2022. 9.

ROZETATECH

IIoT | Digital Twin | Metaverse | Mobility

Company Introduction

『 IoT + LPWan + Digital Twin + Metaverse + SoC + Mobility 』

Smart IoT & Fire Monitoring Solution | Smart Factory Monitoring Solution | Smart Health Monitoring Solution

01

ROZETATECH

Company Introduction

Origin of ROZETATECH

Philosophy

Rozetatech, named after Rosetta Stone which proved to be the key to deciphering Egyptian Civilization, makes an effort to develop new technology for mankind and become a crucial guide to reach a milestone in the field of ICT/Ai/IoT/Big data.

Vision

ROZETATECH will be a world-class in the field of Smart Disaster, Smart Energy, Smart Environment, and Smart City (Smart Factory, Farm & Healthcare)

Company Introduction

History

2022.09	Designation of excellent procurement products by the Public Procurement Service
.05	Selection of The Ministry of Science and ICT's global ICT future unicorn development target companies
.05	Selection of The Ministry of Trade, Industry and Energy's Outstanding Enterprise Research Institute Promotion Project ATC+
2021.12	Designation of innovative products for procurement projects by the Korean Intellectual Property Office
.12	Selection of KIST Family company K-Club
.12	Korea Best Brand Award–Grand prize in the fire department
.05	Selection of 1000 National Team of Innovative Enterprises
2020.10	Selection of purchase conditional projects by the Ministry of SMEs and Startups (USD 7M)
.05	Ministry of Commerce, Industry and Energy selected R&D by the Energy Technology Evaluation Institute (USD 8M)
2019.11	Korea Safety Award - National Fire Agency Commissioner
.10	Selection of Outstanding Industrial Design Products
2017,03	Patent registration –Smart Wireless fire detector and Alarm system
2015.10	Establishment of ROZETATECH

Touchstone of Advanced Technologies
ROZETATECH

CEO	James Cho
Foundation	2015.10.26
Business area	IoT/ Digitaltwin/ASCI/Fire Detection System
Employee	42 people (100 people including external sales organizations)
Address	B-1710, 2nd Woorim Lionsvalley, 45 Beiongil 14, Saimakgol-ro, Jungwon-gu, Seongnam-si, Kyunggi-do, Korea
Capital	USD 3.6M (21'.4.)
Website	rozetatech.co.kr

Go Global

- SECUTECH 2022
- Established ROZETA Vina Co.Ltd in Hanoi (2022)
- CES 2020
- CES 2018
- MWC 2019
- MWC 2018
- UAE (Abu Dhabi Fire Department)

CEO: James Cho (조영진)

Career

- Jungsoft Founding member (Listed in KOSDAQ 2001)
- Jungsoft USA Inc. CEO (Silicon Valley)
- Nexdial Inc CEO (Santa Clara)
- ROZETATECH CEO
- Chairman of the Wireless IoT Division of the Korea Fire Industry Association
- Vice President of the Korean Society of Industrial and Systems engineering
- Chairman of the Smart Building Subcommittee of the DigitalTwin Forum
- Director of Korea IoT Fire Industry Association

Awards

- Korea Safety Award - National Fire Agency Commissioner (2019)
- Challenge Korean Award for the Chairman of the Public Administration and Security Committee(2021)
- Innovative enterprise award (2021)

- James is an one of 1st generation of Korea IT field. He entered the IT field through the computerization project of general hospitals nationwide in 1985 and developed the English-Korean Translation program in 1993, PC-Backup & Recovery system, and data recovery system
- Development of E-CAD products for the first time in Korea – Awarded by the Minister of Information and Communication Award
- While working in the IT field for 10 years in Silicon Valley, James established Nexdial with Cisco and Dialpad to develop VOIP and pioneered M2M/IoT business.
- With long-experienced IT developers, James established ROZETATECH where all employees participate as shareholders, contributing to the future development of Korea's IT/ICT/IoT technology into a global top level.

Business Field

Category: Digital Twin(디지털 트윈) | IIoT(산업용 사물인터넷)

Core Technology: Metaverse/AI-RL/Simulation/Optimization
LPWan-RF Grid-Mesh

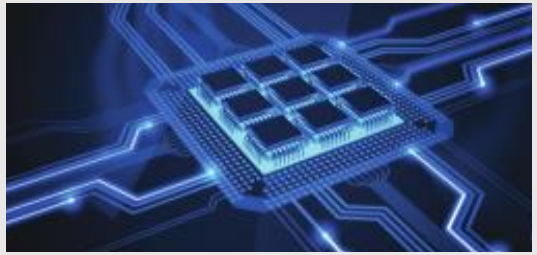
★ Smart Safety Solution

- IoT Fire Monitoring System BM
- Intelligent systems through IIoT devices
- Expanding into energy and environmental businesses in the future

Digital Twin
Digital Twin Platform system

IoT(ICT) H/W, S/W, F/W

- Simulation & Optimization Platfrom
- IoT & Big Data Collection Platform
- Implement BIM 3D Modeling and synchronize data Platform
- Metaverse



M2M
ASIC
Sensor Element

- M2M Communication
- ASIC One Chip
- False Alarm Sensor Chip

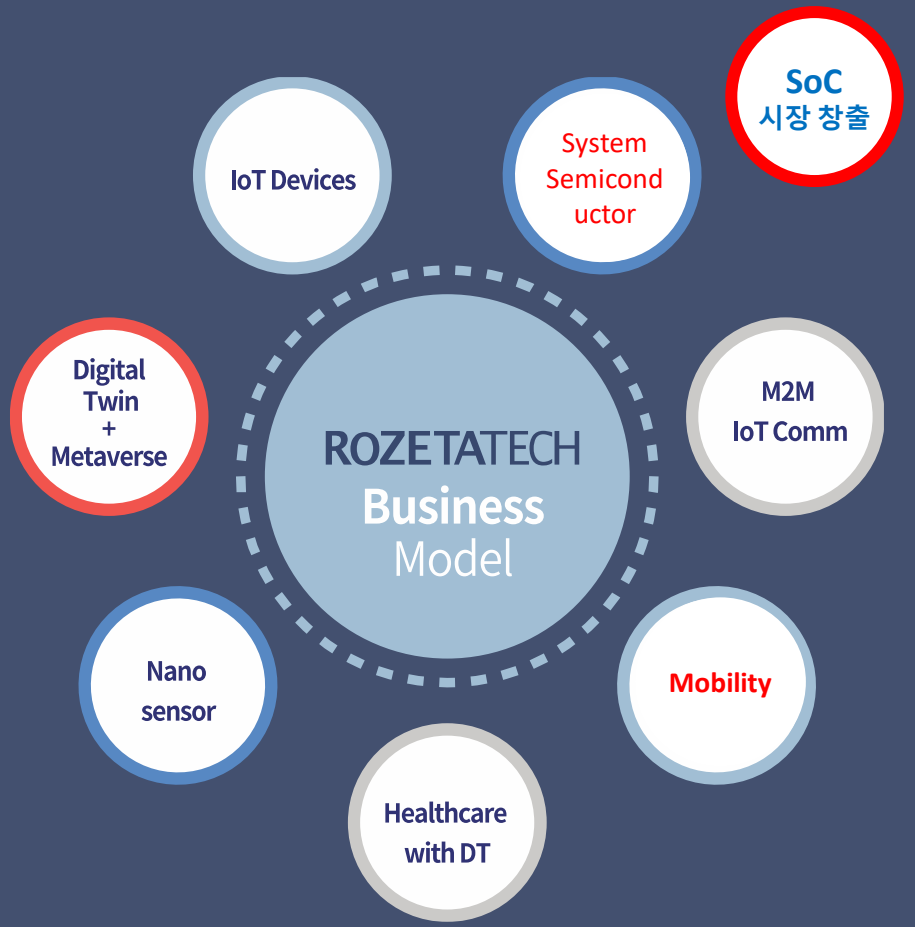
02

ROZETATECH

Technology and Marketability

Business Model

Core Technology Portfolio



Overview of business models by core technology

IoT Devices

IIoT equipment project centered on fire detection

SoC – System on Chip

Integrated chip of communication module and MCU (Micro CPU) function for IIoT
Development and distribution of ASIC (non-memory semiconductor)

M2M IoT Comm.

(Low-power long-distance network technology) Application of
IIoT equipment network business

B2C Platform

Direct transaction platform in the safety field

Healthcare with DT

Platform Linkage Using Digital Twin Technology
Real-time personalized healthcare platform BANANAWA

Nano sensor

Development of Advanced Sensing Sensors Using Protein Devices

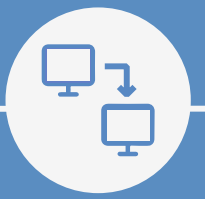
Digital Twin

IIoT & Home IoT
3D Integrated Platform (Metaverse) Business

IoT Smart Wireless Fire Detection System

Wireless vs. Wired

IoT Smart Wireless Fire Detection System

Wireless connected **Wireless Detection Sensor**	Simple attachment **Easy Installation**	Shortening of Construction period **Cost reduction**	Can be **installed anywhere**	**Easy installation** Simply add or Maintenance	Convenient check by **Remote inspection**	**Intelligent alert notification**
						
Connected the sensor by wire	Difficult wiring work	Long construction period increases cost	Limitations of installation locations	Difficulty in additional installation or maintenance	Difficulty in checking operation	No alert notification function

Existing Wired System

IoT Smart Wireless Fire Detection System

Level and Competitiveness by Detailed Technology

RF Mesh Technology

Intelligent RF Mesh Technology

Ensures multiple paths to the gateway are provided

Multi Layer ACK Technology

Multi Layer ACK Technology

ROZETATECH's Multi Layer=Competitor's Single Layer X10

Competitors = (1 Receiver : 100 detectors) vs. Rozetatech = (1 Receiver : 1,000 detectors)

Multi-Story Process Structural ACK

Mesh, Mapping, Hopping Technology

(1) Analyze wireless data among Node, Repeater, Router to find the best and shortest path : Frequency Mask Trigger RF Scanning

(2) Create a Repeater table with a stable RF transmission path and perform wireless data transmission on the specified path : Frequency Hopping interference avoid

(3) Intelligent RF frequency sensitivity analysis ensures that RF quality is maintained at the highest level : Radio Frequency Sensitivity cognition

Event Data

Gain accuracy, speed, reliability and traceability

Grid-Mesh RF Technology = Mesh+Mapping+Hopping

Implementation of the best wireless communication technology in the fire sector, including the most important "fastness, accuracy, traceability" and 128-bit anti-hacking "stability" sectors for communication security

IoT Smart Wireless Fire Detection System – Status

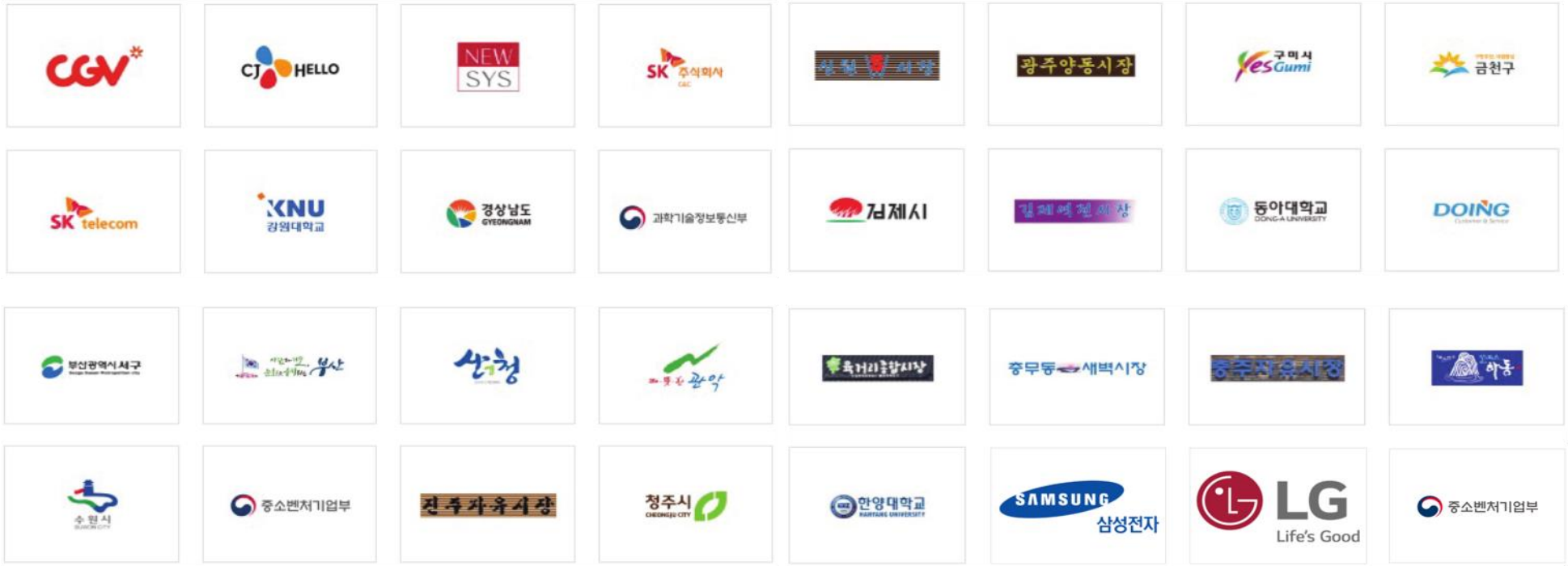
Installation Sites

Traditional market, Hospital, Theater, Cultural assets,
Warehouse, Office building, Apartment,
Smart buildings, Re-modeling Construction,
National Facilities(Power plant, Military)

Fire Prevention (‘21~’22)

- 5 Cases in Traditional market
- 1 case in Office building
- 1 case in Commercial building

150 sites, 21,000 places installation complete (2021.12)



Digital Twin Platform Technology

How to deal with competitor imitation

The barriers to entry were established for Visualization monitoring Digital Twin technology, a key technology that combines IIoT technology and Metaverse 3D modeling technology, through technical differentiation and performance excellence, application and scalability, patents, and field construction experience

Digital Twin (Real-time Control Optimization Platform)

=

Simulation + Optimization

+

AI (Reinforcement) + Bigdata (Algorithm)

+

Monitoring (HMI + Metaverse+3D BIM)

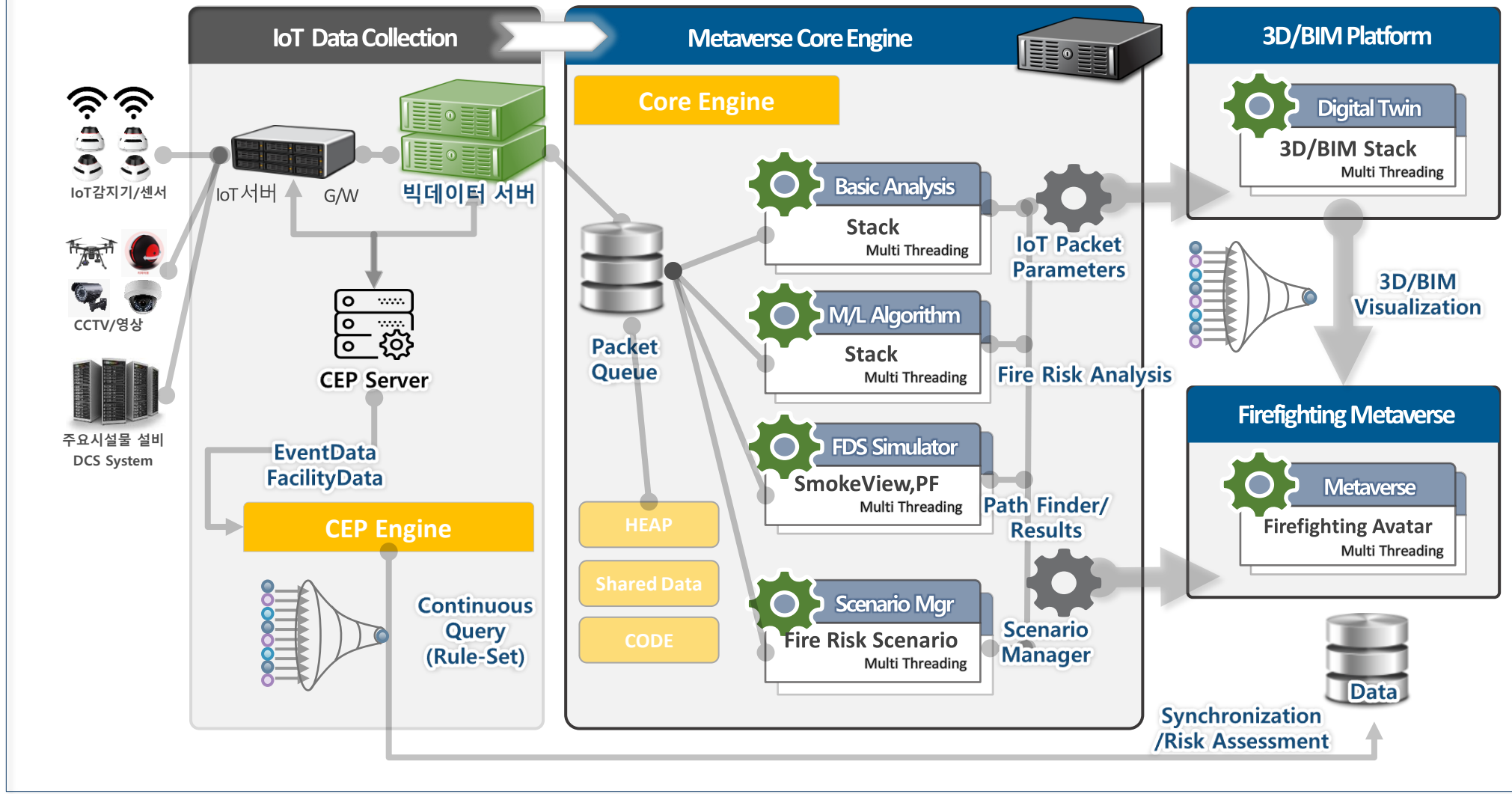
+

IoT/IIoT (IT H/W, S/W, F/W sensor Technology + Data)

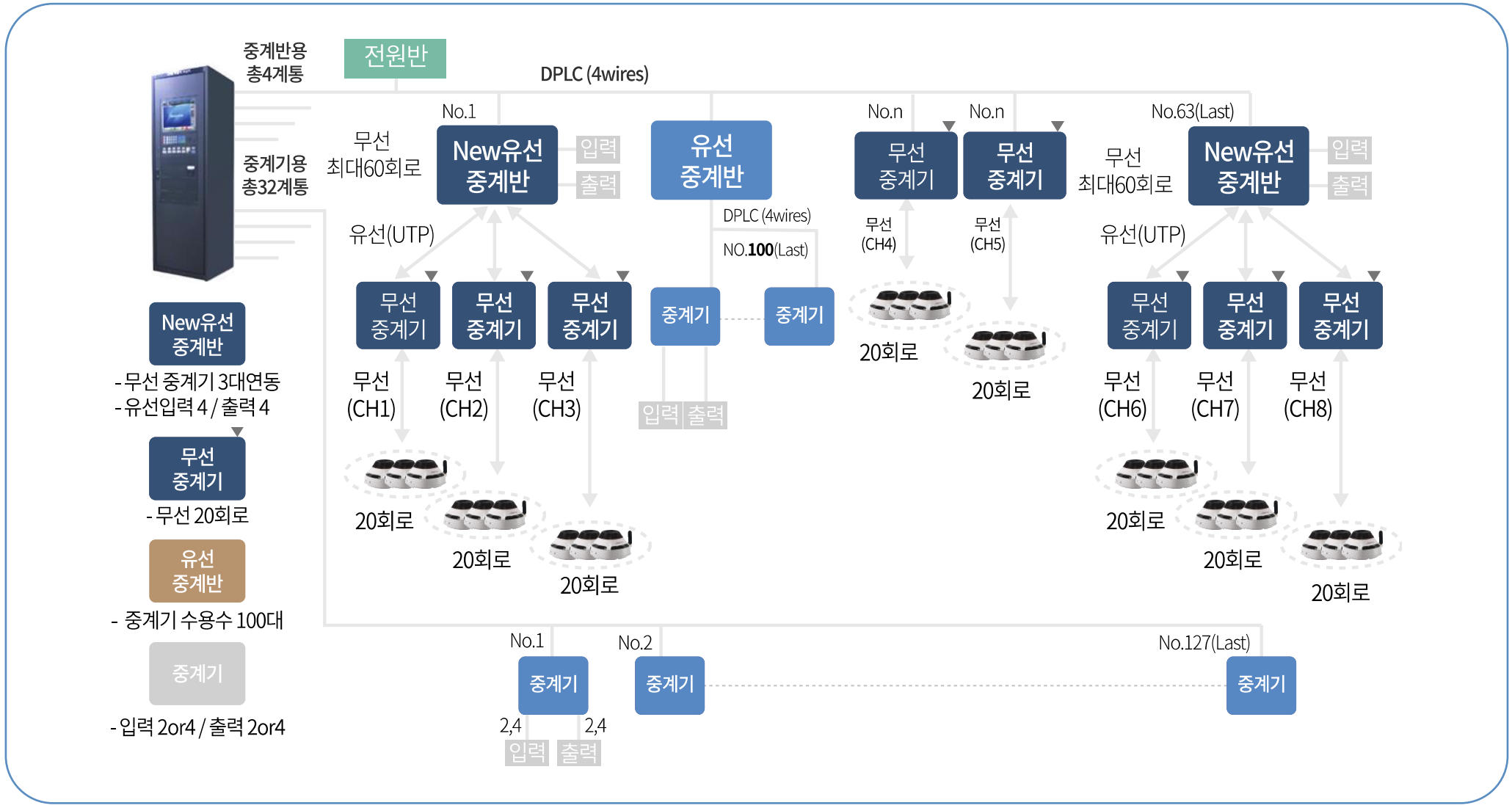
Advanced technology that constructs the same type of system as a fire detection system in 3D form on a computer, preserving it through intelligent analysis and simulation through accumulated data and checking the exact location with a 3D screen

Metaverse Technology Insight

Metaverse Architecture

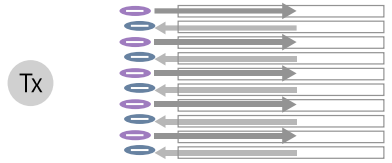
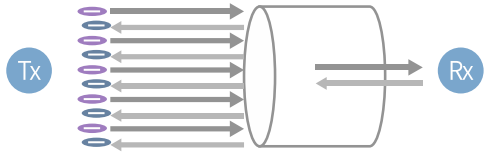


IoT Fire System - Hybrid Type Logic layout



LPWan Technology – Core Processing Technology for IoT RF Communications

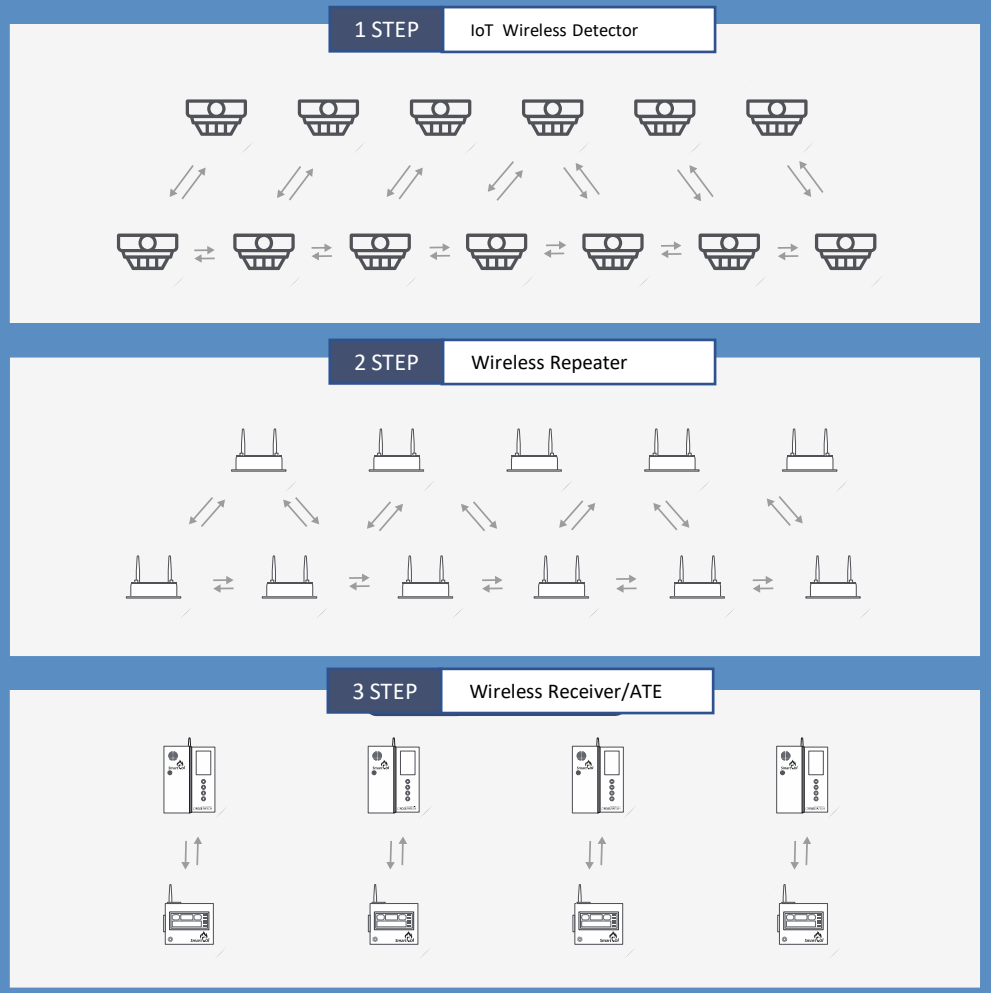
<Multi-layered ACK Technology Differentiation>

Competitor's Tech. – Single Layer	Rozetatech's Tech. – Multi Layer
	
1 Receiver – 100 Detector	1 Receiver – 1,000 Detector

VS.

<The shape of the developed product / Features of the developed product>

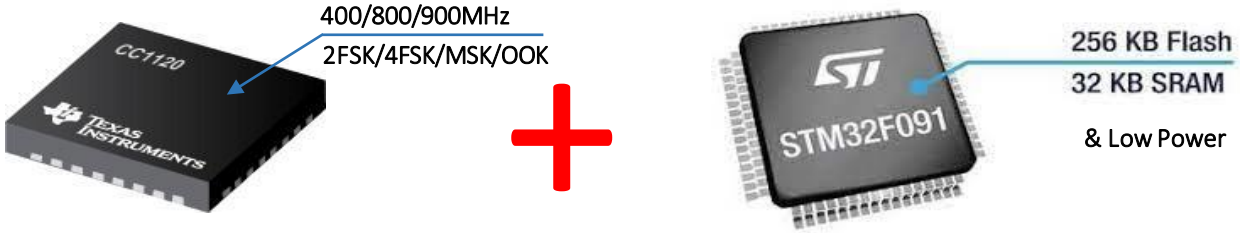
제품명	Prototype	Product Features
Smart-Path		•IoT Fire Detection •Evacuation direction instruction •LPWan (Low-power wide-area network) /RF communication •Positioning Interlocking •IoT server-Mornitoring interlocking •Smartpone App-Mornitoring Interlocking •Wearlable Monitoring Interlocking

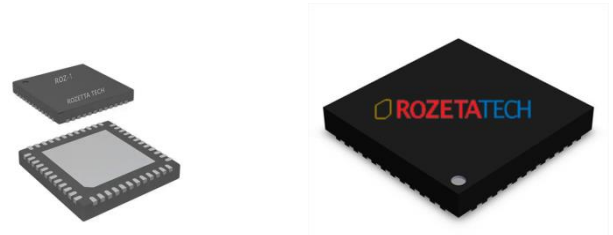


Patent No. : 10-2048034/ A fire alarm using RF mesh technology

SoC Technology Insight - Captive product strategy

TI-CC1120	ST – STM32F091
Narrow Band RF Transceiver	ARM CM0 @ 48MHz
400/800/900MHz	48MHz Clock
2-Fㄴㅏ/4-FSK/MSK/OOK	On-Chip RTC
-123 dB @ 1.2Kbps	32KB SRAM
Digital RSSI	128KB Flash
WOR processor	12-bit A/C
Automatic LBT	12-bit D/A
Rx-22/Tx-45mA @ 14dBm	Low Power Mode of 1.3uA
Power-Down of 0.12uA	CAN & Touch Capacitive Sensing

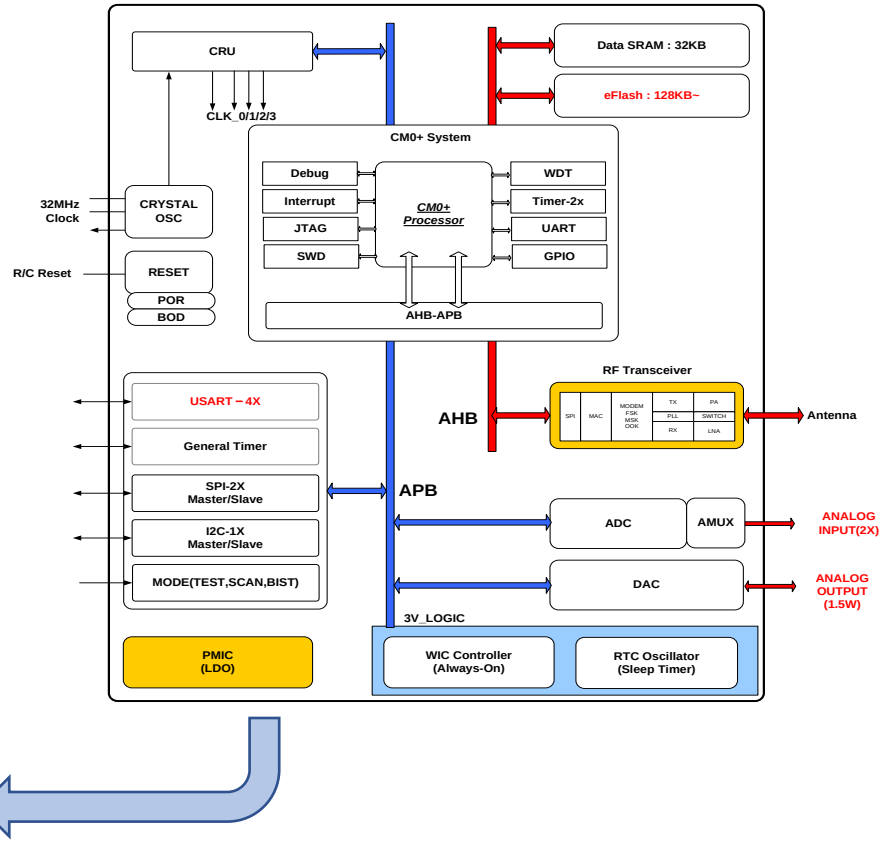




ROZE-02 : Rozeta LPWAN IoT Processor + Image

ROZE-01 : Rozeta LPWAN IoT Processor

- ✓ Low Power Processor
- ✓ LPWAN RF Transceiver
- ✓ Sensor Hub Interface



AIoT SoC – Need for system semiconductor is increasing (System Semiconductor Growth Strategy such as NVDIA)

Introduction of Wireless Fire Fighting and Revision of Fire Fighting Act **(2017. 12.18 / 2019/ 5.24)**

Fire Service Separation Ordering Act **(**Fire Fighting Facilities Construction Act **2020. 9. 10)**

Rapid expansion of the wireless fire fighting market is gaining a foothold

15 million domestic detectors per year (secure stable market) / 12 trillion won in firefighting market

Instability of the SoC ecosystem / Emergence of the need for own SoC (cost reduction, differentiation, entry into the semiconductor market)

RF + MCU + Memory + LDO + Image + Ai + Etc

Securing the exclusive status of the detector market and expanding the semiconductor market/ Southeast Asian market & domestic ISM band field

Mobility Technology - Safety Robot / Battery

POEVE

Safety Robot

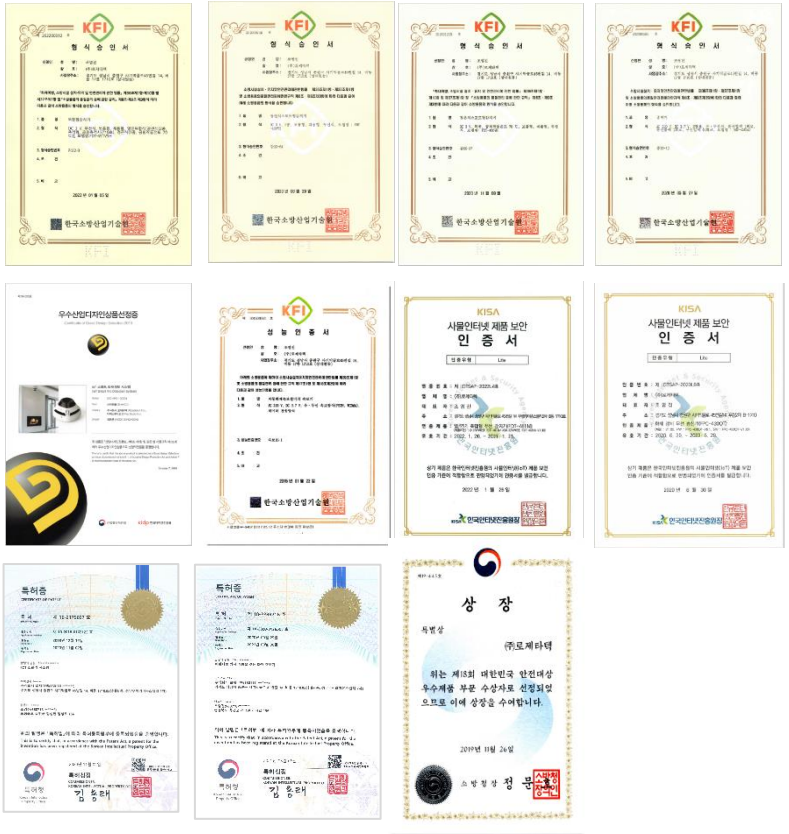
Technology development Milestone

	2021	2022	2023	2024
IoT Devices enhancement	SmartCol V3.0 GR Server Device Development (3,000 circuit)	SmartCol V30 GR server device decelopment (30,000 circuit)	SmartCol V20 Wireless R server development (2,000 circuit)	SmartCol R50 Wireless R server development (5,000circuit)
Digital Twin + MetaVerse	RozetaDT v2.0 Develop completed (Installation completed to Military building)	DT Meta v3.0 (Installatoin to a Thermal Power Plant in Korea)	RozetaDT v4.0 Launching (for airport, port)	DT Meta v5.0 (Apartment, buildings)
Semiconductor chip development (SoC-System on chip)	Planning	Development Starts	1st stage development completed (FPGA)	Development completed Initial production (200,000 units)
EV Mobility (Battery)	Technical review, Design completed	Development Starts	1st product development completed	Market launching
Nano Sensor (Smoke detector)	Planning	Co-Development with KIST	Development completion and application	Global Export Initiation
B2B Platform	Firefighting Web development Starts	1st stage development completed	2nd stage development completed	Start of operation

Certification & Patent

Certification

KC & KFI & CE & KISA



Patent

Patent 16 / Patent applied 13 / Preparation for patent 4 / PCT 7 / Trademark registration 17

Application Date	PAT. number	Registration Date	Title of Invention	Note
2017-03-22	1790303	2017-10-19	WIRELESS FIRE ALARM SYSTEM	
2018-09-20	2123737	2020-06-10	FIRE ALARM DEVICE	
2018-09-12	2048027	2019-11-18	WIRELESS GROUND DETECTION SYSTEM	
2018-12-19	2175607	2020-11-02	IOT FIRE EXTINGUISHER SYSTEM	
2019-03-22	2048034	2019-11-18	FIRE ALARM SYSTEM	**PCT**
2019-08-29	2123763	2020-06-10	FIRE ALARM SYSTEM	**PCT**
2020-06-04			FIRE ALARM APPARATUS	
2020-03-05	2188138	2020-12-01	FIRE ALARM APPARATUS	**PCT**
2020-09-29	2289216	2021-08-06	FIRE ALARM APPARATUS FOR UNWANTED ALARM	**PCT**
2020-09-29	2289219	2021-08-06	FIRE PROTECTION METHOD AND FIRE PROTECTION SYSTEM	**PCT**
2020-09-29	2289221	2021-08-06	FIRE PROTECTION METHOD AND FIRE PROTECTION SYSTEM	**PCT**
2021-02-16			FIRE ALARM APPARATUS FOR CONTROLLING TRAFFIC	**PCT**
2021-05-03	2353132	2022-01-14	SENSOR INSTALLATION METHOD USING WIRELESS PROCESSING TECHNOLOGY TO SET THE INSTALLATION VALUE OF BULK SENSOR AND FIRE ALARM SYSTEM USING THE SAME	
2021-05-03	2369267	2022-02-24	FIRE RISK OPTIMIZATION VALUE DERIVATION METHOD AND A FIRE ALARM SYSTEM THAT TRANSMITS DATA FOR SIMULATION PROCESSING USING THE SAME	
2021-05-03	2353129	2022-01-14	COMMUNICATION INSPECTION METHOD AND FIRE ALARM DEVICE USING THE SAME	
2020-03-13	10-2273031	2021-06-29	FIRE DETECTIOR	

Contact Information

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Thank you