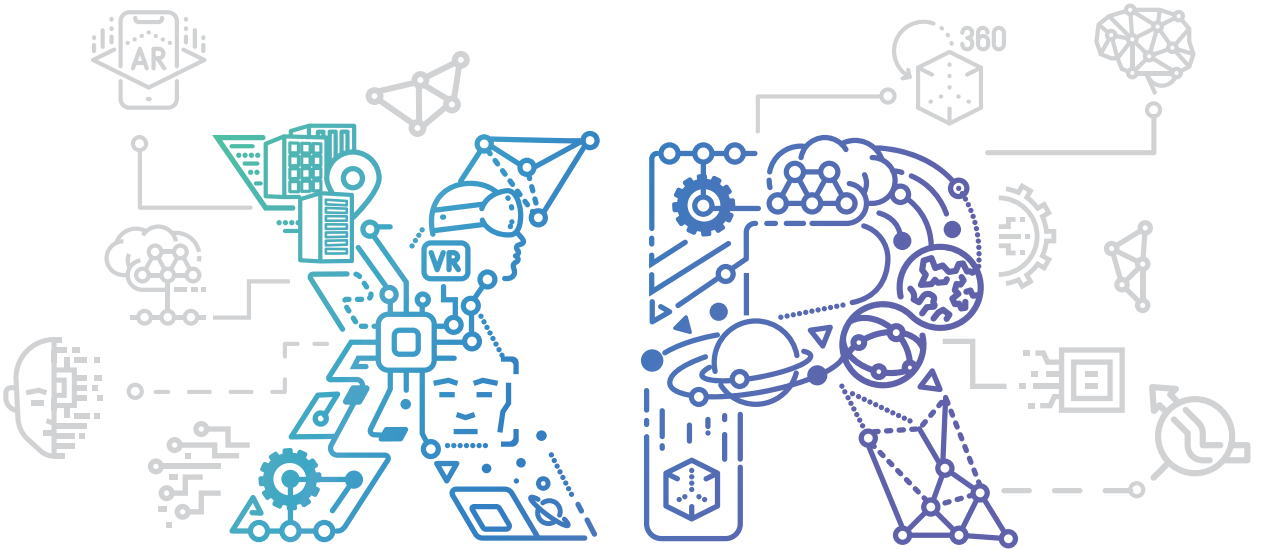


ENG

KoVAC
Korea VR AR Complex

XR SHOWROOM

Directorybook 2024



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Introduction to Exhibitors and Contents

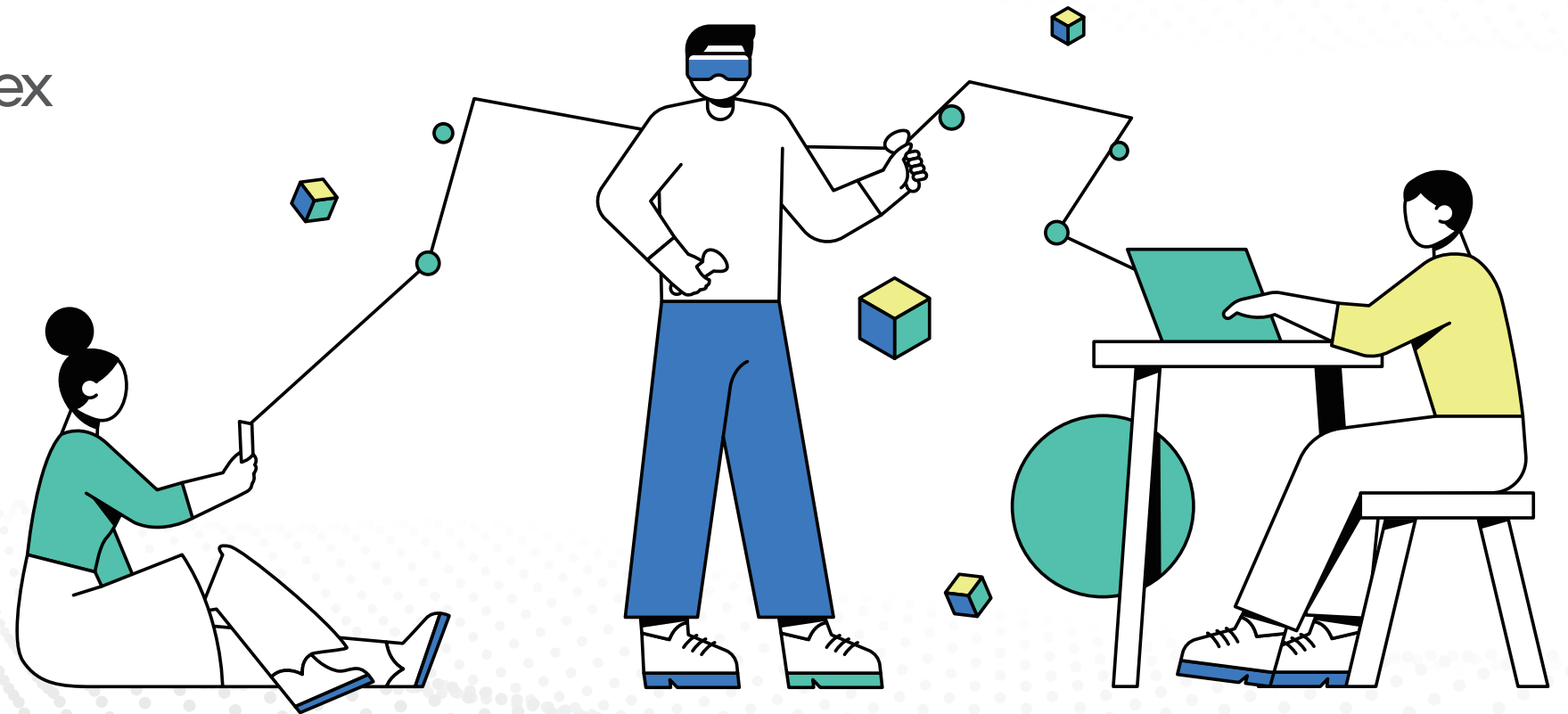
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CHAPTER. 1

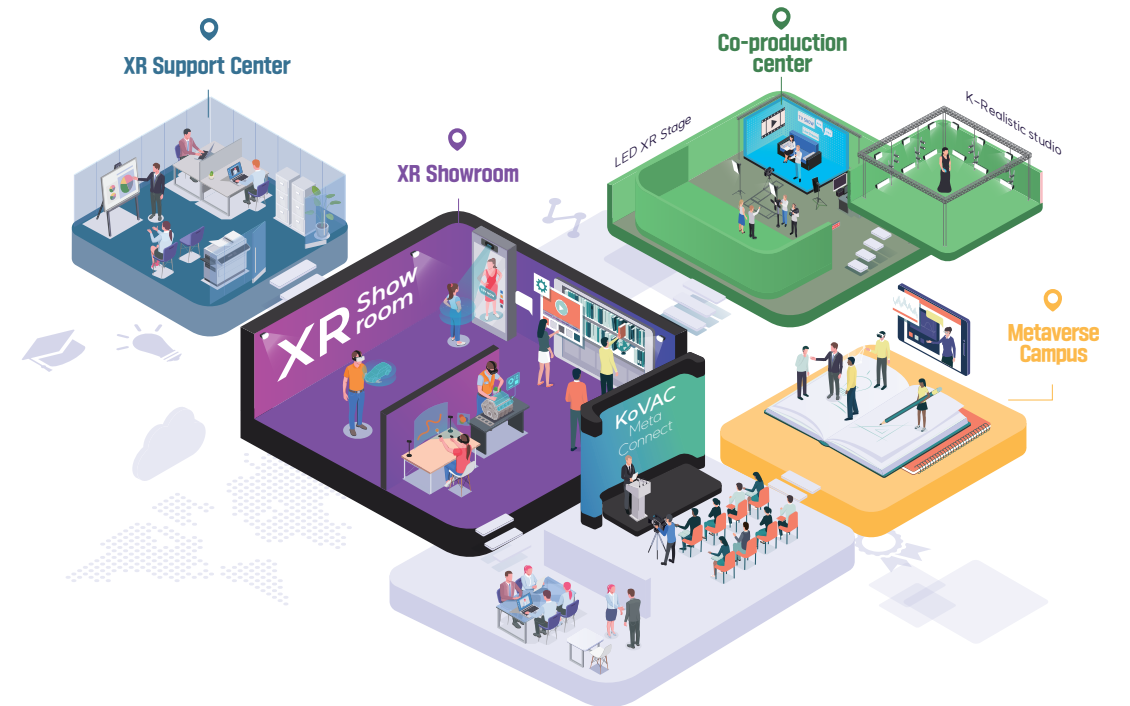
Korea VR AR Complex **KoVAC**

1. Overview of the Korea VR AR Complex
2. Overview of the Korea VR AR Complex Project





2. Facilities of the Korea VR AR Complex (KoVAC)



XR Support Center Office Space Support

The Center fosters XR and metaverse companies with global competitiveness by providing them with office space at each stage of growth (68 rooms, up to 8 years of occupancy).
* Selects occupants after announcing the application for move-in separately.



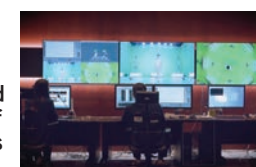
Metaverse Campus Education

Fosters specialized developers focusing on practical business in the field by linking demonstration infrastructures such as the Metaverse Hub.



Co-production Center Production Support

The Center provides infrastructure and technology to create immersive contents and vitalizes the creation of the immersive contents linked to various industries.



- (Production support infrastructure) Discovers contents, provides a test production support facility using K-Immersive Studio, LED XR Stage.
- (Supports various spaces) Provides a production support space including a VR editing room, a color correction room, a special video production room, a general editing room, a recording studio, and other facilities.
- (Equipment support) 360° VR, 12K wide view, volumetric video and high-definition shooting support equipment, 5G real-time broadcasting equipment, etc.

XR Showroom Business Support

Permanent exhibition space to support XR/ Metaverse contents business



- (Experience program) Supports XR content experiences designed to popularize awareness of the domestic XR and metaverse industries.
- (Business events) Shares the latest domestic technology trends and holds business networking events on a regular basis.
- (Publicity and marketing support) Supports consumer-tailored PR and marketing to advance domestic XR content businesses.

Overview of the Korea VR AR Complex

1. What is the Korea VR AR Complex (KoVAC)?

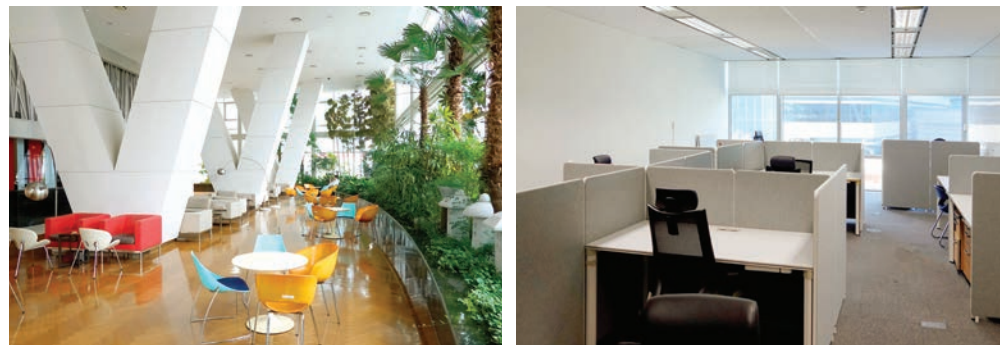
The Korea VR AR Complex is a complex space established to foster the domestic metaverse and XR industry by supporting and assisting companies with the full cycle of business necessary to promote the growth of the metaverse and XR industry, encompassing every stage from the design and development of immersive contents to their commercialization.



Overview of the Korea VR AR Complex Project

1. XR Support Center

The XR Support Center provides office spaces for each of the four stages of growth from early-stage companies to specialized companies in order to foster specialized companies in the XR (eXtended Reality) field.



Support Info.

Type	Eligibility for support	Support space	Monthly rent (VAT excluded)	Monthly administrative costs (VAT excluded)	Support period (max.)	Remarks
Early-stage company (type A)	3 years or less (individual/corporate)	Area for exclusive use: less than 50m ²	Free	KRW 9,130/m ²	2 years	- Support for office equipment such as desks and Internet connection
Early stage company (type B)	7 years or less (individual/corporate)	Area for exclusive use: less than 70m ²	Free	KRW 9,130/m ²	4 years	- Support for public meeting rooms
Small but strong company (type C)	Corporate	Area for exclusive use: less than 125m ²	Free	KRW 9,130/m ²	6 years	
		Area for exclusive use: less than 204.5m ²	3,000/m ²	KRW 9,130/m ²		- Support for public meeting rooms
Specialized company (type D)	Corporate	Area for exclusive use: less than 250m ²	4,530/m ²	KRW 9,130/m ²	8 years	
		Area for exclusive use: more than 250m ²	6,260/m ²	KRW 9,130/m ²		

* In the event of a change in the building (Nurikkum Square) administrative costs or rental price, the changed administrative costs will be applied.

How to apply Application through open recruitment for move-in (project announcement on the NIPA website), support provided to the selected companies.

Eligibility Companies that produce and supply immersive contents related to XR, such as VR, AR, MR, and Metaverse, or companies in XR-related areas, such as application software, contents, platforms, and devices for producing XR-related immersive contents..

Major benefits

- Fee discount of 50% when using infrastructure equipment to produce immersive contents. (The discount only applies only to equipment that can be carried out.)
- Discount of up to 50% on the use of international conference rooms and small/medium conference rooms in Nurikkum Square.
- Support for information sharing and networking between companies that move in to the complex.

2. Metaverse Campus

The Metaverse Campus aim to foster professionals equipped with advanced skills in the production of immersive contents and creative capabilities related to XR and metaverse.



metaverse-campus.kr

Corporate demand-linked project curriculum

The latest XR technology training for persons who are working in the Metaverse industry.

Corporate demand-linked project training

Cultivation of practical business personnel based on other industry projects based on the Metaverse.

Overseas advanced technology training

Advanced technology training that allows trainees to directly experience new technologies and services from overseas industrial sites and apply them to domestic industries.



3. Co-production Center

The Co-production Center offers a cutting-edge production infrastructure based on XR/Metaverse to assist domestic small and medium-sized developers of immersive contents with securing growth engines continuously. It provides production equipment that can be used jointly by small and medium-sized content companies to improve their productivity, reduce their costs, and generate co-production synergy effects in the immersive content business. The center also encourages them to continuously supply products to the content market and helps them to take roots by facilitating their production of high-quality realistic contents.

www.kovacstudio.kr

Support for immersive content production infrastructure

Support for a production infrastructure equipped with cutting-edge technology.

Support for the use of K-Immersive Studio contents

Support for the production of 360° volumetric digital humans based on photorealistic images.

Support for multi-stream broadcasting

Support for the 5G-based multi-stream relay system.

Infrastructure Facilities



K-Immersive Studio

Asia's largest volumetric studio where objects can be filmed at 360° with 60 4K cameras to create 3D contents that can be viewed from all directions.



LED XR Stage

LED XR Stage is an LED-based real-time XR and metaverse content production facility that can utilize graphic engines and photorealistic backgrounds.



4. XR Showroom

The XR Showroom is a permanent exhibition hall that operates XR/metaverse content experience programs to contribute to raising awareness of the related fields, as well as running XR/metaverse business programs designed to provide business creation opportunities for companies.

kovac.modoo.at



XR content experience program

Experiencing excellent domestic XR and Metaverse contents applied to other industries

XR business events

Providing opportunities to create business by holding business counseling sessions, seminars, and conferences.

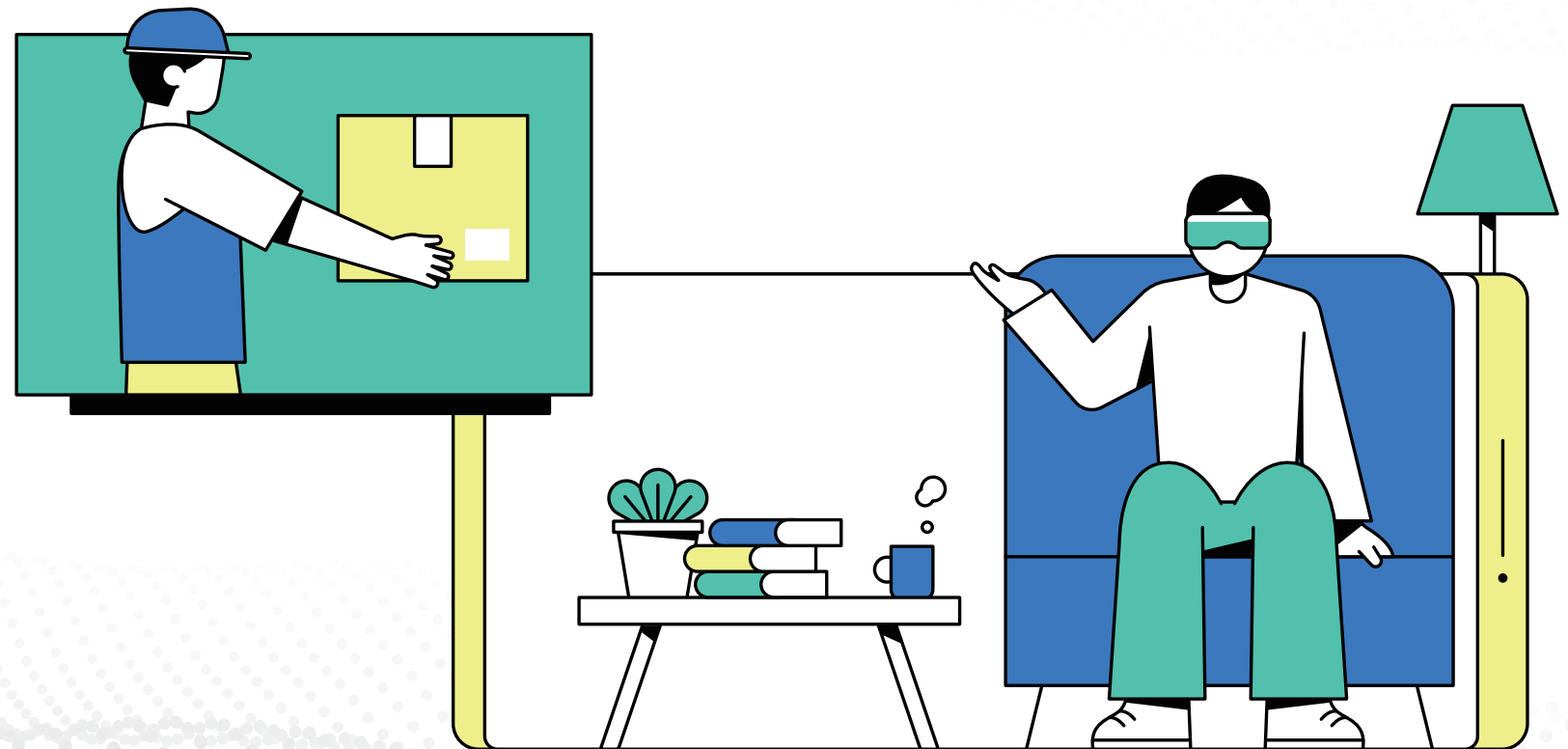
PR and marketing support

Supporting demand-tailored commercialization and marketing support for developed contents throughout the entire business process of "preparation → market entry → overseas expansion".

CHAPTER. 2

XR Showroom

1. Overview of the XR Showroom
2. XR Showroom Experience Program
3. Overview of the XR Business Program





XR Showroom Experience Program

Guide on using the XR/metaverse content experience program

Eligible applicants

- Industry workers seeking to engage in business matching with XR and metaverse companies
- Incumbents of the industry related to XR and metaverse, students, and the general public

Opening hours 10:00-17:00 (Closed on Saturdays, Sundays, and public holidays)

Maximum no. of applicants

Up to 10 people (free of charge)

Reservation

Bookings made 2 months to 2 days before a visit (first-come, first-served basis)



Inquiries

02-2132-1179
yh9908@nipa.kr



Booking in Naver

kovac.modoo.at



Booking confirmation

Overview of the XR Showroom

XR Showroom, a permanent exhibition hall for excellent XR and metaverse contents developed in Korea

The XR Showroom is an open space whose role is to increase understanding of XR and metaverse, support the business activities of related companies, and exhibit the outstanding achievements of XR and metaverse-related research institutes and companies.

The XR Showroom enables visitors to understand the present condition of the domestic XR/metaverse industry through immersive contents converged with various industries such as manufacturing/industry, national defense, police, firefighting, and media.



Overview of the XR Business Program

KoVAC META Connect, a space for dialog and exchange in the XR/metaverse industry

KoVAC META Connect is a business event program designed to promote exchanges between consumers and suppliers and to help XR companies to grow continuously, by holding XR/metaverse technology seminars, business conferences, business matching events, and XR company networking.

* Refer to the event page related to business event attendance on the website (kovac.modoo.at).

Technology Seminar and Networking Day

Provides information on the latest XR/metaverse technology trends and opportunities for networking between companies.

IR Pitching Demo Day

Provides consulting on IR capability strengthening and concentrated investment, and support for revitalizing links between companies and investors.

Business Counseling Sessions

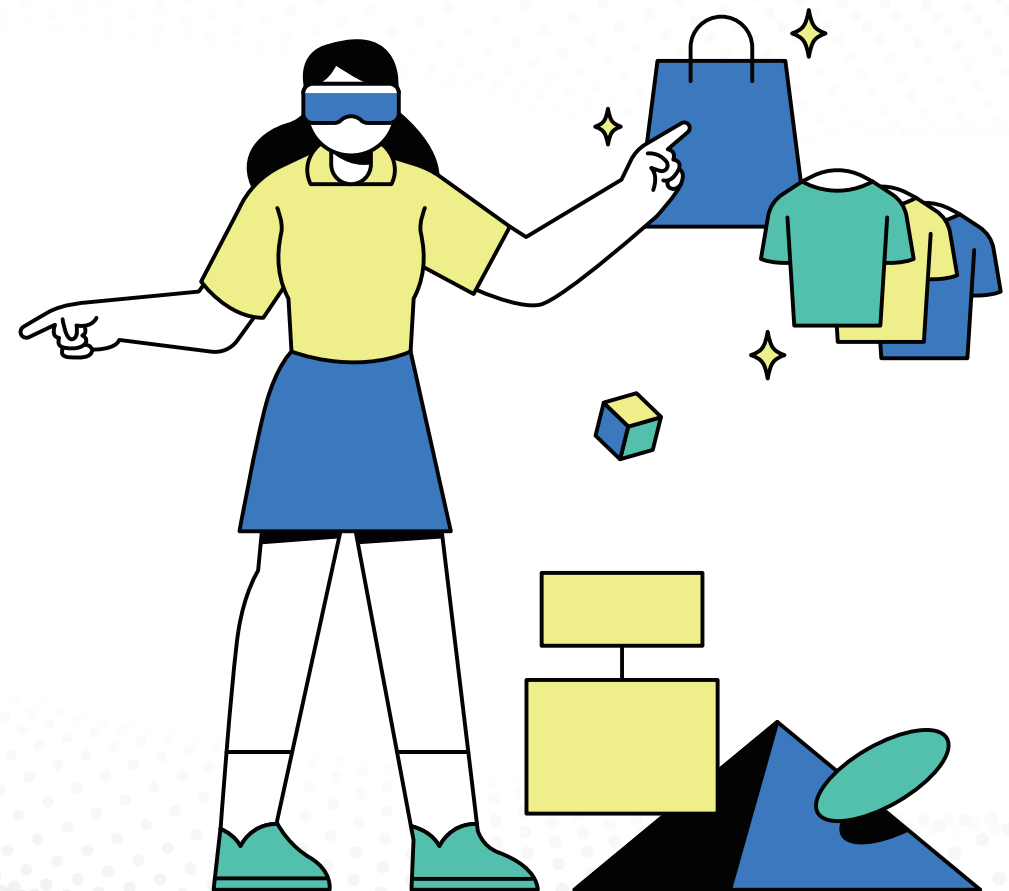
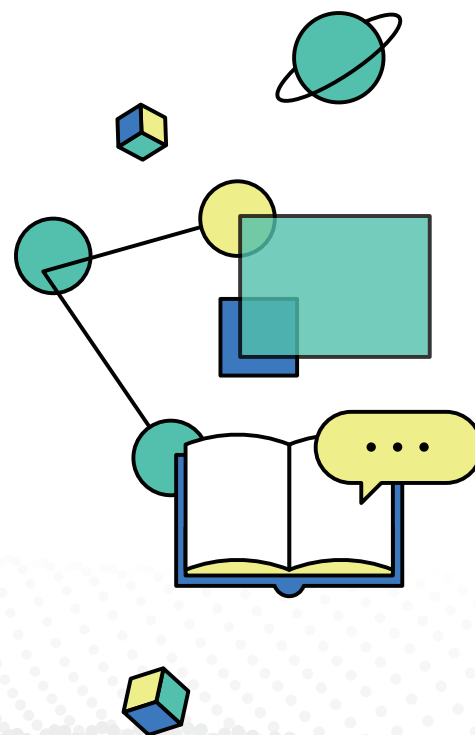
Provides online and offline counseling sessions through business matching with interested companies, such as conglomerate and investors, finding and contacting buyers.



CHAPTER. 3

Introduction to Exhibitors and Contents

1. Manufacturing/Industry
2. National defense
3. Police
4. Firefighting
5. Nuclear fusion
6. Medical treatment/Health
7. Media
8. Education
9. XR Devices



01

Manufacturing/Industry

Industrial digital twin

Car manufacturing innovation platform based on the metaverse [MetaLine Platform Suite]

- Shutagen Co., Ltd., RockwonIT Global, Alian Co., Ltd., Core tech Co., Ltd., Korea University of Technology and Education, Ulsan ICT Promotion Agency, Laonix.

Industrial digital twin/metaverse smart factory solution [FLEXING CPS]

- UVC Co., Ltd.

Shipbuilding/Industry

Shipbuilding/offshore design/processing system based on XR

- Ulsan ICT Promotion Agency, Infoget System Co., Ltd., Softhills Co., Ltd., Shutagen Co., Ltd., Novatek, SimG, OSLab Co., Ltd., Research Institute of Medium & Small Shipbuilding, Telecommunications Technology Association, Electronics and Telecommunications Research Institute.

Construction/Industry

Construction design innovation system based on XR

- Hanmac Engineering Co., Ltd., Saman Corp., Virnect Co., Ltd., Heliosen Co., Ltd., Mondrian AI, Jangheon Engineering and Construction.

Construction machine training solution [VR CMS]

- Big Pictures Co., Ltd.

Automotive/Industry

Eco-friendly car maintenance, structure and certification testing education based on VR/AR

- WaBoTech Co., Ltd.

Manufacturing/ Industry

Industrial Digital Twin

Car manufacturing innovation platform based on the metaverse [MetaLine Platform Suite]

Managing organization Shutagen Co., Ltd.

Participating organizations RockwonIT Global, Alian Co., Ltd., Core tech Co., Ltd., Korea University of Technology and Education, Ulsan ICT Promotion Agency, Laonix.

Contents Introduction

MetaLine Platform Suite: A product that is commonly known as platform services that support the Metaverse-based manufacturing production process. It consists of MetaLine Builder for design functions, MetaLine Simulator for simulation functions, MetaLine Integrator for calibration and optimization functions, and MetaLine Workplace for collaboration and operation management functions.

Applied Technology

- Standard Metaverse service management: Provides the function of defining and managing standardization and service configuration behaviors for services and objects that are subject to management information collection and control.
- Collection and control transaction management: Provides a step-by-step transaction management function for command sets linked with IoT sensors, devices, and systems for management information collection and control.
- Recovery/reconfiguration transaction management: Provides a reconfiguration transaction management function to cancel the deletion of management object instances, when instances are deleted by mistake through transaction management and control for recovery purposes.
- Transaction status management: Provides real-time status information on transactions at each transaction processing stage in order to control management information.
- Management of secondary management information filtering: Provides a secondary filtering management function for collection and event management information, which is generated in large quantities for services and management objects.

Business Direction

- Establishment of a supply chain according to manufacturers' group workload (order-production-release) and product characteristics.
- Establishment of a sales-purchase supply chain for users.
- Business collaboration between infrastructure and providers via the metaverse platform.
- Support for collaboration among service providers, consumers and users, and provision of expanded platform services customized to as per requirements.
- Early occupation of the market by rooting into domestic and overseas manufacturing sites.





Shutagen Co., Ltd.,

CEO Kim Beomhyu, Hong Seongho
Phone no. +82-52-294-2524
E-mail shutagen@naver.com / Website <http://shutagen.com/>
Address #708, Building C, 40, Dongcheon 1-gil, Jung-gu, Ulsan
Type of business Development of software and computer systems, R&D
Business areas Business Architect, Investigation and Management, Digital Twin Approach

Company information

Shutagen is a digital transformation engineering company that pursues innovation across the entire manufacturing industry from the design to the application, in order to contribute to society and provide altruistic technologies and services that can “empathize” with humans. The company is developing technologies and services to lead the digital transformation of the domestic manufacturing sector, and holds leading-edge system architecture and engineering technologies that are currently essential to the manufacturing sector.

Core technologies

Technology	Service	Industry
<ul style="list-style-type: none"> Digital Transformation Enterprise Technology Digital Twin Agile AI System Engineering Software Engineering XR/VR/AR/MR Project Management 	<ul style="list-style-type: none"> Business Strategic Planning Information Strategy Planning Business Architecture Business Process Re-engineering Service Architecture System development System Architecture Application development Pre-Feasibility Study 	<ul style="list-style-type: none"> Shipbuilding and Maritime Healthcare Automobile Disaster Management Smart City Information & Communications Logistics Finance Manufacturing Contents

Major achievements

- Dec. 2023:** Received a commendation from the Ministry of Science and ICT for its promotion of the immersive content industry.
- Oct. 2023:** Selected as a service provider for the introduction of job-oriented personnel management and phase 1 implementation by the Ulsan ICT Promotion Agency.
- Oct. 2023:** Selected as the supported project for the development of metaverse, XR industry convergence contents by the Ulsan ICT Promotion Agency.
- Aug. 2023:** Selected as a service provider for mutual interoperability planning based on Metaverse by the Korea Information Society Development Institute.
- Aug. 2023:** Korea Information Society Development Institute. Selected as a service provider for identifying changes and policy demands of digital transformation megatrends by area
- Jul. 2022:** Selected as a service provider charged with discovering Ulsan metaverse/XR projects and establishing a mid-to-long term development strategy by the Ulsan ICT Promotion Agency.
- Jun. 2022:** Received a commendation for its contribution to the shipbuilding and marine industry on “Shipbuilding and Marine Day” from the Mayor of Ulsan Metropolitan City.

- Jun. 2022:** Selected as a service provider for the industrial convergence metaverse platform demonstration project by the National IT Industry Promotion Agency.
- Apr. 2022:** Selected as a service provider to establish a test bed for verifying maritime logistics communication technologies (development of simulation evaluation technology etc.) by the Ministry of Oceans and Fisheries.
- Jan. 2022:** Selected as a pre-planning research service for the establishment of a digital-based verification testbed by the Korea Innovation Foundation.
- Jan. 2022:** Selected as an excellent “small but strong company” in job creation in Ulsan Metropolitan City by the Ulsan Job Foundation.
- Aug. 2021:** Selected as a service provider in an industrial metaverse platform development and verification project aimed at advancing the XR-based car manufacturing process by the Ulsan ICT Promotion Agency.
- Jul. 2021:** Selected as a research service provider tasked with preparing a plan to build a test bed for verifying maritime digital integrated performance by the Ulsan ICT Promotion Agency.
- Jun. 2021:** Selected as a service provider for a survey of the actual conditions related to domestic and foreign ICT laws and regulations on digital transformation in 2021 by the National IT Industry Promotion Agency.
- Jun. 2021:** Selected as a service provider to demonstrate an AI-based heavy cargo mobile logistics platform and establish a commercialization strategy based on domestic and overseas factual survey by the Ulsan ICT Promotion Agency.
- May 2021:** Selected as a member of a consortium for supporting the development of VR/AR convergence contents (XR Flagship Project) by the National IT Industry Promotion Agency.
- May 2021:** Selected as a research service provider for building a demonstration test bed for a digital twin-based electric propulsion system by the Ulsan ICT Promotion Agency.
- Oct. 2020:** Selected to provide a service for analyzing the status of digital twin and establishing a development strategy by the Korea Information Society Agency.
- Sep. 2020:** Selected to provide a service for establishing the Saemangeum smart disaster response system by the Saemangeum Development and Investment Agency.
- Jul. 2020:** Selected as a research service provider for marine content development planning by the Ulsan ICT Promotion Agency.
- May 2020:** Certified as a venture business.
- Jan. 2020:** Established an affiliated research institute.
- Sep. 2019:** Selected as a service provider for developing an immersive smart healthcare platform by the Korea Creative Content Agency.
- Feb. 2019:** Established Shutagen Co., Ltd.



RockwonIT Global, Co., Ltd.

CEO Yoon Myeongrok **Phone no.** +82-70-4213-4006

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Address 2nd floor, Ga-dong, 105, Nanseolheon-ro, Gangneung-si, Gangwon-do

Type of business Development and supply of system software

Business areas Digital twin, Metaverse

Company information

A company that strengthens 3D-based intelligent integrated services based on IoT solutions

RockwonIT Global is a venture company that possesses outstanding technology in the field of big data processing, IOT-based 3D-GIS, and real-time virtualization monitoring, and it also develops and sells 3D port operation control software packages.

In order to increase work efficiency at port container terminals, RockwonIT Global provides a solution that monitors and tracks their operational status in real time, issues work orders, and notifies the operator when a major issue occurs at a terminal.

Core technologies

3D control solution based on digital twin

- The simulation visualization platform, RockwonIT Global's core technology, optimizes input and output using UI/UX that is easy for the user to understand, and visualizes changes according to the timeline through 3D-based simulation.
- RockwonIT Global has been providing port integrated control solutions for more than ten years, as well as IoT solutions using RFID, DGPS/INS, etc. and IoT/digital twin-based 3D control solutions for several years. Recently, its leading solution has been expanded and applied as a metaverse service suitable for various business areas (local government/tourism/e-commerce, etc.).
- RockwonIT Global's digital twin solution is based on its own in-house developed high-performance 3D engine. Since it is linked with the operating system of various industrial infrastructures and on-site IOT systems to identify on-site situations in real time, it can be linked systematically with various work processes to increase work productivity and efficiency.

Major achievements

- **Jun. 2022:** Developed and demonstrated a metaverse-based car manufacturing innovation platform (National IT Industry Promotion Agency).
- **Apr. 2022:** Participated in the demonstration project for 5G-based digital twin facility safety (National IT Industry Promotion Agency).
- **Apr. 2022:** Participated in a project to build a test bed for verifying maritime logistics communication technologies (Ministry of Oceans and Fisheries).
- **Aug. 2021:** Participated in the industrial metaverse platform development and demonstration project to advance the XR-based car manufacturing process (National IT Industry Promotion Agency).
- **Jun. 2021:** Participated in a project to create data for AI learning (National Information Society Agency).
- **May 2021:** Participated in the development of a digital twin platform and business model linked to domestic and international technical standards to support energy management and the optimization of energy-consuming buildings (Ministry of Trade, Industry and Energy).
- **Apr. 2021:** Participated in the development of an ICT-based port infrastructure smart disaster response technology (Ministry of Oceans and Fisheries).
- **Sep. 2020:** Participated in the Smart City Challenge Project (Gimhae City).

alían Alian Co., Ltd.

CEO Park Seokwon **Phone no.** +82-2-6356-1311

E-mail alian2016@alian.co.kr

Website www.alian.co.kr

Address #608, 2 wing, 8, Baekbeom-ro 31-gil, Mapo-gu, Seoul

Type of business Development of intelligent software

Business areas Specialized solutions business, smart platform business, SI development, R&D

Company information

Alian aims to develop innovative and intelligent solutions to complex network and interworking issues, data management efficiency, and information security issues that arise due to the development of ICT.

Core technologies

- **Network Management (SDN, NFV, fiber, QKDN)**
: Technology for developing specialized networks such as large-scale transmission networks, optical line management, and quantum encryption.
- **Data Platform (AI/Big data service, Dx service, IoT service)**
: Development of data transformation platforms based on IoT devices, specialized services, and AI/big data.
- **Convergence Platform (Safety service, MES service, FMS service)**
: Development of specialized service platforms related to safety from disasters and facility safety, manufacturer's specialization, and network control.

Major achievements

- **2023:** Participated in the development of the Gwangju smart healthcare platform.
- **2022-26:** Participated in the project to verify KIMST maritime logistics communication technology.
- **2022-23:** Participated in the NIPA metaverse car manufacturing innovation project.
- **2020-24:** Developed an integrated control system for KT transmission networks.
- **2020-24:** Developed an integrated control system for KT optical fiber lines.
- **2020-24:** Established a facility safety service system (Jeju-do, Daegu Seongseo region, Daegu Metropolitan Railway, Ministry of the Interior and Safety, Incheon Airport, etc.).
- **2020-22:** Participated in NIPA's public initiative project based on 5G digital twin.
- **2019-24:** Developed the KT AICity platform.





Core tech Co., Ltd.

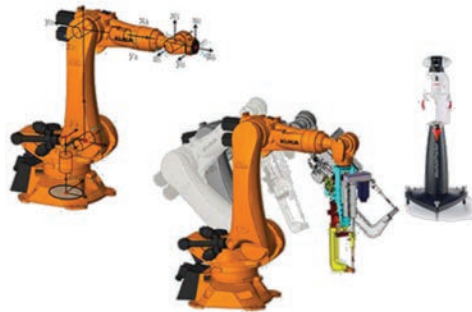
CEO Choi Hak-cheol Phone no. +82-52-267-6915
 E-mail core6915@core-t.co.kr
 Website www.core-t.co.kr
 Address 9, Jinjang 21-gil, Buk-gu, Ulsan (Jinjang-dong)
 Type of business Manufacturing, service industry
 Business areas Digital menu factoring, roller hemming system, CAD cam using robots

Company information

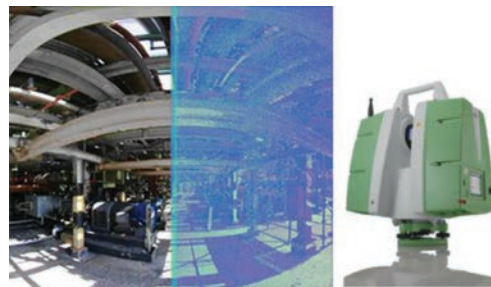
Core tech is a company that specializes in digital manufacturing, and provides solutions by conducting robot and automation system analysis, construction method design, logistics analysis, and ergonomic analysis in a virtual space using a computerized environment. Core tech aims to become a creative company in order to satisfy its customers and earn their trust by inheriting the spirit of our ancestors, who put every effort to making a perfect pottery.

Core technologies

• Digital manufacturing - simulation & OLP: Verification of interference between equipment and robots, layout optimization, efficient welding point distribution, cycle time analysis, process design considering the order of robot motions and work environment.

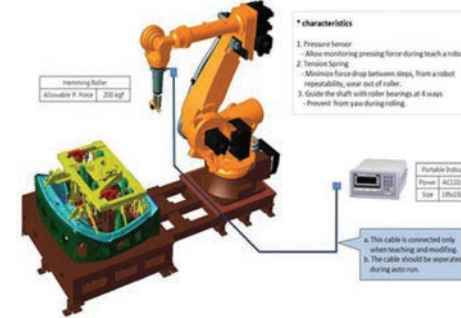
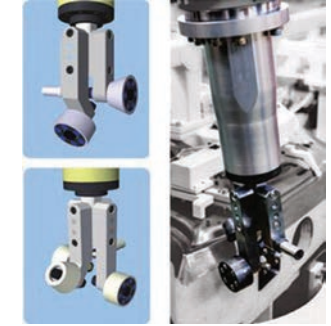


• Calibration: Correction of errors between data and field, and reduction of trial run times through calibration, using equipment such as 2D wire, laser tracker, vision sensor.



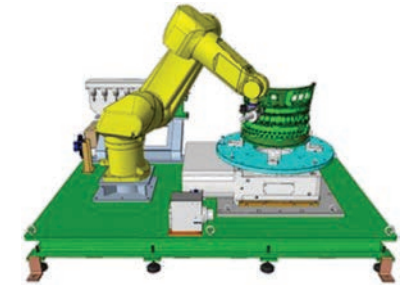
• 3D scanning: Conversion of equipment and utilities into CAD models to review and improve problems through digital manufacturing, using the point cloud method to digitalize field information.

• Roller hemming system - roller hemming tool: Creation of various roller libraries that can change the 4-side attachment method, individual roller assembly method, and rollers, secure A/S flexibility, and respond promptly to customer requirements.

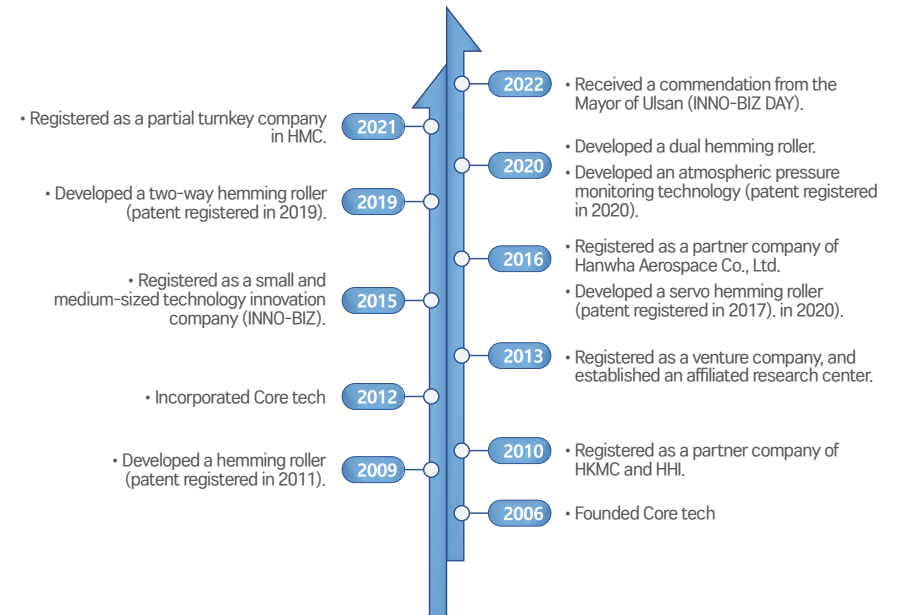


• System configuration: A quality control system that detects pressure with a pressure sensor built into a hemming tool, wired/wireless pressure, and bi-directional (push-pull) pressure.

• CAD/CAM with robot - Robotmaster: Generation of robot codes directly from CAD/CAM tools, generation of robot trajectories by optimizing processes and tools, thereby ensuring excellent compatibility, and maximizing robot productivity and profitability.



Major achievements



Smart CPS Lab (Korea University of Technology and Education)

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E-mail wtkim@koreatech.ac.kr **Website** https://smartcpslab.koreatech.ac.kr
Address 1600, Chungjeol-ro, Byeongcheon-myeon, Dongnam-gu, Cheonan-si, Chungcheongnam-do
Type of business Research/Development
Business areas Cyber-physical systems (CPS), digital twin, industrial metaverse

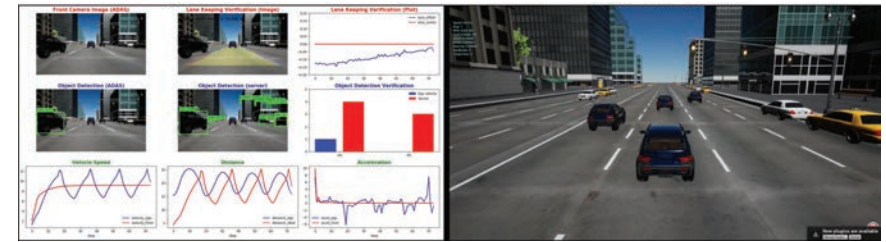
Major achievements

- 2023. Received three awards including an “excellent thesis presentation” award from the Institute of Embedded Engineering of Korea and the Institute of Korean Electrical and Electronics Engineers.
- 2023. Developed an optimal control system for the Ulsan factory’s automation process (door removal process), Hyundai Motor Company.
- 2023. Developed an optimization system for the wastewater treatment process (QBR process), POSCO.
- 2023. Exhibited solutions at the Digital Innovation Festa 2023 (autonomous collaborative robot, self-driving car verification system).
- 2023. Published an article related to digital twin in a top-tier journal (Internet of Things Journal, IF: 10.6, JCR:5%).
- 2022. Developed an optimization system for the secondary battery process (co-precipitation/ calcination process), POSCO.
- 2021. Exhibited future technologies at the 30th anniversary celebration of Korea University of Technology and Education (autonomous firefighting drone).

Company information

• Smart CPS Lab conducts research on key digital technologies to ensure the intelligence, reliability, safety, and efficiency of Cyber-Physical Systems (CPS) 1). Smart CPS Lab is mainly conducting R&D on digital twin 2), which optimizes the function/performance of a single cyber-physical system based on state information, and the industrial metaverse 3), which optimizes a collaborative process based on the interaction of multiple cyber-physical systems within a digital space. These digital technologies have created social and economic value through their application to actual sites in major national strategic industrial domains, such as Hyundai Motor Company’s Ulsan automation process, POSCO’s secondary battery manufacturing process, and LIG Nex1’s biomimetic robot, etc.

- 1) Cyber-physical system: A physical system equipped with functions for environmental sensing, contextual awareness, mission planning, autonomous control, and communication, thus enabling interaction with the surrounding environment and the performance of a given role, such as a self-driving car.
- 2) Digital twin: A digital replica of a cyber-physical system that monitors and manages (e.g. analysis, decision-making, optimization) the status of objects in real time to ensure that cyber-physical systems operate in the most optimal state at all times.
- 3) Industrial metaverse: A system that optimizes the collaborative process (e.g. workpiece loading/unloading) of virtual-physical systems (e.g. robotic arms, transport robots, etc.) based on AI technology in digital space, and reflects the results in actual industrial sites (e.g. factories).



<Self-driving car verification system>

Core technologies

- **Cyber-physical system**
 - Autonomous control technology for the cyber-physical system based on deep reinforcement learning.
 - Technology for ensuring the reliability of the cyber-physical system based on generative AI.
- **Digital twin**
 - Autonomous digital twin platform technology (autonomous digital twin development tool, digital twin execution engine, digital twin management system).
 - Physical mechanics, high-precision simulation technology based on hybrid modeling.
 - * Hybrid modeling: A new method of digital twin modeling that combines a theory-based physical dynamics model and a data-based AI model.
- **Industrial metaverse**
 - SDF (Software-Defined Factory) technology based on the industrial metaverse platform
 - Technology for optimizing the collaborative process of Ai-based virtual-physical systems.
 - ※ Software-Defined Factory: A future autonomous factory that supports intelligent reconfiguration, such as the addition, modification and improvement of functions according to the user’s needs, since manufacturing plants are determined by software.



<Autonomous flight drone development system>



ULSAN ICT PROMOTION AGENCY (foundation)

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Type of business ICT Promotion Agency

Company information

A promotion agency that leads innovative growth in the region with its advanced ICT and content capabilities.

Core technologies

Development of ICT/software/content ecosystems, with the aim of laying the foundations of the industry and supporting small and medium-sized businesses.

Major achievements

- **Feb. 2023:** Selected as an excellent organization for a "shipbuilding and marine software convergence cluster" project for four consecutive years.
- **Feb. 2022:** Received an award in the "digital new deal" category of the "Korean New Deal of the Month" and held a declaration ceremony for the Ulsan Metaverse Academy.
- **Jan. 2021:** Selected as a service provider for the project to establish the Ulsan Content Business Fostering Center.
- **Feb. 2021:** Opened the 3D Printing Knowledge Industry Center.
- **Nov. 2020:** Recognized as a KOLAS certified testing agency (software testing).
- **Nov. 2019:** Opened the Ulsan VR/AR Production Base Center.
- **Apr. 2019:** Designated as a shipbuilding and marine S/W convergence cluster.
- **Dec. 2018:** Received the Minister of Science and ICT Award (best) at the Forum for Shipbuilding and Marine Industry Innovation 4.0.
- **Aug. 2018:** Invited the test operation center for autonomous ships.
- **Dec. 2017:** Established the Shipbuilding and Marine ICT Convergence Council (chairman Cho Sangrae).
- **Dec. 2016:** Opened the Ulsan ICT Promotion Agency (foundation).



Shipbuilding and Marine Tech Town



Ulsan VR/AR Production Base Center



Taehwa Ship
(an electric propulsion smart ship)



New Industrial Complex for 3D Printing



Laonix

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Type of business Manufacturing: production of prototypes, mass production of products
Business areas Automotive, shipbuilding, electronics, etc.

Company information

Laonix is a custom-manufacturing partner that strives to advance products and optimize production in various industries by utilizing technology that combines CNC machining and 3D printing.

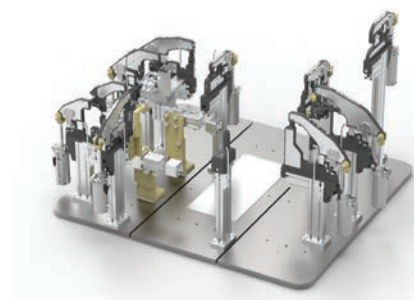
Since its foundation in 2018, Laonix has continuously improved products and processes in various fields including the automobile, shipbuilding, and chemical industries (product lightening, reduction of production period and costs, etc.). Laonix is also working ceaselessly to raise the competitiveness of domestic manufacturing to the next level.

Core technologies

- **New manufacturing process:** Laonix's proprietary technology that combines the advantages of CNC machining (precision manufacturing, use of various materials, etc.) and 3D printing (production of difficult-to-process shapes, high speed, etc.).
- **Topology optimization:** Optimal design that meets product performance goals and constraints.

Major achievements

- **2023:** Registered as a partner company of LG Electronics.
- **2023:** Selected as one of the "100 materials, parts, equipment start-ups".
- **2022:** Executed the industrial convergence manufacturing metaverse project (NIPA).
- **2022:** Executed the Startup Leap Package project for the Ulsan Business Promotion Institution.
- **2022:** Delivered equipment to Hyundai Motor Company's Singapore plant (HMGICS).
- **2021:** Received a commendation award in recognition of its contribution to the development of Ulsan's 3D printing industry.
- **2021:** Delivered 3D-printed ship models to Hyundai Heavy Industries.
- **2020:** Promoted to a "Platinum Partner" of Materialise.
- **2020:** Registered as the primary partner of Hyundai Motor Company.
- **2020:** Signed an MoU with Ulsan City.
- **2019:** Signed an MoU with the Ulsan ICT Promotion Agency.



Manufacturing/
Industry

Industrial
Digital Twin

Industrial digital twin/metaverse smart factory solution [FLEXING CPS]

Managing organization UVC Co., Ltd.

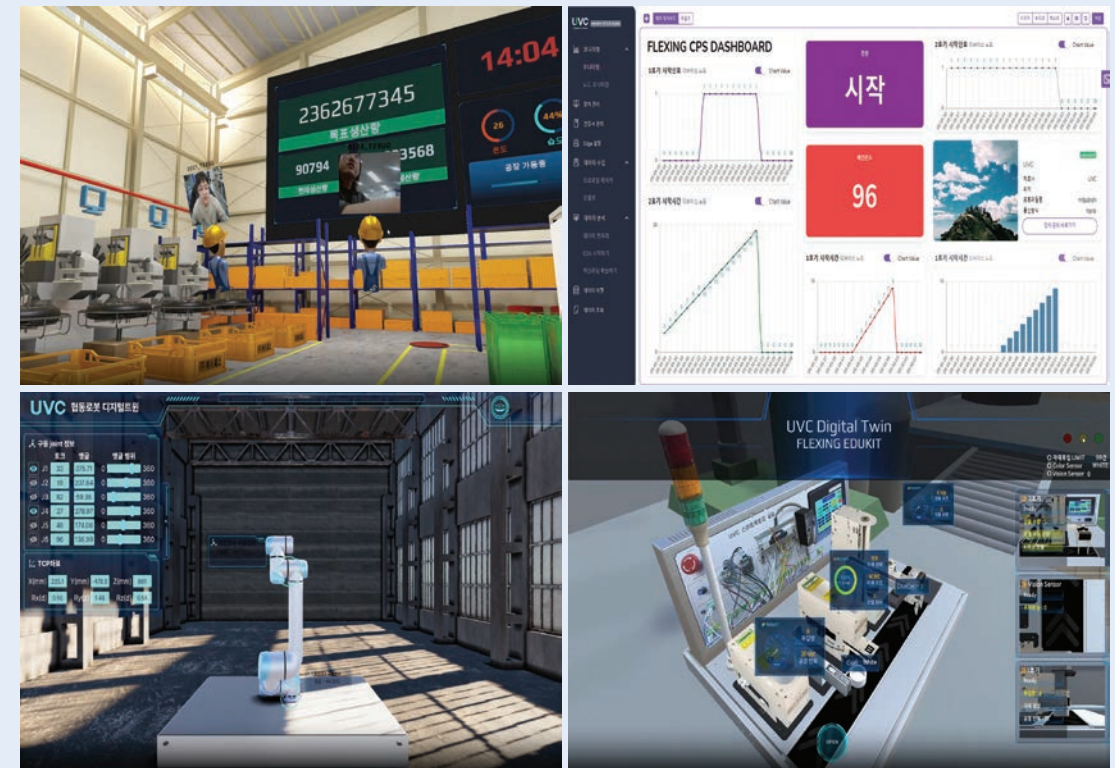
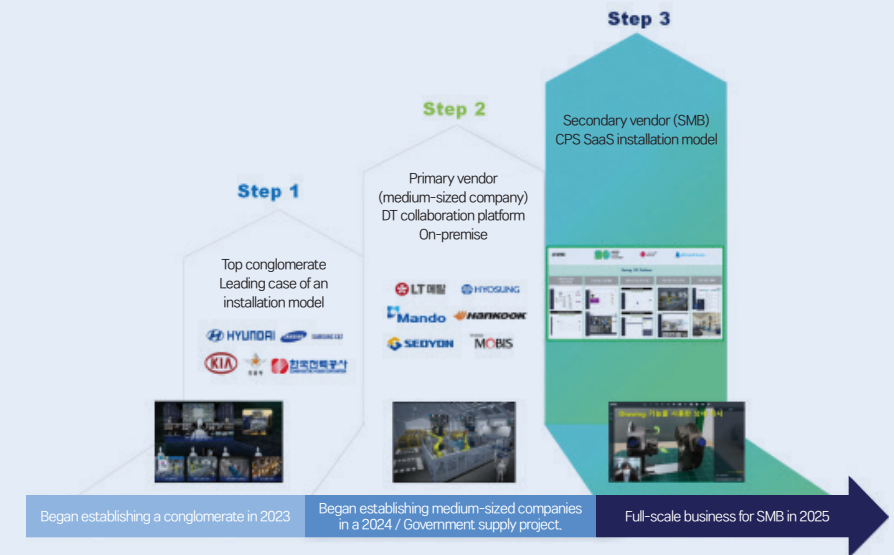
Contents
Introduction

- FLEXING CPS is an industrial digital twin platform that efficiently manages multiple factories and substations from a central location and enables an immediate response to failures, as well as providing field worker training, and maintenance through XR (AR/VR) collaboration.
- As FLEXING CPS has been certified with the international industrial standard (OPC-UA), different types of machines, equipment, and sensors can be connected at once, and users can easily manage and utilize data without coding. FLEXING CPS provides an integrated platform for data collection, analysis, and virtualization to enable the creation of an environment where customers can experience digital transformation more quickly and easily.
 - Improves operational efficiency through 3D integrated control of factory machines, robots, sensors, and facilities using real-time digital twin.
 - Provides an all-in-one industrial metaverse from data collection to integrated monitoring, remote control, and virtual factory implementation in the metaverse.
 - Enables cost savings and quality improvements through failure handling, on-site worker training, and maintenance through VR/AR/XR collaboration.

Applied
Technology

- FLEXING XR - Virtual Factory Federation
 - Applied technologies: Unity Engine, Microsoft Mixed Reality Tool Kit, Blender, Rhinoceros 3D.
 - Content: Industrial Metabus that converts the drawings of machinery and equipment in factories and substations into 3D images and enables digital twin creation and collaboration using high-performance rendering engines.
- FLEXING AR - 3D collaborative robot AR control
 - Applied technologies: Unreal Engine 4, CAD Converter, remote Streaming
 - Contents: 3D collaborative robot AR control and digital twin.
- FLEXING CPS - Industrial digital twin cloud platform.
 - Applied technologies: CPS, digital twin, OPC UA, IoT, Edge Computing, RPA.
 - Content: Even when the manufacturers of machines and equipment are different, various services such as real-time monitoring, control, data analysis, and abnormality detection can be provided by collecting data and conducting standardization (international standard OPC UA).
- FLEXING EDUKIT - 3D digital twin of education and training equipment.
 - Applied technologies: Unity Engine, OPC UA, WebSocket.io, MQTT, AI.
 - Content: Remote control of education and training equipment using digital twin; education and training contents based on simulation.

Business
Direction





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Type of business Software development and supply
Business areas Industrial digital twin, metaverse, smart factory solutions, IT education business

Company information

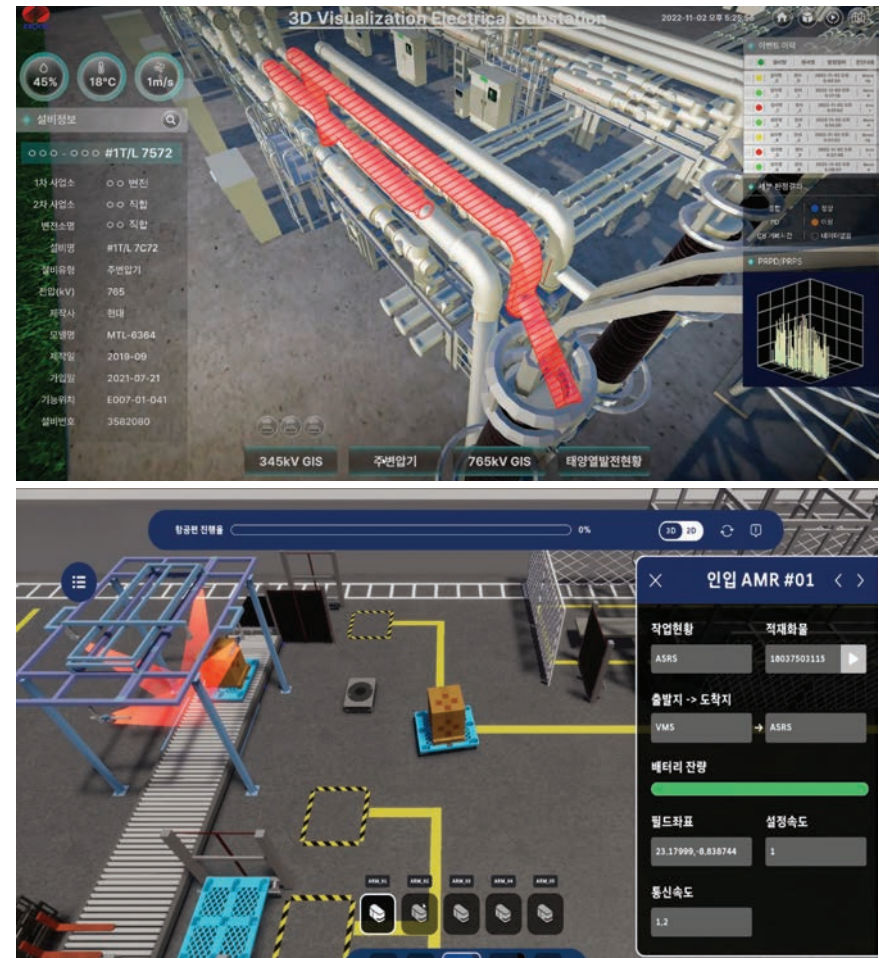
UVC is a company that connects “all the values of the world”. UVC enables customers to carry out digital transformation faster and more easily using the industrial digital-twin cloud platform (FLEXING CPS). FLEXING CPS efficiently manages multiple factories and substations from a central location and enables an immediate response to failures, as well as providing field worker training, and maintenance through collaboration using XR (AR/VR). You can experience innovation with FLEXING CPS, including data collection, analysis, and virtualization all at once!

Core technologies

- FLEXING CPS**
 FLEXING CPS software has obtained the first grade of the GS certification. Flexing CPS is a SaaS-based platform, and enables the user to quickly build the CPS, an intelligent automatic production system, by converging with ICT. Flexing CPS also supports CPS interoperability by exchanging data between key systems such as ERP, MES, and PDM, and all equipment and robots, using OPC UA (international standard technology for real-time data exchange). Since it is equipped with big data and machine learning modules, it also provides various intelligence functions such as distributed control, energy saving, automatic process control, failure prediction and abnormality detection through cloud service and edge computing.
- FLEXING DT**
 A full 3D manufacturing metaverse platform based on real-time digital twin, which efficiently operates and manages multiple factories at home and abroad from a central location.
- Flexing XR**
 A manufacturing metaverse platform that improves productivity and quality and reduces operating expenses through XR (AR/VR) collaboration, including immediate response to failures, field worker training, and maintenance.
- FLEXING EDGE**
 An edge device equipped with an OPC UA server, which provides a plug-and-play connection service that can be used easily by connecting the device to a power source and the Internet to collect data in the field.
- FLEXING EDUKIT**
 Training equipment that enables trainees to practice logic control, which controls the PLC and motor driver by connecting signal lines and power lines after placing miniaturized machines and robots in the process line, so that trainees can practice operating technology that builds actual factory lines. This equipment is equipped with equipment and technology that are actually used in factories, thus allowing trainees to use their learning in a manufacturing site after training.

Major achievements

- **2023:** Installed digital twin for the new project of car manufacturer H.
- **2023:** Signed MOUs with numerous companies for self-driving robots and 5G networks.
- **2022:** Presented with awards by the Minister of Trade, Industry and Energy and the Minister of Science and ICT.
- **2022:** Executed the KEPCO DT project.
- **2022:** Selected as a DT business partner company by Hyundai-Kia Motors.
- **2021:** Selected as one of the “1,000 national representative innovative enterprises in the digital twin field”.
- **2021:** Received the Digital Twin Platform Technology Innovation Award.
- **2020:** Selected as a global start-up in the rocket field.
- **2020:** Acquired the 1st grade GS certification for digital twin software.
- **2019:** Acquired the international standard technology OPC UA certification.
- **2019:** Applied for and registered various international industrial standard patents.



Manufacturing/ Industry

Construction/ Industry

Construction design innovation system based on XR

Managing organization Hanmac Engineering Co., Ltd.

Participating organizations Hanmac Engineering Co., Ltd., Saman Corp., Virnect Co., Ltd., Heliosen Co., Ltd., Mondrian AI, Jangheon Engineering and Construction

Contents Introduction

- The XR-based road construction integrated platform was developed to utilize XR technology in order to encourage the transformation of the construction industry from a construction-oriented industry into a design-oriented high value-added industry and to improve the productivity and efficiency of the road construction industry, a representative infrastructure construction industry.
- The road construction integrated platform was implemented using a large-screen signage display optimized for large scale road facility projects such as road and bridge construction projects. It enables construction stakeholders to share information and make decisions quickly by using a variety of service contents in a virtual space, using immersive BIM models and actual terrain information.

Applied Technology

- Immersive 3D data modeling technology
 - Production of digital data on road facilities, such as designed roads, bridges, tunnels, etc.
 - Generation of the latest terrain information data using actual terrain information obtained by drones.
 - Lightweight modeling technology for converting large-capacity 3D models into service contents.
- Service contents
 - An AR/VR service designed to support prompt decision-making by persons/entities engaged in construction work.
 - Various XR-based simulation services (such as process, driving, sunlight, drainage).
 - XR-based lightweight model visualization technology.
 - Quality control of prefab facilities based on analysis of AI images.

Business Direction

- Provision of an “integrated road construction platform based on the digital signage” using BIG Room, a BIM collaboration space for road construction businesses.
- Support of road construction projects using immersive 3D BIM data.
- Support of road construction projects using XR-based simulation.
- Expansion of the service to all areas of road construction ranging from planning and design to construction and maintenance.
- Expansion of business to diverse infrastructure facilities (railways, transportation, dams, water resources) based on road-centered digital transformation technology.



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Type of business Construction engineering

Business areas Digital transformation of construction businesses

Company information

Capabilities as a construction company

- Since its founding in 1996, Hanmac Engineering has accumulated a wealth of experience and expertise by participating in design, private investment projects, turnkey, and technology proposals in all areas of road construction projects. Hanmac Engineering is currently working on the transition to smart engineering.

Capabilities as a development company

- Since 2011, Hanmac Engineering has set its future vision as smart construction and XR-based innovation in the construction industry and is developing software programs for the digital transformation of the construction industry.



Core technologies

- Construction technology capabilities related to planning, design, and construction project management in all civil engineering fields, including roads, structures, soil, transportation, ports, and environment.



- Development of pure domestic technology S/W, such as road information S/W and bridge software, which converts information generated during the road planning, design and construction phase using digital construction technology.



Major achievements

- Based on the technology and know-how it has accumulated while carrying out private investment projects, Hanmac Engineering is conducting R&D on competitive and efficient transportation systems and playing a role in balanced national construction. Staffed by talented people with extensive experience and expertise, Hanmac Engineering carries out the safest and most economical environmentally-friendly SOC construction projects.
- Hanmac Engineering is also participating in a national R&D development study (Smart Construction Technology Development Project) aimed at the digital transformation of the construction industry, and is carrying out 10 to 12 detailed tasks related to software.

Detailed task 10	Detailed task 11	Detailed task 12
Managing organization	Common organization	Common organization

saman Saman Corporation
(주)삼안

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Type of business Construction engineering
Business areas All fields of construction engineering and construction digital transformation business.

VIRNECT Virnect Co., Ltd.

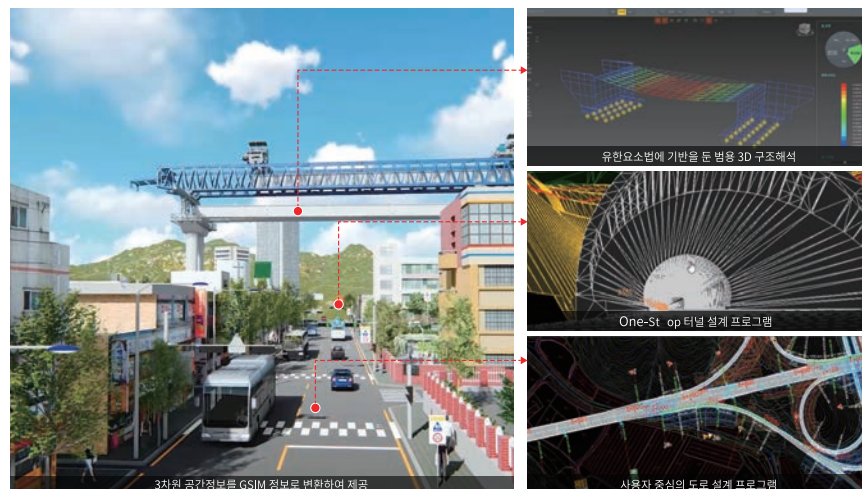
CEO Ha Taejin
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Website <https://virnect.com/>
Address 10-15, Hangang-daero 7-gil, Yongsan-gu, Seoul
Type of business Technology service business
Business areas XR solution development and supply

Company information

"Let's use technology to bring humanity and nature together!"
 Saman Corporation is run by a group of honest hard-working people who are dedicated to developing professional technology in the field of environmental construction under the slogan of "Let's use technology to bring humanity and nature together!"
 In addition, by developing proprietary engineering software capable of conceptual design, Saman Corporation will become an "engineering business that can revolutionize the essence of the construction industry" and a solutions provider in the civil and environmental fields that transforms the construction industry into a "manufacturing construction industry" based on factory production and on-site assembly.

Core technologies

- Survey, planning, design, supervision, and construction project management across all fields of construction engineering, including hydropower, water resources, water supply and sewerage, roads, railroads, urban planning, ports, and the environment.
- Saman Technology Development Center participates in projects in various fields of construction engineering and provides necessary technologies. It is building a knowledge management system for design technology and management techniques encompassing R&D on core design technology, the development of new technologies and new construction methods, the introduction of advanced technologies from overseas, and the development of design VE and design automation software.
- At the same time, the center is researching and developing future growth engines to prepare for the Fourth Industrial Revolution, including convergence design technology combined with IT technologies such as eco-friendly/new and renewable energy, facility maintenance and safety diagnosis, and U-city technologies.



Company information

Virnect is a tech company that specializes in industrial XR (eXtended Reality) solutions. As a global tech company founded in October 2016, Virnect is developing high-performance object learning, posture detection, and tracking technologies using Track SDK, its own proprietary software engine. Based on this technology, Virnect develops XR solutions (Remote, Make, View, Twin, etc.) aimed at improving work efficiency and stability at industrial sites, and has applied them to various industrial sites in the machinery, chemistry, construction, semiconductor, secondary battery, and national defense sectors.
 Virnect launched SQUARS, an all-in-one platform, in October 2022, and is expanding its business areas based on its proprietary technology. SQUARS allows users to produce, distribute, and manage AR contents on the web based on the key source technology, Track SDK.
 In addition, Virnect was listed on the KOSDAQ on July 26, 2023, seven years after its establishment, based on the know-how of its key personnel, who have long experience in this field, including CEO Ha Taejin, who worked at KAIST's UVR LAB. By showing industrialization and technologies of global level, Virnect is making a great leap forward as a global XR tech company.

Core technologies

- VIRNECT Remote: Remote on-site management XR solution
 VIRNECT Remote can efficiently support, supervise, and record a site remotely with real-time wireless video and AR. VIRNECT Remote, a multi-party XR remote collaboration solution, enables users to quickly and accurately understand the on-site situation remotely. In addition, it provides accurate work instructions and reduces downtime using XR Guide.
- VIRNECT Make: XR solution for digital information creation.
 Using the VIRNECT Make solution, anyone can easily create XR contents from the desired information without requiring any programming. Users can easily create contents using a no-code method, and produce, distribute, and maintain contents quickly at low cost.
- VIRNECT View: Digital information visualization XR solution.
 The VIRNECT View solution can improve work speed and accuracy by visualizing XR contents created with VIRNECT Make. Users can easily understand the work since the work situation can be quickly checked by recognizing the information.
- VIRNECT Twin: 3D digital twin solution.
 The VIRNECT Twin solution digitizes industrial sites in 3D so that they can be monitored and simulated in real time.

Major achievements

- 2023. Listed on the KOSDAQ as a special technology growth company.
- 2021. Invited Series 'B' investment.
- 2020. Selected as a "Baby Unicorn" for the K-Unicorn Project.
- 2019. Invited Series 'A' investment.
- 2018. Selected as one of the "300 K-Global companies" (Ministry of Science and ICT).
- 2016. Established Vmnect Co., Ltd.
- 2019: Applied for and registered various international industrial standard patents.



HELIOSEN Heliosen Co., Ltd

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Type of business Software development and supply business, AI development and supply business, ICT technology development and supply business
Business areas Digital twin, Geo-IoT, GIS, AI

Company information

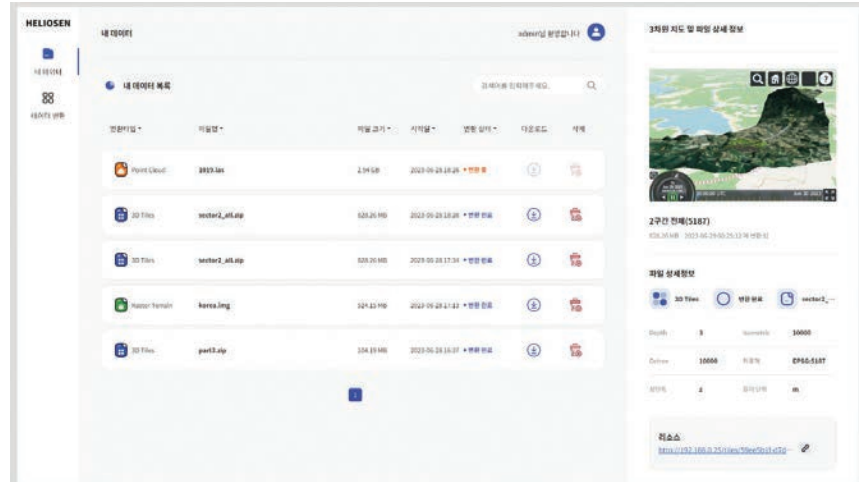
"Heliosen, a value creator that connects space and humanity!"
 Heliosen will develop and demonstrate its advanced capabilities in order to become a company that grows together with society. To this end, externally, Heliosen will connect space and humans by providing intuitive expressions and insightful analysis technologies appropriate for the digital twin and metaverse era. Internally, Heliosen will become a group of experts endowed with a creative and progressive mindset based on consideration, empathy, and mutual respect.

Core technologies

- Large-capacity 3D processing technology
 - Technology for converting large-capacity 3D data into international standard (3D Tiles) formats.
- Technology of the Unity spatial information visualization engine.
 - Large-scale 3D spatial information management using Unity.
 - 3D terrain rendering technology based on photorealistic Earth ellipsoid.
 - Unity-based operation technology of nationwide real-time 3D data.
- Digital twin application platform (DiTAP)
 - 3D standard conversion, data deployment, visualization, analysis, one-step digital twin creation.
 - Provision of high-quality 3D base maps.
 - Expandable to multiple platforms.

Major achievements

- Dec. 2023: The DiTAP solution obtained the Level 1 GS Certification / Telecommunications Technology Association.
- Apr. 2023: Developed a 3D spatial information engine for digital twin hospitals / Ministry of Health and Welfare.
- Apr. 2023: Developed a user solution cloud subscription service for the 3D digital twin platform (DiTAP) service / Ministry of Science and ICT.
- Jul. 2022: Developed a technology for creating large quantities of 3D Tiles for the 3D spatial information platform (DiTAP) / Ministry of SMEs and Startups.
- Jun. 2022: Developed a digital twin GIS XR (eXtended Reality) expansion solution based on Unity / Ministry of Science and ICT.
- Apr. 2022: Developed a system for utilizing in an integrated manner convergence data and verifying management to realize hyper-connected digital national territory / Ministry of Land, Infrastructure and Transport.



Mondrian AI Co., Ltd.

Mondrian AI

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Type of business Information service industry.

Business areas Artificial intelligence, H/W, data consulting.

Company information

- "Beyond Digital Transformation, We Accelerate AI Transformation"
- "We solve the problems facing mankind through data technology"
- Development of industrial AI algorithms: AI/big data expert researchers with master's and doctoral degrees develop deep learning and machine learning algorithms suited to field situations and apply them to corporate activities, and help companies to rediscover the meaning and value of data and make quick decisions.
- Building a big data infrastructure: Construction of a distributed big data cluster infrastructure in order to enhance corporate competitiveness by sharing and capitalizing data and to integrate and analyze massive amounts of data within the organization.
- Data analysis and visualization: Analysis and visualization of complex and difficult data in a form that can be understood quickly and easily at a glance using the latest open-source software technology and perspective-oriented design.
- Data utilization consulting: Provision of consulting about data technology, management strategy, information strategy, and the introduction of solutions required in the process of transformation into a data-oriented company.

Core technologies

- (H/W environment formation) Provision of a workstation for deep learning, which reduces the amount of time spent on initial environment formation for big data, AI, IoT, etc. in medium-sized companies.
- (AI environment formation) Provision of an AI platform that enables experts to develop AI models and to operate the related services, and a development environment that allows multiple users to analyze data and develop AI models.
- (Data analysis and visualization) Rediscovery of the meaning and value of data and support for quick decision-making by refining, analyzing, and visualizing data.
- (Development of customized AI solutions) Direct implementation of AI algorithms in diverse fields such as smart factory, vision detection and bio healthcare, and provision of customized solutions for companies.

Major achievements

- Nov. 2023: Selected as a promising small and medium business by Incheon Metropolitan City.
- Dec. 2022: Received the Venture and Entrepreneurship Promotion Award, Prime Minister's Award, Minister of the Interior and Safety Award.
- Mar. 2022: Successful Series A investment attraction (KRW 4.6 billion).
- Nov. 2020: Received the Prime Minister's Award at the 8th Pan-Government Public Data Utilization Start-up Competition.
- Aug. 2020: Received the Grand Prize and the Mayor of Incheon's Award at the 6th Public Data Startup and Analysis Contest of Incheon Metropolitan City.
- Jul. 2021: Certified as an excellent company for job creation by Incheon Metropolitan City.
- Jul. 2021: AI platform "Yennefer", GS certification obtained.



Jangheon

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Type of business Construction engineering (bridges).

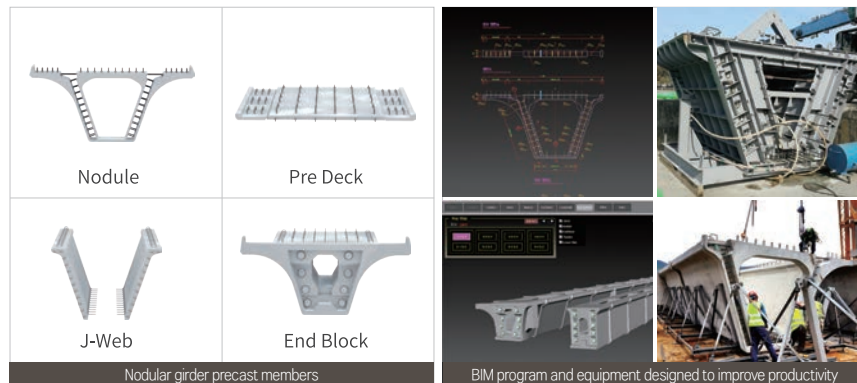
Business areas All fields of construction engineering and construction digital transformation business.

Company information

- Just as King Sejong the Great [posthumous name: Jangheon] created Hangeul, Jangheon is creating new technologies for bridges.
- Jangheon Engineering and Construction is preparing for the future by continuously developing new technologies and new construction methods and “innovating” itself according to its founding philosophy of developing and utilizing cutting-edge construction technologies, which are key elements for increasing the competitiveness of the national construction industry in the 21st century, and securing and nurturing experts with advanced knowledge.
- Founded as a civil engineering company in 2005, Jangheon has grown into a specialized bridge company that designs and constructs excellent products, including the Nodular Girder, DR.Spliced Girder, Pre Girder, and DR.Wide Flange Girder, having started with the DR (Detention and Retention) Girder, whose tension is adjustable.
- All of Jangheon’s executives and employees are dedicated to realizing a 21st-century cutting-edge construction industry and an advanced welfare society through design automation using computer systems, R&D on new construction methods, and the introduction of advanced technologies. Jangheon will be reborn as a leading-edge bridge specialist based on our abundant design and construction experience.

Core technologies

- DR girder (55 m): PSC Girder Bridge with “De-tensioning & Re-tensioning” System I New Girder Construction Technology No. 582.
- Nodular Girder (70 m): Nodular Girder with PSC Web I New Girder Construction Technology No. 812.
- Dr.Spliced Girder (80 m): PSC spliced girder using temporary vent & strongback.
- Pre Girder (50 m): End height increase type pretension PSC I New Girder Construction Technology No. 752.
- GC Rahmen (40 m) : GC Rahmen | Patent No. 10-0946716.
- Dr.Wide Flange Girder (40 m): PSC with wide flange I Girder (applied to railway bridge).



Manufacturing/ Industry

Construction/ Industry

Construction machine practice training solution [VRCMS]

Managing organization Big Pictures Co., Ltd.

Contents Introduction

The VRCMS (Virtual Reality Construction Machine Simulation (VRCMS) allows realistic practice training in virtual space, breaking away from the spatial and temporal constraints of existing hardware-centered practice systems. Users can perform virtual practice by selecting the manufacturer and brand depending on the type of construction equipment on one simulator. In addition, by upgrading the simulation, users can quickly add construction machines for practice purposes; while, through the integrated management of learning history and content, they can increase the learning effect and operate it conveniently.

Applied Technology

- Real-time simulation VR visualization technology based on physics
 - Users will enjoy a high level of immersion in the virtual environment with the realistic motion of construction machinery and haptic UI optimized for the VR environment.
 - Systematic curriculum based on the NCS learning module.
- Technology of real-time linking of network control data
 - Network, curriculum, and system comprising 15 people are managed in real time.
 - Intuitive feedback on recorded operation information can be received using 3D graphics.
- Presentation of practical training standards through learning management and learning analysis:
 - The job competency of trainees can be checked objectively by applying the practice evaluation of the construction machinery pilot qualification test.
 - Individual and group progress can be quickly evaluated by profiling and grouping trainees, and collecting and managing the practice courses.

Business Direction

- Competitiveness can be secured as a practical response platform by operating the construction equipment attachments needed for practice and expanding to the curriculum of level system operation.
- Expansion of consumer contacts in the metaverse platform by surpassing the limitations of hardware
- Expansion of the market from a single system to multi-system development in real time.
- Operation of an NCS virtual learning model.





Big Pictures Co., Ltd.

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Type of business Development and supply of software and simulators.
Business areas VR/Edu-Tech.

Company information

- Corporate vision
 - "To lay solid foundations for nurturing global talents by creating the best solutions and services based on trust and technology."
- Business areas
 - Big Pictures provides safe and eco-friendly training solutions to more trainees by digitally revolutionizing construction machinery training. "VRCMS" enables trainees to learn how to operate various types of construction machinery developed by manufacturers by going beyond the constraints of time and environment, using a virtual environment platform. It also applies a learning management system to analyze trainees' operation capability and progress for efficient learning management.

Core technologies

- Simulation: Implementation of physics-based virtual simulation, construction machinery dynamics, and visualization of 3600 virtual spaces in real time.
- Learning content: Provision of a function for controlling and managing simulator contents through the learning management/analysis system (CMMatrix) multi-network.
- Data linkage: Technology for controlling unmanned vehicles in real time.

Major achievements

- Oct. 2023: Received the Korea Metaverse Association President's Award in the "K-META content solutions" category.
- Aug. 2023: Designation of VRCMS as a supply product by the Public Procurement Service.
- Feb. 2023: Established the VR Simulation Center at Namseoul University.
- Dec. 2022: Received the Excellence Award from the Korea Metaverse Industry Association.
- Dec. 2022: Received a commendation from the Director of the Korea Institute of Startup & Entrepreneurship Development.
- Dec. 2022: Certified as a "family-friendly company" by the Ministry of Gender Equality and Family.
- Nov. 2022: Registered as a military supplier by the ROK Navy.
- Jun. 2021: Registered direct production of education and training equipment, and package software.
- Dec. 2021: Received a commendation from the Daejeon Information & Culture Industry Promotion Agency.
- Jun. 2020: Selected as an industrial convergence company by the Ministry of Trade, Industry and Energy.
- Mar. 2020: Registered direct production and factories in the software engineering industry.
- Dec. 2019: Received the Presidential Citation for Knowledge Industry from the Ministry of SMEs and Startups.
- Jun. 2019: Certification of the affiliated research institute.
- Apr. 2019: Selected as a special demonstration case for the Regulatory Sandbox.

Manufacturing/ Industry

Shipbuilding/ Industry

Shipbuilding/marine design/processing system based on XR

Managing organization Ulsan ICT Promotion Agency (Foundation)

Participating organizations Infoget System Co., Ltd., Softhills, Shutagen Co., Ltd., Novatek, SimG, OSLab Co., Ltd., Research Institute of Medium & Small Shipbuilders, Telecommunications Technology Association, Electronics and Telecommunications Research Institute

Contents Introduction

The XR-based shipbuilding, marine design, and process system use system data by linking important data such as CAD systems held by existing shipyards to the XR platform. They interface various types of CAD data for compatibility and provides lightweight/visualization services - such as standard 3D modeling to use lightweight 3D model data in real time in the production of XR contents. By using the collaborative system called "Workroom", users can perform data extraction, 3D modeling, contents, and schedule/project management through a smooth collaborative work process. In addition, for the first time in Korea, the company provides a content editor that allows users to create/edit the desired contents based on lightweight 3D modeling data in real time. Therefore, demand companies such as shipyards allow XR content providers to produce the content needed for the their processes easily and conveniently, thereby resolving the difficulties in producing the contents needed in the industry and making them easy to utilize.

Applied Technology

- Acquisition of 3D model information from 19 products from 14 companies and 20 different CAD systems.
- Automatic conversion of the model structure into a form that can be used as content. In addition, collaborative services can be managed by visualizing data in 3D model/VR/AR forms using a technology for weight lightening by more than 90%.
- Design data can be accumulated because a 3D hub system tailored to the situation of each shipyard is provided. In addition, a rendering engine has been developed to visualize various contents in real time, together with a remote conference system technology that enables multi-party collaboration based on VR.

Business Direction

Recently, many inquiries about its applications have been received from numerous shipbuilding and marine companies and other industrial sites, and visible results have been obtained. Therefore, the platform will be expanded to other industries as well as the shipbuilding and marine industries. Accordingly, the platform will be expanded in order to establish it as a standard XR content platform for the manufacturing industry by continuously upgrading the system so that XR convergence contents can be applied to industrial sites more easily.





Ulsan ICT Promotion Agency (foundation)

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Type of business ICT promotion agency
Business areas ICT, metaverse, content, big data.

Company information

A promotion agency that leads innovative growth in the Ulsan region with its advanced ICT and content capabilities.

Core technologies

Development of ICT/software/content ecosystems with the aim of laying the foundations of the industry and supporting small and medium-sized businesses.

Major achievements

- Feb. 2023: Selected as an excellent organization for the "shipbuilding and marine software convergence cluster" project for four consecutive years.
- Feb. 2022: Received an award in the Digital New Deal area of "Korean New Deal of the Month" and held a declaration ceremony for the Ulsan Metaverse Academy.
- Jan. 2021: Selected as a service provider for the project for to establish the Ulsan Content Business Fostering Center.
- Feb. 2021: Opened the 3D Printing Knowledge Industry Center.
- Nov. 2020: Recognized as a KOLAS certified testing agency (software testing).
- Nov. 2019: Opened the Ulsan VR/AR Production Base Center.
- Apr. 2019: Designated as a shipbuilding and marine S/W convergence cluster.
- Dec. 2018: Received the Minister of Science and ICT Award (best) at the Shipbuilding and Marine Industry Innovation 4.0 Forum.
- Aug. 2018: Invited the Autonomous Ship Test Operation Center.
- Dec. 2017: Established the Shipbuilding and Marine ICT Convergence Council (chairman Cho Sangrae).
- Dec. 2016: Opened the Ulsan ICT Promotion Agency (foundation).



Shipbuilding and Marine Tech Town



Ulsan VR/AR Production Base Center



Taehwa Ship
(an electric propulsion smart ship)



New Industrial Complex for 3D Printing



Infoget System Co., Ltd.

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Type of business Development and supply of hardware and software.
Business areas Development and consulting on IT solution for design and production of shipbuilding/marine/plants.

Company information

For the past 23 years, Infoget System has focused on one field: building engineering and production information in the shipbuilding, marine and plant industries. Thanks to the boom in the shipbuilding industry in the early 2000s, Infoget System grew significantly and - despite the financial crisis of 2008 - improved its viability by developing technology together with shipyards. Infoget System is confident that its technological prowess reached a stage of maturity upon entering a period of revival in 2023. Now, Infoget System is pioneering a path that no one else has ever taken in Korea, as leading country in the shipbuilding and maritime industry. Infoget System plans to lay the foundation for digital twin and autonomous navigation and contribute to the Korean shipbuilding and marine industry by establishing a platform designed to allow the sharing of knowledge and experience and enable anyone to become an engineer or worker at the production site.

Core technologies

- Design
 - 3D CAD and engineering data analysis technology in the shipbuilding/marine/plant industry.
 - 2D/3D drawing automation and technology for digitalizing processing and production information.
 - Algorithm-based automation capabilities such as optimal placement/shortest path/machine learning.
 - Zero drawing, zero human error technology.
- Engineering
 - Engineering technological prowess through thermal, fluid, and structural analysis solutions.
 - Welding deformation analysis, collaborative robot interface.
- Platform
 - PLM (Project Lifecycle Management) consulting and construction technology.
 - 3D engineering technology for hub development.
 - Model visualization, weight lightening, and simulation technology based on OpenGL, WebGL, Unity/Unreal, and VIZZARD.

Major achievements

- Dec. 2024: Developed a shared platform for managing fittings production/installation information.
- Feb. 2024: A 3D model-based welding length calculation and welding equipment simulation.
- Dec. 2023: Created digital twin based on a lightweight 3D model.
- Jun. 2023: Developed a 3D hub system for design information acquisition, conversion, and visualization.
- Dec. 2022: Established an equipment installation process simulation platform.
- Jun. 2022: Developed a production information management system customized for shipbuilding/marine piping processes.
- Dec. 2021: Developed a system for defining painting spaces based on 3D models and automatically calculating the area.



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Type of business Development and supply of software, rental, sales, research services.

Business areas Development of 3D visualization engines and commercialization of application SW, development of XR/digital twin virtualization technology.

Company information

“A company that is leading digital transformation and digital twin based on 3D information.” Softhills boasts the nation's most advanced human resources and know-how in 3D drawing information processing, visualization, and application technology, which it uses to provide software development/supply and differentiated technical support/consulting services, thereby realizing customer value in various industries. As a venture company, Softhills has developed in-house Korea's first large-capacity 3D data visualization engine, VIZCore3D, enabling it to develop and supply 3D visualization and application SW products that are essential for implementing digital mockups, digital twins, smart cities, and metaverse.

Core technologies

- 3D design (CAD) data interface/weight lightening technology
 - Conversion technology for interfacing with various commercial CAD systems.
 - 3D CAD shape information extraction and compression/weight lightening technology.
 - Lightweight data format that efficiently expresses compressed shapes and design information.
- Technology for visualizing large-capacity 3D models in real time
 - Multi-core rendering engine for quickly recovering and visualizing compressed shape information.
 - Real-time progressive rendering technology designed to increase the user's responsiveness and visualization performance.
 - Technology for optimal CPU and GPU load distribution.
- Digital drawing review/verification technology
 - Technology for precise measurement between 3D entities.
 - Technology for reviewing cross sections and inside cross-sections based on cross-sectioning.
 - Large digital model review technology such as Walk Through using avatars.
 - Animation/simulation technology for video or 3D manual production and process simulation.
 - High-speed interference checking engine that uses shape space division information.

Major achievements

- 2023-23. Installed digital twin at Gunsan Shipyard/HD Hyundai Heavy Industries.
- 2023-23. Developed the PE platform placement system/HD Hyundai Heavy Industries.
- 2023-23. Developed the 3D visual process management system/HD Hyundai Heavy Industries.
- 2023-23. Twin Fos 1st upgrade/HD Hyundai Heavy Industries.
- 2023-23. Improved productivity by building a 3D display system for module unit pipe installation/Seonbo Industries.
- 2023-23. DTMG 1.5th upgrade/Fursys.
- 2023-23. Developed unmanned automatic assembly line logistics system/LS Electric.
- 2023-23. Developed CATIA lightweight design review system/Hanwha Aerospace.
- 2023-23. Developed 3rd digital signage/HD Hyundai Mipo.

- 2022-25. Participated in the project to build a national demonstration complex at Smart City, 5-1 zone, Smart City/Ministry of Land, Infrastructure and Transport, LH.
- 2022-23. Developed 3D model-based precision quality indicator analysis system/Hanwha Ocean.
- 2022-23. Developed an accuracy analysis system using laser scan data/Hanwha Ocean.
- 2022-24. Participated in the project to upgrade the Korea Defense Standard Information System (KDSIS)/Defense Acquisition Program Administration.
- 2022-22. Participated in the 3D visualization upgrade project/DL E&C.
- 2022-23. Developed and upgraded the Twin FOS system/HD Hyundai Heavy Industries.
- 2021-21. Modified the graphic library for the automatic curve forming program and UI upgrade/HD Korea Shipbuilding & Offshore Engineering.
- 2021-22. Developed a system that checks consistency and views design information based on the integrated design service platform/HD Hyundai Heavy Industries.
- 2021-22. Participated in the project to develop a digital twin system (DTMG)/Fursys.
- 2021-21. Developed a knowledge-based anode design and painting area management system/Hanwha Ocean.
- 2021-21. Developed a 3D O&M platform/SK hynix.
- 2020-21. Developed a surface plate placement system/HD Hyundai Heavy Industries.
- 2020-21. Participated in the process 3D data virtualization project/LS Electric.
- 2020-21. Upgraded the 3D model-based i-MACS/Hanwha Ocean.
- 2019-19. Developed a system that checks container loading interference based on 3D laser scanning/Hanwha Ocean.
- 2017-18. Developed a 2D projection/3D stereoscopic drawing system for 3D integrated solution framework/simulation/HD Hyundai Heavy Industries.
- 2017-17. Developed a quality inspection support system based on 3D models/HD Hyundai Heavy Industries.
- 2016-16. Developed a model-based product information management system/Hanwha Ocean.
- 2016-16. Developed a mobile 3D RCS system/HD Hyundai Heavy Industries.
- 2014-15. Developed core technologies for the visualization of design information and the pre-verification of installation work/Hanwha Ocean.
- 2013-14. Developed a standard viewer system for the preliminary verification of design models and installation work, and marine process visualization/Hanwha Ocean.



<VIZWide3D_Case of application to Songdo Smart City>



<Case of application of 3D visual process control chart>



Shutagen Co., Ltd.,

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Type of business Development of software and computer systems, R&D
Business areas Business Architect, Investigation and Management, Digital Twin Approach

Company information

Shutagen is a digital transformation engineering company that pursues innovation across the entire manufacturing industry from the design to the application, in order to contribute to society and provide altruistic technologies and services that can “empathize” with humans. The company is developing technologies and services to lead the digital transformation of the domestic manufacturing sector, and holds leading-edge system architecture and engineering technologies that are currently essential to the manufacturing sector.

Core technologies

Technology	Service	Industry
<ul style="list-style-type: none"> Digital Transformation Enterprise Technology Digital Twin Agile AI System Engineering Software Engineering XR/VR/AR/MR Project Management 	<ul style="list-style-type: none"> Business Strategic Planning Information Strategy Planning Business Architecture Business Process Re-engineering Service Architecture System development System Architecture Application development Pre-Feasibility Study 	<ul style="list-style-type: none"> Shipbuilding and Maritime Healthcare Automobile Disaster Management Smart City Information & Communications Logistics Finance Manufacturing Contents

Major achievements

- Dec. 2023:** Received a commendation from the Ministry of Science and ICT for its promotion of the immersive content industry.
- Oct. 2023:** Selected as a service provider for the introduction of job-oriented personnel management and phase 1 implementation by the Ulsan ICT Promotion Agency.
- Oct. 2023:** Selected as the supported project for the development of metaverse, XR industry convergence contents by the Ulsan ICT Promotion Agency.
- Aug. 2023:** Selected as a service provider for mutual interoperability planning based on Metaverse by the Korea Information Society Development Institute.
- Aug. 2023:** Korea Information Society Development Institute. Selected as a service provider for identifying changes and policy demands of digital transformation megatrends by area
- Jul. 2022:** Selected as a service provider charged with discovering Ulsan metaverse/XR projects and establishing a mid-to-long term development strategy by the Ulsan ICT Promotion Agency.
- Jun. 2022:** Received a commendation for its contribution to the shipbuilding and marine industry on “Shipbuilding and Marine Day” from the Mayor of Ulsan Metropolitan City.

- Jun. 2022:** Selected as a service provider for the industrial convergence metaverse platform demonstration project by the National IT Industry Promotion Agency.
- Apr. 2022:** Selected as a service provider to establish a test bed for verifying maritime logistics communication technologies (development of simulation evaluation technology etc.) by the Ministry of Oceans and Fisheries.
- Jan. 2022:** Selected as a pre-planning research service for the establishment of a digital-based verification testbed by the Korea Innovation Foundation.
- Jan. 2022:** Selected as an excellent “small but strong company” in job creation in Ulsan Metropolitan City by the Ulsan Job Foundation.
- Aug. 2021:** Selected as a service provider in an industrial metaverse platform development and verification project aimed at advancing the XR-based car manufacturing process by the Ulsan ICT Promotion Agency.
- Jul. 2021:** Selected as a research service provider tasked with preparing a plan to build a test bed for verifying maritime digital integrated performance by the Ulsan ICT Promotion Agency.
- Jun. 2021:** Selected as a service provider for a survey of the actual conditions related to domestic and foreign ICT laws and regulations on digital transformation in 2021 by the National IT Industry Promotion Agency.
- Jun. 2021:** Selected as a service provider to demonstrate an AI-based heavy cargo mobile logistics platform and establish a commercialization strategy based on domestic and overseas factual survey by the Ulsan ICT Promotion Agency.
- May 2021:** Selected as a member of a consortium for supporting the development of VR/AR convergence contents (XR Flagship Project) by the National IT Industry Promotion Agency.
- May 2021:** Selected as a research service provider for building a demonstration test bed for a digital twin-based electric propulsion system by the Ulsan ICT Promotion Agency.
- Oct. 2020:** Selected to provide a service for analyzing the status of digital twin and establishing a development strategy by the Korea Information Society Agency.
- Sep. 2020:** Selected to provide a service for establishing the Saemangeum smart disaster response system by the Saemangeum Development and Investment Agency.
- Jul. 2020:** Selected as a research service provider for marine content development planning by the Ulsan ICT Promotion Agency.
- May 2020:** Certified as a venture business.
- Jan. 2020:** Established an affiliated research institute.
- Sep. 2019:** Selected as a service provider for developing an immersive smart healthcare platform by the Korea Creative Content Agency.
- Feb. 2019:** Established Shutagen Co., Ltd.



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Type of business Development and supply of hardware and software.
Business areas Shipbuilding/offshore/plant design and production, development of IT solutions, and consulting

Company information

NOVATEK to Actionable Intelligent
 Novatek focuses on identifying insights from fragmented information and data and utilizing them as a new industrial driving force of the current era. As its core corporate value, Novatek transforms customers' intangible assets into tangible values, based on Korea's best XR technology and legacy system convergence technology.

Core technologies

- Industrial/safety content and consulting.
- Development of specialized technology and contents in the nuclear power plant field.
- Development and supply of robot control systems.
- Development and supply of MES systems.
- Development and supply of smart mooring poles.
- Safety inspection robots.

Major achievements

- 2023-26. Developed a training simulator based on digital twin to clean up radioactive contamination facilities.
- 2023-26. Developed a dismantling process verification and training system based on XR.
- 2023-26. Conducted joint research aimed at commercializing a cutting and decontamination technology for light water reactor core facilities.
- 2023-25. Participated in a project to develop active contents and an immersive content operation platform.
- 2021-24. Developed a VR/XR training simulator for radiation emergency treatment response.
- ~ 2021. Developed a virtual work training system for decommissioning nuclear power plants.
- ~ 2021. Developed a VR/AR training simulator for radiology emergency care.
- ~ 2021. Developed the HMGICs (Hyundai Motor Group Innovation Center Singapore) ACS in Singapore.
- ~ 2020. Developed a VR endoscope (examination robot).



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Type of business Software development business.
Business areas Development and supply of software.

Company information

Happiness sharing company with XR technology
 Established in 2013, SimG develops virtual reality contents with a focus on applying XR technology to such industries as the construction, manufacturing, education, medical care, and culture/tourism industries, in order to help its customers grow and develop through the adoption of innovations aimed at improving the working environment and quality, and reducing costs.

Core technologies

- Planning/production of XR contents based on industrial sites.
- MR technology that improves training effectiveness by linking VR content and hardware.
- Hardware production technology that maximizes educational effectiveness by linking with VR.
- Performance of continuous upgrades through the affiliated research institute and factories capable of direct production.
- Digital twin technology that enables realistic training by combining VR and AI technologies.
- Effectively implementation of MMI that reflects realistic graphic quality and user convenience.

Major achievements

- 2022. Developed dozer, loader and grader VR simulators and delivered them to military units.
- 2021. Developed and delivered excavator simulators with Volvo Group Korea.
- 2021. Developed and delivered industrial safety contents (related to chemical accidents) to polytechnics.
- 2020. Received the Minister of Education Award in recognition of the heavy equipment simulator.
- 2020. Developed design verification VR solutions and delivered them to Hyundai Construction Equipment.
- 2018. Developed a forklift simulator using HMD and delivered it to the Army Corps of Engineers.
- 2016. Developed an excavator simulator using HMD and delivered it to the Ministry of National Defense.
- 2013. Produced and delivered three types of 3D videos, including air circuit breaker troubleshooting, with Hyundai Heavy Industries.





OSLAB Co., Ltd

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Type of business Information service business, manufacturing business.
Business areas Advisory, development and supply of software, manufacturing and sales of electronic devices.

Company information

Established in 2015, OSLAB Co., Ltd. has become a leading regional company that specializes in the development of IoT convergence products and the related services, and the creation of customer value using ICT/SW-based systems and smart application services (shipbuilding and marine ICT, healthcare ICT, and industrial safety ICT), as its main business model. In particular, since 2018, OSLab has been developing smart devices and control software integrated with Industry 4.0 technology in order to contribute to improving and revitalizing the competitiveness of industrial safety products and strengthening safety against industrial accidents.

Core technologies

- Technology for producing integrated wearable devices based on IoT sensors.
- Real-time data transmission technology based on dynamic load balancing technology.
- Data-based integrated control and monitoring technology.
- Dangerous situation detection and alarm technology based on AI technology.

Major achievements

- Dec. 2022. Completed the development and demonstration of smart helmets for shipbuilding and shipping ports.
- Dec. 2022. Developed ground current detection sensors and a monitoring system.
- Dec. 2022. Completed the site demonstration and functional testing of smart wearable devices for HMM and DSME.



Manufacturing/ Industry

Automotive/ Industry

Eco-friendly car maintenance, structure and certification testing education based on VR/AR

Managing organization WaBoTech Co., Ltd.

Contents Introduction

- **<Purposes of Production >**
 - To create experiential contents that can test the structure of eco-friendly cars, and obtain various certifications.
 - To enable users to experience the structure of eco-friendly cars in various ways at a low cost while safety is ensured, using a virtual reality environment.
 - To create a virtual education environment to solve the difficulties of purchasing eco-friendly vehicle training materials and the related educational environment.
- **<Development details>**
 - Electric vehicle structure theory.
Developed in a way that trainees can understand the structure of electric vehicles by disassembling and assembling electric vehicles, including the high voltage cut-off procedure required to practice electric vehicle maintenance: (1) high voltage cut-off procedure; (2) coolant discharge procedure; (3) battery disassembly procedure; (4) driving motor disassembly procedure.
 - One-time driving charging test for electric vehicles.
Configured in a way that allows trainees to experience a one-time driving charging test, which is one of the certification tests for electric vehicles.
(1) Preparation procedure; (2) Chassis engine work; (3) Driving test.
 - Noise certification procedure for electric vehicles.
Composed in a way that allows trainees to experience noise certification test, which is one of the certification tests for electric vehicles.
(1) Learning about certified roads; (2) Introduction to the certification exam; (3) Certification exam.
 - Remote education practice support system.
Designed to assist instructors' teaching using various augmentation techniques, including the use of AR glasses during actual car practice.
- **<Expected effects>**
 - With the advent of a pollution-free transportation environment comprising electric and hydrogen vehicles, the system can be used to nurture core personnel effectively in areas where they will be urgently needed in the future vehicle-related industry.

Applied Technology

- Creation of models based on reverse engineering techniques using 3D scans.
- Creation of a learning environment that is identical to the actual field.
- Trainees learn the corresponding procedure using narration after theoretical training.
- Doubles the effect of practice by creating each procedure as content without abbreviation.
- Features an object recognition function.
- Augmentation technology using AR glasses.
- 3D coordinate transmission technology.

Business Direction

- Utilization as a teaching material in the training course for electric vehicle certification experts.
- Currently utilized as teaching/supplementary material for the future vehicle training course implemented by the National Institute of Environmental Research.
- Utilized as a training material in classes on the structure and characteristics of electric vehicles by various electric vehicle training institutions.
- Establishment of a collaboration system using augmentation technology with maintenance experts and field technicians located at a remote location.



WaBOTech's VR-based educational content



Training in electric vehicle maintenance based on NCS



Training on hybrid car maintenance



Hydraulic suspension maintenance procedure



Heating motor maintenance procedure



Gasoline engine disassembly and assembly

WaBOTech's training content based on the 3D modeling tablet



Maintenance of hydraulic suspension equipment



Electric vehicle structure and module characteristics



WaBoTech

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Type of business Information and communication business.
Business areas AR/VR, 3D scanning and reverse engineering, automotive environmental technology research (development of an automobile maintenance training system, diesel vehicle emission measurement research, big data analysis).

Company information

WaBoTech is a company that specializes in the development of convergence contents using the best VR/AR technology in Korea, designed to increase the technological competitiveness of Korean companies.

- The company is laying the foundations for the development of Industry 4.0 through innovative technology, and creating new fields of sustainable contents through continuous innovation.
- WaBoTech realizes the best value with its excellent technology and secures content technology in connection with new development strategies.
- It assigns experts to provide the best solutions with differentiated technologies and improve quality.
- It delivers total customer satisfaction by proposing diverse ideas and alternatives.

Core technologies

- 3D model reverse engineering.
- AR-based recognition technology.
- VR/AR/MR contents.
- UX/UI design.
- Design, analysis, and performance forecasting of mechanical and automobile parts.
- Automobile emissions reduction project.
- Technical support for the development of vehicle emission measurement equipment.

Major achievements

- Jul. 2023. Developed an eco-friendly self-driving car practice module based on VR (SMTECH).
- Jul. 2023. Provided an educational environment creation service for vehicle inspection technicians based on AR/VR (Korea Transportation Safety Authority).
- Dec. 2022. Developed educational materials for the training of future experts in vehicle environmental certification assessment (National Institute of Environmental Research).
- Jun. 2022. Developed an eco-friendly car maintenance and inspection training system based on VR (SMTECH).
- Jul. 2021. Developed virtual training materials (automobile and forklift maintenance field) (Korea University of Technology & Education).
- Jan. 2021. Provided XR+ a virtual practice and remote support for industrial fields in specialized high schools (NIPA).
- Dec. 2020. Developed an online practice platform for smart manufacturing powertrain (Hanyang University).
- May 2018. Developed an AR-based smart manual (Samsung Electronics).

02

National defense

Air Force integrated education and training system based on XR

- D2Innovation Co., Ltd.
- P&C Solution Co., Ltd.
- HUENSOF T Co., Ltd.
- Korea Electronics and Telecommunications Research Institute
- Korea Institute of Machinery and Materials

National defense

Air Force integrated education and training system based on XR

Managing organization D2Innovation Co., Ltd.

Participating organizations P&C Solution Co., Ltd., HUENSOF T Co., Ltd., Korea Electronics and Telecommunications Research Institute, Korea Institute of Machinery and Materials

Contents Introduction

- Development details
 - <Training on the disposal of explosive ordnance>
 - Improvised explosive devices: Use of X-ray photography to identify improvised explosives, and the ANDROS Robot to dispose of such explosives.
 - Identification and disposal of unexploded ordnance: Training on distinguishing between the most commonly found unexploded bombs and front and rear fuses and the appropriate methods of disposal.
 - <Aviation firefighting training>
 - Canopy opening and safety measures: Methods of opening the canopy of four types of fighter aircraft (F-16, F-15, T-50, and F-35), and safety measures for rescuing pilots.
 - Cable engage: Transfer of hand signals between each role and provision of the process by which three types of fighter aircraft (F-16, T-50, and F-35) make emergency landings.
 - <Runway damage recovery training>
 - Training on restoring a damaged runway using five types of equipment: excavator, loader, dozer, roller, and grader.
 - <Flight illusion training>
 - Training designed to help pilots to improve their operational capabilities using various types of information, by implementing the system in such a way that pilots experience illusions during flights.
 - <Air traffic control>
 - Mock control training system for the infra control system, such as ASDE, ASR, e-Strip, AMOS, and VCS, as well as video system development technology based on the latest unreal engine.

Applied Technology

- Composition of an integrated training platform for integrating each type of training.
- Creation of XR training content scenario based on real training.
- Application of digital twin dead-reckoning technology linked with the radar data period (5 seconds).
- Application of technology for reflecting aircraft dynamic performance.
 - : Aircraft movement that applies the Eurocontrol BADA standard performance model (applying physics).
 - : Technology for applying AI to aircraft speed and turning maneuver according to flight procedures.
- Application of day/night and weather conditions using Korea Meteorological Administration data to express weather information.
- Application of events in real time, such as engine failure, collision, fuel shortage, runway departure, etc.
- Application of events in real time, such as bird strike, ASR, PAR, AMOS, ASDE radar failure.

- Provision of integrated training scenarios similar to real-life situations by linking unit training.
 - Technology for producing simulator hardware such as omni-directional mobility devices and riding simulators.
-
- Basic marketing strategy
 - * Development of VRr/simulators that can be applied to overseas military/civilian airports.
 - Promotion of system upgrade and increase of operating units by collecting feedback from already secured customers (Air Force).
 - Establishment of a plan to expand to other military forces such as the ROK Army and Navy.
 - Establishment of a strategy for selling the integrated training platform to the providers of education and training solutions, and industrial field training for special purposes.
 - Future development direction
 - * Plan to upgrade the training program to prevent accidents by displaying aircraft like real aircraft, displaying high-quality graphics, and strengthening the physics engine through the application of Unreal 5.
 - * Additional development plans related to the relevant content
 - Commenced R&D on long-distance simulation development, overcoming spatial constraints and the high cost of training by using VR/AR.



D2 INNOVATION **D2Innovation**

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Type of business Software advisory, development and supply of software, advisory service, provision of information technology (IT) and academic research services.
Business areas Development of 2D/3D GIS engines and application software.

Company
information

A company that is leading the national defense information field in Korea with its creative and innovative technology.

D2Innovation develops excellent products such as C/S and web-based GIS solutions, UAVs, and 3D simulation solutions based on the skills of its professional technicians in the field of spatial information technology; and it also provides technologies and services tailored to the diverse needs of the national defense and the public and private sectors.

Core
technologies

- GooninMap: Provides the base architecture - including clients, servers, and tools - that can provide map services in the web and C/S environment quickly and powerfully, depending on the system configuration.
- Drone Simulator: D2 drone control simulation provides the same sense of reality as controlling an actual drone by visualizing immersive images modeled on actual terrain.
- GUAV: For the first time in Korea developed for sensor control training of the UAV simulator designed for, providing a feeling of control and sensor simulation video similar to real sensor control characteristics.
- Drone GCS: Creates scenarios using 3D spatial information with professional technicians, and includes technology for operating drones according to optimized automatic mission plans based on prior simulation.

Major
achievements

- 2023. Developed communication survivability map generation technology for mission planning, and map processing exhibition software.
- 2023. Executed a security management system upgrade project.
- 2023. Carried out firearm and explosive safety management system maintenance.
- 2023. Executed a project to maintain a firearm location information system.
- 2023. Completed a project to develop an online inquiry and payment system for misdemeanor fines.
- 2023. Developed an unmanned search vehicle system.
- 2023. Carried out route guidance data building and maintenance.
- 2022. The JFOS-K integrated maintenance service project from 2022 to 2023.
- 2022. Maintained the Joint intelligence simulation model.
- 2022. Developed a technology for automatically executing and modifying a mission in real time, based on battlefield information.
- 2022. Real-world realization technology based on geospatial information cloud - (integrated situation exhibition).
- 2022. Project to develop a disaster management information system integrated with national defense.
- 2022. Developed a river-crossing decision-making support system for autonomous river-crossing equipment.
- 2022. Executed the Air Force AFCCS SW maintenance project from 2022 to 2023.

- 2022. [Minor performance improvement project for Defense Project AKJCCS and KJCCS in 2020] - Customized situation map solutions.
- 2021. JFOS-K integrated maintenance service from 2020 to 2021.
- 2021. Developed the explosive detection and removal robot system.
- 2021. Joint intelligence mock model maintenance.
- 2021. Executed the project to upgrade the defense transportation information system.
- 2021. Delivered the Cheonjabong model situation map solution to the ROK Air Force.
- 2021. Conducted the project to upgrade the performance of the Military Intelligence Management System-Combined (MIMS-C).
- 2021. Developed the Changgong model performance improvement system.
- 2021. Upgraded the police civil service portal and established the mobile service (research service).
- 2021. Conducted the project to maintain and manage the firearm and explosive safety management system.
- 2021. Developed the multi-source image fusion processing system, Agency for Defense Development.
- 2021. Introduced operational continuation support models (GoonInMap3.2 Enterprise).
- 2021. Military Intelligence Management System-Combined (MIMS-C).
- 2021. Conducted the project to develop the ROK Army's combined battlefield training system (Build-I).



P&C Solution

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Address (P&C Building) 53, Gangnam-daero 10-gil, Seocho-gu, Seoul
Type of business Manufacture.
Business areas XR simulators, AR glasses.

Company information

Established in 2015, P&C Solution has grown into a leading developer of AR Glasses in Korea and now provides its in-house-developed XR solutions, including XR simulators and AR glasses. As well as producing two main products (XR simulators and AR glasses), P&C Solution is conducting R&D on metaverse platforms that can be used with its products.

Core technologies

- XR Simulators
 - Technology for developing XR-based simulators that can support education and training in various fields.
- AR glasses
 - Technology for developing AR glasses that can augment virtual content on reality.
- AI
 - Base technology for the implementation of XR, such as gesture and voice recognition.
- Sensor driving
 - Application of sensor driving technology to various devices.

Major achievements

- 2023. Received the Presidential Award for SME contributors.
- 2023. Received the Prime Minister's Award in recognition of its contribution to promoting science and technology.
- 2021. Won the order for the XR flagship project.
- 2020. ~ 22. Received multiple ministerial awards in the XR field (Ministry of Culture, Sports and Tourism, Ministry of Science and ICT, Ministry of Trade, Industry and Energy, Ministry of Land, Infrastructure and Transport, and Ministry of SMEs and Startups).
- 2019. Developed a prototype of AR glasses.
- 2018. Developed a joint firepower simulator.
- 2015. Foundation of P&C Solution.



HUENSOFT Co., Ltd.

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Type of business Information and communication construction, computer work (software) development and consulting, etc.
Business areas AR/XR/MR/Digital Twin, intelligent surveillance platforms, 3D airport control, etc.

Company information

HUENSOFT is a company dedicated to providing the best quality and service through continuous technological innovation and creative thinking. HUENSOFT has advanced technological prowess and potential, like “a large iceberg under a small, visible glacier”. HUENSOFT specializes in developing simulators based on the most powerful XR total solution in existence. It holds original technology in all fields of the aviation, transportation and defense industries, and develops and provides the best systems and services with digital conversion technology that transcends time, space, and generation. HUENSOFT will take the lead in the fields of digital twin, XR integrated education, training, experience, and industry.

Core technologies

- Holder of wholly independent capabilities for the system as a managing company in the project to develop a simulator for airfield control.
- Specializes in the aviation and IT field, including aviation-related maintenance, SI, SM, consulting, and air traffic control simulator development.
- Developed and maintained two air traffic control simulators for Incheon International Airport, and created an education and training environment similar to actual situations by applying Unreal Engine.

Major achievements

- Oct. 2023. Upgraded the visitor card and guide app.
- Oct. 2023. Provided services for the drone data center in Incheon City.
- Sep. 2023. Upgraded the integrated traffic management system.
- Aug. 2023. Provided a service for the development of an intelligent video surveillance system platform based on AI for Incheon Subway Line 1.
- Mar. 2023. Provided a maintenance service for the airfield control simulator, etc.



ETRI Korea Electronics and Telecommunications Research Institute (ETRI)

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Type of business Research and development.
Business areas Information and Communication Technology (ICT) and related industries.

Company information

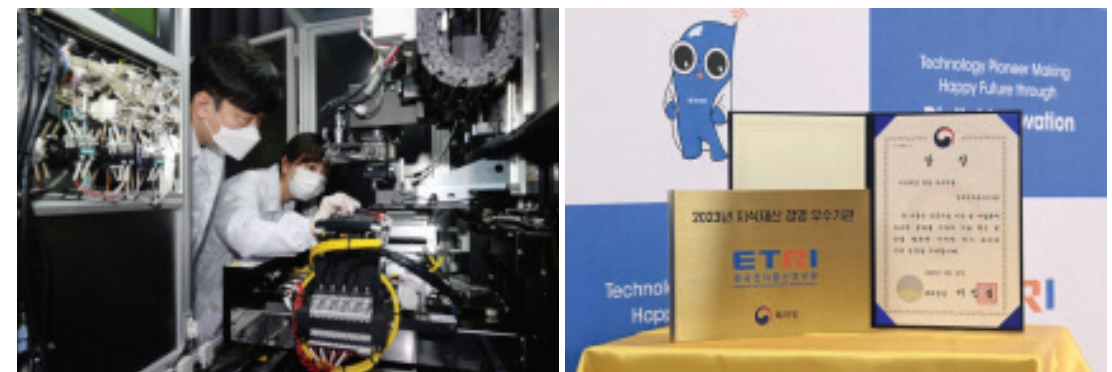


Core technologies

AI computing	AI robot intelligence	6G communication	Metaverse	Advanced mobility	Advanced bio
HPC node equipped with an AI PIM semiconductor.	Multimodal sympathetic type of robot intelligence.	G-PoC, Pre-6G demonstration.	Photorealistic image mixed stereo-scopic image metaverse.	AAM autonomous flight POC.	Non-invasive blood sugar measurement.

Major achievements

- 2022. Developed A conductive cathode binder for all-solid-state secondary batteries.
- 2021. Developed Micro LED, the world's first next generation display core technology.
- 2020. Developed Deepview, a visual intelligence source technology platform.
- 2019. Developed TIC-TOC, a 25Gbps tactile internet technology.
- 2018. Developed a UHD mobile broadcasting technology.





Korea Institute of Machinery & Materials

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Type of business Research and development testing services.
Business areas R&D and planning; reliability and test evaluation; technology transfer and support.

Company information

The KIMM contributes to the development of national industry by conducting R&D, diffusing the results of R&D, and evaluating reliability in the mechanical field.

Core technologies

Development of future core technologies, industrial core technologies, and social problem-solving technologies.

Major achievements

- Aug. 2013. Established the LNG and Cryogenic Technology Center (as a regional organization).
- Feb. 2013. Established the Busan Laser Application Support Center (as a regional organization).
- Dec. 2010. Established the Daegu Research Center for Medical Devices and Green Energy (as a regional organization).
- Mar. 1992. Renamed as the Korea Institute of Machinery & Materials.
- Jan. 1981. Launched as the Korea Center for Machinery and Materials.
- Dec. 1976. Established as the Korea Test Institute of Machinery and Metals.



03

Police

Police metaverse platform for community police activities

- Pacom
- Naviworks Co., Ltd.
- Locus
- Urban A Fit
- Police Human Resources Development Institute

Complex terrorism response education and training system based on XR [POLICE XR]

- Locus
- Kaon
- Dongguk University
- Gumi Electronics and Information Technology Research Institute
- Korea Electronics and Telecommunications Research Institute

Police

Police metaverse platform for community police activities

Managing organization Pacom

Participating organizations Naviworks Co., Ltd., Locus, Urban A Fit, Police Human Resources Development Institute

Contents
Introduction

The citizen-participatory police metaverse is a metaverse service platform that enables the digital convergence of community police activities and consists of AI chatbots and video contents. The PACOM consortium is developing a variety of technologies and establishing a service platform, including the ① development of an app-based platform and joint framework; ② development of an AI chatbot and algorithm; ③ operation of a Cloud-based server; ④ Content SDK; ⑤ Star-XR; ⑥ creation of datasets and a learning model; and ⑦ simultaneous implementation of an AI-based interface for Android and iOS.

Applied
Technology

- (AI chatbot development and upgrade) Development and implementation of an AI chatbot Q&A AI function for 8 types of crimes.
 - Implementation of Q&A functions for autonomous policing and handling of domestic violence; and development of additional functions as a chatbot upgrade, such as OX Quiz.
- (AI chatbot algorithm development and upgrade) Implementation of AI chatbot service on Naver Cloud
 - Operation of the chatbot API server by executing the docker and docker image as a container.
- (Development of apps linked to AI technology) Development of Android and iOS apps linked to AI technology.
 - Creation of content SDK, 'Star-XR', dataset and learning model, simultaneous implementation of interfaces for Android and iOS.
- (Cloud security) Application of cloud security technology to the metaverse platform.
 - Application of security technology such as File Safer, Web Security Checker, and App Security Checker.
- (Demonstration with a focus on field experts) Execution of demonstration programs to implement stable functions of the app and apply field needs.
 - Formation and operation of a dedicated demonstration and operation group composed of 100 citizens and police personnel (8 police university professors selected from 8 fields).

Business
Direction

- Korean National Police Agency
 - Review of the expanded service model of the metaverse platform for 140,000 police personnel.
 - Commercialization of the police metaverse platform to promote collective intelligence in the event of accidents.
- Local autonomous police
 - Training of local autonomous police officers as civil servants belonging to local governments, and promotion of a systematic model of commercialization with the Korean National Police Agency.
 - Review of the commercialization of the platform for the exchange and collection of opinions with major facilities, security areas, and local activity groups within the region.

PACOM PACOM

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Type of business Development of VR technology, training-monitoring systems, and simulators.

Business areas Development of VR and AR education and training systems, production of display devices, and development of 3D image display devices.

Company
information

Established in 2010, PACOM specializes in the design, manufacture, installation and maintenance of VR technology, training-monitoring systems, and simulators for the public safety, national defense, aviation, shipping, and energy industries. PACOM is leading domestic technology in the aforementioned fields based on its various independently developed technologies, and patents.

Core
technologies

- Holds a proprietary technology that integrates training and monitoring systems and simulators in the public and industrial fields.
 - (Education) Independent development of VR/AR educational contents and displays.
 - (National defense) Independent development of military/operational training content and devices combining VR/AR/XR and 3D simulation technology.
 - (Medical) Holder of a proprietary technology that integrates digital twin, an XR-based severe trauma treatment training system, and a simulator.
 - (Industrial) Developed and holds a smart security control monitoring generation technology based on MR.
 - (Public order) Holds an immersive virtual arrest training system and system development technology.

Major
achievements

- Aug. 2023. Established and registered the factory.
- Jun. 2021. Registered as a venture business.
- Oct. 2017. Received the Top 3 Award at the Daejeon R&D Special Zone Technology Fair.
- Jan. 2016. Received the Technology Innovation Company Award at Korea's Small and Medium Business Awards ceremony.
- Aug. 201. Acquired the ISO9001 certification and established an affiliated research institute.
- Oct. 2010. Incorporated and established the research institute.





Naviworks Co., Ltd.

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Type of business Development and supply of system/application software.

Business areas Digital twin-based smart control and metaverse-based comprehensive training simulation.

Company information

Since its founding in 2000, Naviworks has concentrated on developing products with its own proprietary technology based on its vision of "Changing the world for the better with the right technology."

- A representative small but strong Korean company that possesses domain expertise knowledge and occupies an unrivaled market position in the field of VR and intelligent control.
- Maintains a platform verified by millions of customers, including government agencies, through continuous technical innovation and know-how based on constant internal/national R&D for more than two decades.
- Naviworks has successfully implemented more than 100 major national projects in the field of national defense, public safety, and industry.
- Naviworks is a leading digital transformation service company based on cloud, AI, and mixed reality core technologies.

Core technologies

- Urban metaverse platform (STAR-XR)
 - Independent creation of desired space, content, and various services using space authoring tools and SDKs.
 - Development of a metaverse-type bot that supports metaverse services easily and conveniently.
 - An immersive city that uses economic life services provided in real cities.
 - Provision of urban services with a story, including urban experience points and attractions.



Major achievements

- 2021. Signed a joint AI research cooperation agreement.
- 2021. Registered the patent for a "scenario remodeling apparatus, and the control method thereof."
- 2021. Registered the patent for a "remodeling apparatus for collision area, and control method thereof."
- 2021. Registered the patent for an "intelligent support apparatus for artillery fire, and control method thereof." (U.S.A.)
- 2021. Re-certified as a venture business.

- 2021. Re-certified as an INNOBIZ (management innovation type of SMB).
- 2021. Re-certified as a MAINBIZ (management innovation type of SMB).
- 2020. Certified as an excellent human resource development institution (post-employment learning sector).
- 2020. Opened the Gumi Marine Technology Research Center.
- 2020. Acquired the CMMI Level 3 re-certification (version 1.3).
- 2020. Received a commendation from the Deputy Prime Minister and Minister of Education (Project for nurturing leading colleges with contract departments for early employment).
- 2020. Received the Minister of Science and ICT Award (Korea Software Technology Award).
- 2020. Signed a strategic business agreement with Hallym University Sacred Heart Hospital.
- 2019. Established the marine VR virtual training system (obtained GS certification).
- 2019. Signed a business agreement with Saudi defense company "STII".
- 2019. Acquired the GS certification for RescueOne ver.1.0.
- 2019. Selected for the project for fostering innovative growth youth talents.
- 2019. Registered the patent for a "marine simulation training apparatus and its method of operation method."
- 2019. Registered the patent for a "flight simulation apparatus." (U.S.A)
- 2018-2000. Received a presidential commendation for its contribution to industrial technology promotion.
- 2018-2000. Received the Minister of National Defense Award (defense ICT convergence cooperation project).
- 2018-2000. Received the Minister of Culture, Sports and Tourism Award (Korea Digital Management Innovation Awards).
- 2018-2000. Selected as a global "small but strong" company in the defense industry by the Defense Acquisition Program Administration (development of next-generation VR simulator).
- 2018-2000. Released the military FPS VR game to the global market.
- 2018-2000. Selected as an INNO-BIZ (management innovation type of SMB) (Ministry of SMEs and Startups).
- 2018-2000. Certified as a venture business by the Small and Medium Business Administration (Korea Technology Finance Corporation KIBO).
- 2018-2000. Certification of the affiliated research institute.



LOCUS® LOCUS

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Type of business Production of animations, videos, films.
Business areas Production of animations, videos, and films, production of advertising materials, distribution of film, video, broadcast programs, development of exhibition videos, planning of exhibitions and events.

Company information

“A comprehensive cultural content company that encompasses the entire range of diverse content businesses based on strong planning and production capabilities.”
 LOCUS was established with the goal of becoming a world-class creative CGI studio based on its domestic and foreign professional managers, CGI artists, and proven CG technology. Currently, it is the No. 1 company in the domestic advertisement VFX, game cinematic, and animation field. It operates an R&D laboratory to secure VFX technology, and has the largest technical workforce in the areas of planning, production, and completion.

Core technologies

- Animation, VFX, XR/MR exhibition, media facade exhibition, etc.
- Main technologies
 - FX simulation tool
 - Hair production tool.
 - Skin FX
 - Crowd simulation.
 - IMB modeling tool
 - Rigging automation tool.

Major achievements

- Aug. 2023. Released the animation Running Man: Revengers and planned the release of *Exorcism Chronicles: The Beginning*, [Yumi's Cells].
- Jan. 2023. Held *Yumi's Cells Special Exhibition* in Jeju.
- Sep. 2021. Produced a soap drama [Yumi's Cells] animation.
- Aug. 2020. Launched Rozy, the first virtual influencer in Korea.
- Jul. 2019. Released *Red Shoes and the Seven Dwarfs*, a feature-length animation.
- Dec. 2010. Received the “Myth Creation Project Grand Prize” for *Seven Dwarves* at the Korea Story Contest.
- May 2009. Established LOCUS Co., Ltd.



URBAN URBAN A FIT

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Type of business Development and supply of software.
Business areas Cloud service management (NAVER MSP, AI competition operation).

Company information

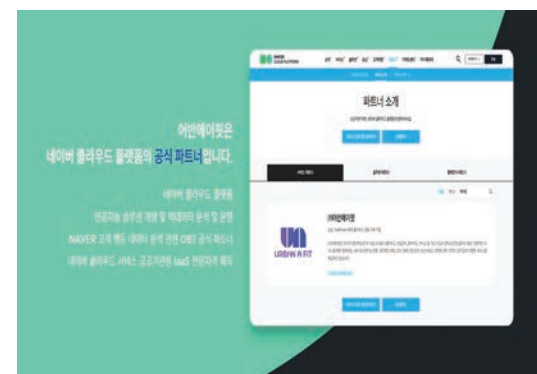
“FROM A.I. FIT FOR EVERYTHING”
 URBAN A FIT is advancing into various business fields based on the expertise of its IT experts and the IT know-how it has accumulated in the field of big data and cloud services. URBAN A FIT is striving to become a company that leads the future of Korea by bringing together a team of people equipped with practical experience and by nurturing talents who will be active in the AI-based industries of the future.

Core technologies

- Validation of echocardiogram and ECG AI data.
- Validation of AI data for surgical tools.
- Validation of diabetes AI data.
- Validation of autonomous driving AI data.
- Anthropometry and joint tracking technology for implementing the Metaverse XR.

Major achievements

- Jan.01 - Dec.31, 2023. Developed a metaverse platform for community police activities.
- Sep.26, 2023. Operated an off-site cloud-based closed analysis infrastructure.
- Dec.01, 2022 - Dec.31, 2023. Developed datasets specialized for Korean-style multi-modal intensive care patients (K-MIMIC).



클라우드 NCP 전문 기업



어반에이핏은 다양한 고객사에게 NCP 클라우드를 제공하고 있습니다.

Police

Complex terrorism response education and training system based on XR [POLICE XR]

Managing organization Locus

Participating organizations Kaon, Dongguk University, Gumi Electronics and Information Technology Research Institute, Korea Electronics and Telecommunications Research Institute

Contents
Introduction

The XR-based training system for responding to complex terrorism implements dangerous field situations virtually using AR devices based on XR technology and a three-sided screen, as well as simulated firearms used in the actual field, and effectively reflects them in training. The system consists of a scenario editor that enables instructors to compose the curriculum to ensure good training results; a training controller system that can control the entire training program; and an evaluation system that can closely evaluate training results.

Applied
Technology

- High-quality education and training programs designed to improve the capability of the police to respond to security threats and complex forms of terrorism in the field effectively.
 - Analysis of real-life security situations in the field, and development of response HRD-XR scenarios.
 - Programs for cultivating practical capabilities through feedback system training based on VR and AR technology.
- Development of new XR education, training, and experiential services based on digital-twin resources.
 - Linkage with XR devices, firearm controllers, and three-sided video hardware.
- XR education and training programs designed to gradually improve the capability of field personnel.
- Development of a solution for simulating public security threats and complex terrorism situations, and editing the related scenarios.
- Development of ten major content scenarios, and transformation scenarios and elements.
- Linkage of the scenario implementation graphic resource asset with a database.
- Linkage with intelligent NPC, and application of variable scenarios.

Business
Direction

- Commercialization experience in user-active content.
- Production and commercialization exhibition and interactive experience-oriented contents.
- Development of new XR, training, and experience-oriented services such as digital twin.
- Identification and commercialization of new occupational education and training programs for the police, firefighters, etc.
- Promotion of new business for XR devices and optical modules for XR devices.
- Production of intelligent AI NPC, and commercialization of motion tracking technology.



LOCUS® LOCUS

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Type of business Production of animations, videos, films.

Business areas Film, drama, advertising content, CG/VFX, exhibition and new media.

Company
information

LOCUS is a cultural content company specializing in the entire range of the content production industry based on its strong planning and production capabilities. Since 2009, LOCUS has been creating synergy effects through its close cooperation with studios, and pioneering a creative world in which art and technology are harmonized for numerous screens and spaces, including 4,800 global animations, game cinematics, advertisements, movies, and dramas. LOCUS presents content that deliver new experiences beyond the limits of content technology by making constant investments and efforts in the field of new media, including virtual influencers, XR contents, and interactive media artworks.

Core
technologies

- Animation Studios: Korea's representative animation studio has world-class animation planning, production, and business capabilities.
- VFX Studios: A high-quality VFX studio that provides Korea's largest TV CM total solution.
- DX Studios: A future-oriented, comprehensive new media content studio that provides new experiences.
- LOCUS-X: Korea's No. 1 virtual entertainment company and creator of Rozy, Korea's first virtual influencer.
- SIDUS: Korea's representative film production and distribution company, and producer of the largest number (approx. 80) of Korean films.

Major
achievements

- 2023. Received a commendation from the Minister of Culture, Sports and Tourism.
- 2023. Released the animation titled *Running Man: Revengers*, and planned the release of *Exorcism Chronicles: The Beginning*, [Yumi's Cells].
- 2023. Held *Yumi's Cells Special Exhibition* in Jeju.
- 2022. Received a letter of appreciation from the Commissioner General of the National Police Agency, a commendation from the Minister of Science and ICT, and a commendation from the Minister of Culture, Sports and Tourism.
- 2022. Produced the animated drama *Yumi's Cells (Season 2)*.
- 2021. Received a letter of appreciation from the Commissioner General of the National Police Agency, and a commendation from the Minister of Science and ICT.
- 2021. Produced the animated drama *Yumi's Cells*.
- 2021. Produced *Vincenzo* VFX for Netflix & TVN.
- 2021. Produced media art for a space station experience exhibition center for the movie *Space Sweepers* at Yongsan Station.
- 2020. Produced immersive digital content for the Chuncheon National Museum.
- 2019. Received the Presidential Award in the animation category for *Red Shoes* and the *Seven Dwarfs* at the Korea Content Awards.
- 2019. Produced *Steel Rain 2: Summit*, VFX.
- 2018. Produced a movie video for the game *Kingdom Hearts*, Square Enix in Japan.

- 2018. Produced a game video for the game *Project G37*, NetEase in China.
- 2017. Produced a promotional video for the PyeongChang Olympic Games.
- 2017. Produced the OBS Olympic Intro Video.
- 2017. Produced cinematic for the game *Lineage 2 Revolution*, Netmarble.
- 2017. Produced CG for the VR movie *Stay with Me*.
- 2017. Produced cinematic for the *QQxuanwu(QQ 炫舞)* in China.
- 2017. Produced a large-scale print advertisement for Supercell in Finland.
- 2017. Produced a game video for the game *Project G37*, NetEase in China.
- 2016. Produced exhibition videos for the Korea Hall at the Theme Hall, Kazakhstan EXPO (KRW 2 billion).
- 2016. Produced a game video for the game *Project G55*, NetEase.
- 2015. Produced a 100m large-scale render video for COC ground, Supercell in Finland.
- 2015. Produced TV series videos for *Legend Hero* (KRW 1 billion), which was aired in Korea and China at the same time.
- 2015. Produced a CG video for the 4D dome theater at Oriental Salt Lake City in China.
- 2014. Won multiple awards at advertising festivals including Cannes Gold Lion, Buick Human traffic signs.
- 2014. Produced a CG video of exhibition contents at the Kazakhstan National Museum (KRW 2.4 billion).
- 2013. Produced a video for 17th Annual Webby Awards Best/Samsung Smart Park.
- 2013. Produced a multimedia show video for a theme park in China (Eungi Dream Paradise) (KRW 1.2 billion).
- 2012. Produced a teaser video for "Archeage".
- 2012. Produced a dome video for the Korea Pavilion at the Yeosu World Expo (EXPO) (KRW 1.1 billion).



KAON KAON

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Type of business Manufacture of broadcasting equipment.

Business areas XR devices, AI solutions, OTT, network equipment.

Company information

KAON operates media, network equipment S/W, and mobile IP/platform businesses based on AI solutions all over the world. Exports account for a large portion of its total sales, and its main markets include domestic and foreign broadcasting and telecommunications operators. KAON has entered XR, AI, and 5G-related businesses and is now generating revenues, and invests in the development of XR devices with communication technology and contents related to the metaverse.

Core technologies

KAON developed a 2-in-1 hybrid XR device (band type and helmet type) in 2021, and an AR-based remote collaboration solution for technicians in remote places, which was loaded into the XR device and utilized for the product manufacturing process of an affiliated company. KAON has also developed an all-in-one type AR/VR variable XR device, as well as its own AR-based solution that can be used in various industries, which it has proposed to various institutions, companies, and global customers for commercialization.

Major achievements

- Dec. 2022. Developed an AR/VR variable XR device.
- Aug. 2022. Joined the UN Global Compact (UNGC) 'global initiative'.
- Dec. 2021. Developed a 5G-based XR device.
- Aug. 2020. Received an order to develop an XR-based complex terrorism response education and training system.
- an. 2019. Obtained the Wi-Fi 6 Wi-Fi Alliance certification and the EasyMesh™ certification.
- May 2013. Selected as one of the "World Class 300 Companies".



Firefighting

System for “improving the initial response to fire” for fire safety managers

Managing organization Yonsei University’s University - Industry Foundation

Participating organizations Hoseo University’s Industry-University Cooperation Foundation, National Fire Assessment Institute, Simnet, Hanbitsoft, UTEC Co., Ltd.

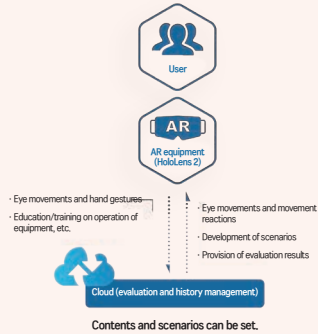
Contents Introduction

The participants have developed immersive virtual training systems and contents using VR (virtual reality), AR (augmented reality), MR (mixed reality), digital twin, participatory 3D-treadmill, and haptic glove technology to improve the capabilities of fire safety managers.

To develop contents for the above metaverse training system, the participants have developed a firefighting facility operation check simulation for fire safety managers using AR technology, an immersive fire response education and training simulator inside the virtual digital twin building using VR and 3D-treadmill technology, and an evacuation guidance voice and motion evaluation AI system that recognizes and evaluates a trainee’s voice/motion in real time. These technologies have been used as representative exhibition contents.

- XR-based firefighting facility inspection and operation simulation
 - Education and training by linking HoloLens 2 equipment.
 - Linkage of training and evaluation related to the inspection and operation of firefighting facilities 12 types.

System configuration



Training on operation of equipment with a real field background

This section displays a grid of training content. The top row includes 'Training lobby screen', 'Structure and operating principles', and 'Content for education and training'. The 'Content for education and training' section lists various fire safety equipment: P type automatic fire detector, Wet type sprinkler, R type automatic fire detector, Pre-action type sprinkler, Powder extinguisher (ABC), Indoor fire hydrant, CO2 fire extinguisher, Smoke control equipment in annex rooms, Class K fire extinguisher, Fire doors, Gas-based fire extinguishing equipment, Fire shutters, Tutorial, and For demonstration purposes only. Below the grid, there are images for 'Inspection and practice' and 'Training evaluation'.

- XR-based fire response education and training simulation.
 - Performance of fire response training in a virtual environment by linking Oculus Quest, a 3D treadmill, and hand-held tracking equipment.
 - Application of 560 fire scenarios to 4 types of buildings (multi-use facilities, facilities for the elderly and weak, complex buildings, underground shopping malls).

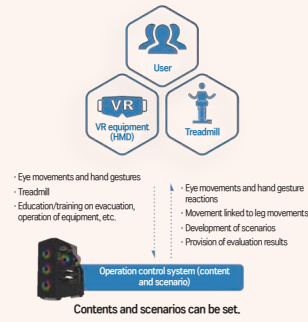
04

Firefighting

System for “improving the initial response to fire” for fire safety managers

- Yonsei University’s University - Industry Foundation
- Hoseo University’s Industry - University Cooperation Foundation
- National Fire Assessment Institute
- Simnet
- Hanbitsoft
- UTEC Co., Ltd.

System configuration

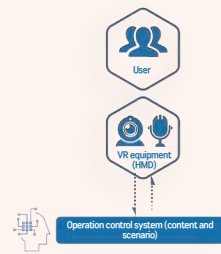


Training on operation of equipment with real field background

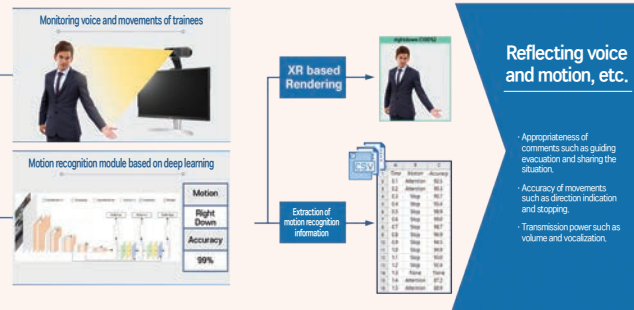


- AI system for the evaluation of the guide voice and motion of the fire safety manager.
 - Deep learning analysis based on recognition of a trainee's voice and motion information in real time.
 - Reflection of the evaluation results by determining the scenario and reattempt status.

System configuration



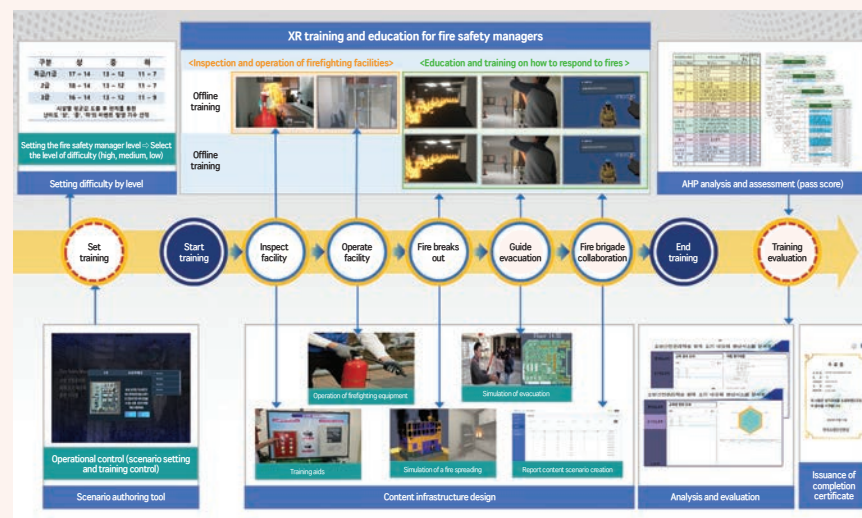
Reflecting elements of analysis and evaluation by extracting motion recognition information.



Business Direction

- Packing of the solution by reducing the dependency between core technologies so that modularity-based variable and parallel pipeline configuration can be implemented.
 - Execution of a 2-track strategy for the transfer (sale) of developed technologies.
 - (Direct transfer) Smooth technology transfer and distribution of solutions by organizing a consortium for collaboration, co-production, and outsourcing with related companies and developers/producers using the existing CGI pipeline.
 - (Indirect transfer) Evaluation of business value by verifying the merchantable quality and checking the profitability of the completed solution, improving the merchantable quality continuously, and supplying products by linking with vendors specializing in technology commercialization and industry-university-institutes.
- Type of commercialization: B2G and B2B market sales as an XR-based firefighting education/training solution.
 - The demand for firefighting education and training is increasing all over the world due to the increasing frequency of massive fires at home and abroad.
 - More firefighting, security and anti-terrorism equipment are being exported thanks to Korea's excellent ICT technology.

Applied Technology



Offline

- XR-based education, training and simulation system for responding to fires
- XR-based simulation system for inspecting and operating firefighting facilities

Online

- Online platform for non-face-to-face XR contents
- Manual screen
- Training selection screen
- Training execution screen





Yonsei University's University-Industry Foundation

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Website <https://research.yonsei.ac.kr/research/index.do>

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Type of business Education

Business areas Business facility management, business support and rental services.



Major achievements (based on general manager)

- Developed an integrated disaster response training simulator based on AR.
- Developed a multi-media and multi-path adaptive network technology.
- Developed an emergency preparedness training technology in units of organizations based on simulation,
- Developed a vertical mobile communication network technology based on wireless optical communication.
- Developed an intelligent stealth technology that minimizes the exposure of information and communication resources for public affairs and duties.
- Developed a reliable linking technology in a mobile national defense environment for information sharing in real time.
- Developed a dynamic thematic map based on a fixed/mobile platform to build next-generation digital land information.



Major technologies (based on the general manager)

- Numerous papers and patents on AI, big data, and 5G networks.
- Conducted many development projects for XR and AI-based technology and camera motion recognition technology (development of an integrated training simulator for responding to disasters based on AR, real-time convergence monitoring system for workers who faint, and workplaces based on complex AR and AI).
- Consulted on various evaluation systems in the ICT field.
- Conducted a development project for an integrated AR-based disaster response training simulator (received an award from the Minister of the Interior and Security).
- Contributed to R&D in the field of smart public security for the Korean National Police Agency.



Major achievements (based on the general manager)

(Tasks)

- 2021.~ 2025. Developed an intelligent stealth technology that minimizes the exposure of information and communication resources for public affairs and duties.
- 2021.~ 2023. Developed a system for "improving the initial response to fire" for fire safety managers.
- 2019.~ 2023. Developed a vertical mobile communication network technology based on wireless optical communication.
- 2017.~ 2020. Developed a multi-media and multi-path adaptive network technology.

(Thesis)

- (SCI/SCIE) Energy Minimized Computing Offloading with Popularity-based Cooperation in 5G mMTC Networks, IEEE IoTJ, 2021
- (SCI/SCIE) DQN-Based Optimization Framework for Secure Sharded Blockchain System, IEEE IoTJ, 2021
- (SCI/SCIE) URLLC Mode Optimal Resource Allocation to support HARQ in 5G Wireless Networks, IEEE Access, 2020
- (SCI/SCIE) Clustered Virtualized Network Functions Resource Allocation based on Context-Aware Grouping in 5G Edge Networks, IEEE TMC, 2020
- (SCI/SCIE) Prediction-Based Conditional Handover for 5G mm-Wave Networks: A Deep-Learning Approach, IEEE VTM, 2020

(Patent)

- Apparatus and method for offloading the computing amount by task priority in a fog computing based wireless network
- Apparatus and method for adaptively managing sharded blockchain networks based on the Deep Q Network.
- Method of analyzing and classifying signal data in real time using hybrid machine learning.
- Adaptive control method, apparatus and user device for providing video in real-time network cameras.



Hoseo University Industry-University Cooperation Foundation

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Address 20, Hoseo-ro 79beon-gil, Baebang-eup, Asan-si, Chungcheongnam-do
Type of business School
Business areas Business facility management, business support and rental service.

Company information

- The Hoseo University Industry-University Cooperation Foundation plays a pivotal role in laying the foundations for building a creative economy ecosystem by creating value of innovative ideas, while concentrating on fostering venture companies using various start-up support systems.
- The foundation has also contributed to revitalizing the creative economy by cultivating people of talent with creative and practical skills and linking them with customized job-linking activities.
- The Foundation promotes the growth of enterprises by supporting the industry-university-institute cluster infrastructure on the largest campus in Korea and supplying people of talent, and supports the development of the university by granting scholarship and research funds to 1,300 affiliated companies, as well as performing various cooperative projects.

Core technologies

- The Foundation has also developed a deep understanding of firefighting and fire accidents etc. by conducting fire investigations, research on automatic fire detection equipment, fire demonstrations, and real fires. In addition, it has carried out a national project for research on the activity analysis and training plans of firefighters in order to create training scenarios for chemical accidents and terrorist acts. At the same time, the Foundation has accumulated know-how on the key elements of scenario design by developing scenarios for chemical terrorism response training (spraying anhydrous ammonia gas at subway complex stations), a curriculum for operating chemical terrorism response equipment, and training scenarios focused on chemical accidents and terrorist acts. The Foundation utilizes this expertise when designing element technologies and fire response scenarios to produce the training materials targeted in this project.
- The Foundation can also achieve good research results by applying key training element required by government agencies, since it has signed MoUs and cooperative institution agreements with the National Fire Service Academy, Gyeonggi-do Fire Services, and Chungcheongnam-do Fire Services.

Major achievements

Submitted about 80 papers and registered 7 patents.

(Thesis)

- Fire Detection Tendency through Combustion Products Generated during the UL 268 Wood Flame Fire and Smoldering Fire Test.
- Fire Detection Factor of Polyurethane Foam Fire Experiment in UL 268 (2021).
- A Study on the Development of Fire Extinguishing Agent and Extinguishing System for ESS Fires (2020).
- Published an Experimental Study on Fire Risks Due to Overcharge and External Heating of ESS Lithium Battery (2019) and 58 other papers.

(Patent)

- Device for inspecting smoke detectors (No. 10-0991614).
- Device for inspecting smoke detectors (No. 10-1018968).
- Test apparatus for a rate-of-rise, sport-type heat detector (No. 10-1066956).
- User-oriented, addressable P-type automatic fire alarm system (No. 10-1100).
- User-oriented, addressable P-type automatic fire alarm system (No. 10-1100).





National Fire Assessment Institute

CEO Yeo Yongju **Phone no.** +82-70-4482-0116
E-mail yeoyong2002@hanmail.net
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Type of business Guidance and consulting
Business areas Fire risk diagnosis, etc.



SIMNET

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Type of business Software development supply and consulting
Business areas National defense M&S system, simulator and CBT, ICT/SI

Company information

- The National Fire Assessment Institute is a non-profit corporation established to improve expertise in the field of fire and safety and to establish an advanced safety culture by conducting research on fire and safety management, and risk assessment.
- The Institute contributes to the development of firefighting technologies by improving the autonomous safety capabilities of the private sector in the field of firefighting safety, and developing technologies for identifying, diagnosing, and evaluating fire hazards and distributing them free of charge.

Core technologies

- Fire risk assessment tool (risk diagnosis technique by fire growth stage): Risk diagnosis technique that reflects changes in response factors in line with the fire growth stage.
 - Fire growth stage: Fire prevention ⇒ Detection and alarm ⇒ Initial response ⇒ Fire extinguishing equipment ⇒ Public fire brigade ⇒ Fire resistance performance of the building.

Major achievements

- Fire safety rating system (F-SM, F-SP, F-SA, F-DHA field, etc.)
 - Diagnosed the fire safety of many companies, including Korea Energy, KOMIPO, Samsung Electro-Mechanics, Samsung Biologics, LG Innotek, and SK Telecom.
- Fire safety diagnosis (application of diagnosis tool suitable for workplace characteristics).
 - Hyundai Motor, Kia Motors, LG Innotek, SK siltron, LG Sciencepark, Noroo Group, SK bioscience, etc.
- Specified safety training for companies (fire response training and education suitable for the characteristics of the industry).
 - Korea Energy, Multicampus (for Samsung group safety team employees).

Company information

Established in 1999, Simnet specializes in modeling and simulation technology. Ever since its establishment, the company has been contributing to the development of domestic AR-related industries by participating in various defense field simulation and simulator development projects aimed at developing core technologies, and by cultivating professional technical personnel. Simnet is becoming the best defense M&S company in Korea by bringing together defense experts and its advanced ICT technologies (IoT, augmented reality, AI, etc.).

Core technologies

- Engagement simulation technology for individuals / troops.
- Multi-resolution conversion/modeling technology.
- Live-virtual-constructive integration architecture technology.
- Virtual environment creation technology based on XR technology.
- Haptic feedback and motion platform interface technology.

Major achievements

- 2022. Production and performance improvement of a tank gunnery simulator.
- 2021. Development of the Army's combined battlefield training system (Build-I).
- 2021. Development and mass production of a joint firepower simulator system.
- 2017. Intelligent virtual training system for the tactical training of special forces.

Intelligent Virtual Training System for Special Forces-Geared Tactical Training



Real-time training control

Battlefield environment monitoring

Follow-up comments



Action-type training mode

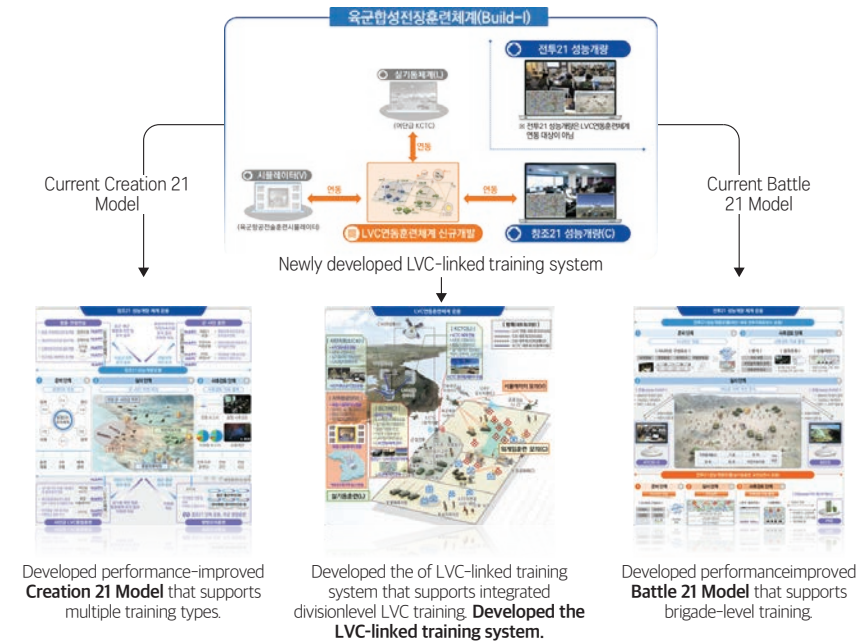
Immersive training mode

PC-type training mode

Development and mass production of a joint firepower simulator system.



Integrated Battlefield Training System (Build-I) for the Army



Gunnery simulation training equipment for K1A2 tanks.



Hanbitsoft

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 E-mail hr@hanbitsoft.co.kr
 Website www.hanbitsoft.co.kr
 Address 186, Gasan digital 1-ro, Geumcheon-gu, Seoul (Gasan-dong, #1506, 15th floor)
 Type of business Publishing, video, broadcasting communication and information services
 Business areas Game development and services



HanbitSoft is a representative publishing company of the Korean game industry that supplies various genres of PC online games and mobile games. Currently, HanbitSoft is preparing for a new leap forward by applying Metaverse and AR/VR to its services. HanbitSoft provides differentiated game experiences to users, based on the wealth of experience and abundant assets it has accumulated while providing various services over a long period of time. HanbitSoft also aims to diversify its sources of revenue by using the game IP and concentrating its capabilities on flexibly and passionately developing new areas. HanbitSoft is currently developing a platform to create a metaverse avatar that has the unique voice of each individual user, using AI technology. Using this platform, users can create their very own 3D avatar that speaks with the same voice and emotions as they do themselves. Users can also use this platform in various fields within the metaverse. The line-up of online PC games supplied by HanbitSoft includes Audition, a stylish rhythm dance game that has attracted 700 million cumulative users worldwide; Granado Espada and Aika, MMORPG games that have won the Korea Game Grand Prize for their differentiated game characteristics; and Hellgate: London and Mythos, both of which have established a firm fan base around the world. Mobile games in service include Club Audition, a rhythm dance game using the IP of Audition; Puzzle Audition, a puzzle game; and City Fisherman M, a fishing game that uses the popular entertainment IP City Fisherman.



- Experience in developing multiple simulators, such as the integrated disaster response training simulator based on augmented reality.
- Experience in developing various projects over two decades, such as the game/game tool/network game/AR/MR.
- Participation of experts related to Industry 4.0 technology, such as artificial intelligence, healthcare, XR, and blockchain.
- Participation of the research team that implemented the project to develop an integrated disaster response training simulator.
- Participation of many researchers with the capabilities required to develop disaster response education and training systems.



- 2023. Developed the responsive education/training and evaluation system for fire safety managers based on XR (extended reality) for fire safety managers.
- 2023. Obtained Grade 'A' INNOBIZ from the Ministry of SMEs and Startups.
- 2023. Registered in the supplier pool of the government's AI voucher project.
- 2020. ~ 2023. Provided a service for the "integrated platform development project for the VR sports class" for the Korea Sports Promotion Foundation. (Distributed the system to 500 schools nationwide by the first half of 2023.)
- 2022. Selected as a member of the "50 billion Won Club" by the Korea Software Industry Association.
- 2022. Upgraded the "one person household safety care service" for KEPCO (completed in 2022).

- 2021. Signed a contract for the development of an integrated disaster response training system for Jeungpyeong-gun Office.
- 2019. ~ 2021. Developed an integrated disaster response training simulator based on AR.
- 2019. Applied to training for responding to harmful chemical substance leakage accidents for Ulsan Metropolitan City.



CEO Yoon Hyungjun **Phone no.** +82-2-2663-7925
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Type of business Application software development and supply
Business areas AI-based big data platform, AR/VR/XR-based data solution, engineering IT and SI, disaster/safe environment information platform, web solution and software development.



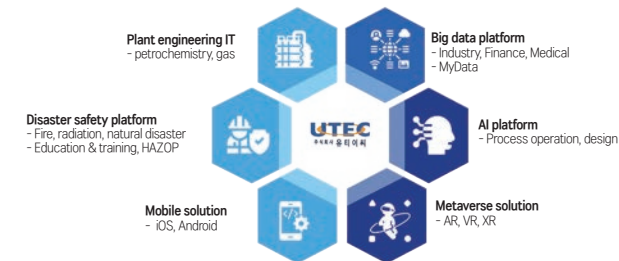
- As-Is: A company that procures AI-based big data solutions & XR-based basic metaverse technology.
- To-Be (2025): A company that expands the AI-based big data area and XR-based metaverse solutions.
- Vision (2030): A company equipped with an AI-based big data platform & XR-based metaverse solution/digital twin and cloud mobile infrastructure.



- Plant engineering IT.
- Big data platform, disaster safety platform, artificial intelligence platform.
- Mobile solutions, XR/smart device-based metaverse solutions.



- 2022. Won the order for the SI development project from the Construction Workers Mutual Aid Association.
- 2022. Developed a data-based engineering rule library for verifying design errors.
- 2020. Acquired the Inno-Biz Certification.
- 2020. Acquired certification as an excellent technical evaluation company (Nice Information Service).
- 2019. Received an award certificate from the Deputy Prime Minister and the Minister of Economy and Finance.



05

Nuclear fusion

Operation of an XR fusion energy facility based on digital twin

- Tritech
- Korea Institute of Fusion Energy
- VRMedia

Nuclear fusion

Operation of an XR fusion energy facility based on digital twin

Managing organization Tritech

Participating organizations Korea Institute of Fusion Energy, VRMedia

Contents
Introduction

Software designed to implement the function of virtual KSTAR experiment monitoring and simulation analysis [Virtual KSTAR].

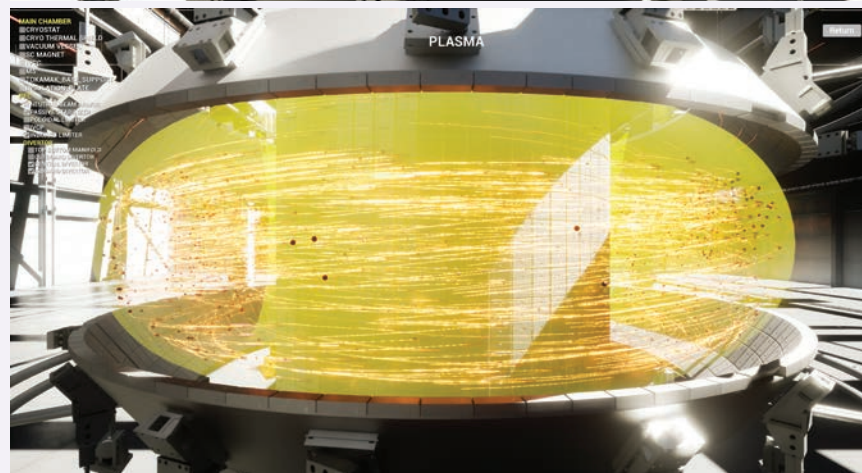
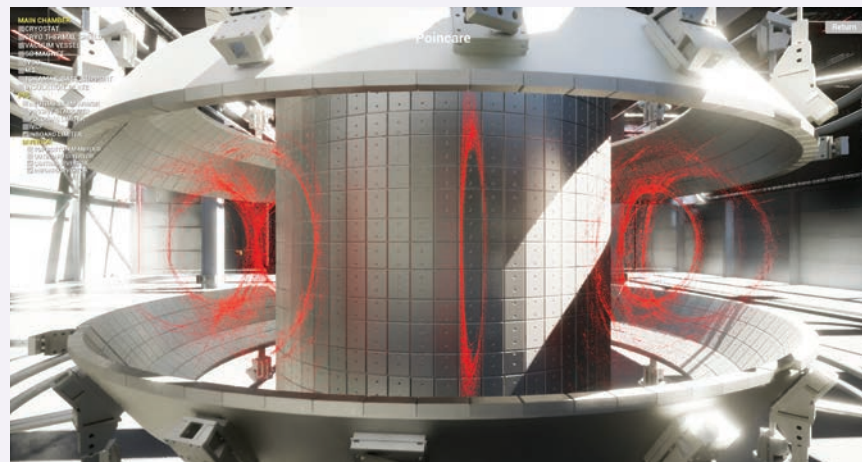
- 3D spatial information analysis and modelling of the KSTAR nuclear fusion device; visualization of plasma experiment data using a physical engine.
- **Visualization processing:** Software for managing the configuration of KSTAR design data.
- **Simulation:** Upgrading the function of monitoring simulation - KSTAR operation and experiment.
- **Applying in experiments:** Improving nuclear fusion virtualization technology.
- **Increased ability to analyze experimental results:** Data standardization and visualization.
- **Integrated communication tool:** capable of understanding and analyzing research situations at a glance.
- **Further improvement by increasing the efficiency of experiments:** Basic research to quickly achieve the goal of maintaining 100 million degrees for 300 seconds through real-time linkage experiments in the digital twin real/virtual environment.

Applied
Technology

- Digital Twin_Virtual KSTAR
- Volume Rendering of KSTAR main equipment
- Real Time Monitoring System (RMS)
- Post Analysis System (PAS) of Experiment & Simulation
- 3D analysis of Virtual KSTAR NBI's heat source.
- Visualization of a 3D vacuum field and calculation of eddy current.
- 3D analysis of Virtual KSTAR's ECH and RMP.
- Visualization of the operational status of a superconducting magnet in real time.

Business
Direction

- Continued improvement of digital twin in connection with developments in the nuclear fusion field.



TriTech

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Address #1105-12, Nurikkum Square R&D Tower, 396 World Cup buk-ro, Mapo-gu, Seoul

Type of business Information and communication business.

Business areas Information and communication business, application software development.

Company information

TriTech, an R&D company that is taking the lead in the field of future science and technology based on virtual and reality convergence technology, has accumulated staff and a wealth of experience in edge technology for R&D development. TriTech has successfully carried out numerous projects of the highest quality based on its differentiated technologies, such as virtual/augmented reality, digital twin, and metaverse, and has provided total solutions and technical support in Korea through trust-based cooperation with groups in various fields.

Core technologies



Major achievements

- Mar. 2021. Developed a non-face-to-face 3D studio platform for 3D animation production.
- May 2022. Developed fire ladder truck operation simulators.
- Mar. 2021. AR Service APP - Interior design and ordering system.
- Apr. 2022. Developed software to implement the function of virtual KSTAR experiment monitoring and simulation analysis.
- Jan. 2020. Developed an ICT-based simulation system for dismantling nuclear power plant internal facilities (RVI).

Digital Twin



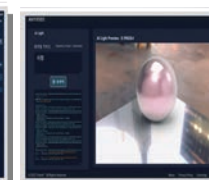
VR Simulation



M & S , ICT



Cloud Platform



AR Simulation





Korea Institute of Fusion Energy

한국핵융합에너지연구원
KOREA INSTITUTE OF FUSION ENERGY

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Type of business Research
Business areas Nuclear fusion

Company
information

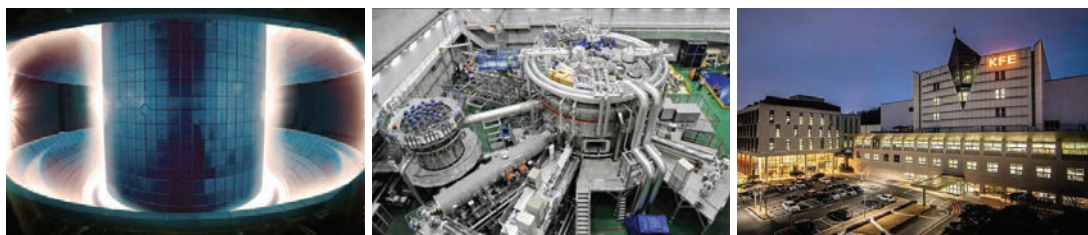
- Detailed business areas
 - Development of thermonuclear energy technology and research on plasma industry applications.
- Main technologies
 - Construction of thermonuclear experiment facilities and development of ultra-high temperature plasma operation technology through implementing the KSTAR operation project.
 - Development of thermonuclear reactor construction technology through the ITER joint development project.
 - Development of future thermonuclear demonstration reactor technology through research on fusion energy engineering.
 - Development of a plasma source technology and creative practical technologies applicable to various industrial fields.

Core
technologies

- Thermonuclear energy engineering technology.
- Plasma technology.

Major
achievements

- Jan. 1996. Started the KSTAR project.
- Jun. 2003. Officially joined the International Thermonuclear Experimental Reactor (ITER) project.
- Aug. 2008. Successfully generated plasma in KSTAR for the first time.
- Oct. 2020. Successfully operated 100-million-degree ultra-high temperature plasma for 20 seconds.
- Nov. 2020. Established the Korea Institute of Fusion Energy (promoted from the Thermonuclear Research Institute to Korea Institute of Fusion Energy).
- 2021. Successfully developed and produced the second body (sector) of the ITER vacuum vessel.





VRMEDIA Inc.

VR Media 브이알미디어

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Business areas Information and communication business.

Company
information

“We can create everything in virtual reality and connect everyone to a new digital world.” Since its establishment in 2016, VRMEDIA has continued to grow by expanding the scope of its business to include the creation of a metaverse platform based on the technology it has accumulated while carrying out various projects related to VR/AR, ranging from VR/AR content production to VR experience zone and system construction.

Core
technologies

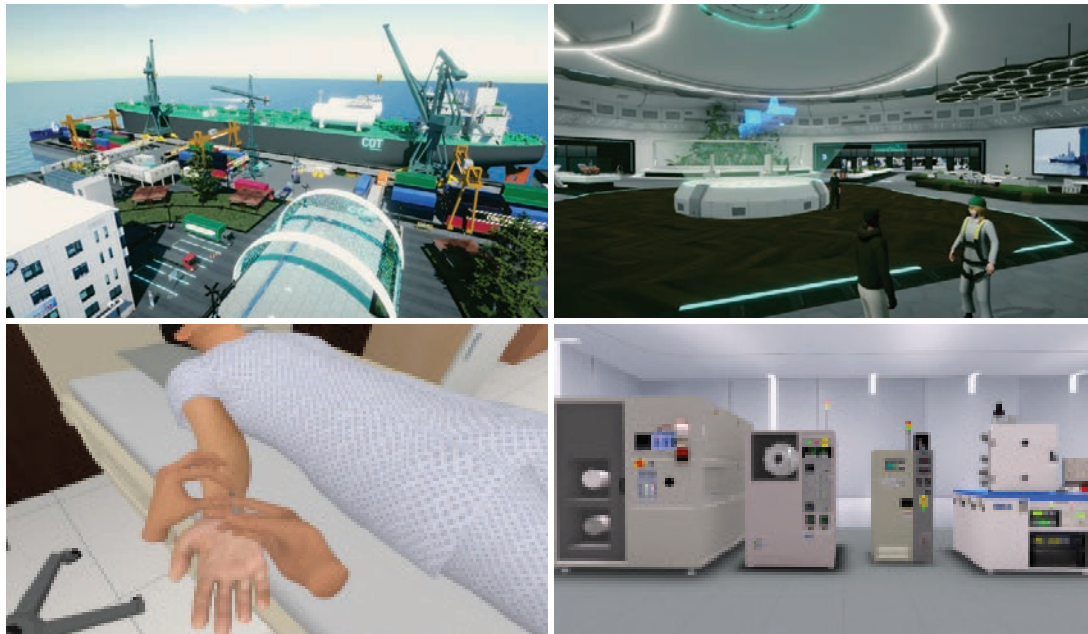
- Immersive content production technologies
 - Technology for producing an ultra-high resolution projection mapping source.
 - 8K UHD, 3D/4D stereoscopic shooting and pre-visualization technology.
 - 4D simulator & content program linkage technology.
 - Hologram content & system implementation technology.
- AR content production technologies
 - Beacon-based AR game production technology.
 - Technology for producing navigation-linked apps.
 - SDK application technology.
- VR production technologies
 - 360 VR video & interactive VR game production technology.
 - VR simulator control technology, server construction and DB management technology.

Major
achievements

- Applied for five patents related to VR/AR.

Name of patent application	Registration date	Registration number
Method and apparatus for security monitoring using augmented reality	Aug. 5, 2015	10-1543712
Apparatus for shooting games in virtual reality	Jul. 20, 2018	10-1882219
Payment system based on KIOSK	Feb. 12, 2019	10-1949258
Apparatus for 3600 image photography and method of editing 3600 images	May 14, 2019	10-1980086
Remote support system based on augmented reality and method of operation thereof	May 26, 2021	10-2259350

- 2022. Built the development support center for digital treatment devices at Gangwon Technopark.
- 2022. Developed an app for the National Ocean Science Museum.
- 2022. Created digital cultural contents for East Rampart Park at the Earthen Rampart of the Ancient Fortress at Pungnap-dong, Seoul.
- 2022. Developed an AR assembly training system for Hyundai Motor.
- 2022. Developed a metaverse platform for Samsung Heavy Industries.
- 2022. Developed a metaverse platform for the SIGNIS World Congress.
- 2021. Developed semiconductor VR content for Ajou University.
- 2021. Developed AR content for Nonsan Sunshine Land.
- 2021. Developed AR tourism content for Gongju.
- 2021. Developed a Metaverse platform specializing in nursing/semiconductors and educational process content.
- 2020. Established the VR/AR production base center for the Daegu Digital Industry Promotion Agency.
- 2020. Established the VR/AR production base center for the Chungbuk Innovation Institute of Science and Technology.
- 2020. Developed a VR/AR system for the Future Industry Usability Evaluation Center at Keimyung University.
- 2020. Developed an AR-based training process system for Hyundai Motor.
- 2020. Developed a VR/AR demonstration center system for the Korea Electronics Association.
- 2019. Developed VR/AR content and established an experience zone for the ICT Experience Center, 2019 World Aquatics Championships.
- 2019. Established the VR/AR Experience Center for Seimyung University.
- 2019. Developed AR content for the Goseong Dinosaur World Expo.
- 2018. Certified as a venture business.
- 2018. Developed ICT experience programs for the 2018 PyeongChang Olympics.
- 2018. Developed VR experience content for the Presidential Security Service.
- 2018. PlayX4 VR game "Grone" was selected for exhibition at the Joint Excellent Game Pavilion.
- 2017. Established the affiliated research institute.



06

Medical treatment/Health

XR brain cognitive rehabilitation program for pain/paralysis patients [TiU]

- Rising Craft Co., Ltd.

Education XR services platform [AR climbing/nursing skills]

- GlobePoint

Severe trauma education solution using tangible contents [TNXRtc, Trauma Nursing XR Training Course]

- DKI Technology
- Pacom
- MediMind
- VFXPixel
- Korea Electronics and Telecommunications Research Institute
- Seoul National University Bundang Hospital
- Ajou University Industry-Academic Cooperation Foundation
- Armed Forces Capital Hospital

XR acupuncture training content using a mannequin [oriental medicine acupuncture XR]

- Quadrature
- Wonkwang University Industry-Academic Cooperation Foundation

Medical treatment/ Health

XR brain cognitive rehabilitation program for pain/ paralysis patients [TiU]

Managing organization Rising Craft Co., Ltd.

Contents Introduction

Easier treatment, faster pain relief!
Patients are given opportunities to exercise by reflecting content elements in existing rehabilitation programs.

Overcoming trauma and maximizing the effects of rehabilitation

The XR rehabilitation program TiU provides visual stimulation on the VR device screen where the affected limb moves symmetrically like a normal limb, for the purpose of rehabilitating patients with hemiparesis due to stroke. This treatment program is based on the principle of brain plasticity that can improve the patient's symptoms by reinjecting normal movement information into the affected side during this process. The effects of rehabilitation effects are maximized by XR rehabilitation contents comprising rehabilitation exercise, movement training, and cognitive training categories.

Applied Technology

- New rehabilitation program for patients with hemiplegia due to stroke.
- Development of innovative rehabilitation programs by converging and combining existing rehabilitation treatments.
 - Development of innovative rehabilitation medical devices that combine mirror therapy, image training, and repetitive training.
- Development of rehabilitation programs using VR devices based on the principle of brain plasticity.
 - Implementing the affected area as a normal limb using hand tracking technology based on existing mirror therapy.
- Development of XR rehabilitation content through networking with medical experts.
 - Development of XR rehabilitation content by category, including rehabilitation exercises, movement training, and cognitive training.
- Provision of customized rehabilitation content according to the patient's physical condition.
- Collection of patient data and production of graphs to determine the patient's level of rehabilitation.
 - Generation of data for comprehensive statistics, weekly statistics, area statistics, and even recent training statistics.
 - Objective determination of the patient's degree of rehabilitation.

Business Direction

- Release of a product lineup encompassing all stages of rehabilitation
 - Development and launch of specialized medical devices for very early stroke patients.
 - Expansion of business models to encompass patients from very early stage to patients for maintenance rehabilitation.

- Securing of domestic distribution channels
 - Establishment of delivery plans for primary medical institutions, general hospitals, and university hospitals.
 - Preparation of follow-up service procedures.
- Rental services
 - Introducing rental service to inform customers.
 - Regular customer visits for product information, inspections, and follow-up management.
- Offline marketing
 - Participation in medical exhibitions and seminars, operation of product demonstration booths.
 - Provision of free trial products to rehabilitation institutions.
- Operation of Rising Craft's own malls
 - Operation of Rising Craft's own malls.
 - 24x7 operation of the online product consultation center.
- Promotion on social media
 - Production of product demonstration videos after contacting stroke patients who agree that their faces can be exposed.
 - Operation of Rising Craft promotional SNS channels (YouTube, Instagram, Facebook, etc.).
 - Contacting of specialized medical channels (Doctor Friends, Busan Doctor Director Kim, etc.) and production of promotional contents.



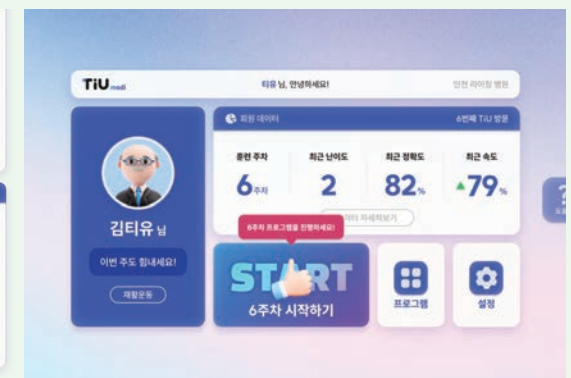
TIU Home



TIU Medi



Data implementation image



TIU main screen image



Rising Craft

Rising Craft Co., Ltd

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Website www.risingcraft.kr

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Type of business Development and distribution of application software.

Business areas VR/AR

Company information

Rising Craft pursues XR business that adds value to the world. Rising Craft is making efforts to connect me, us, and our world with the positive influence of technology by focusing on the 'utility of technology' that imitates actions with temporal and spatial constraints within a VR environment.

- **Management philosophy**
We aim to impress customers with our innovative technology and business strategy!
We provide differentiated technologies that build trust and confidence by prioritizing communication between customers and interested parties.
We create new experiences and new values!
We are creating new possibilities by drawing on our deep understanding of customers and exploiting our technological capabilities.
We realize future value through creativity and cooperation.
We support talented people with diverse dreams and passions and grow together with our business partners.
- **Mission**
We aim to achieve sustainable growth through continuous technological innovation.
- **Vision**
"Let's make the world more open and connected through technology"
- **Value**
Technological innovation / Customer-centered / Leading change / Open culture

Core technologies

R&D on medical devices based on XR (Extended Reality) technology for stroke patients.

- Exercise function utilizing cranial nerve plasticity
- Real-time data analysis technology.
- Development of patient-tailored training programs.
- Sensory capability enhancement and physical interaction technology in XR environments.

Major achievements

- Oct. 2023. Selected for the "Metaverse - Global Advertising Marketing Support Project in Heterogeneous Fields" by NIPA.
- Jun. 2023. Provided a service for the production of a multi-modal (driver-pedestrian) VR simulator for UNIST.
- Jun. 2023. Selected for the "2023 Customized Mentoring Support Project" by the National Institute of Medical Device Safety Information.
- Jun. 2023. Selected as a "CES 2024 K-STARTUP Integrated Hall Incheon Company" by ITP and the Incheon Center for Creative Economy Innovation.
- May 2023. Selected for the "2023 K-Biohealth Regional Center Support Project" by ITP, Incheon Technopark.
- May 2023. Selected for the "2023 XR Metaverse Content Support Project" by ITP, Incheon Technopark.
- May 2023. Selected for "Youth Startup Incubation, Incheon Startup Park" by ITP, Incheon Technopark.

- Mar. 2023. Provided service for the "development of educational and promotional contents tailored to the user level of the water pollution cap system" by the National Institute of Environmental Research.
- Jan. 2023. Selected as a "CES 2023 participating company" by ITP Incheon Technopark and CTA.
- Jun. 2022. Selected for the "2022 Incheon XR Company Publishing Support Project" by ITP Incheon Technopark.
- May 2022. Selected for the "2022 Project to Support Non-face-to-face Startup Nurturing" by the Ministry of SMEs and Startups.
- Apr. 2022. Selected for the "2022 Project to Supporting the Market Entry of Healthcare VR/AR Products" by the Korea Testing Laboratory.
- Mar. 2022. Provided the "virtual environment design to identify urban architectural elements that are vulnerable to crime" service to the Architecture and Urban Research Institute.
- Dec. 2021. Selected for "Open NEXT200" by the Korea Credit Guarantee Fund.
- Oct. 2021. Selected as the "2021 4th Big Wave 1R (Bio field)" by the Incheon Contents Korea Lab.
- Sep. 2021. Selected for the "2021 Incheon XR Company Publishing support Project (2nd half)" by ITP Incheon Technopark.
- Jul. 2021. Selected for the "2021 Content Commercialization Support Project of the Incheon Content Enterprise Promotion Center (2nd)" by ITP Incheon Technopark.
- Jun. 2021. Selected for the "Global Collaboration Program - Window 3rd" by the Ministry of SMEs and Startups.
- Jun. 2021. Selected for the "Project to Support the Market Entry of Healthcare VR/AR Products" by the Korea Testing Laboratory.
- May 2021. Selected for the "2021 Content Commercialization support Project of the Incheon Content Enterprise Promotion Center (1st)" by ITP Incheon Technopark.
- Feb. 2021. Foundation and incorporation of Rising Craft.
- Sep. 2020. Selected for the "2020 VR/AR Content Commercialization Support Project - Phase 3" by the National IT Industry Promotion Agency.
- Aug. 2020. Selected for the "2020 Incheon VR/AR Startup Nurturing Support Project" by ITP Incheon Technopark.
- Jul. 2020. Selected for the "Customized Growth Support Project for Companies Based in the Incheon Content Enterprise Promotion Center" by ITP Incheon Technopark.
- Jun. 2020. Selected for the "2020 VR/AR Content Commercialization Support Project - Phase 3" by the National IT Industry Promotion Agency.
- Mar. 2020. Selected as the "2020 10th Youth Entrepreneurship Academy (Seoul)" by KOSME.
- Dec. 2019. Selected for the "Investment Attraction Support Program of the Incheon Content Enterprise Promotion Center" by ITP Incheon Technopark.
- Jun. 2019. Registration of Rising Craft as an individual business.
- Jun. 2019. Selected as the "1st Practical Entrepreneurship Education Class of Hanyang University" by the Ministry of SMEs and Startups.
- May 2019. Selected as the "Preliminary Startup Package (General 1st)" by the Ministry of SMEs and Startups.



Medical treatment/
Health

Education XR Services Platform
[AR climbing/nursing skills]

Managing organization | GlobePoint

Contents
Introduction

Nursing Skills 360VR is a practical course required to certify graduation from a nursing degree, and it can be practiced and evaluated at school and at home. Nursing Skills is a 360VR-based immersive practice consisting of contents on 20 topics, plus learning management, which enables users to check their practice and results.

Non-contact nursing education content

Immersive practice content, evaluation management system/web-based practice program

AR climbing

Users can embark upon an interactive adventure with AR Climbing. In the AR world, users can climb massive mountains, explore virtual landscapes or even encounter magical creatures.

Applied
Technology

Nursing Skills

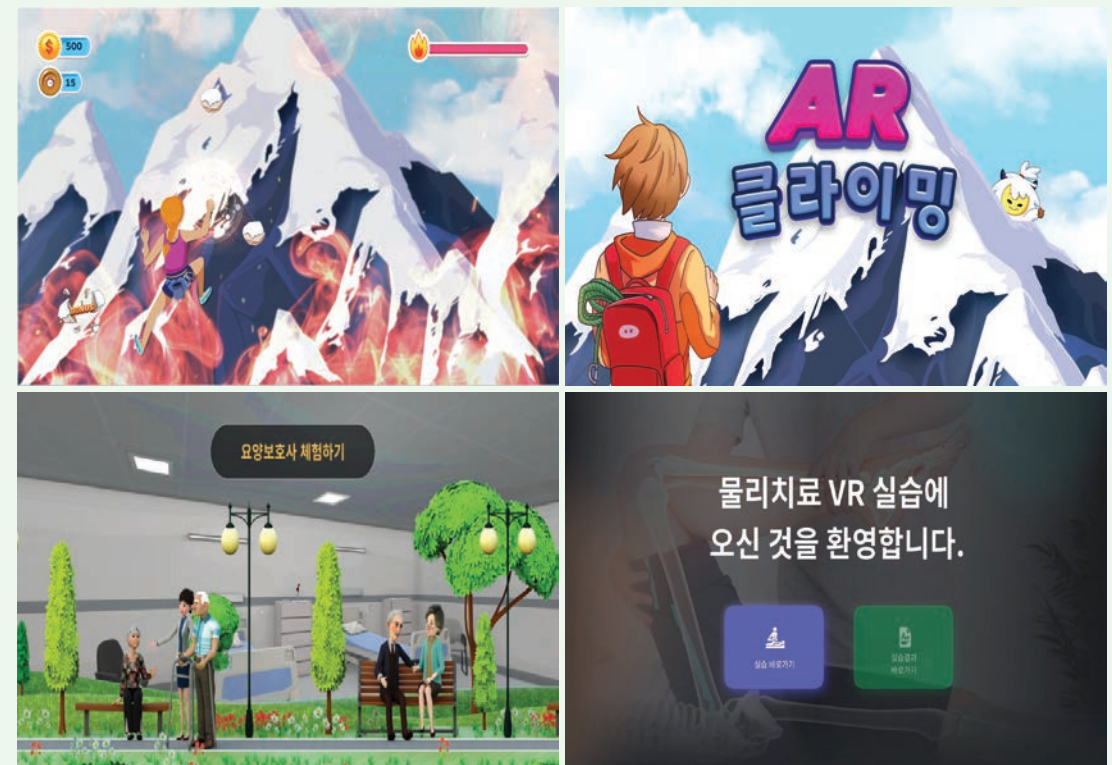
- Development and application of 360VR-based interactive technology
 - Phase (object) selection (UI/UX).
 - Includes a function for engaging in correct conversation with patients using voice recognition (for dialogue processing) (using Google Assistant API).
 - Provision of learning information (text/image/video).
 - Hand-held interface (for VR use).
- Development of the 360VR-based evaluation system
 - Server installation.
 - Learner information.
 - Management of learning/assessment information.
 - Instructor-only site.

AR climbing

- Seamlessly mixes computer-generated images and information with the real world. AR creates the effect of adding a layer of digital magic to what we see and experience in the real world.
- When the climber starts moving, motion recognition sensors analyze the user's movements.
- If the climber pretends to climb a mountain by reaching upwards (even when in a room), sensors detect these movements.

Business
Direction

- Provider of shared experience services.
- Users experience a virtual world together while in the same physical space.
- AR learning development and service provision through play.



GLOBEPOINT

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Type of business Development and supply of apply, information and communication industry
Business areas Development of metaverse contents and installation of systems; computer-related services; package software development and supply business; digital content development service; IT consulting; education; development of solutions and construction of systems.

Company information

Core technologies

- Various VR content development technologies
- AR and motion recognition technology
- Metaverse technology

Major achievements

- May 2022. Released VRWAREduStoryBuilder.
- Dec. 2021. Received an award in the “content solutions” field at the 2021 Second Half Korea Metaverse Awards.
- Sep. 2020. Received the Minister of Trade, Industry and Energy Award at the E-Learning/Edutech Business Model Contest.
- Nov. 2019. Signed an MoU for the next-generation VR education business based on the Toast cloud platform.
- Oct. 2019. Received the AECT - Outstanding Practice Award.
- Jul. 2019. Received the Grand Prize at Korea Excellent Product Competition.
- Dec. 2018. Received the Grand Prize for new software and acquired the GS certification for VRWARE STORYMAKER V1.0.
- Nov. 2018. Received the Global Award from the E-Learning Association in Japan.
- Oct. 2017. Selected as an excellent company in the LG U+ “5G Convergence Service Contest.”
- Dec. 2016. Received the Grand Prize for new software and acquired the GS certification for VRWARE PREMIUM V.1.0.
- Nov. 2016. Knowledge service received the Ministry of Trade, Industry and Energy Award.
- Dec. 2015. Received the Grand Prize from the Small and Medium Business Administration (Good Design).
- Aug. 2015. Released VRWARE.
- Jun. 2015. Received an award at the “IDEAS SHOW”, a Taiwanese startup competition.
- Mar. 2013. Certified as a venture business.
- Dec. 2012. Registered the “Future Technology Research Institute”, an affiliated research institute.
- Jun. 2012. Foundation of GlobalPoint.



Medical treatment/
Health

Severe trauma education solution using tangible content [TNXRtc]

Managing organization DKI Technology

Participating organizations Pacom, MediMind, VFX Pixel, Electronics and Telecommunications Research Institute, Seoul National University Bundang Hospital, Ajou University Industry-Academic Cooperation Foundation, Armed Forces Capital Hospital

Contents
Introduction

The TNXRtc system is a solution that automatically provides group/individual training and evaluates the results by augmenting random trauma and operational characteristics to a physical mannequin. To this end, medical twin-based realistic content applied based on data on real cases of severe trauma (open compound fractures, explosion/penetrating injuries, amputation/crushing injuries, and mass disasters, etc.) have been utilized.

Applied
Technology

- Medical twin technology based on actual severe trauma data
- Technology for producing immersive training devices.
- Technology for producing immersive VR content and MR.
- Technology for building severe trauma handling training platforms.
- Technology for building on-the-premises & cloud type treatment training platforms.

Business
Direction

- Promotion of commercialization, such as regional trauma centers, by utilizing the demonstration results of the Korea Armed Forces Nursing Academy.
- Promotion of the introduction of the solution as a regular curriculum for the Korea Armed Forces Nursing Academy based on the empirical results of the Academy.
- Advertising/marketing by displaying assignment results at the XR Showroom's exhibition space at the KoVAC Center
- Promotion of delivery to trauma centers in 17 regions nationwide to promote distribution/diffusion.
- Promotion of the supply of simulation software package products and training centers to university hospitals, fire and emergency rescue teams, etc.



VR content

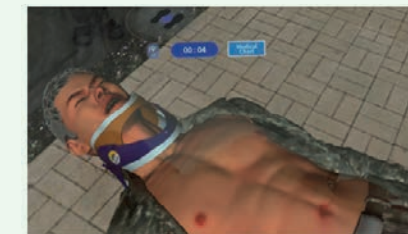


Preparation of credit items



Classification of mass disaster patient data

MR content



Open compound fractures



Explosion wounds



Penetration wounds



Cut wounds



DKI Technology

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E-mail heoks@dkitec.com **Website** www.dkitec.com
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Type of business Software R&D, development of contents
Business areas Healthcare, smart senior centers, smart terminal management, smart Edu, eavesdropping prevention

Company information

DKI Technology is a company that creates the future based on technology, experience, and trust. It is developing specialized technologies in the fields of healthcare, AI, IoT, mobile, and security. DKI Technology develops and supplies professional solutions and service systems based on the experience in successfully developing differentiated technologies that it has accumulated over a long period of time. The company is trusted by its customers and is growing into a good company where customers, the company, and employees are all winning.

Core technologies

- Healthcare platform: Healthcare platform based on open PHR.
- AI technology: Technology for predicting the onset of chronic diseases by analyzing PHR data.
- MDM technology: Powerful mobile terminal management technology based on kernel level control technology.

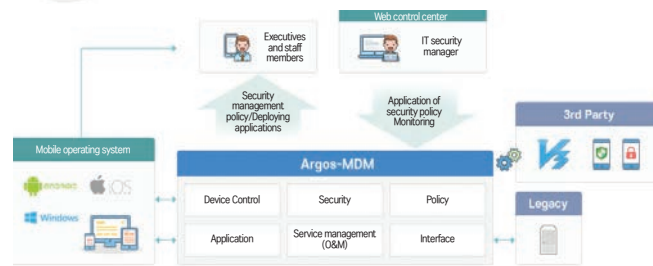
Major achievements

- Jun. 2023. Project to build a B2C/B2B integrated platform for KB Healthcare.
- Mar. 2021. Received the ICT Grand Prize in the 'healthcare platform and service' category at the Korea Industry Awards.
- Jul. 2006. Selected as an INNO-BIZ (management innovation type of SMB).
- Aug. 1997. Foundation of DKI Technology.

Healthcare Platform



MDM Solutions



PACOM PACOM

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Address 113, Jangan-ro, Jangan-gu, Suwon-si, Gyeonggi-do
Type of business Development of VR technology, training monitoring systems and simulators.
Business areas Development of VR and AR education and training systems, production of display devices, and development of 3D image display devices.

Company information

PACOM is a specialized company that has been designing, manufacturing, installing, and maintaining VR technology, training monitoring systems, and simulators in such areas as public safety, national defense, aviation, shipping, and energy since 2010. In these fields, PACOM is leading domestic technology through various independently developed technologies, including patents.

Core technologies

- Holder of a proprietary technology that integrates training, monitoring systems, and simulators in the public and industrial fields.
 - (Education) Independent development of VR/AR educational contents and displays.
 - (National defense) Independent development of military/operational training content and devices combining VR/AR/XR and 3D simulation technology.
 - (Medical) Holder of a proprietary technology that integrates digital twin, an XR-based severe trauma treatment training system, and a simulator
 - (Industrial) Developed and holds smart security control monitoring generation technology based on MR.
 - (Public order) Holder of an immersive virtual arrest training system and system development planning.

Major achievements

- Aug. 2023. Established and registered the factory.
- Jun. 2021. Registered as a venture business.
- Oct. 2017. Received the Top 3 award at the Daejeon R&D Special Zone Technology Fair.
- Jan. 2016. Received the "Technology Innovation Company Award" at the Korea's Small and Medium Business Awards ceremony.
- Aug. 2012. Acquired the ISO9001 certification and established an affiliated research institute.
- Oct. 2010. Incorporated and established the research institute.





MediMind
 CEO Kim Taejeong Phone no. +82-31-701-0706
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 Address #706, Building A, U-Space 1, 660, Daewangpangyo-ro, Bundang-gu, Seongnam-si, Gyeonggi-do
 Type of business Services
 Business areas Development of VR-based digital treatment devices

Company information

MediMind is a market leading company that specializes in the development of VR digital therapy devices.
 “We aim to contribute to improving human health by developing cutting-edge technology.”
 MediMind is a small to medium-sized business that develops software for implementing digital healthcare and VR/AR/MR technologies. MediMind is fulfilling its role as a technology development company by creating the best value in the industry through its excellent product quality and differentiated services. MediMind will continue to develop contents and programs in the related industries in order to contribute to society and grow into the best company by ensuring customer satisfaction and earning its customers trust and recognition.

Core technologies

- Digital therapeutic development technology in the field of mental health medicine.
 - Various mental questionnaire scales for health psychological tests for the purpose of psychological diagnosis.
 - Technology for implementing VR spaces and UX for psychological testing.
 - Technology for collecting user’s bio-signal data.
- Technology for developing VR software for education and training.

Major achievements

- Conducted a confirmatory clinical trial for digital treatment (addiction Dtx).
- Obtained the ISO 13486:2016 certification for quality management systems in the medical field.
- Obtained medical device manufacturing and quality management standards (GMP: Good Manufacturing Practices) recognition.
- Acquired 11 patents, 4 trademarks, and numerous SW copyrights related to digital therapeutic development.




VFXPixel
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 Type of business Video contents, XR content planning and production
 Business areas 1. VFX & CGI of video contents, such as advertisements, dramas, movies, etc.
 2. Unreal Cinematic, VR/MR/XR content planning/development/high-quality asset production.
 3. AI-based image creation/asset creation technology. 4. Virtual character creation and photorealistic composition.

Company information

“We create good contents that will not alienate anyone in a convenient world.”
 VFXPixel is a content production company that produces differentiated content using high-quality VFX video content production technology and Real Time Engine-based technology, based on technology convergence.

Core technologies

- VFX & CGI of video content such as advertisements, dramas, movies, etc.
- Unreal Cinematic, VR/MR/XR content planning/development/high-quality asset production.
- AI-based image creation/asset creation technology.
- Virtual character creation and photorealistic composition.

Major achievements

- Aug. 2023. Produced the ADEX2023 LIGNEX1-Unreal cinematic video.
- Jul. 2023. Participated in a real-time Metaverse interactive performance project (2023-24) managed by the Ministry of Culture, Sports and Tourism.
- Jan. 2023. Received an order for film VFX work for the global launch of the Samsung Galaxy S23.
- May 2022. Developed VR Anatomy content for human anatomy. education - for delivery to the Armed Forces Nursing Academy.



ETRI Electronics and Telecommunications Research Institute (ETRI)

한국전자통신연구원
Electronics and Telecommunications Research Institute

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Type of business Communication-related research and technology services.

Business areas R&D on core ICT technologies such as AI, communication media, and creative material components.

Company information

"A technology pioneer that creates a happy future world through digital innovation!"

ETRI will contribute to Korea's transformation into an advanced nation by creating new IT-based convergence technologies and human-centered new technologies that enable people to lead enjoyable, convenient, and safe lives. ETRI pursues R&D excellence to meet customer expectations and fulfill the mission assigned to it by its customers and the country.

Core technologies

• Content Research Division

- Development of core technologies for intelligent/immersive contents that can realize a life with people-centered industry and culture (intelligent interaction technology, content recognition technology, realistic immersion/video content technology, emotional content technology, etc.).

Major achievements

• Content Research Division

- Selected as one of the "Top 100 Excellent National R&D Achievements" (VR sickness reduction technology based on human factors).
- Successfully developed the world-best core Metaverse technology based on XR, which supports the maximum number of participants, and enables high-speed interaction calculation, high-precision spatial/location measurement, and low-latency synchronization.
- Expanded the immersive platform technology for education/training in the public/private field by commercializing the technology selected as the representative achievement (solving social problems) of ETRI in 2021. (8 technology transfers, achieved KRW 13 billion sales in the commercialization of transferred technology)



SNUH Seoul National University Bundang Hospital

분당서울대학교병원

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Type of business Medical service

Business areas Medical service

Company information

People's hospital trusted for patient-centered integrated care

The hospital provides patient-centered medical services with heart-warming care and love, and also provides optimized, individualized treatment to patients through a multidisciplinary integrated treatment system at the same time.

In particular, the hospital is creating treatment models for patients with serious rare diseases and high-risk diseases such as cancer, heart disease and disorders of the nervous system, congenital genetic diseases, and chronic and mild diseases, as well as survivors of organ transplants

Core technologies

Digital hospital that is leading the development of future healthcare

In 2010, Seoul National University Bundang Hospital became the first institute outside the United States to receive a Level 7 certification, the highest level of medical institution informatization, from the American Medical Informatics Association. In addition, the hospital's unique smart environment guarantees patient safety and convenient hospital use from before patients visit the hospital until they are discharged. The hospital will continue making efforts to globalize the Korean hospital information system and secure global competitiveness.

Major achievements

The hospital signed a contract with the Saudi Arabian Minister of National Guard as part of a consortium in June 2014, and started to build a system for six base hospitals and seventy primary affiliated hospitals scattered across the country. Then, the hospital established a joint venture, SKHIC, with MNG-HA under the Saudi Arabian Minister of National Guard in February 2016, along with a Korean consortium. Based on its differentiated competitiveness, the hospital signed a contract to build BESTCare 2.0A, a next-generation hospital information system, with hospitals affiliated with the Royal Commission and private general hospitals.

The hospital also entered the U.S. market in December 2016 by signing a contract to build BESTCare 2.0B with the Aurora Hospital, a psychiatric specialty. In January 2021, the hospital also signed a contract to build BESTCare 2.0J with the Marianna Medical University Hospital in Japan. By opening this efficient integrated computer system, the hospital was able to produce a wide range of research results. For instance, the development of "Dr. Answer 2.0" is attracting attention as a representative achievement in the field of Korea's "digitalized medicine new deal". As the host hospital, Bundang Hospital is responsible for operating the Dr. Answer Secretariat and executing the "Dr. Answer 2.0" project, which aims to build a corpus of medical learning data on twelve diseases, develop 24 types of AI software, and support clinical trials and the licensing of the solutions.

The hospital's major research achievements include the development of the "NUGU" nursing support solution using SKT voice speakers; a service upgrade and expansion by linking EMR; the execution of a project to build a big data center on cancers; and the development of a remote patient room real-time monitoring and non-face-to-face collaboration system, etc.

In particular, in the case of the “project to develop a system for real-time remote monitoring of intensive care units and non-face-to-face collaboration”, which was carried out as part of the “project to support the development of a leading smart hospital model” among the government’s Digital New Deal areas, the hospital received a commendation from the Deputy Prime Minister and Minister of Economy and Finance in April 2022 in recognition of its contribution to developing a new concept of intensive care unit.



Ajou University Industry-Academic Cooperation Foundation/Hospital

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Type of business Health industry
Business areas Medical services

Company information

- Mission
 - “We will always stand by your side and are constantly committed to healing your pain.”
- Vision
 - The hospital aims to become a medical institution that provides the very best medical care, a leader of medical education and research in Korea, the safest and friendliest patient-oriented hospital, a holder of international-level research capabilities in key research areas, and the best medical brand in key treatment areas.

Core technologies

- Institution leading medical education.
- Safest and friendliest patient-oriented hospital/segmented treatment system.
- International level research capabilities in key research areas.
- Leading the standard for domestic trauma centers as Korea’s first regional trauma center and emergency medical center in the southwestern Gyeonggi region.

Major achievements

- Acquired the JCI (Join Commission International) certification on three consecutive occasions and selected as one of the “World’s Top 100 Hospitals” by Newsweek, USA.
- Achieved the “research grand slam” in performing the role of a BK21, SRC, and MRC research-oriented hospital by carrying out large-scale national projects and various research tasks centered on the Advanced Medical Research Institute.
- Signed an international agreement with 31 organizations around the world.



Armed Forces Capital Hospital

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Type of business Medical service
Business areas Medical service

Company information

As Korea's top military hospital, we are contributing to preserving the military's combat readiness and protecting public health by providing medical treatment of the highest standard, and conducting education and research, in order to advance Korea's medical care and improve the health of its armed forces.

Dec. 16, 1950: 36th Field Hospital
 Oct. 03, 1953: Capital Military Hospital
 Jan. 11, 1971: Capital Integrated Hospital
 Sep. 01, 1984: Armed Forces Capital Hospital

Core technologies

Built and opened the advanced trauma patient treatment center on April 20, 2022. It is equipped with the equipment, facilities, and personnel required to allow critically ill patients showing symptoms such as multiple fractures and bleeding due to accidents to receive emergency surgery and optimal treatment as soon as they arrive at the hospital, 24/7, 365 days per year.

Major achievements

- Apr. 20, 2022. Opened the Armed Forces Trauma Center.

Medical treatment/Health

XR acupuncture training content using a mannequin [Oriental medicine acupuncture XR]

Managing organization Quadrature

Participating organizations Wonkwang University Industry-Academic Cooperation Foundation

Contents Introduction

The system projects a 3D image onto a mannequin to enable acupuncture and the exploration of acupuncture points. The 3D information displays the locations of major acupuncture points on the head and anatomical structure, and information for acupoint navigation in order to match the acupoint location information with the anatomical structure information. The system is implemented using hand-held tracking technology to enable practice similar to the real thing using actual needles and without having to use a separate controller. Previously, 2D information (books and diagrams) was referred to in order to locate acupoints. However, this method was relatively inaccurate, and searches could be difficult depending on the locations of the acupoints. XR-based systems have greatly improved point search accuracy by using 3D modeling technology to represent acupoint locations and structures far more accurately.

Applied Technology

- (Patent) "eXtended reality-based acupuncture system and method thereof".
 - 2D image conversion into 3D mesh.
 - Hand-held tracking system.
 - Optimal positioning of location tracking devices.
 - Optimal marker location analysis for location tracking (AR glass, world coordinates).
 - 3D mesh production for object matching.
 - Body and AR object matching using optical sensors.
 - Implementation of hand-held tracking and hand gesture recognition.
 - System for mapping 3D models to dummies using trackers.
 - Environment, equipment and hardware for minimization and miniaturization for precision.

Business Direction

- Phase 1: Pilot project and initial market entry for clinical/effectiveness verification:
 - Execution of a pilot project through software and hardware packaging for education/clinical training related to oriental medicine acupuncture treatment.
 - Verification of the performance and effectiveness of medical devices through the pilot project.
 - Acquisition of expert consulting advice and certification for licensing digital healthcare medical devices and registering them.
 - Initial market formation/entry stage when registering a medical device through clinical trials; and verifications of performance/effectiveness conducted mainly by the academic world.
 - Entry to the market as a medical device for educational/clinical purposes, with a focus on related universities.

- Stage 2: Increasing awareness/market expansion of medical devices related to VR-based acupuncture treatment:
 - Received consulting from professional organizations (Deloitte, McKinsey) on market expansion.
 - Subdivision of the target market through consulting, product differentiation strategy for each target market; subdivision of product grades into basic, advanced, and software licensing, and provision of services customized to each market.
- Stage 3: Expansion of business in the domestic market and entry to overseas markets:
 - Publication of clinical papers on VR acupuncture for the Korean Acupuncture & Moxibustion Medicine Society; publication of papers in the Journal of Acupuncture Research; participation in academic conferences; and increase of external awareness/promotion/marketing activities related to VR acupuncture.
 - Support for KOTRA's overseas export projects to enter overseas markets (Germany, U.S., Southeast Asia, China, etc.)/ consulting on overseas market development.



quadrature **Quadrature**

CEO Bang Seungchan **Phone no.** +82-42-860-6114
E-mail quadrature.kjs@gmail.com **Website** http://www.quadrature.co.kr/
Address #2603, Building 103, 30, Dongsong-ro, Deogyang-gu, Goyang-si
Type of business Software production industry
Business areas XR-based acupuncture system, delivery of educational content and production of game graphics

Company information

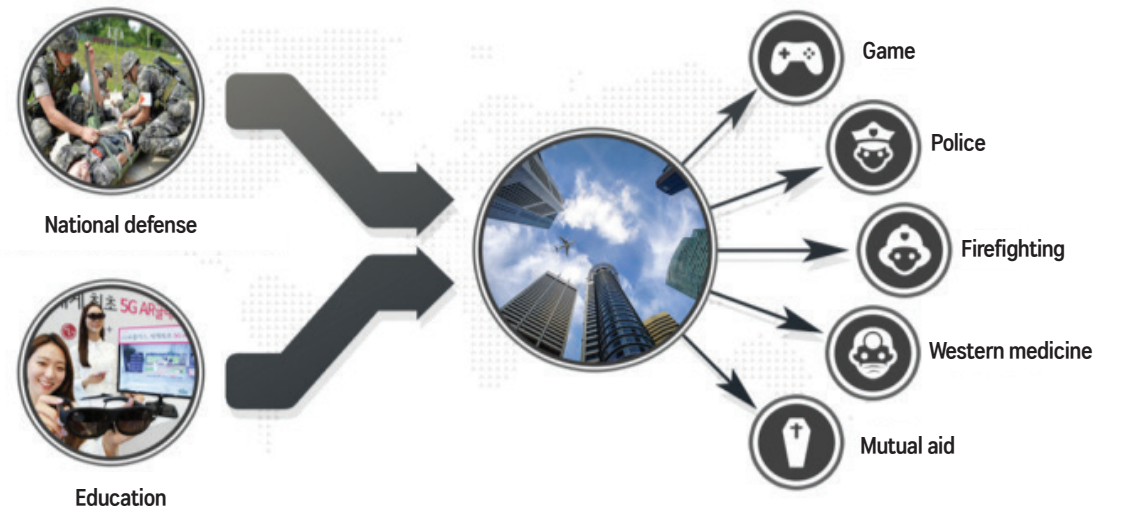
- Corporate vision and philosophy: Providing three types of emotions**
- Realism: Content with a realistic feel.
 - Empathy: Easy immersion based on storytelling.
 - Sympathy: An environment users can enjoy together with other people.

Core technologies

- XR/VR implementation technology, motion capture, facial capture technology.
- Visual concept planning [concept art, previz (video storyboard)].
- Experience in operating global 4G live services.

Major achievements

- 2021. Developed the medical XR core system.
- 2020. Received an order for the 3D modeling of web content from the Center for Teaching and Learning at Seoul National University.
- 2020. Received an order for the first interactive digital textbooks (Gangnam and Seocho social studies textbooks).
- 2020. Signed an MoU for the "National Defense XR Project" with KIST and the Wonkwang University Industry-Academic Cooperation Foundation.
- 2019. Ministry of Education, KERIS career/arts VR.
- 2019. National Treasure AR for LG U+ smart textbook.



Oriental medicine

[Actual problems]
Problems and reasons

[Development goals]
Expected effects

- 01. Schools and hospitals are required.
- 02. Observers are required due to difficulty.
- 03. Practice environment is inadequate.



Existing method

- Convenient practice
 - Easy search.
 - Similar to traditional acupuncture needles.



Our method

- Provide a non-heterogeneous environment.
 - Use a realistic human mannequin.
 - Both hands are free.
- Free exchange of information.

Smart Textbook National Treasure AR



Video

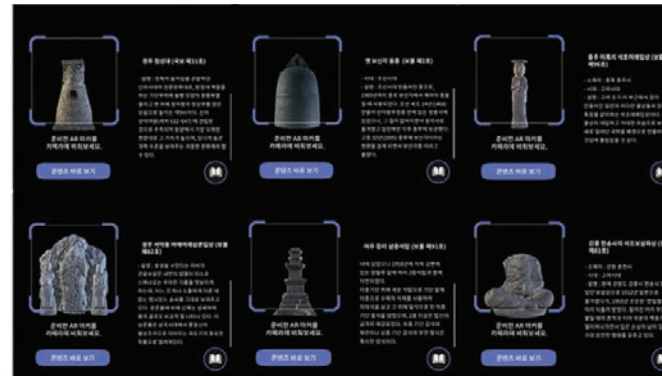
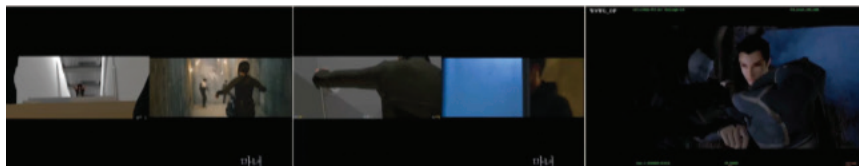


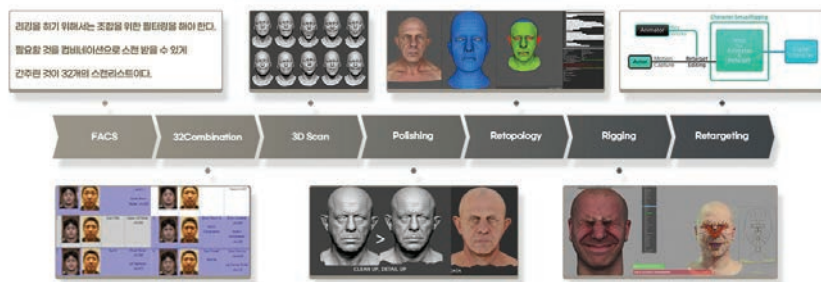
Image of National Treasure

PREVIZ

- Process of previewing various contents prior to their actual production.
- Visual materialization of storytelling.



Facuak Action Coding System



원광대학교 Wonkwang University

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Company information

Major achievements

Among other specialities the University offers studies in the departments of Medicine, Oriental Medicine, Dentistry, Pharmacy, and Nursing, so it can be called a school specializing in the education and research of medicine. Especially the Wonkwang University is proud of its College of Oriental Medicine that is the second oldest in Korea and has won the fame over the whole country.

Local technology development project (Participation: KRW 300 million)
 Title: Development of capacity to reduce energy

Media

AR/VR/Metaverse/AI convergence cloud platform

Managing organization Circus Company Co., Ltd.

Contents Introduction

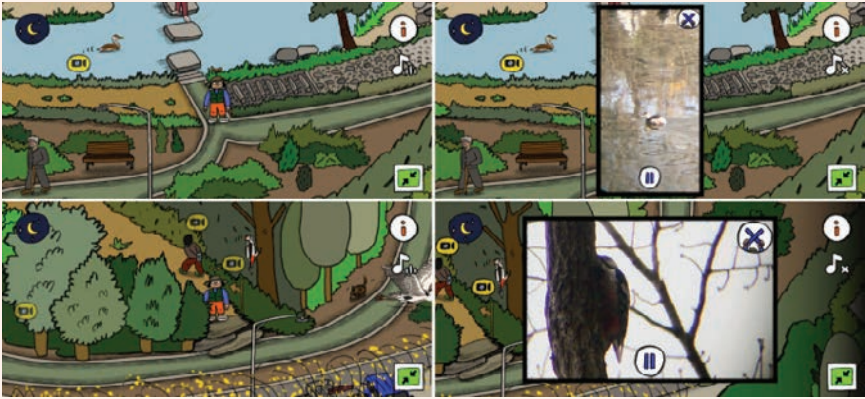
Wagzak is a netaverse service that provides immersive education using AR. Wagzak provides a wide range of contents such as educational AR coloring games, AR filters, and metaverse using various characters and stories. Circus Company creates interesting play education in which children can immerse themselves while learning, and utilize the learning in real-life situations.

Applied Technology

- Plane recognition, spatial recognition
 - Technology for placing content freely when recognizing plane/space.
- Cloud server
 - Users can use more than 5,000 types of content through Circus AR. When the user recognizes a marker, he or she can collect and play content information for the marker from the cloud server.
- Unity
 - Application of Unity development technology to create a metaverse space within the platform.
 - Implementation of low-capacity, high-quality 3D data through FBX -> Unity 3D asset bundle conversion.
 - Maintains the same quality as before even when the number of polygons and the capacity are reduced to 1/10th of the current one, since the program can be built for each platform conveniently by setting the present for each platform (Android, iOS).

Business Direction

- **IP cooperation:** Content development and sales (virtual characters, coloring games).
- **Branding:** Development of domestic sales channels for overseas companies seeking to enter the domestic market.
- **Platform collaboration:** Wagzak collaboration on the marketing of companies that produce infant and toddler content and products.
- **Content export:** Signing of a contract with a platform and a content localization agency.
- **Establishment of sales partnerships:** Recruitment of local B2B, B2G sales agencies.



07

Media

AR/VR/Metaverse/AI convergence cloud platform

- Circus Company Co., Ltd.

Prosumer type metaverse content [bicus]

- Bibimble Inc.

SNS-based AR content service [CRE-AR] -

- Alijas, Ltd.

Five-sided interactive AR experience space [X-Rumpus Box]

- Sharebox Co., Ltd.

Multilingual digital human video production service [AiVATAR]

- AlPark Co., Ltd.

XR service using MR table [i-VERSE]

- Infinite Solution Park Co., Ltd.

CIRCUS CIRCUS COMPANY

CEO Park Seonwook **Phone no.** +82-2-6261-2331
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Website www.circuscompany.com
Address 3rd floor, Wooshin Nonhyeon Building, 87-3, Nonhyeon-dong, Gangnam-gu, Seoul
Type of business Development and supply of software.
Business areas Development of AR/VR solutions, platforms, and contents.

Company information

“Making technology fun and attractive” and “Redefining digital value”
 Learning area: Building AR platforms, collecting and learning data from each content view using CMS.
 Content area: Education, arts, marketing promotion.
 Recognition area: Image, object, face, ground, 3D scanning.

Core technologies

Learning area: Building AR platforms, collecting and learning data from each content view using CMS.
 • Content area: Education, arts, marketing promotion.
 • Recognition area: Image, object, face, ground, 3D scanning.

Major achievements

- 2022. Project to enhance global digital content capabilities: XR gallery & artwork + AR convergence content service.
- 2022. Project to support development of convergence contents: XR gallery & real-life NFT transaction service: ArtzMe.
- 2022. Moved into the KoVAC XR-Showroom in 2022 (and exhibited).
- 2021. Export voucher project: 2021 project for nurturing service leading companies.
- 2021. AI data processing voucher project in the second half of 2021: Developed a machine learning recognition engine for AR fitting of lifestyle products (hands, nails).
- 2020. Project to support global commercialization of contactless content: AR/VR showroom solutions for lifestyle products.
- 2020. “2020 5G content flagship project”: Developed 5G-based AR/VR integrated content for lifestyle products.
- 2020. Received the National IT Industry Promotion Agency President’s Award at the Extended Reality (XR) Grand Challenge.
- 2019. Project to support smart city service innovation: Project to produce urban regeneration VR/AR contents.
- 2019. Project to support overseas promotional marketing of smart contents: Released “Circus AR”, a cloud-type AR content platform app.
- 2019. Project to support the development of next-generation immersive contents: Developed an AR cloud platform and contents for revitalizing the food industry.
- 2018. Received a citation at the 23rd Korea Distribution Awards.
- 2018. Development of core technologies for the knowledge service industry; development of convergence advancement technology for the service industry; development of a cloud platform based on AR/VR for fashion products.
- 2017. Received the Grand Prize at the 2017 VR/AR Grand Challenge.
- 2017. Development of core technologies for the knowledge service industry / Manufacturing service convergence: Developed a participatory service system in custom-made form by converging fashion products and curation services.

- 2017. Development of core technologies for the knowledge service industry / Manufacturing service convergence: Developed a participatory service system in custom-made form by converging fashion products and curation services.
- 2016. Received the Bronze Prize in the Excellent Startup Contest.
- 2016. Received an “encouragement award” at the 2016 Gyeonggi VR/AR Creation Auditions.
- 2015. Received the Grand Prize at 2015 Korea Frontier.



Prosumer type metaverse content [bicus]

Managing organization Bibimble Inc.

Bicus is a metaverse having the meaning “creating a bigger world together” since it is a composite of words ‘big’ and ‘us’.

Bicus is a prosumer-type metaverse where users can create, manage, and monetize their own digital showroom space. Using this service, anyone can easily create their own metaverse and receive economic benefits based on their activities.

- Support for the largest number simultaneous connections in Korea
 - Up to 4,000 corporate promotional events can be held when the number of accessible channels is increased (up to 200 people per server).
- Easy login and magic link
 - Supports guest login, quick login access without a password when registering once in a web browser, in addition to various social login methods.
- Persona system
 - Provides various assets for gender/appearance/clothes and even expresses detailed character elements.
- Metaverse communication
 - Supports various forms of chatting using text/voice/emoticons.
- Open land build system
 - Provides various building exterior and interior space templates. The administrator can easily add or modify the open world, and build accordingly. (Spaces for other brands can also be searched and viewed.)
- 3D space and asset item resources
 - Implements the best quality digital showroom by supporting realistic 3D graphics using digital-twin elements (3D space and asset items provided).
- Multiple devices and multiple resolution
 - Provides options for users to adjust the resolution and language according to their device specifications. Users can play with PC client, mobile app, or web streaming anytime, anywhere.
- Chunk-type metaverse capable of continuous updates
 - Proposes a subscription-type service policy to the main office and conducts continuous updates so that users can utilize it without interruption.

- Digital showroom
 - Utilizes the metaverse commerce platform for open mall promotion.
 - Discussing a metaverse platform to be used to promote the new digital mall in the fashion field (due to open in August 2023).
 - Provides a wonderful brand space for brands ⇒ Expands real-life business to the metaverse.
- Metaverse browser
 - Metaverses such as Zepeto and Ifland are not unique metaverse spaces, but are rather spaces based on the concept of instances that are created and disappear in a volatile or one-time manner. The metaverse browser can provide a separate URL in each unique space based on the IPv4 Internet address system.
 - If mounted in the form of a button on a website, application, SNS, etc., using a separate URL, the metaverse browser will run automatically, display the image of the pre-set logo, and immediately move to the dedicated space. Rather than showing the platform, such as Google Chrome or Internet Explorer, it functions as a viewer that shows individual metaverses.



BIBIMBLE bibimble Inc.**CEO** Yu Miran **Phone no.** +82-2-6441-3876**E-mail** bbbble@bibimble.com **Website** www.bibimble.com**Address** 396, World Cup buk-ro, Sangam-dong, Mapo-gu, Seoul**Type of business** Information service, distribution of VR and MR contents, and development and supply of software.**Business areas** VR, AR, Hologram, Digital Human, Metaverse**Major achievements**

- 2022. Opened the E-Land Museum exhibition titled "Football, THE GREATEST PLAYERS".
- 2021. Received the "Excellent Metaverse Company Award" from the Ministry of Science and ICT.
- 2021. Managed many events such as the Metaverse Exhibition Seoul Career Fair, Seoul Art Market, K-Pop Showroom, University Innovation Forum, and Metaverse Alliance Open Conference.
- 2021. Produced a VR video titled "In Search of the Provisional Government in Shanghai" commemorating the 100th anniversary of the establishment of Korea's Provisional Government in Shanghai.
- 2021. Released HOLOBEATS, a rhythm performance game combining VR and holograms.
- 2021. Released Hidden Story VR, a cinematic historical game, following in the footsteps of history.
- 2021. Released Goblin Fantasy, a holographic fantasy performance.
- 2021. Produced the LX hologram "3D Control Tower".
- 2021. Produced a Mercedes Benz VR video.
- 2021. Produced a VR video titled "Moon Jae-in's Day at the Cheong Wa Dae".

Company information

Bibimble is a company that dreams of creating a bridge that connects imagination with reality. Experts in each field, including the CEO, gathered together under the name of Bibimble to pursue a new challenge by combining the strengths of their respective fields. Bibimble Inc. combines cutting-edge digital media technologies in order to develop innovative technology-based user experiences and create platforms.

Bibimble is developing its own proprietary technology using such diverse elements as AR, VR, interaction holograms, AI digital human, digital twin, and metaverse, and it is also conducting technology-based promotions. Bibimble aims to create exciting and beneficial experiences by bringing together all these diverse and fresh technology-based elements. Based on these technologies, Bibimble has pioneered various metaverse fields, such as interaction hologram performance, hologram rhythm games, and AI digital human; and, in the recent exhibition market, Bibimble has been innovating lifestyles by utilizing the exhibition-based metaverse Vibetech REAL as a hybrid platform. Following its exhibition-based Metaverse, Bibimble launched an enterprise-type Metaverse for companies, and bicus, a digital-twin open world service, in 2023.

Core technologies

Multiple people can experience the same VR at the same time using HoloMR, a glasses-free mixed reality system. Beginning with a digital exhibition based on Multiverse, a convergence space for various digital spaces is created. An AI human similar to a real person is created by connecting the AI engine after producing the desired type of digital human. The REAL service enables users to open an exhibition easily, as the web and the client are linked based on the Unreal Engine. When the user enters contents such as exhibition information, images, and videos using the automated solution, the server opens automatically without the help of developers, enabling the user to set up and open a virtual space. The bicus service allows companies and regular users to create their own metaverse using the build system. Because it is built as a sandbox system, changes in space are reflected in real time. In addition, by using authoring tools in each space, a new space can be created using 3D modeling and pre-prepared items just for the user.

Media

SNS-based AR content service [CRE-AR]

Managing organization Alijas

Contents Introduction

Alijas' SNS-based AR content service brand "CRE-AR"



www.cre-ar.co.kr

- Alijas' AR content service uses facial recognition and texture implementation technology
- The SNS-based AR content service markets contents with a very high viral marketing effect, since a company's brand and products are advertised to customers using AR on Instagram, Facebook, and TikTok, and customers share the content.

Applied Technology

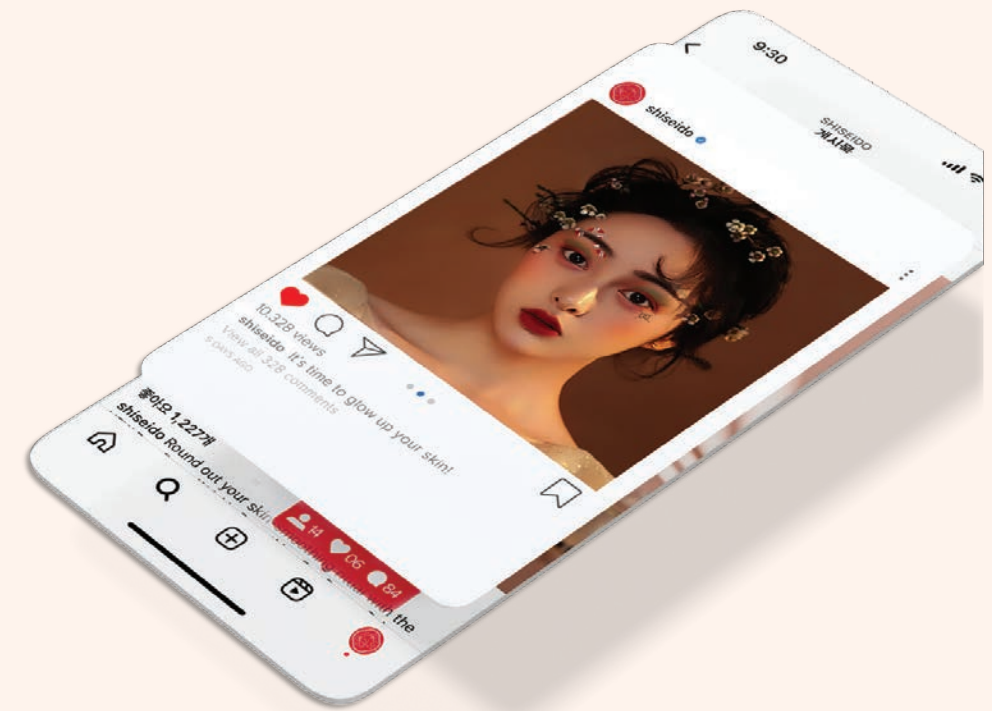
AR content service based on facial recognition technology/digital cosmetics



Principles of implementing AR makeup based on facial recognition technology

Business Direction

- "CRE-AR" will grow and develop into a profitable business, enabling Alijas to lead the industry as a company specializing in AR content technology.
- With this project, Alijas aims to become one of the top 3 production companies in Korea by upgrading its SNS AR content technology and utilizing "CRE-AR," a brand specializing in "AR filter" production.
- Alijas also aims to become a global service brand by continuously increasing its exports through its overseas services.





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E-mail kkion79@nate.com **Website** www.alijas.co.kr
Address #505, Gyeongnam Content Enterprise Support Center, 14, Gwandong-ro, Gimhae-si, Gyeongsangnam-do
Type of business Information and communication business.
Business areas AR/Multimedia contents.

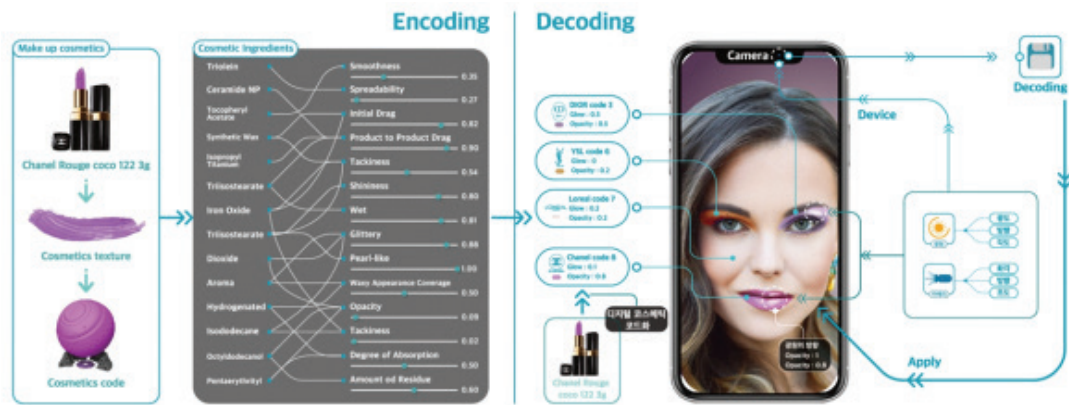


- Jun. 2022. Selected as the best performing company in the “2021 Non-face-to-face Startup Development Project”.
- Sep. 2022. Selected as a company with Grade ‘A’ INNOBIZ.
- Dec. 2022. Received the Minister of Culture, Sports and Tourism Award.
- Mar. 2021. Selected as one of the 9th Startup-NEST group by the Korea Credit Guarantee Fund (KRW 500 million guarantee).
- Jul. 2021. Applied for one patent (“digital cosmetics manufacturing system”).
- Aug. 2020. Certified as a venture business.
- Oct. 2020. Established the Digital Cosmetic Imaging Research Institute (affiliated research institute).
- Apr. 2019. Established Alijas, Inc.
- May 2019. Registered two patents (“Media peripherals wireless connection system” and “Method of providing user beauty creator makeup with a smart mirror”).

Company information

“alias enables customers to experience any cosmetics products from anywhere in the world online!”

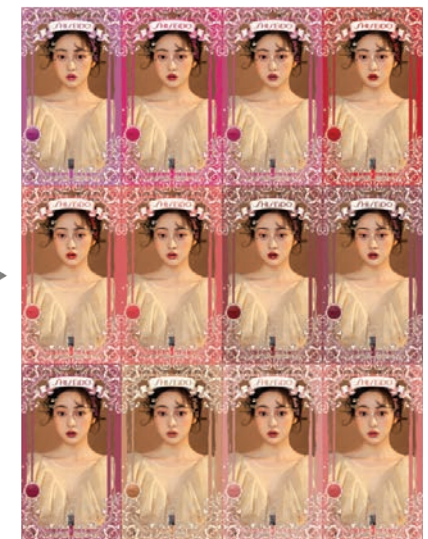
Core technologies



Digital cosmetics that react to external information recognized through a camera based on the ingredient information of the actual product



시세이도 편의스토어에서 영감을 받은 시그니처 레드, 핑플, 핑무건을 적용한 필터

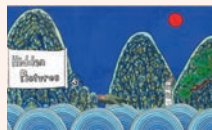


12가지 컬러를 재현한 립컬러 체인지 프레임 필터

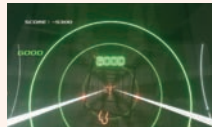
Five-sided interactive AR experience space [X-Rumpus Box]

Managing organization Sharebox Co., Ltd.

X-Rumpus Box is an interactive XR experience space where five internal sides are mapped on projection. Here, “experiencers” can create unique memories by directly experiencing and sharing the place or content they wish to promote. X-Rumpus Box also provides educational value and fun, including edutainment elements, and is used as a modern promotional marketing service space that delivers viral marketing effects. Users can experience immersive XR content using technology that recognizes the user’s actions and gestures and a 3D sound system. X-Rumpus Box also offers a service that provides images of the user’s experiences.



- **Hidden Pictures - Irworobongdo (Sun, Moon, and Five Peaks)**
- Touch the floor and walls to find hidden pictures in “Irworobongdo”, a representative traditional painting of Korea.



- **Pumping Square**
- Five-sided interactive rhythm game based on user motion recognition that enables a multi-user experience. Compete for scores by following the gestures displayed on the screen.



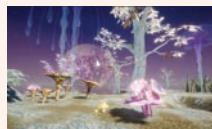
- **Escape Room - The Truth of Bastien**
- A new type of XR room escape game content that interacts with the user’s actions and gestures within the space. Touch the wall to find out the truth about Bastien by finding and combining the clues spread throughout the room.



- **Energy Hero**
- The user can find the hidden picture game content using motion recognition and touch interaction - find harmful, hidden dangers to the environment and become an energy hero.



- **Work Race**
- Team competition game content based on a card flipping game with touch interaction. Multiple players can color the spaces that correspond to their team color.



- **Mirror Cast**
- An open-world game type of content that recognizes and allows the user to explore a virtual environment by interacting with the characters. Players can move together with the characters while exploring the space freely.

- Automatic space configuration recommendation technology (transferred technology)
- Proposes the location of the projector and sensors in the space and corrects it between projections.
- Behavior recognition technology
- Senses, recognizes, and interacts with the participant’s movements and location movements.
- XR convergence/expression technology
- Expresses interactive phenomena according to behavioral responses and QR recognition.
- XR participatory marketing space system technology
- Receives one or more sensory input and converts them into other forms and sensory information.

- The company aims to enter the market with promotional models customized to the needs of companies, local governments, and public foundations wishing to build an experience zone using the B2B2C / B2G2C model.
- Afterwards, it aims to produce various collaboration pop-ups, store advertising, and promotional business models by opening the B2C experience space.
- It aims to expand the scope of its business to include family units, with a focus on the MZ generation who value experiential value, and to provide consumer-centered services that can create viral effects through SNS channels.

SHAREBOX Sharebox. Co., Ltd.

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E-mail 0531m@ssharebox.com **Website** http://www.ssharebox.com/
Address #302-3-2, 218, Gajeong-ro, Yuseong-gu, Daejeon (Gajeong-dong, Convergence Commercialization Center)
Type of business Development and production of immersive contents.
Business areas VR/XR/Metaverse immersive contents.

Company information

“Sharebox provides equal opportunities beyond space and time!”
 Sharebox produces cultural contents using Industry 4.0 technologies and provides solutions based on those contents. It is dedicated to providing contents that can be shared and understood across all generations and languages by combining new video technologies, ideas, and experiences, and to realizing cultural welfare.

Business areas
 Sharebox specializes in participatory XR marketing, produces immersive contents, and provides PR services using XR technology. Sharebox plans realistic contents, creates XR contents suitable for displays that enhance immersion, constructs XR experience zones, and establishes spaces for idle space marketing and retail therapy. Sharebox also sells its own VR astronomy contents, produces VR/AR contents tailored to demand, and carries out various projects including various technology development projects of the Ministry of SMEs and Startups and the Ministry of Science and ICT.
 Sharebox has strengthened its standing in the country and increased its community involvement through the development of Metaverse VR in collaboration with KB Kookmin Bank and the Community Media Foundation, and the establishment of an invitation booth for the Office of the Education Career Fair. Sharebox is now leaping forward as a global company through its participation in major international exhibitions, such as CES in Las Vegas, MWC, GITEX in Dubai, China VR Industry Exhibition, Tokyo IT WEEK, K-EXPO in Paris, France, and Contact Tokyo in Japan.

Core technologies

Sharebox has developed a technology for creating contents that can be installed in XR experience zones, based on its rich experience in producing cultural and education-focused VR/XR contents, taking a giant step ahead in the era of Industry 4.0.

- **Creating its own proprietary contents**
 - Development of VR using 3D engines such as Unity Engine; development of programming language, contents, subsystems, astronomy education contents, etc.
- **XR content R&D**
 - Development of LED technology for a five-sided participatory marketing service space and realistic immersive contents.
- **Production of Metaverse contents on demand**
 - Production of demand-based outsourced contents, such as Kookmin Bank’s Metaverse VR branch, and the production of participatory contents within the Community Media Foundation for Metaverse Industry 4.0 VR education.
- **Edutainment solutions**
 - Establishment of experience zones at various educational events by creating educational activity-based contents.

- Dec. 2023: Received the 2023 KoVAC META CONNECT Showroom Excellence Award.
- Dec. 2023: Participated in the Slush International Exhibition in Finland, Contact Tokyo Exhibition in Japan, and Korea-Vietnam business exchange meeting.
- Oct. 2023: GITEX (participation in the North Star booth and a global booth demonstration), one export case.
- Jul. 2023: Exhibited at the invitation booth at the Career Fair hosted by the Office of Education.
- Feb. 2023: Applied for the registration of two trademark rights, and participated in the Tokyo IT WEEK exhibition booth.
- Jan. 2023: Installed “XR MEETUP” at Gireum, and opened the Sangam XR Showroom.
- Oct. 2022: Participated in the GITEX ICT Expo in Dubai and the MWC Expo in Las Vegas.
- Aug. 2022: Selected as the service provider for the SBA Seoul City Verification Test Bed Project, and certified as a verification agency in Seongbuk-gu.
- Jun. 2022: Selected for the TIPS startup commercialization and overseas marketing support project.
- May 2022: Selected for the R&BD project to strengthen the research institute’s corporate capabilities.
- Dec. 2021: Established Kookmin Bank’s Metaverse VR branch.
- Oct. 2021: Selected for the TIPS R&D program (Nov. 2022 - Oct. 2023).
- Oct. 2021: Attracted seed investment from ETRI Holdings Co., Ltd.
- Dec. 2020: Received the Minister of SMEs and Startups Award.
- May 2020: Produced MR (AR+VR) content for the startup leap package “Space, Let’s Play”.



Multilingual digital human video production service [AiVATAR]

Managing organization AIPark Co., Ltd.

Contents Introduction

- AiVATAR is a service that generates AI voice and video (i.e. a talking head) when the user enters text and outputs a multilingual digital human video speaking the text.
 - Users can create digital human videos by accessing the website, typing in a script, selecting an attractive voice, and selecting the desired digital human. Digital human videos produced in this way can be used for promotional, educational, metaverse and XR video contents. In particular, users can overcome the “content language barrier”, since they can easily create AI avatar videos that speak in 140 languages.
 - Users can view actual cases of application of AiVATAR on the large display. They can also check how AI avatars are utilized in various industries by watching vivid videos, and can directly manipulate the display by touching the screen.

Applied Technology

- **TTS (Text-To-Speech)**
 - Technology for entering text and outputting the corresponding voice.
 - Learning with self-developed AI voice synthesis algorithms.
 - Learning 20-minute dataset consisting of text and voice.
 - Currently, 28 different voice actor voices are available.
 - The produced AI voices are used as the voices of digital humans
 - The AI voice integrating this technology is also used by JTBC News and various audiobook companies.
- **STF (Speech-To-Face)**
 - Technology for converting voice into speaking face images.
 - Technology for regenerating the shape of the avatar’s face’s mouth so that it speaks according to the input sound.
 - Operation based on self-developed AI image synthesis algorithms.
 - Capable of learning of tens of thousands of voice and facial data in advance.
 - Application of STF based on actual images with facial data of less than 1 minute.
 - Application of a facial super resolution technique to improve the quality of generated images.
 - Capable of learning large amounts of data to speak not only Korean, but more than 60 other languages, naturally.

Business Direction

- VFG (Virtual Face Generation)
 - Technology for creating virtual faces.
 - Creation of completely new, attractive faces by combining tens of thousands of facial pictures.
 - Reduced sense of displacement in the results due to the production of new faces with real images rather than graphics.
 - There are no portrait rights issues, since the faces are completely new and hitherto inexistent.
- Provision of unrivaled services by combining three technologies
 - Creation of attractive digital humans that can speak naturally by combining TTS, SFT, and VFG technologies.
 - Convergence AI technology that can produce videos showing a speaking digital human with a unique face simply by entering text.
- Globalization of services by adding multiracial AI avatars.
- Sale to general customers and corporations after official launch of SaaS plans.
- Creation and provision of customized avatars exclusively for brands.
- Enables the generation of gestures by advancing beyond the technology for creating talking faces.
- Planned release of the alpha version of the automatic video production service, which can automatically complete videos, including AI avatars, by entering script (in the first half of 2023 only).



AIPARK AIPARK CO., LTD

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E-mail admin@aipark.ai **Website** https://www.aipark.ai/

Address #603, Nurikkum Square R&D Building, 396, World Cup buk-ro, Mapo-gu, Seoul,

Type of business Development and supply of application software.

Business areas Information and communication, contents, AI.

Company information

AIPark aims to expand customers' business through digital humans.
"Let digital humans see and hear all the text in the world!"

AIPark produces customers' avatars using AI technology, and enables customers to overcome the limitations of time, space, and language barriers by using those avatars. Through this, AIPark is creating an infinite video world that is being expanded by AI.

Core technologies

• TTS (Text-To-Speech)

- Technology for entering text and outputting the corresponding voice.
- Learning with self-developed AI voice synthesis algorithms.
- Learning 20-minute dataset consisting of text and voice.
- Currently, 28 different voice actor voices are available.
- The produced AI voices are used as the voices of digital humans.
- The AI voice implemented with this technology is also used by JTBC News and audiobook companies.

• STF (Speech-To-Face)

- Technology for converting voice into speaking facial images.
- Technology for regenerating the shape of the avatar's face's mouth so that it speaks according to the input sound.
- Operation based on self-developed AI image synthesis algorithms.
- Capable of learning tens of thousands of voice and facial data in advance.
- Application of STF based on actual images with facial data of less than 1 minute.
- Application of a facial super resolution technique to improve the quality of generated images.
- Capable of learning large amounts of data in order to speak not only Korean, but more than 60 other languages, naturally.

• VFG (Virtual Face Generation)

- Technology for creating virtual faces.
- Creation of completely new, attractive faces by combining tens of thousands of facial pictures.
- Reduced sense of displacement in the results due to the production of new faces with real images rather than graphics
- There are no portrait rights issues, since the faces are completely new and hitherto inexistent.

• Provision of unrivaled services by combining three technologies

- Creation of attractive digital humans that can speak naturally by combining TTS, SFT, and VFG technologies,
- Convergence AI technology that can produce videos showing a speaking digital human with a unique face simply by entering text.

Major achievements

- Dec. 2023: Selected for TIPS overseas marketing.
- Dec.2023: Registered "AIVATAR" on Microsoft Azure Marketplace and AppSource.
- Nov. 2023: Received an Excellence Award from the Korea Press Foundation <2023 News Big Data Hackathon>.
- Oct. 2023: Participated in the MWC Las Vegas 2023 Expo.
- Oct. 2023: Signed a business agreement (MOU) with NANASOFT.JSC in Singapore.
- Oct. 2023: Selected for Microsoft "ISV Program".
- Sep. 2023: Signed a business agreement (MOU) with RHEMAFI, LLC in the U.S.
- Jun. 2023: Selected as the one of the 12th IBK Changgong Innovative Startup Companies.
- Jun. 2023: Signed a business agreement (MOU) with NANASOFT.JSC in Vietnam.
- Jun. 2023: Signed a business agreement (MOU) with Hi-Tech I&E Vietnam in Vietnam.
- Jun. 2023: Signed a business agreement (MOU) with Do Xuan Thang in Vietnam.
- Jun. 2023: Participated in the 2023 Korea-Vietnam Public-Private Joint Digital Export Exhibition.
- May. 2023: Selected for TIPS startup commercialization.
- May. 2023: Registered the patent for the "video service provision device".
- May. 2023: Selected for the Born2Global Global Expansion program.
- Mar. 2023: Selected as an ICT solution provider for the tourism innovation voucher.
- Mar. 2023: Selected as a preliminary high-growth company by the SW High Growth Club.
- Jan. 2023: Signed a business agreement (MOU) with DOB Studio Co., Ltd. and Humelo.
- Dec. 2022: AIPark released "LoA", an AI announcer that reports local news.
- Oct. 2022: Participated in the AWE EU overseas exhibition.
- Sep. 2022: Opened the AI Announcer Experience Center in Sangam-dong, Mapo-gu, Seoul.
- Sep. 2022: Participated in the Try Everything 2022 exhibition booth.
- May. 2022: Selected for the TIPS (Tech Incubator Program for Startups).
- May. 2022: Introduced "Park Jaemin", a virtual human, in the KBS 2TV program <A Morning Worth Trying>.
- May 2022: Selected for the "Ma-Jung Program" by the Ministry of SMEs and Startups and Microsoft.
- Apr. 2022: Signed a business agreement (MOU) with JTBC.
- Apr. 2022: Signed a business agreement (MOU) with D'LIVE.
- Mar. 2022: Completed SEED investment attraction.
- Feb. 2022: "Jena", Korea's first virtual human AI anchor, made its debut in JTBC Morning & [World Picked by AI].
- Jan. 2022: Moved into Sangam DMC Nurikkum Square.



Media

XR service using MR table [i-VERSE]

Managing organization ISPark

Contents Introduction

- XR i-verse content service using an MR table
 - The user can experience multi-immersive MR contents wearing a head-mounted display.
 - Provision of XR services using a touch that is familiar to general users who are unfamiliar with UX in a 3D environment.
 - Aims to provide a convenient, immersive user experience by minimizing the training required for users to enjoy content.
 - Provision of customized contents to customers through differentiated content production technologies for each industry: Fashion (virtual model), science education (interactive digital tutor).

Applied Technology

- Sending of content augmented in the MR table and experimenter on a large screen from a third-person perspective using external cameras and a spatial location sharing system.
- Consists of a miniature mode augmented on the MR table based on shared location and one-to-one real-life mode content.
- Creation of third-person transmission videos in real time by sharing virtual space and user location information.
- Sending of live videos and recording of educational video materials for indirect audio-visual experience of multiple pre-educators.
- Application of various 3D data production technologies to each industry sector (volumetric capture data, photogrammetry/Lidar scan data).

Business Direction

- B2B / B2G
 - Response to demand for industrial education and experience/practical-oriented training for a large number of people.
 - Provision of services consisting of hardware and software packages based on an analysis of the sources of demand, from audio-visual education to MR and VR education.



i-Plant

Manufacturing/Shipbuilding/Power Generation/Port
Production of industrial training contents

- WIG craft (flying ship) experiential contents.
- Unmanned ship VR simulator contents.
- Shipyard 360VR tour contents.
- Training contents for power plant BFP on-site inspection.
- Manufacturing factory painting and welding training materials.
- Smart port logistics platform for Busan New Port.



i-Science

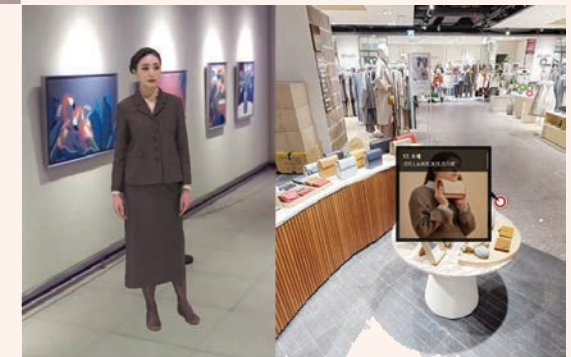
XR-based immersive EduTech content

i-Science XR-based immersive EduTech content
AI tutor responsive learning guidance (voice recognition).
The Mystery of Exploring the Human Body/Volcanoes and Earthquakes/The Solar System and Stars/Marine Life

i-Shop

Construction of a fashion shopping platform

Live Mannequin
Virtual Runway
Virtual Shore



i-Defence

Mortar operation/shooting training
MR teaching plan

Equipment operation/Equipment inspection/Gunnery test/Shooting procedure training
Miniature/Life-scale mode
MR deception single/multiplayer



ISPark

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Type of business Software development.

Business areas Digital Twin, Cloud, AI, Metaverse, Consulting & Service.

Company information

Infinite Solution Park

ISPARK, which means an infinite space for solutions, aims to contribute to the creation of value and industrial development by providing solutions and technical services tailored to the customers' needs. ISPARK will provide optimal plans to meet the needs of both its customers and the market.

Core technologies

Based on the capabilities it has accumulated in the manufacturing engineering field, ISPARK is expanding the scope of its business to include defense, fashion and industrial training. ISPARK provides XR convergence services and digital twin visualization technologies integrated with its immersive content production technology and field engineering operation know-how, across industries.

Major achievements

- 2022: Built a smart port logistics platform.
- 2022: Developed an AR/VR-based mortar operation and shooting training system technology.
- 2022: Produced machining facility AR content.
- 2021 ~ 2023: Developed XR-based virtual education contents for integrated military training.
- 2021: Produced a regulation-free special zone kiosk for unmanned ships.
- 2021: Produced VR content simulators for unmanned ships.
- 2021: Developed an AI-based system that warns access to heavy equipment.
- 2021: Developed an XR-based simulator design for participatory smart learning.
- 2020 ~ 2022: Developed a VR remote education training simulator.
- 2020: Developed an online/offline 5G-based shopping platform using VR/MR.
- 2020: Developed an XR-integrated observation training system based on spatial synchronization technology.

i-Shop

PC

MOBILE PHONE

VR/AR

TABLET

SMART TV

가상 런웨이

라이브 마네킹

AR 쇼핑

VR 매장

i-Defence

VR

MR

MONITOR

MR 박격포 정치 훈련

i-Plant

PC

VR

TABLET

SMART TV

MONITOR

XR 무연선박 시뮬레이터

발전/제조 플랜트 교육

위그선 시뮬레이터

부산항만 동적 거시화

i-Science

VR

MR

XR 과학 교육 (화산과 지진 / 태양계 탐험)

08

Education

Healthy edutech contents for children

• Play Curio

Metaverse science museum integrated with the physical environment [MetaPly]

• SIGONGtech

Education

Healthy edutech contents for children

Managing organization | Play Curio

Contents Introduction

“We develop excellent digital contents to ensure that children have enjoyable educational experiences.” Healthy edutech series for children

The “Curio AR Play Series” is an immersive play and learning material for infants and elementary school students, which combines physical teaching aids and a dedicated mobile app. Educational synergies are created using exciting user experiences and additional digital learning contents, such as video, quiz, and game, by converging traditional and digital learning methods using AR as the medium. Currently, five products are available.

• Content release status

- Dictionary Pop Trilingual: Learning essential vocabulary and sentences at the infant level in three languages: Korean, English, and Chinese.
- Phonics Pop with YBM: Learning alphabet phonics and related English words in a fun and easy way with AR.
- Curio World Map: World exploration storytelling content consisting of AR flag cards, landmark cards, and AR world maps.
- Curio Safari: Content that enables users to realistically observe and compare the sizes of animals in six categories, such as sea creatures, reptiles/amphibians, starting with dinosaurs, mammals, birds, insects and spiders. The function for comparing the size of objects in real time was patented on June 24, 2022.
- Curio MathMath: Storytelling contents based on animal characters, designed to teach the basic concepts of mathematics, enabling users to learn in depth using the dedicated app and workbook.
- Play Phonics & Sight Words: English learning content that combines a solid curriculum of phonics and sight word textbooks, AR learning cards, and mobile apps. This material helps children to read English words and sentences on their own by providing speech guidance and various activities, while observing the shapes formed by the mouth of a native speaker.

• Curio Safari XR

- Content that converts Play Curio’s IP “Curio Safari AR” into a dedicated XR device.
- Technological prowess, originality, marketability: Realistic content using approximately 100 types of animal based on Play Curio’s own IP, which allows for a more vivid and realistic experience thanks to the addition of XR’s spatial and location recognition functions to existing AR content. This content can be used in public education to provide an intuitive user experience and maximum immersion.

• Detektif Peet IP

- The main contents of seasons 1 to 4 of Play Curio’s TV animation “Detektif Peet” were screened on the TV in the exhibition at all times, as well as a prototype of the new AR content “Space Party”, which uses the Peet IP. (Development completed in January-February 2024)

Applied Technology

- Technological prowess, originality, marketability: Fun animation feature developed in collaboration with EBS as an educational content combining ultra-high-definition live-action footage from a nature documentary with cute 3D character CGI. It won the Bronze Remi Award at the 56th Houston International Film Festival (2023).

• Technology of developing immersive (AR, XR) learning contents

- AR (augmented reality) technology has been introduced and utilized to increase user convenience and stimulate interest, considering the characteristics of the user's age.

• Planar image recognition, tracking (AR, XR)

- A fun and convenient user experience in which the learning menu is displayed on the screen when the image side of the learning card is scanned with a camera, thus allowing children who cannot read well or who are unfamiliar with the general UI of mobile apps to use it intuitively.

• Spatial (ground) recognition and real-time mapping (AR)

- Using the technology that recognizes the ground and maps modeling to space in real time to create a lively production that creates an object in real space.

• Real-time object size comparison

- Real-time 3D modeling size comparison technology that enables intuitive recognition of the relative sizes of animals (Curio Safari).

Business Direction

• Business model

- Thanks to a product feature that combines a physical teaching aid with a mobile app, users can download the mobile app free of charge without an additional in-app payment or paid subscription when they purchase the physical product from the online market.

- Good customer feedback can be received with a reasonable business model that reduces the economic burden of using digital content.

- Consumer access to the content is excellent, since it can be distributed by various sales channels, including mobile shopping platforms that are frequently used by women in their 30s or older, the main customer group, as the product allows/facilitates the sale of real goods.



Play Curio

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Type of business Development and supply of software, advice service.

Business areas Planning, production, and distribution of various digital/real educational products for children.

Company information

Core technologies

Major achievements

PlayCurio Co., Ltd. produces and supplies play-learning contents and materials that can be used by and are not harmful to infants and elementary school students, based on the company philosophy of "making children's learning fun with good digital contents!"

• Technology for developing immersive educational contents

- PlayCurio Co., Ltd. aims to deliver a new learning experience by linking real teaching aids and realistic contents.

- It designs and develops contents that can stimulate children's interest in learning and achieve optimal learning effects, using realistic technology from the perspective of children, by taking advantage of its expertise in the production of educational contents for children.

- Development of an O2O educational content series that combines all the advantages of digital and traditional learning methods by linking real teaching aids familiar to the main customers (children and parents) with the mobile app using AR as the medium.

- Provision of rich indirect experiences and audiovisual materials that are neither boring nor formal, by solving the widespread problem of children's low capacity for immersion and concentration. As a result, it can be used as a non-face-to-face learning method at home, i.e. as a homeschooling teaching aid.

• Increased awareness and opportunities at customer touchpoints.

- Greater opportunities to meet customers offline through continuous participation in early childhood education fairs and operation of the Lotte Aquarium experience zone.

- Increased online product awareness by conducting seasonal promotion activities and special exhibitions at various online malls.



Education

Metaverse science museum integrated with the physical environment [Metaply]

Managing organization SIGONGtech

Contents Introduction

Metaply VR focuses on the latest physics simulation technology and interaction through various activities. Metaply VR increases immersion by realistically reflecting the user's movements via the connection with cyber shoes. The purpose of the content emphasizes realistic experiences and multiple participation, and provides enjoyment to users through a variety of activities. To this end, SIGONGtech has developed an effective linkage between physics simulation and user interface. Metaply delivers new forms of enjoyment through interactions that transcend the boundary between the real and virtual worlds, by providing diverse experiences with added random generation elements.

Applied Technology

Metaply VR combines physical simulation technology with cyber shoes to create realistic interactions. Games like stacking chairs, throwing basketballs, and treasure hunts apply real-world physics using various physics engines that reflect the effects of collisions, gravity, and other forces. As a result, users can experience realistic physical reactions in cyberspace, such as when stacking chairs or handling a basketball in a game. If users wear the cyber shoes, they can experience effects similar to real exercise while playing games. In this way, the combination of reality and virtuality further enhances the realism of the game and the degree of user immersion, allowing the user to enjoy a more diverse experience through the activities.

Business Direction

- **B2G business:** Domestic and international science museums, experience centers, exhibition halls, complex cultural spaces, etc.
 - Promotion of the commercialization of existing science museums and permanently operated safety experience centers.
- **B2C business:** Promoting the commercialization of a story-based experience theme park.
 - Sale of devices through SNS promotion and steam VR promotion.



SIGONGtech

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Type of business Advertising, promotion, exhibition.

Business areas Immersive contents, art & technology, simulators, interactive media, science museums, experience centers, museums, exhibition experience centers, interiors, expos.

Company information

- **A global creative group and leader of immersive content and art and technology**
 - SIGONGtech specializes in exhibitions, culture, and realistic contents. Ever since its founding in 1988, the company has continued to grow being the "First in Korea" to this day. In particular, SigongTech is dedicated to developing a wide variety of realistic technologies and contents, as the content industry is becoming increasingly important in the current era.

Core technologies

- SIGONGtech holds the largest and best immersive content in Korea, namely, Art & Technology, and specializes in exhibition, culture, and interior construction. It has established the Culture and Technology Research Center, which brings together numerous specialists.
- SIGONGtech has acquired more than 240 intellectual property rights and holds various specialized qualifications.

Major achievements

- 1998. Recorded the first maritime HD 3D videos in Korea (Lisbon Expo).
- 1988. Held Korea's first laser show.
- 1996. Developed the first "sealed display case" in Korea.
- 1990. Established the "Omnibus" Dome Theater at the National Science Museum for the first time in Korea.
- 1990. Became the first Korean company to enter other countries as a comprehensive exhibition culture company (China, Kazakhstan, Saudi Arabia, Malaysia, etc.).
- 1990. Received the order for Korea's largest ever exhibition project, the "Comprehensive Job Experience Center (Job World)".
- 1990. Participated in BIG-O SHOW, Korea's first large-scale multimedia show.



XR device

Industrial convergence type of domestic XR device

Managing organization P&C Solution

Participating organizations LetInAR Co.

Contents Introduction

XR devices are futuristic devices that allow the user to view the real world through a transmissive optical system and to increase efficiency in various industrial fields, while simultaneously augmenting necessary information or content on images of the real world.

In order to select target industries for the customized XR devices developed through this project, various industries were grouped into field-oriented industries and life-oriented industries. This device is expected to support a variety of activities in each field.

Applied Technology

- Optical system
 - Transmissive optical module exclusive for XR (FreeFromPrism, Pinmirror) that enables viewing of XR contents and the real world at the same time.
- Software
 - Consists of an API for implementing the functions of each XR device, an integrated XR SDK based on Open XR, and firmware for overall device control.
- Hardware
 - Consists of independent hardware systems for XR implementation, including interaction sensors, video driving, interface linkage, and communication modules.
- Mechanism design
 - Implementation of an optimized stand-alone XR device form in consideration of the form factor of each XR device component, user fit, reliability, etc.

Business Direction

- Indirect supply business model
 - Sale of XR devices and SDK as a package.
 - Sales to companies requiring XR devices for end services.
- Direct supply business model
 - Sale of XR devices, SDK, and XR service content as a package.
 - Direct sale by packaging even apps customized to the needs of consumers.



09

XR Devices

Industrial convergence type of domestic XR devices

- P&C Solution
- LetInAR Co.

Development of XR devices, exhibition of prototypes [XR Device Lab]

- Gumi Electronics and Information Technology Research Institute (XR device development support center).

P&C Solution

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Type of business Manufacture
Business areas XR simulators, AR glasses.

Company information

- Established in 2015, P&C Solution has grown into a leading producer of AR Glasses in Korea, and now provides its own proprietary XR Solutions, including XR simulators and AR glasses.
- P&C Solution produces two main products (XR simulators and AR glasses) and conducts R&D on the application of metaverse platforms to those products.

Core technologies

- **XR Simulator**
 - Technology for developing XR-based simulators that support education and training in various fields.
- **AR glasses**
 - Technology for developing AR glasses that can augment virtual content on reality.
- **AI**
 - Base technology for XR implementation, such as gesture recognition and voice recognition.
- **Sensor driving**
 - Sensor driving technology that can be applied to diverse devices.

Major achievements

- May 2023: Received the Presidential Award for SMB contributors.
- Apr. 2023: Received the Prime Minister's Award in recognition of its contribution to promoting science and technology.
- 2020 ~ 2022: Received multiple ministerial awards in the XR field (Ministry of Culture, Sports and Tourism, Ministry of Science and ICT, Ministry of Trade, Industry and Energy, Ministry of Land, Infrastructure and Transport, and Ministry of SMEs and Startups).
- May 2022: Received an order for an XR device demonstration project.
- Dec. 2019: Developed an AR glasses prototype.
- Dec. 2018: Developed a joint firepower simulator.
- Mar. 2015: Foundation of P&C Solution.



LetinAR Co.

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Type of business Manufacture of optical components.
Business areas Manufacture of optical lenses and optical lens modules for AR.

Company information

Management goals: LetinAR aims to change the way we see the world based on its unrivaled technology, top talents, and effective marketing strategies in the AR optics field, and to grow into a world-class company that sets the standard for the AR industry.

Management philosophy: LetinAR's management philosophy consists in promptly identifying major issues and changes in the market, implementing its business direction and strategy flexibly, with a sense of youth and a listening attitude, and making rational and effective decisions suitable for the characteristics of a startup. LetinAR's other management principle is to create an organization in which both the company and its employees grow together, by creating a corporate culture where all executives and employees can grow as a team and feel rewarded. To that end, LetinAR always provides its employees with opportunities to pursue challenges, as well as giving each individual employee opportunities to excel at improving their problem-solving skills, based on the principles of mutual respect and trust, autonomy and responsibility, and cooperation and communication.

Core technologies

The AR optical system, developed with pin tilt technology using LetinAR's proprietary pin mirror production technology, has a shape as thin as the existing DOE (Diffractive Optical Element)-based waveguide, allowing it to provide brighter and clearer virtual images compared to rival products. The technology for manufacturing a pin-tilt AR optical system using pin mirror technology is a key attribute of Letin Co., Ltd., while the optical system is made of optical lens parts produced by injecting pin mirror coating technology and optical plastic. By applying the AR optical system produced with this technology, a small form factor can be implemented in the form of general glasses that are lightweight and miniaturized. In addition, a lighter and more compact optical system can be developed because a high color reproduction rate, light efficiency, deep depth of field, and plastic material can be applied. LetinAR has many advantages as well as competitiveness, including mass productivity secured by developing an optical lens manufacturing technology using injection molding.

Major achievements

- Dec. 2023: Selected as a finalist for the 2024 SPIE Prism Awards.
- Sep. 2023: Certified as a New Technology (NET).
- Nov. 2022: Received the CES 2023 Innovation Award.
- Nov. 2021: Received the CES 2022 Innovation Award.



XR device

Development of XR devices, exhibition of prototypes [XR Device Lab]

Managing organization Gumi Electronics and Information Technology Research Institute (XR device development support center)

Contents Introduction

XR Device Lab is a space designed to promote the excellence of domestic XR device products and provide device rental services in order to allow visitors to the space to create metaverse contents. In order to lead the global XR device and metaverse market, the XR Device Lab exhibits various domestic finished products and prototype XR devices, and provides experience opportunities to visitors. It also provides visitors with the opportunity to experience seven types of domestically produced fully finished products and prototype XR devices, as well as a rental service that enables Metaverse contents to be tested by running them directly on domestically produced XR devices. By updating it continuously, XR Device Lab will serve as a space where visitors can experience a variety of domestic XR devices that will be developed and released in the future.

Applied Technology

- Owned devices
 - P&C Solution METALENS
 - MediThinQ Metascope
 - Panovision PV-F200
 - Elvision Tech AS-GERI01
 - pAnAcea GTM-200
 - Prazen PR-T1
 - Gaon Media KXR device
 - 360-degree neckband camera linked to XR device, Linkflow
 - (Foreign production) INMO Air
 - (Foreign production) Dream glass 4K

Business Direction

Expanding and distributing domestically produced XR devices and leading the global metaverse market at the same time with a focus on the B2B market in fields with high XR utilization, such as XR-based smart factories, medical, and military.



Gumi Electronics and Information Technology Research Institute (XR Device Development Support Center)

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Business areas Research and development, technical testing, inspection and analysis.

Company information

- Securing world-class XR device commercialization technology and nurturing global small but strong companies.
 - Support for technology development and commercialization of core components of XR devices and finished products.
 - Support for evaluating the performance and reliability of XR devices.
 - Operation of the XR corporate support program.

Core technologies

- Support for the development of a micro-display.
- Support for the development of commercialized optical modules.
- Support for the development of sensors and driving boards.
- Support for testing and evaluating XR performance.
- Support for an evaluation of the usability of XR devices.

Major achievements

- Released 12 types of domestic finished XR device products.
- Supported the production of 22 finished XR products and prototypes.



XR SHOWROOM

Directorybook 2024

Publication date: May 31, 2024

Publisher: Director of the National IT Industry Promotion Agency

Publisher: National IT Industry Promotion Agency (Nuritkum Square)

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- This work has been produced with support from the Korea Communications Development Fund of the Ministry of Science and ICT.

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