



Integrated AI Control & Monitoring System for Unmanned Systems

# arion



arion<sup>GCS</sup>



arion<sup>CTW</sup>



arion<sup>HUB</sup>

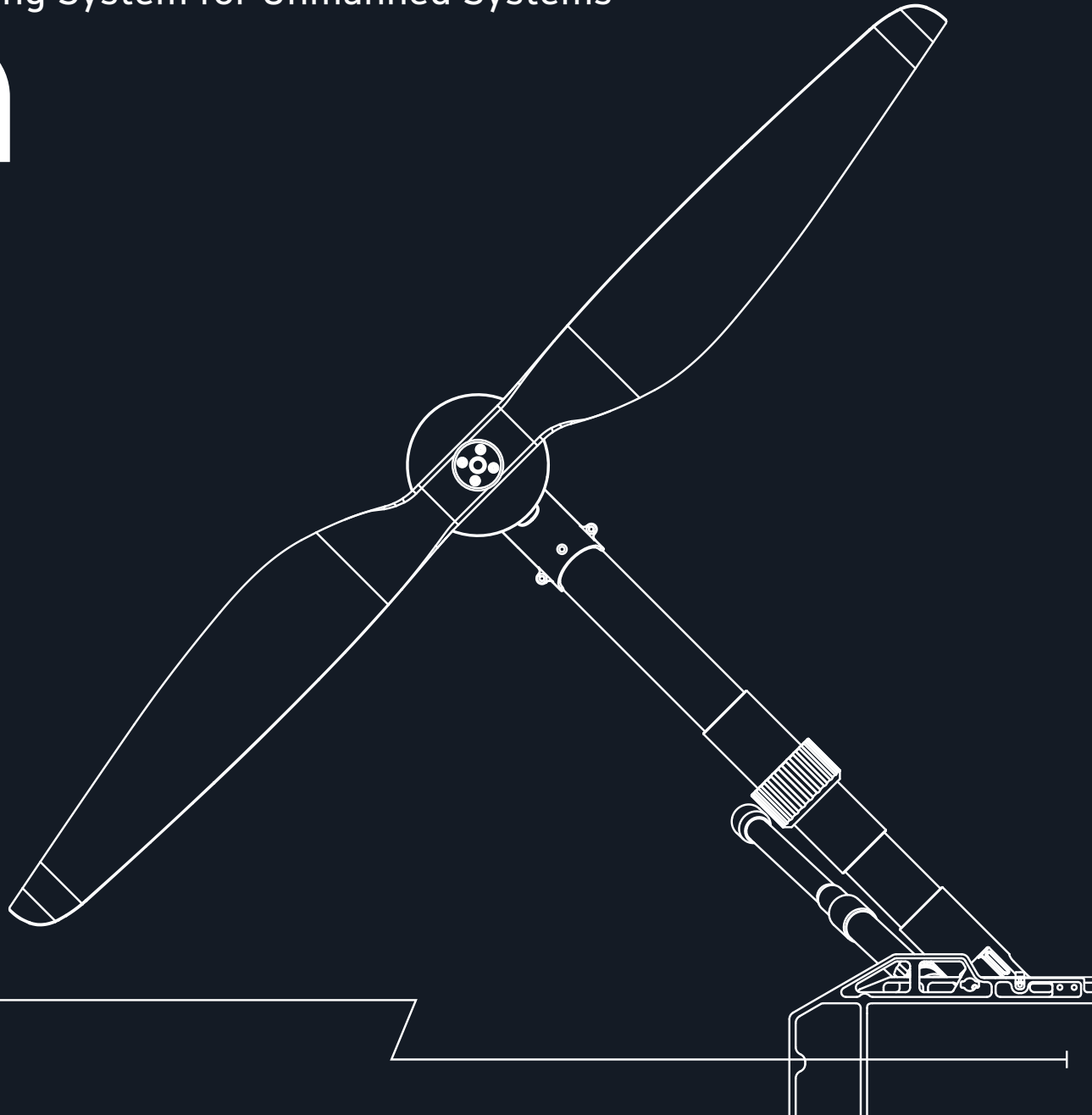


arion<sup>VUE</sup>

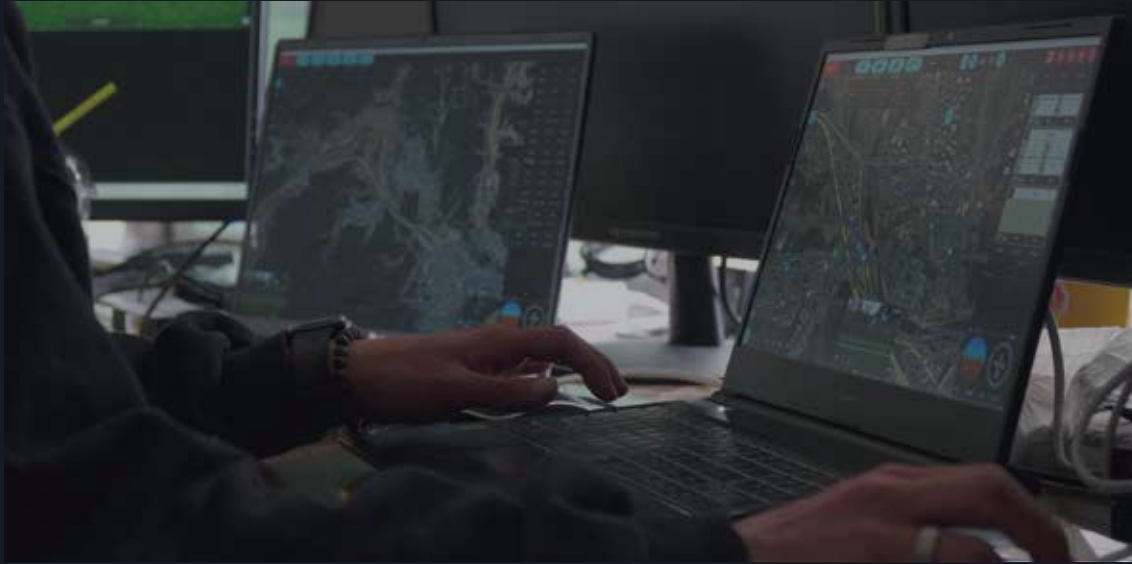


## AAS

Advanced Avionics System



# Overview



Vision

## DISCONNECT TO CONNECT

인류를 연결하는 모빌리티 기술을 만듭니다. We create technology that connects humanity

CEO & Founder

**Alex KIM**

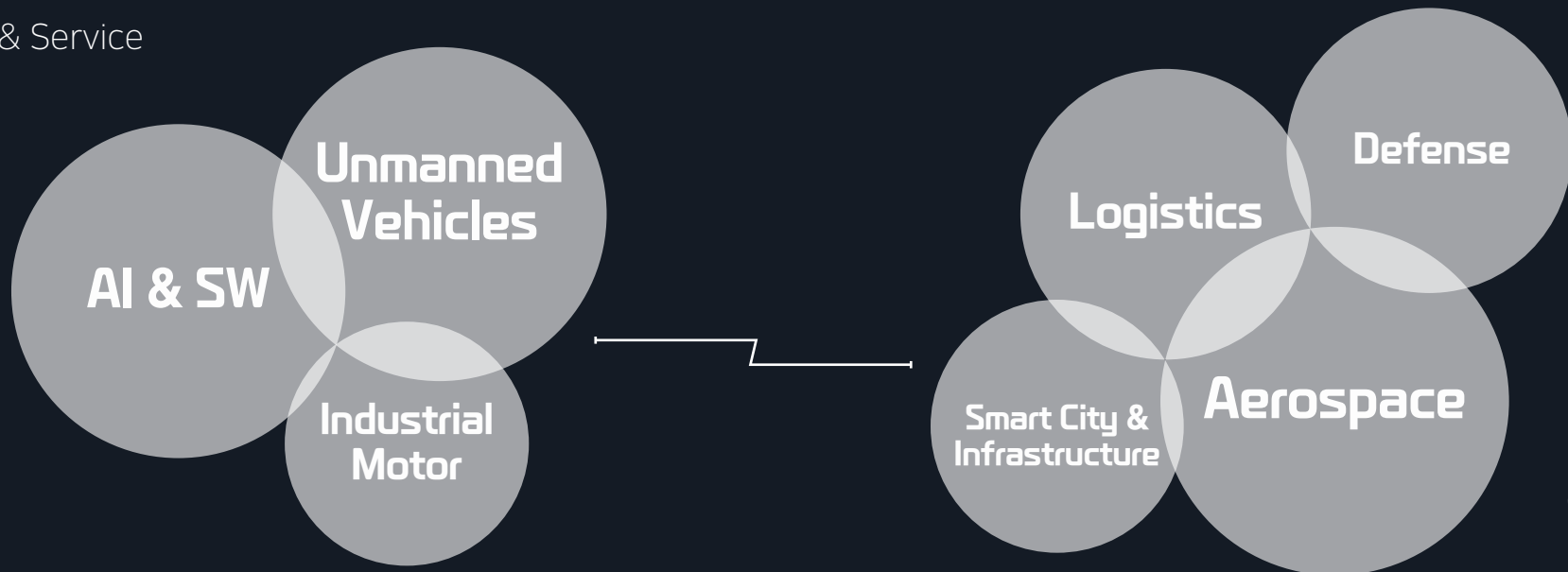
Head Office, R&D Center

**DAEGU, S. Korea**

Plant

**GYEONGSAN, S. Korea**

Industry & Service



## Take off 2024+

- 24' Initiated development of arion AAS, a 45kg-class unmanned vehicle technology
- 24' Participated in joint civil/military drone combat experiments
- 24' Delivered drones to an Army division-level unit
- 24' Conducted drone demonstration city projects(Yeosu City, Changwon City)
- 23' Awarded the top prize in the Technology Challenge category(the Ministry of National Defense Drone Bot Challenge)
- 23' Launched the unmanned vehicle manufacturing line at rglab's Ijo Campus
- 23' Received the Minister of Science and ICT Award
- 23' Exported the arion platform overseas(United States)
- 22' Received the Minister of Trade, Industry, and Energy Award
- 22' Development and POC of AI mission performance for quadruped robot and(Ghostrobotics)

## Growth 2021

- 21' Officially launched the mobile edge computer, arion IMC
- 21' Successfully raised KRW 500 million in pre-A seed investment
- 21' Obtained special flight approval for unmanned aerial vehicles
- 21' Selected as a participant in Drone Regulatory Sandbox program(the Ministry of Land, Infrastructure, and Transport)
- 21' Selected for the Ministry of Science and ICT's Software High-Growth Club 200

## Start Up 2015

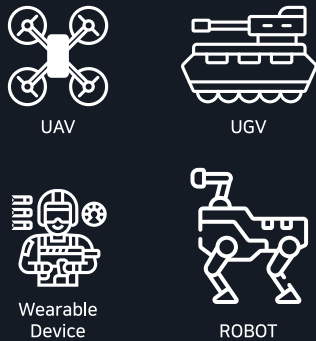
- 20' Demonstrated AI drone-based heat pipe and road surface inspection services(the Ministry of Trade, Industry, and Energy)
- 20' Selected as a participant in the Korea Aviation Safety Agency's Drone Regulatory Sandbox program
- 19' Developed a drone platform for wildfire response(the Korea Agency for Infrastructure Technology Advancement)
- 19' Selected for the Small and Medium Business Administration's Startup Growth Package support program
- 19' Developed and demonstrated a drone system for patrolling and monitoring underground heating pipes
- 18' Developed an emergency disaster response drone platform(the Ministry of Trade, Industry, and Energy)
- 16' Developed flight algorithms for guided weapon drones(the Agency for Defense Development)
- 16' Developed a mission computer for hydrogen fuel cell drones(Doosan Mobility Innovation)
- 15' Selected 5th Youth Startup Academy
- 15' rglab Co., Ltd. was founded



arion breathes life into unmanned vehicles.

'arion' is an integrated artificial intelligence control platform for unmanned vehicles, designed to be mounted on various unmanned systems such as drones, robots, autonomous cars, and CCTV. It processes video and data collected from these systems using AI models, enabling beyond-visual-line-of-sight remote control, integrated monitoring, big data collection, and retrieval. By infusing life into unmanned vehicles, arion supports and replaces human tasks across diverse fields, including disaster safety, logistics, facility management, environmental monitoring, firefighting, traffic management, military operations, and public security."

UNMANNED SYSTEMS

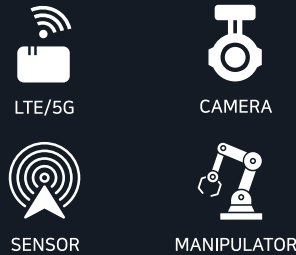


arion AAS

Advanced Avionics System



MISSION EQUIPMENTS



Command&Control room >>

arion KIT >>  
Ground Control System

\*Product Roadmap

AI FEATURES  
Works on-device



Target Coordinate Acquisition

Target Tracking

AI FEATURES  
Server-based



Target Analysis

Firepower Recommendation



# Command & Control Room



**arion**<sup>GCS</sup>

Remote Control SW Multiple Monitoring SW



**arion**<sup>CTW</sup>



**arion**<sup>HUB</sup>

Big Data Storage Cloud



**arion**<sup>VUE</sup>

Monitoring App

# arion KIT

Ground Control System



# Key Feature



## Interoperability

- Compatible with various unmanned systems and mission equipment
- Login for authorized users only & Sharing of unmanned systems among users
- Monitoring and control using software



## Versatility

- Enables various services such as delivery, security, and facility inspection



## Artificial Intelligence (AI)

- AI Object Recognition
- AI Object Tracking
- Collection and analysis of big data



## Big Data

- Recording and capturing of videos supported directly from GCS without any additional equipment
- Automatic uploading of flight logs
- Providing flight history in documents and statistics



## Monitoring

- 1:N integrated monitoring and surveillance
- Capable of monitoring up to 2 cameras such as fpv, gimbal, etc.
- Capability to monitor and control various unmanned systems such as drones, robots, and CCTV



## Accessibility

- Convenient and intuitive UX/UI
- Integrated package for unmanned systems implementation



## Remote Control

- 1:1 communication
- Dual communication system for handling communication disruptions (Short-range RF, long-range LTE)
- Ability to perform beyond visual line of sight (BVLOS) flights using a USB controller in areas where remote control is limited by the range



## Compatibility

- Through arion GCS, integration with third-party GCS platforms (such as Mission Planner and QGroundControl) is possible.



## Excellence

- The first integrated platform for unmanned systems with AI-powered control capabilities in Korea



## Sub-second latency

- Real-time video streaming with less than sub-second latency
- Option to select desired resolution among VGA/HD/FHD/4K



## Stability

- Multiple demonstration and flight tests have been conducted to prove the stability of both hardware and software. arion has successfully provided services to unmanned system companies and operated platforms. Additionally, Arion has obtained KC certification and achieved GS1 grade.

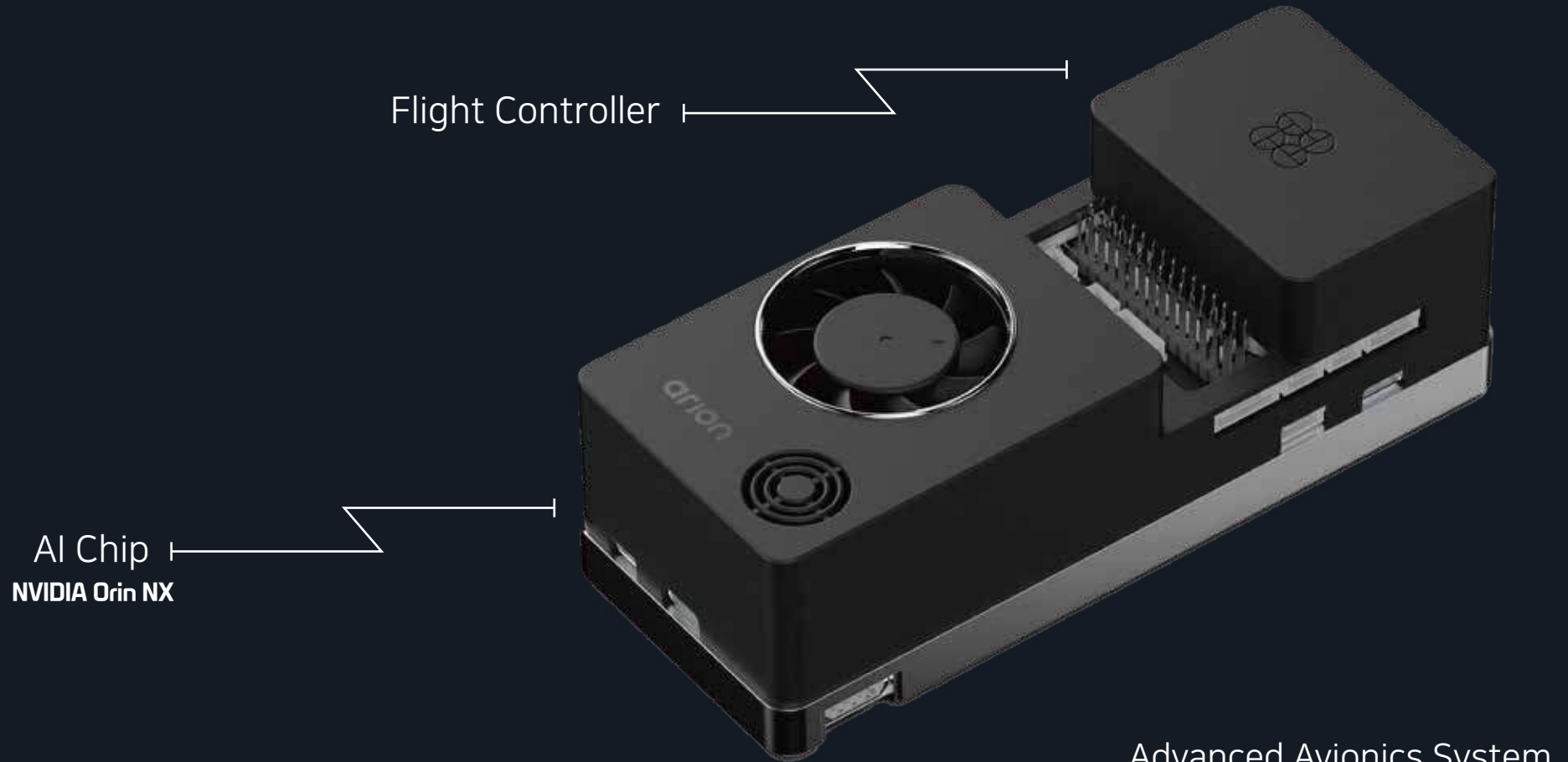


## Security

- Only authorized users can log in
- Drone and video data encryption transmission

A high-performance AI GPU-equipped mission computer that supports artificial intelligence task execution for various unmanned vehicles.

- > A high-performance mission computer integrating a powerful AI GPU chip and flight controller into a single unit.
- > Compact and lightweight, yet robust against vibration and shock, delivering strong performance in diverse environments.
- > Optimal interface for integrating mission devices (cameras, LiDAR, etc.) to support a wide range of artificial intelligence tasks.

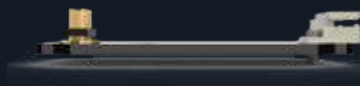
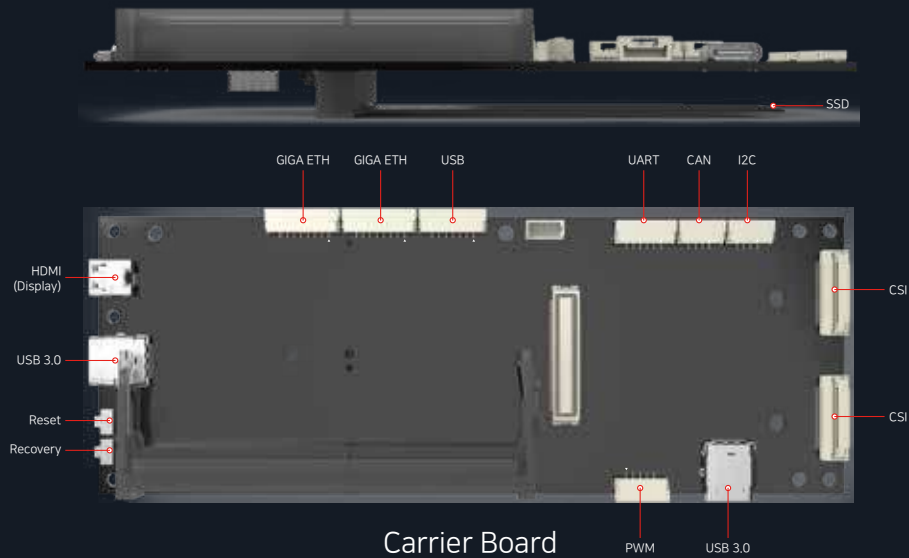


Advanced Avionics System

# arion AAS

On-Device AI Mission Computer for Drone Robots

# Specifications - arion AAS



## Specifications

### NVIDIA Jetson Orin™ NX Compatible

<b>GPU</b>	1024-core NVIDIA Ampere architecture GPU with 32 Tensor Cores
<b>CPU</b>	6-core Arm® Cortex®-A78AE v8.2 64-bit CPU 1.5MB L2 + 4MB L3
<b>Memory</b>	8GB 128-bit LPDDR5 102.4 GB/s
<b>Storage</b>	2 x NVMe M.2 SSD 500GB
<b>Display</b>	1 x Micro HDMI(4K)
<b>Ethernet</b>	2 x Gigabit Ethernet
<b>Video InPut</b>	2 x CSI(2 lane) / 1 x Micro HDMI(4K) *Optional
<b>Audio</b>	1 x HDMI Integrated Audio / 1 x Stereo Output
<b>Serial</b>	1 x UART / 1 x I2C / 1 x CAN
<b>USB Interface</b>	2 x C Type USB 3.0 / 1 x USB 2.0
<b>Operating Temperature</b>	-10°C to +40°C
<b>Dimensions</b>	137mm x 52mm x 43mm
<b>Weight</b>	260g
<b>Power Requirements</b>	10W - 20W





# Specifications - arion GCS



## Remote Control SW **GCS** **arion**

Anyone, anytime, and anywhere with network connectivity can remotely control and monitor unmanned mobility with just a click of a button. Only authorized users can access arion UMV, and all data is encrypted to enhance security.

### Specifications

**OS** Windows 10

**RAM** 16GB

**CPU** Intel Core 5 multi-core

**Graphic** Geforce GTX 1060

**Ethernet** Interface supporting data speed of 1 GB/s

# Key Features

The arion GCS, certified with GS Grade 1, is equipped with a dual communication system (RF, LTE) to handle communication disruptions. It enables beyond-visual-line-of-sight flight using a USB controller in areas where RF controller range limitations prevent operation.



Remote control



Mission Mode



Obtain target coordinates



Object recognition



Real-time high-resolution  
video streaming



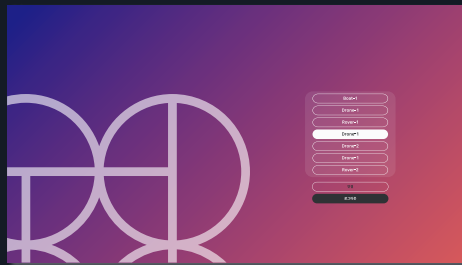
Target tracking



# Specifications - arion HUB

## Big data Storage Cloud HUB arion

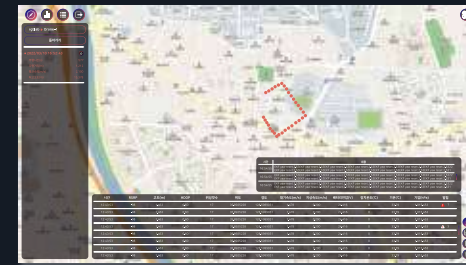
arion HUB is web application that allows users to view and manage real-time big data (such as driving records, videos, location data, sensor data, etc.) transmitting by arion HUB. It is accessible only to authorized users and provides the ability to integrate data with other platforms.



Select UMW



View photos



View Record



Statistics

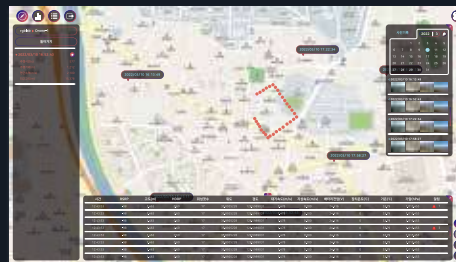
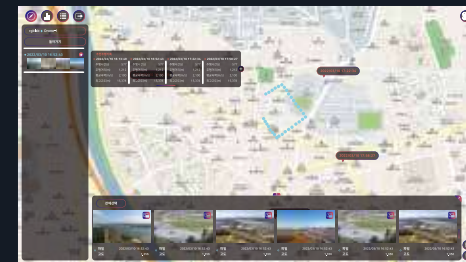


Photo Recommendation



Record Recommendation

SaaS platform for managing big data of unmanned vehicles

# Specifications - arion CTW



## Multiple monitoring SW CTW arion

Through arion CTW, real-time integrated monitoring of all currently active UMVs is possible. It supports multi-vision, allowing for detailed monitoring of data received from each UMV (such as cameras, sensors, etc.).

### Specifications

**OS** Windows 10

**RAM** 16GB

**CPU** Intel Core 5 multi-core

**Graphic** Geforce GTX 1060

**Ethernet** Interface supporting data speed of 1 GB/s

# Specifications - arion VUE



## Monitoring App **arion** VUE

By installing the application on a portable mobile phone or tablet, you can access the status of Arion UMV, view location data, engage in real-time video streaming, capture photos, and record videos.



# Specifications - arion Drone



**arion Drone Q5 Series**  
AI Target Coordinate Acquisition Drone

## Drone

Type	Type	Quad-copter
Size	Unfolded	990 mm x 1005 mm x 570 mm
	Folded	585 mm x 585 mm x 570 mm
Weight	Weight(with battery)	16 Kg
	Max take-off Weight	25 Kg
Flight	Flight Time(No Payload)	Max. 90 min
	Flight Time(8Kg Payload)	Max. 40 min
	Flight Speed	Max. 15 m/s (54 km/h)
	Wind resistance	Max. 13 m/s
	Range of Control	WiFi mode : 3 km
Operation	Operating temperature	-10 ° C ~ 40 ° C
etc	Ingress Protection	IPX3

## Battery

Type	Type	Lithium battery
Capacity	Capacity	6S, 25V, 22,000

## Gimbal Camera

Type	Type	EO/IR lens 3-axis gimbal
EO	Resolution	1920 × 1080, 30 fps
	Magnification	10x Optical zoom      32x Digital zoom
IR	Resolution	640 × 512, 30 fps
	Magnification	-      4x Digital zoom

# Use Case - Drone Delivery

[2023 Records]

Total Flight Distance

**1,115mile**

Average Flight Distance

**10mile**

Average Flight Time

**25min**

Average Flight Altitude

**4ft**

Yeosu, Korea





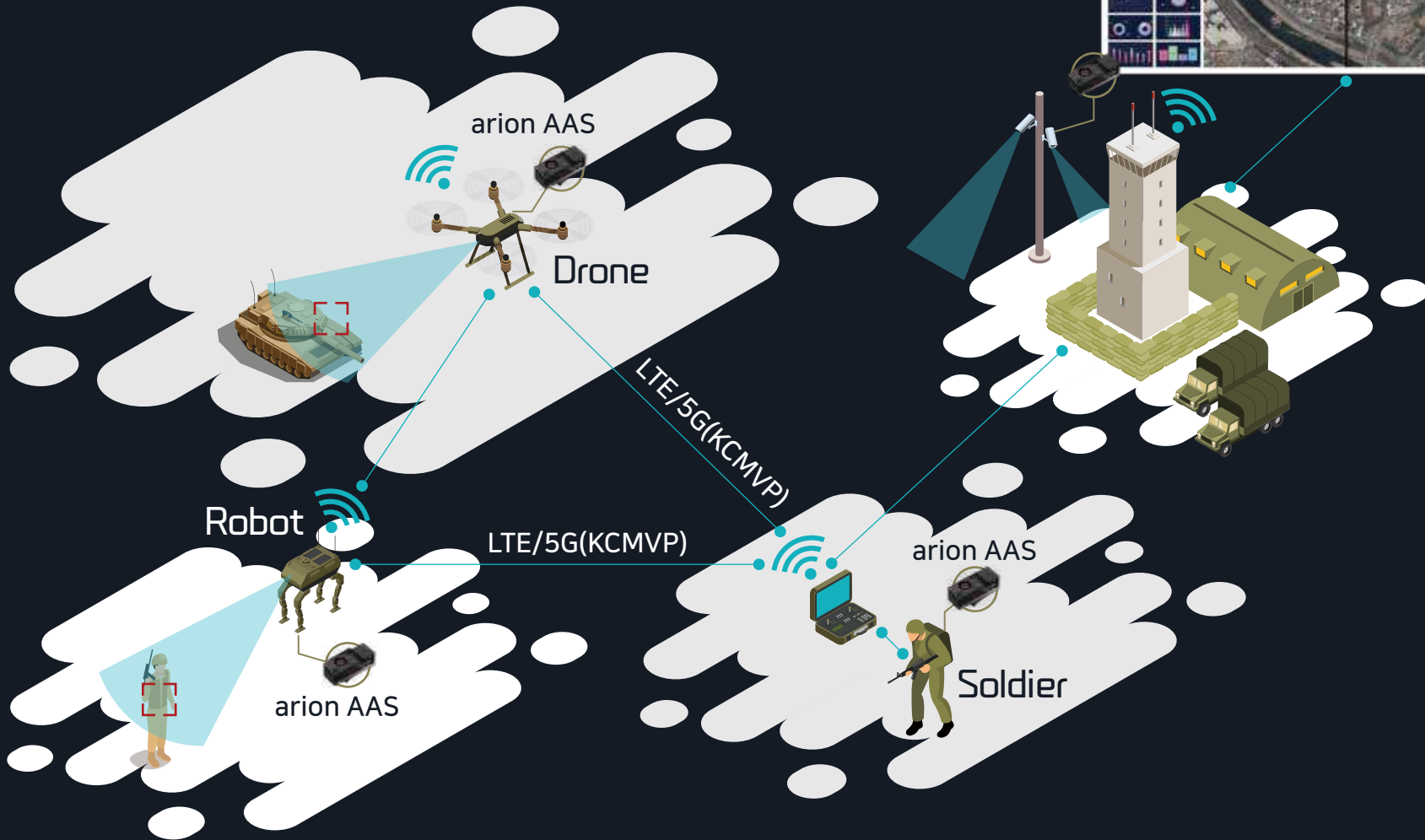
# Use Case - Drone Delivery



# Use Case - Defense



## Command & Control Room



# Use Case - Defense



## Target Tracking

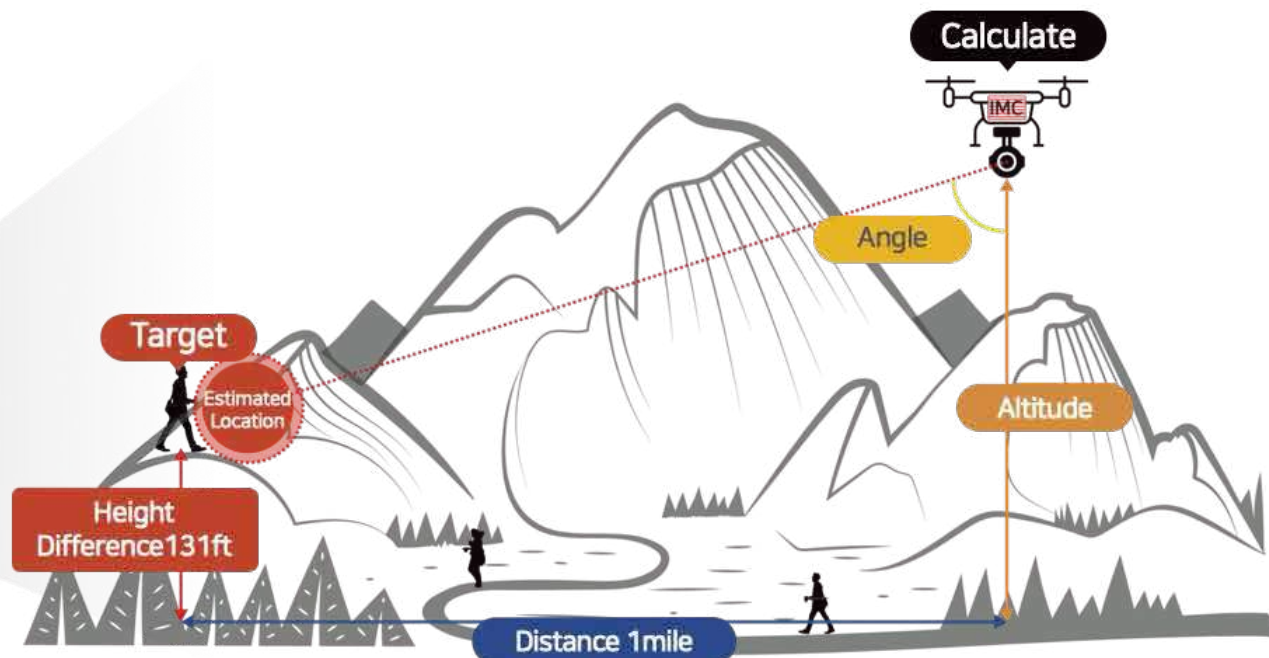
Tracks moving targets set by the user



## Target location estimation

Estimate the coordinates of the target being tracked

## AI-based target acquisition



# Partnerships

SAMSUNG SDS

DOOSAN

HYOSUNG HEAVY INDUSTRIES

NAVER CLOUD PLATFORM

kt

Huneeed Technologies



FINE KOWAC  
Advanced Technology, be a Fine future

MDSTECH

a2z  
AUTONOMOUS

R V CONNEX

ACCESS WE  
UAV SYSTEM

Hy HYLIUM INDUSTRIES, INC.

HIGENRNM  
ROBOT MOBILITY

S&T Dynamics

Innowireless

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KARI  
한국항공우주연구원  
Korea Aerospace Research Institute

KIAST  
Korea Institute of Aviation Safety Technology

ETRI  
Electronics and Telecommunications Research Institute

KAERI  
한국원자력연구원  
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울산광역시  
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YEOSU CITY

경주시  
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POSTECH

# DISCONNECT TO CONNECT

인류를 연결하는 모빌리티 기술을 만듭니다. We create technology that connects humanity



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