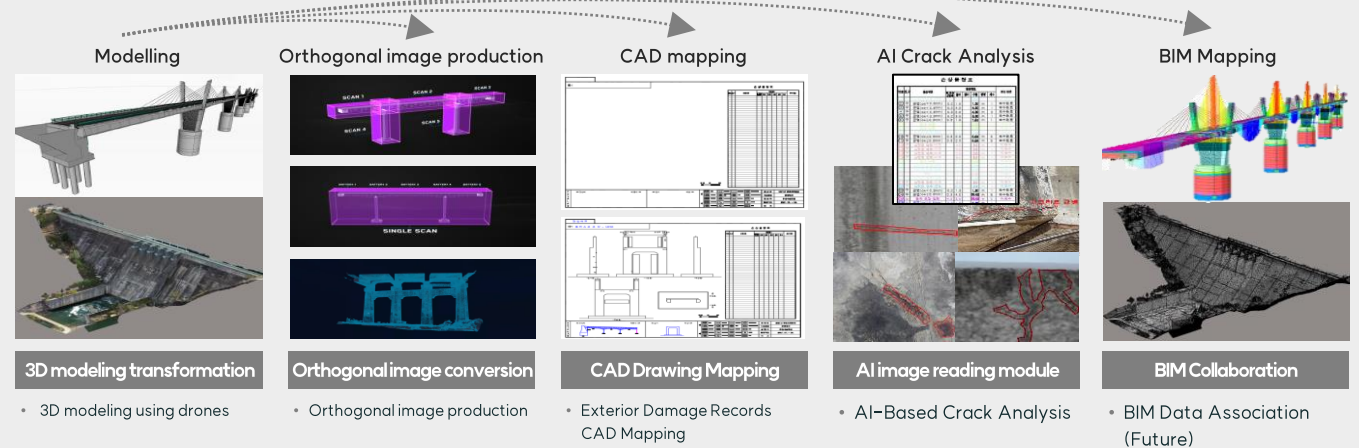
Key Customers

- LX Korea Land Information Corporation, Korea Water Resources Corporation, Ministry of Land, Infrastructure and Transport, local governments, etc

S/W developed with pure proprietary technology
that can be customized for various industries



Facilities Safety Inspection Specialized Service



SOFTWARE

MAPS GeoAI

Geospatial AI Platform Based on Deep Learning Technology for Efficient Management of Geospatial Information

- Processing AI learning datasets, developing AI learning models, reading images, and supporting GIS visualization
- Reading on the area and growing condition of crops based on multispectral images
- Support for Object Detection of Illegal Buildings Based on Aerial Photography
- Support for drone image-based building object detection and material classification functions

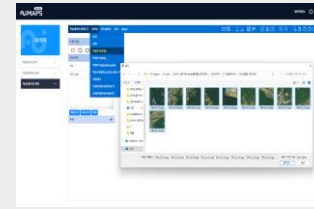
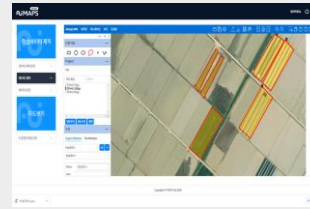
Key Customers

- LX Korea Land Information Corporation, Korea Water Resources Corporation, Ministry of Land, Infrastructure and Transport, local governments, etc

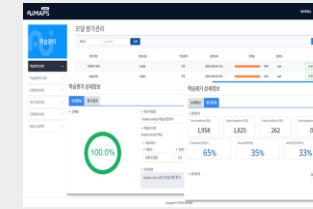
Providing a spatial information-based One-Process support service
using AI image reading technology

Key Features

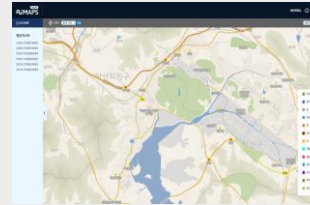
Building Learning Data



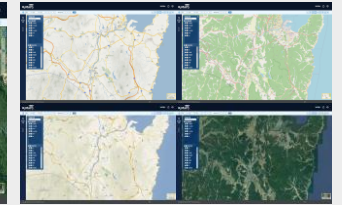
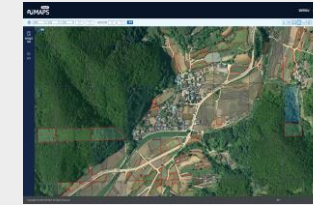
Managing Model Evaluation



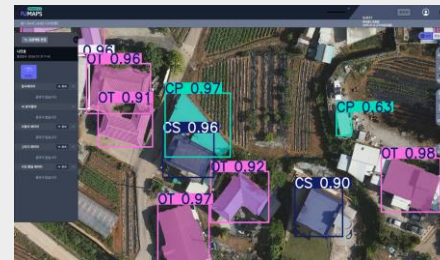
Managing Learning Models



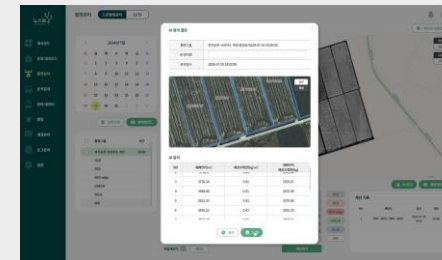
Read Results Map Service



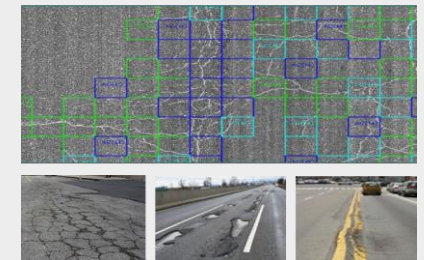
Service Application Cases



AI-based roof risk assessment and
GIS-based visualization service



AI Image Read-Based
Growth Status Analysis Service



AI Image Read-Based
Road Paving Status Analysis Service

Partners

Partners & Key Clients

Partners



Clients



History



2024	10	AiMAPS 3DMAPPER <2nd AIoT Innovation Awards 2024> Awarded in the service sector MOU for Industry-Academic Cooperation with Gangnam University
	07.	AiMAPS 3DMAPPER Excellent R&D Innovation Product Designation Certification (No. 2024-119)
	04.	Marine survey and information business registration (No. I-54)
	01.	AiMAPS 3DMAPPER v1.0 GS Certification Grade 1 Acquisition
2023	08.	Digital twin-based housing roof risk assessment method won a research order
	06.	Development of Integrated Control Platform for Smart Farming Electric Chargers based on AI and Drone (Joint)
	04.	Digital Twin-Based Pharmaceutical Storage Virtualization Management Service Technology Development (Supervision)
2022	12.	Money Today <2022 Best Companies for Future Creation Management> Targeting the Solution Sector Construction of Inundation Prediction Information System in Seoul Selection of Family-Friendly Certified Companies (No. 2022-0558)
	10.	Patent Registration _ Integrated Management Monitoring System for Disaster Early Warning AiMAPS 3DMapper Product Launch
	06.	Development of New Type Metabus Platform and Service_Development of Regional Realistic Metanomics Platform Development of 3D scanning technology to ensure safety during autonomous driving
	02.	Egis MOU Signs
	01.	2022 Top 100 Promising AI Companies selected

2021	12.	AiMAPSEWMS v1.0 GS Certification Grade 1 Acquisition
	06.	Copyright Registration – Integrated Monitoring System for Disaster Early Warning Image Processing Korean Society for Geospatial Information Wins "Technology Award"
	05.	AiMAPS Trademark Registration
	02.	MOU signed in Gwangju Metropolitan City
2020	12.	2020 ICT Grand Prize Wins Excellence Award in Intelligent Information
	08.	Copyright registration – Drone sensor information visualization and AI analysis platform
	07.	Copyright Registration – Smartphone Field Survey System
	06.	Registration of overseas construction business (construction engineering business)
	04.	Artificial Intelligence Drone Research Institute Established Seoul Branch Copyright Registration – AI-based GeoAI facility reading for public land reading
	03.	Information and communication business registration
2019	01.	Patent Application – Road Damage Analysis System and Analysis Method
	12.	2019 Happy Mid-term Management Award Special Award
	11.	Registration of underground facility survey business (National Geographic Information Service)
	10.	Business registration for the use of ultra-light flying devices
	09.	Registration of public survey business (Seoul Metropolitan Government)
	04.	Patent Registration – A ground topography height survey system using drones (Korea Intellectual Property Office)
2018	01.	Selection of Youth-Friendly Small and Medium Enterprises
	12.	Acquire technology innovation SMEs (Inno-Biz)
	09.	Joining a cooperative in the spatial information industry
	07.	Certification of Corporate Affiliated Research Institute
	02.	Copyright Registration – PMS Planner
2017	01.	Patent Registration – Geographic Advertising System and Method for Providing Advertisements in Map Space
	06.	Certification of Women's Enterprises
	05.	Acquisition of confirmation of venture company
	04.	Copyright Registration – Field Planner Copyright Registration – Draw
2016	03.	Agreement on the Development of Human Resources in the Strategic Sector
	12.	Registration of Survey Business (National Geographic Information Service) Establishment of an affiliated research institute
		Industry-Academic Cooperation – Hanyang Women's Univ., Pusan National Univ. of Foreign Studies, Bit Computer
2015	11.	Information System Integration Business (SI) Service Business Registration Establishment of MuhanIT Co., Ltd

Intellectual Property (patent/copyrights)

We have intellectual property rights for core technologies such as AI analysis, 3D modeling, drone control, and IoT, and we are continuing R&D



Major patent

10-2457909	Disaster Disaster Early Warning Integrated Management Monitoring System	10-2590975	A system and method for automatically generating realistic orthogonal images of three-dimensional structures using 3D point clouds and automatically overlapping them with CAD-based drawings
10-2376912	A spatial information-based land management apparatus and method using artificial intelligence	10-2690929	Flight zone allocation and flight path generation system and ground operation system for multiple drone operations using grid maps
10-2271608	AI-Based Road Repair Method Recommendation System for Road Life Extension	10-2362702	An individual's own vehicle-based image shooting matching service system and a service provision method
10-2376921	Database construction device and method for land status analysis		
10-2302338	Road Damage Analysis System and Damage Analysis Method		



Major copyrights

C-2021-009921	AI Crack Analysis System (AICAS) for Mobile-Based Asphalt Paving Roads	C-2020-010809	AI-Based GeoAI Facility Reading Agent for Public Land Reading
C-2021-009886	Construction Quality Management System	C-2019-011840	Potholes monitoring Planner
C-2021-009885	Mobile Construction Site Support System (MCQCS)	C-2019-010902	Road Sinking Management Planner
C-2021-009884	Asphalt Mixture Quality Control System (AQCS)	C-2019-010749	ICT-Based Road Packaging FWD Reverse Analysis Program (sFWD)
C-2021-009883	Maintenance Method Recommendation System (PMRS)	C-2019-010748	ICT-Based Road Packaging FWD Reverse Analysis Program (iFWD)
C-2020-038906	Almaps tLN	C-2018-004229	PMSPlanner
C-2020-038905	Almaps tMN	C-2017-010351-2	Greedda
C-2020-030785	Greedda Viewer	C-2017-010350-2	FieldPlanner
C-2020-013564	Smartphone Field Survey System (SPSS)		

지적재산권 (특허/저작권)

AI 분석, 3D 모델링, 드론 제어, IoT 등 핵심기술에 대한 지적재산권을 보유하고 있으며 지속적인 R&D 진행 중

 **주요 특허**

10-2457909	재난재해 조기경보 통합관리 모니터링 시스템	10-2590975	3D 포인트 클라우드를 활용한 입체적 형태의 구조물 실감 입면정사영상 자동 생성 및 CAD 기반 도면과의 자동 중첩 매칭 시스템과 그 방법
10-2376912	인공지능을 활용한 공간정보 기반의 토지 관리 장치 및 방법	10-2690929	그리드 지도를 이용하여 복수의 드론 운용을 위한 비행 구역 할당 및 비행 경로 생성 시스템 및 지상운용시스템
10-2271608	도로 수명 연장을 위한 인공지능 기반 도로 보수공법 추천 시스템	10-2362702	개인의 자가차량을 이용한 도로주변 영상 촬영 매칭 서비스 시스템 및 서비스 제공 방법
10-2376921	토지현황 분석을 위한 데이터베이스 구축 장치 및 방법		
10-2302338	포장도로 파손 분석시스템 및 파손 분석방법		

 **주요 저작권**

C-2021-009921	Mobile 기반 아스팔트 포장도로 AI균열분석시스템(AICAS)	C-2020-010809	국공유지 판독을 위한 AI기반 GeoAI 시설물 판독 Agent
C-2021-009886	시공품질관리시스템	C-2019-011840	포트홀 모니터링 플래너(Potholes monitoring Planner)
C-2021-009885	Mobile 시공현장지원시스템(MCQCS)	C-2019-010902	도로함몰 관리 플래너 (Road Sinking Management Planner)
C-2021-009884	아스팔트혼합물 품질관리시스템(AQCS)	C-2019-010749	ICT 기반 도로포장 FWD 역해석 프로그램(sFWD)
C-2021-009883	보수공법 추천시스템(PMRS)	C-2019-010748	ICT 기반 도로포장 FWD 역해석 프로그램(iFWD)
C-2020-038906	Almaps tLN(에이아이맵스 티엘엔)	C-2018-004229	PMSPanner (피엠에스플래너)
C-2020-038905	Almaps tMN(에이아이맵스 티엠엔)	C-2017-010351-2	Greeda(그리다)
C-2020-030785	Greed Viewer(그리다뷰어)	C-2017-010350-2	필드플래너(FieldPlanner)
C-2020-013564	스마트폰 활용 현장조사시스템(SPSS)		



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