Make The World Smarter





"Being a global entrepreneur was the goal than accepting a \$100 million acquisition offer from one of the largest Global Companies"

[Career Highlights]

M.S. in Electrical and Electronic Engineering at Yonsei University, Doctoral candidate

2020 Presidential Policy Planning Committee

Member of the Korean New Deal National Advisory Council

Member of Seoul Startup Policy Committee

2019 Member of the Prime Minister's Committee on Future

Education

2018 Under 30 Forbes Asia, The innovators in Industry,

Manufacturing, & Energy

Member of National Assembly Future Advisory Committee

2017 Korea Venture Business Association Startup Advisory Board

Member

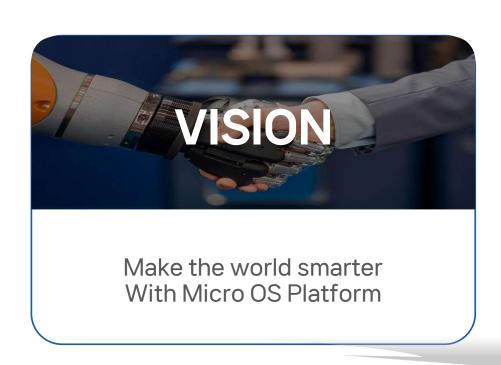
180 awards for robotics technology

Coach of the Korean National Team at World Robotics Championships for 5 years



1. Introduction

Our goal is to make the world smarter through Micro OS platform. We believe this goal can be achieved through our Micro OS business, Education business, and IoT business.





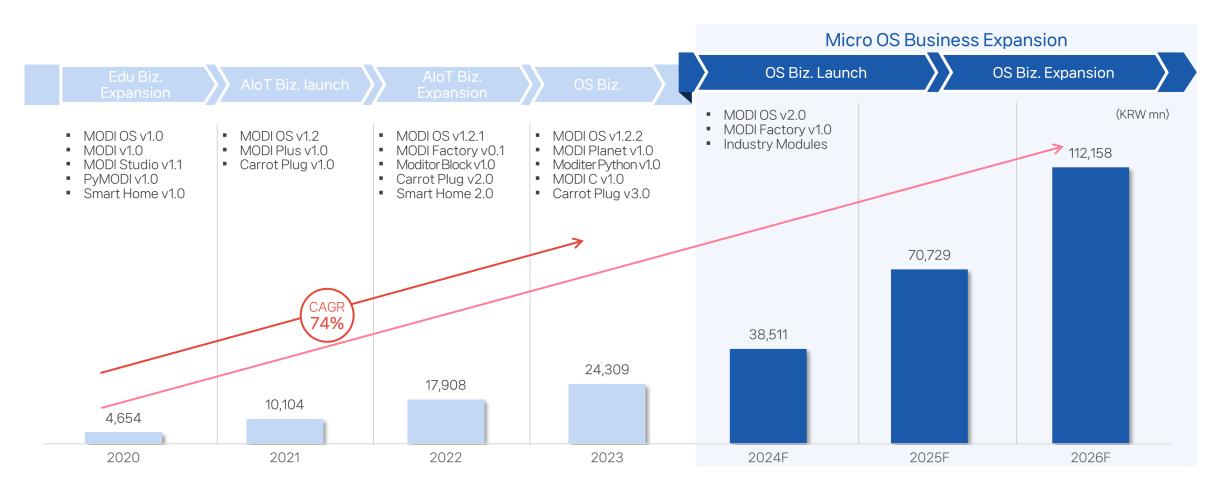
- Educational Robotics Business
 Make more people learn coding more easily
- AloT Business
 Make more devices get connected
- Micro OS Business
 Make more people create products more easily

Established # of Employees FY23 Revenue International Markets Total Funding

2014년 79 (as of Dec., 2023) (KRW, Consolidated) 50+ 37.9bn (KRW, as of Dec., 2023)

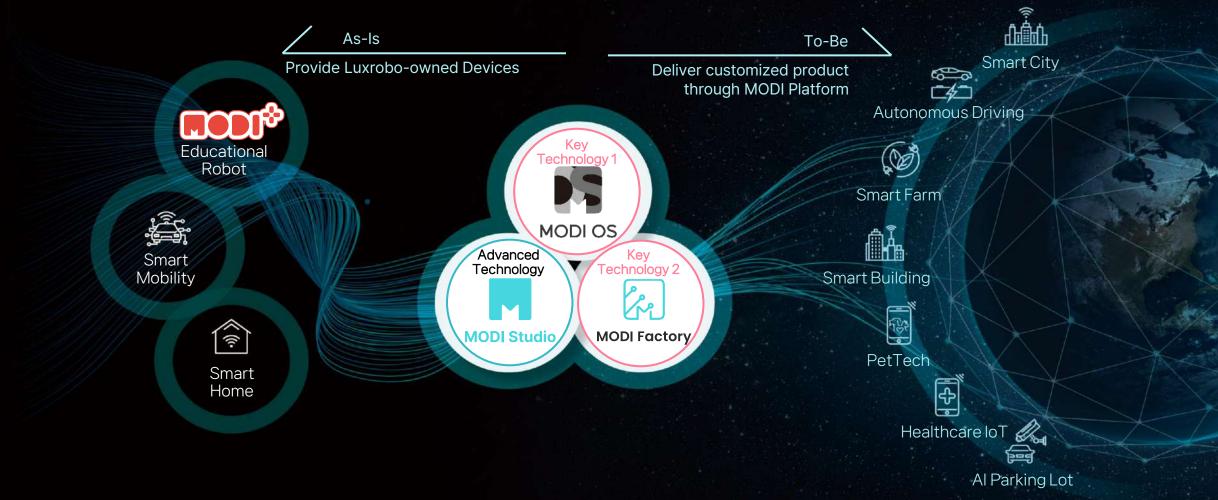
1.1 Revenue (Consolidated)

Despite COVID-19 setbacks, the Education Business rebounded, supported by expansions in AloT Business, aiming for 38.5bn KRW revenue by 2024 with a 74% of CAGR (2020-2023).



2. Business Overview

Leveraging our key technologies, LUXROBO excels in Educational Robot Business and AloT Business, and is now poised to enter new markets by offering smart solutions



2.1 Ratings of Key Patents

We regularly conducts patent investigations and secure intellectual property rights to prevent technology leakage (A total of 89 patent applications (including PCT) registered / A total of 255 including trademarks, designs, etc.)

Country Code	Patent Number	Patent Name	SMART3 Evaluation
EP	EP 3217482	MODULE ASSEMBLY AND CONNECTOR AND ELECTRONIC DEVICE	AA
US	US 9,755,356	MODULE ASSEMBLY	А
US	US 9,825,399	MODULE ASSEMBLY AND CONNECTOR AND ELECTRONIC DEVICE	А
KR	KR 10-1906823	멀티 모듈 컴파일 시스템 및 멀티 모듈 컴파일 방법,그리고 컴파일러 프로그램을 갖는 컴퓨터 판독가능 저장매체	А
KR	KR 10-1761596	모듈 어셈블리	BBB
US	US 9,755,357	MODULE ASSEMBLY	BBB
US	US 9,748,689	MODULE ASSEMBLY AND CONNECTOR AND ELECTRONIC DEVICE	BBB
US	US 9,846,570	MULTI MODULE COMPILE SYSTEM, MULTI MODULE COMPILING METHOD, AND NON-TRANSITORY COMPUTER REDEABLE STORAGE MEDIUM	BBB
KR	KR 10-1972545	음성 명령을 통한 위치 기반 음성 인식 시스템	BBB
KR	KR 10-2289872	플러그 앤 플레이 모듈 어셈블리 및 플러그 앤 플레이 시스템	BBB
KR	KR 10-2335423	모듈 어셈블리 및 커넥터 및 전자 장치	BB
US	US 9,524,148	MULTI MODULE COMPILE SYSTEM, MULTI MODULE COMPILING METHOD, AND NON-TRANSITORY COMPUTER REDEABLE STORAGE MEDIUM	BB
KR	KR 10-1601141	플랫폼을 이용한 사물 인터넷 시스템	В
KR	KR 10-2004708	가상화 파라미터를 사용하는 동기화를 제공하는 방법 및 장치	В
US	US 10,884,096	LOCATION-BASED VOICE RECOGNITION SYSTEM WITH VOICE COMMAND	В
KR	KR 10-2217922	조립 정보 제공 시스템 및 모듈 어셈블리	В
KR	KR 10-2301027	모듈을 이용한 독자 참여형 전자책 시스템 및 동작 방법	В
US	US 11,229,841	READER PARTICIPATION TYPE ELECTRONIC BOOK SYSTEM USING MODULE AND OPERATION METHOD	В
KR	KR 10-2211422	멀티기능 프로그램 가능한 모듈	CCC
KR	KR 10-2298631	컴파일 없는 코딩시스템 및 모듈 어셈블리	CCC
KR	KR 10-2038822	모듈 및 이를 포함하는 모듈 어셈블리	CC
KR	KR 10-2304692	소스 코드 및 모듈 추천 시스템 및 모듈 어셈블리	CC
KR	KR 10-2137667	소스 코드 및 모듈 추천 시스템 및 모듈 어셈블리	CC
KR	KR 10-0070882	유체펌프	CCC



3. Key Management Expertise

LUXROBO started from a dream to make it easy for anyone to learn to code and build one's own robots. Both founders are the first movers in the Micro OS sector, building a platform based on their experiences in 12 years of Robot building and 10 years of Micro OS Development

Forbes

Academic Degree

M.A. in Electrical & Electronic Engineering, Yonsei University

Founder/Co-CEO

 PhD Candidate in Electrical & Electronic Engineering, Yonsei University

Professional Experience

- Forbes Asia 30 Leaders to Lead the Future
- 'Future Education Committee' Member. Korea Ministry of Education
- Member of Seoul Edtech Network
- Chairman of Seoul Economic Promotion Agency. Seoul Tech Meetup Council
- Advisor, Korea Venture Business Association
- Expertise: Robotics, IT Education

Achievements

- 2018 Government Award for Promotion of Venture Startup Award for Young Entrepreneurs (Minister of Small and Medium Venture Business Award)
- 2017 Korea Robot Industry Association Commendation Award (Minister of Trade, Industry and Energy)
- 2017 [5th Innovative Failure Case Contest] Grand Prize (Minister of SMEs and Startups Award)



Academic Degree

 PhD in Electrical & Electronic Engineering, Yonsei University

Professional Experience

- Forbes Asia 30 Leaders to Lead the Future
- Published multiple papers in SCI Journal
- Expertise: Robotics, Embedded SW

Achievements

- 2018 Laboratory Start-up Demo Day Grand Prize (Ministry of Science and ICT)
- 2007 National Skills Competition No. 1 in Computer Control (Ministerial Award)
- 2008 US ROBOGAME #2 in the humanoid category
- 2008 International Robot Contest Humanoid #1 (Presidential Award)



3.1 Key Executive Expertise – Key Executives

As a tech-focused company, our management team comprises professionals with deep sector-specific expertise, ensuring successful commercialization.



Jebong Kim

CFO

- MBA, Korea University
- B.A. in Department of International Trades, Sungkyunkwan University
- Former Executive VP, LG Display
- Former Management, Accounting & Planning Team, LG Display Chinese Subsidiary



Sangwon Hwang

VP of Edu Business

- MBA, Duke University
- B.A. in Business, Yonsei University
- General Manager of Sales, Thomson Reuters Korea
- Sales Director, Samsung Electronics
- Senior Partner, Bain & Company



YJ Hwang

VP of AloT Business

- B.A. in Software Engineering, University of Surrey
- LG Electronics Wireless Business, Assurant Korea
- Expertise: Business development and strategic planning



Gil Kim

Director of R&D Center

- B.A. in Computer Engineering, Dongguk University
- LG Information and Communication
- Developed 10 types of optical communication equipment, 5 types of wireless communication equipment, and 70 types of libraries by server/client/platform



Kevin Choi

Director of Business Strategy

- MBA, Georgetown University
- B.A. in English Literature, Korea University
- Former EVP, LG Display IT / Mobile
- Head of LG Display Advanced Display Apple
- LG Display CMO (Chief Marketing Officer)
- LG Display Strategic Management



Michael Kim

Director of Strategic Cooperation

- B.A. in business, Kyungpook National University
- Former Vice-chairman, Jungho E&C
- Former CEO, Genesis BBQ
- Former EVP, Samsung C&T
- Former VP and Auditing Team, Samsung Electronics



Travis Nam

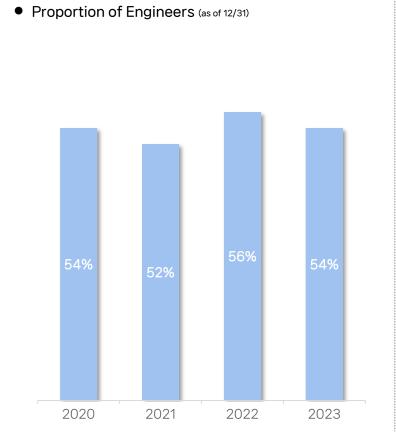
Director of SCM

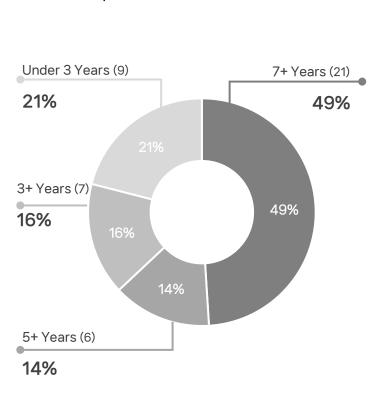
- MBA in Global Logistics, Inha University
- B.A. in English Literature, Dongguk University
- Hanwha Solutions, Hanwah Q Cells, Hanwha S&C
- Expertise: SCM diagnostics and consulting

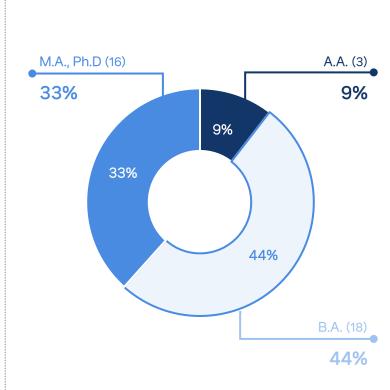
3.2 Expertise of Engineers

Since 2015, we have established a research institute certified by the Korea Industrial Technology Promotion Association. Luxrobo currently employs 43 engineers, including CTO, comprising over 54% of its workforce dedicated to technology and product development as of December 2023.

Years of Experience







Academic Degree

3.3 Expertise of Key Employees and Retention Strategies

To ensure the retention of technical talent and foster dedication among key engineers, we have implemented a variety of performance compensation systems. Our key engineers are globally recognized for their expertise in global robot-related competitions.



Total Awards Received 154

International Awards
43

Domestic Awards 111

Compensation Policy

Employee Learning & Development Benefits	Job TrainingNon-job-related education programBook purchase
Health Care	Health Examination Expense SupportPhysical Fitness Training Expense
Work-Life-Balance	Flexible Working hoursFamily Day

Employee Invention Compensation System

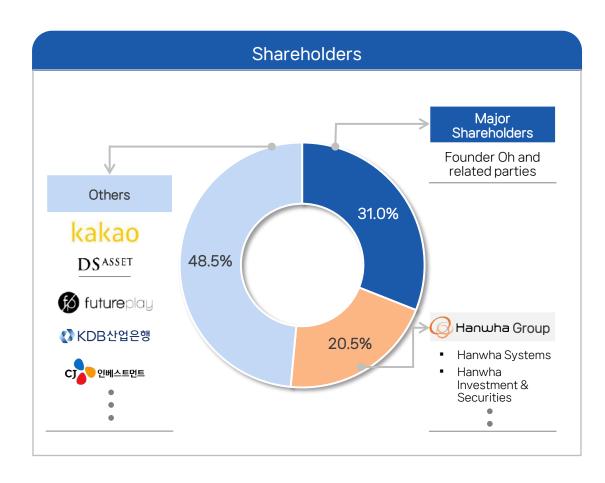
	Details	Compensation
Patent Application	When a invention is filed for application * Depends on rating	A:1.2M KRW B:0.8M KRW C:0.5M KRW (applied to both domestic and international patents)
Patent Issued	When the filed application is registered	-
Patent Assignment	When financial compensation like licensing fees is received through patent assignment	3% of the royalties
Implementation	When the company implements the patent	Depends on criteria

• Stock Option Grants

	# of Employees	Stock Option Grants	Granted Rate
Total Employees	79	50	63%
Engineers	43	30	70%

4. Major Shareholders

As of Jan. 2024, the founder holds the majority stakes. Hanwha Group is the second-largest shareholder, investing in our technology and establishing a JV, actively cooperating with the company's business. Other shareholders (Kakao, Kyowon, CJ) and Venture Capitals have also made investments.



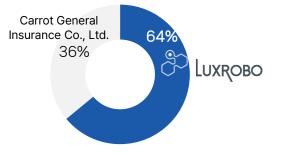
Affiliates

Luckybox Solution Co., Ltd.

Established a Joint Venture to expand with Hanwha Group to expand digital insurance coverage

Mobility/Pet/Healthcare IoT Devices

Established Year	2022	
CEO	Jinsun Kim	

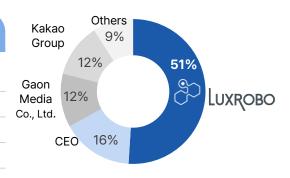


Quber Co., Ltd.

Acquired SW development business to expand platform technology

Embedded SW, Smart Devices

Established Year	2015
Acquired Date	2022 (51%)
CEO	Janghee Lee



5.1 Educational Robot (MODI)

MODI, an SW/AI educational module robot, is currently used in 4,000+ schools worldwide. We offer a wide range of educational AI products and educational coding products, suitable for students of all ages and educational levels.



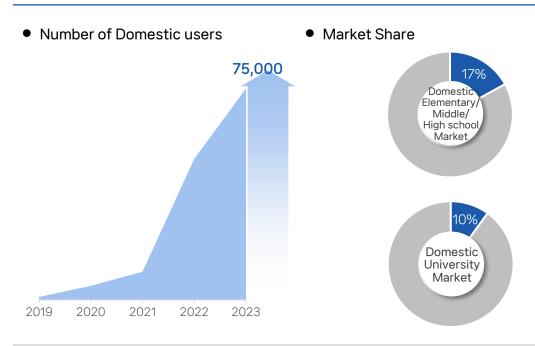
	SW Eu	Al Education			
Best Expert Kit	Designer Kit	Brick Pack	Hot Making Pack	Hello Al	Smart Al
September 1997	्	Brick Pack Phone And Andrew Andrew			© □ and
• All curricula available (Beginner ~ Advanced)	An Introductory PackageCoding while playing	Creation Package Assembling MODI & bricks	Paper Designs - MODI attachable	 Entry-based product for Understanding Al 	Multi-jointed product, using AI (Advanced)
Best Master Kit	Designer Kit	NEW Creator Kit	Brick Pack	Camera Module	Kyowon AiCANDO
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- All curricula available (Beginner ~ Advanced)	An Introductory Package - Coding while playing	Creation Package Assembling MODI & bricks	20 Types of Creation Assembling MODI & bricks	MODI+ Camera Module For Al Educations	 Entry level of Coding based on Kyowon story books linked with MODI

5.1 Educational Robot (MODI)

The education business secured long-term and stable sales as a national development task (M/S 16%), also laid the groundwork for sales expansion through 50+ overseas partnerships.

worlddidac

Educational Robot (Domestic Market)



- Ensuring stable sales recovery by primarily targeting the government-funded public education sector
- Domestic MODI users: 75.000+ (estimated)
- Currently holding 20% in domestic elementary/middle/high school market (2,000 out of 11,513 schools)
- Currently securing 10% of the domestic university market (35, including the top 3 universities, out of 335 universities)

Educational Robot (Overseas Market)



- Coding Education is mandatory worldwide
- Penetrating global market through partnerships with entities like Google, Nasa





Southeast Asia

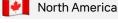


- partnerships (Poland, Italy)
- Signing new distribution contracts (Italy, Croatia)
- Negotiating initial supply (Lithuania. Czech Republic, Slovakia, Hungary)
- Extended contract for 4 years (Ministry of Education, Luxembourg)



- New distributor contract under discussion
- Expansion of the existing partnerships (Singapore)
- New distributor contract under discussion (Indonesia)





- Negotiating launch in the U.S.
- New distributor contract under discussion (U.S., Canada)
- Signing a business agreement to hold a joint international online robot competition with USRA







- Signed contract (May. 2023. South Africa)
- Existing Ministry of Education Business Expansion (Côte d'Ivoire)



 New distributor contract under discussion



Signing new distribution contracts



- · Negotiating initial supply (Brazil)
- Signing new distribution contracts (Ecuador)



5.2 Smart Mobility Solutions

Smart mobility solutions are mobility devices gather data from objects through sensors, wireless communication, and GNSS. Mobility robot products provide direct control of moving objects.



UBI Tracker ('21~)

BBI Device ('24.2Q~)

Pet Tracker ('24.2Q~)

Tractor Telematics ('24~)







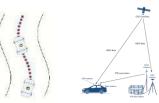


- Vehicle Tracker
- GNSS, IMU, LTE applied
- For monthly car insurance coverage
- Wireless device for vehicles
- IMU, Bluetooth applied
- For annual car insurance coverage
- Collect pet behavior data
- Estimate behavior such as negative numbers, defecation, etc
- For pet insurance coverage

- Collect tractor vehicle information
- Vehicle control, route tracking
- LTE, Bluetooth wireless communication



Autonomous Driving Module (23.2Q~)





- Provide autonomous control of electric carts based on RTK-GPS including steering, acceleration, and stopping
- Commercialize by deploying on golf courses

Indoor Environmental Care Robot ('24 research, '25~)





- Currently in collaborative research, business planning with Korea's pharmaceutical company
- Autonomous mobile robots perform quarantine such as indoor sterilization and disinfection

5.3 Smart Home Solutions

Since signing a contract with Hyundai Engineering in May 2021, we have been working together to develop different IoT solutions for Hyundai Hillstate Housing. These solutions cover areas like lighting, switches, and home networks.

	Smart Home Io	T Device ('22~)	Smart Home IoT Solutions ('23~)			
	Launched in 22.2Q Launched in 24.1Q		24.3Q (rollout)			
					HYUNDAI ENGINEERING CO., LTD.	HILLSTATE
	Parking Sensor Plug	Smart lighting control	Integrated Parking Management System	Al voice recognition switch	Smart security Solutions	Apartment complex integration server
Product Details	Korea's first car-mounted automatic parking location detection modular	Seamless control of lighting, including on/off functionality and dimming	Increase user convenience by adding AloT technology into current parking management systems	Utilize AI voice recognition for controlling lights and appliances via switches	Install sensors and systems to effectively monitor and analyze security in houses	Integrate servers for monitoring and operating Apartment parking/security systems
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Features	 Detect parking location by linking with CCTV lights in the parking lot Fewer recognition errors than license plate recognition systems 	 Wireless connectivity between lights and switches for easier installation Control multiple lights simultaneously through interconnection between switches 	 Integrate lot lighting, security cameras, emergency systems Provide guidance to available parking spots Alert when passengers enter vehicle-only passageways Detect reverse driving vehicles 	 Enhance user control by implementing Al speaker functionality integrated with built-in switches, enabling command control in any part of the house Increased recognition rate with noise-canceling features 	 Improve apartment security through thermal sensors and Al analytics, while safeguarding privacy Prevent intrusive crimes Ensure safety in areas lacking security cameras coverage 	 Secure servers using onpremises servers, firewalls Execute essential analytics functions including Al and deep learning Offer simple system monitoring and maintenance procedures
Rev. Forecast (year)	0.4~0.5 billion KRW	3.5~4 billion KRW	10~15 billion KRW	2.5~3 billion KRW	1+ billion KRW	1+ billion KRW

5.4 MODI Platform

MODI OS, MODI Studio, MODI Factory are part of the MODI Platform, and the company is planning to expand the business through global Micro OS Platform.

MODIOS (Micro OS)

2017~

- Next-gen Micro OS for MCU with system cost reduction, increased development convenience, and IoT function enhancement
- Currently applied to Luxrobo products, completed patent applications for key technologies
- Planning to expand business into the global OS market by collaborating with MCU companies starting 2023 (Abov Semicon, LX Semicon)



MODI Studio (Web IDE)

2017~

- Coding Tool, Package products including Desktop IDE for Library development
- Support rapid development by providing an integrated development environment with interaction between GUI OS and IDE
- Maximize user convenience by supporting various coding methods and programming languages such as Python, Block coding, Scratch, and C++



MODI Factory (Web EDA)

2023~

- Coding Tool, Package products including Desktop IDE for Library development
- Support rapid development by providing an integrated development environment with interaction between GUI OS and IDE
- Maximize user convenience by supporting various coding methods and programming languages such as Python, Block coding, Scratch, and C++



6. Manufacture and Quality Control

We outsource manufacturing to professional manufacturing companies and maintain an in-house SCM team for production oversight and quality control.

Quality/Production/Purchasing Organization

- Our products require systematic production management and processes due to diverse and high-level customer requirements.
- As material and processing costs constitute a significant proportion of expenses, professional production and quality control are required.
 - → Established a dedicated SCM team in early 2022 to ensure enhanced quality and production competitiveness.

SCM (1) Product (1) Production Team (3) Purchase Team (2) Quality Control Team (3) Organization Strategizing and Evaluating quality of new **Process Quality Production Control** developing procurement products Chart Handling CS (Customer Optimizing SCM Managing and sourcing Managing Service) and AS (After-sales from supplier companies manufacturing quality operations Service) and process Outsourcing Analyzing costs and Obtaining domestic and production enhancing Managing defect rates international quality competitiveness through and quality Managing S&OP¹) certifications cost improvement improvement meetina

Outsourcing production operation management

- The company outsources manufacturing for stable production while focusing on technology development
 - → Infra Elec Co., Ltd. (since Dec., 2021)
 - → Galtronics Korea Co., Ltd. (since Nov., 2023)
- Both companies have adopted ISO standards ISO 45001 (health and safety management systems), ISO 9001 (quality management system), ISO 14001 (effective environmental management system) based on many years of experience and know-how in manufacturing SMT²⁾ electronic parts.

Outsourced Manufacturing Companies

Infra Elec Co., Ltd.



- Established Year: 2015
- Location: Suwon-si, Gyeonggi-do, Republic of Korea
- # of Employees: 62 (22 managers, 43 producers)

Galtronics Korea Co., Ltd.



- Established Year: 2014
- Location: Suwon-si, Gyeonggi-do, Republic of Korea
- # of Employees: 295 (36 managers, 260 producers; including Global HQ)

¹⁾ S&OP(Sales Operations Planning): a process to optimize sales by matching supply and demands / 2) SMT(Surface Mounting Technology): a method to mount electrical components directly onto the PCB surface

7. Awards

The company is recognized for technological excellence by winning 44 honorable awards through world competition.

Year	No.	National / International	Name of the Awards	Awarding Organization
	1	International	1st place in Robofest 2015 World Championship Al Sector	Robofest
2015	2	National	Recognized as the Best Youth Startup	Small and Medium Business Administration
	3	National	Excellent Youth Startup at the Seoul Youth Startup Exhibition	Seoul Metropolitan Government
	4	National	Winner of the 2016 Intel&SK Telecom T-Hackathon Best Prize	SK telecom
	5	National	Ranked 1st in the TOP 100 Startup Search at Echelon Asia Summit	KOTRA
	6	National	Winner of the 2016 K-ICT Smart Device Division Award	Ministry of Science, ICT and Future Planning
	7	International	1st place in Robofest 2016 World Championship Al Sector	Robofest
2016	8	International	Ranked TOP 11 at ECHELON ASIA SUMMIT	ECHELON ASIA
	9	International	Winner of the 2016 CKC CKTEC Award	Canada-Korea Conference
	10	National	Recognized as an Outstanding Design	Korea Institute of design promtion
	11	National	Winner of the 2016 K-Global Accelerator Integrated Demo Day	Ministry of Science, ICT and Future Planning
	12	National	Selected as one of the K-Global 300 Promising ICT Companies	Ministry of Science, ICT and Future Planning
	13	National	Winner of the Best Demo Day at Hey Startup! Global Demo Day	Seoul Metropolitan Government
	14	National	Winner of the KOTRA Export Innovation Company Award	Korea Trade-Investment Promotion Agency
	15	National	Winner of the Best Startup Award in the Republic of Korea Startup League	Small and Medium Business Administration
2017	16	International	Winner of the Reddot Award 2017	Red Dot
	17	National	Winner of the Final Pitching in the Republic of Korea Startup League	Korea Health Industry Development Institute
	18	National	Winner of the Best Startup Award at Challenge! K-Startup 2017	Ministry of SMEs and Startups
	19	National	Received the Commendation from the Minister of Industry, Trade, and Energy	Ministry of Trade, Industry and Energy
	20	International	Winner of the IF Design Award 2018 Design Award	IF Design
	21	National	Winner of the 2018 Lab Startup Demo Day	Ministry of Science and ICT
2018	22	National	Recognized as an Outstanding Export Startup Company at the 2018 Tips Grand Convention	Korea Institute of Startup and Entrepreneurship Development
	23	National	Selected as an Excellent Science and Cultural Product in 2018 (MODI Expert Kit)	Korea Foundation for the Advancement of Science and Creativity
	24	National	Winner of the e-Learning EduTech Business Model Award	Ministry of Trade, Industry and Energy
	25	National	Winner of the 2020 Republic of Korea First Brand Award (EduTech Sector)	Customer Council
	26	National	Designated as a Promising Export Small and Medium-sized Enterprise	Ministry of SMEs and Startups
2020	27	National	Winner of the 2020 EduPlus Award from the Elementary Computing Teachers' Association	Association of Teachers for Computing
	28	International	Winner of the Worlddidac Outstanding Award 2020	Worlddidac
	29	National	Special Award at the 2020 Republic of Korea ICT Innovation Awards	Ministry of Science and ICT
2021	30	National	Selected as an Outstanding Venture Company in 2021	Korea venture business association
	31	International	Winner of the 2021 GESS Dubai Awards Innovation Product Category	GESS Dubai
2022	32	National	First Place in the 2022 EduPlus Awards	Korea Int'l Education Week for Technologies and Contents
2023	33	National	Designated as a Global Strong Small and Medium-sized Enterprise (Promising Enterprise)	Ministry of SMEs and Startups



