

~NEXTY offers development and approval support services for Alexa Built-in devices~ Amazon Alexa Voice Service × NEXTY Electronics

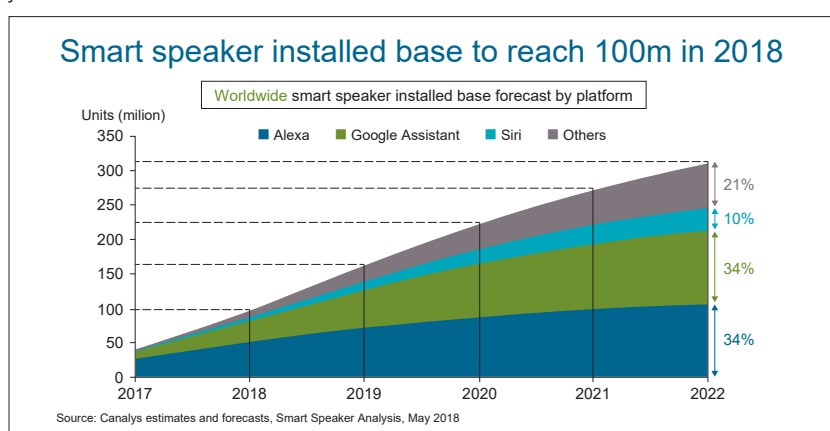
In July 2019, NEXTY Electronics became the first system integrator* in Japan with a solution qualified by the Amazon Alexa Voice Service ("AVS"). We can now offer support to our customers in Japan looking to develop and bring to market Alexa Built-in devices.

Through its experience in-house prototype development and experience with Alexa Built-in products, NEXTY Electronics has built up extensive knowledge on every stage of the process –from understanding AVS requirements to Amazon's product approval, and market introduction of Alexa Built-in products—which led to the company becoming the first system integrator in Japan to be qualified by Amazon.

1. Why Did NEXTY Decide to Become an AVS SI?

■ Growth in the voice assistant market

Amazon, Google, Apple, LINE and other companies have all introduced their own voice assistant services. Starting with smart speakers, a variety of devices around the smart home can now be controlled by voice. This trend is also making its way into the automotive industry.



■ A desire to leverage our expertise and capabilities

Expertise in embedded software development is required in order to enable Alexa on third-party devices and obtain approval from Amazon. We possess proven experience in automotive and other segments since starting our embedded software business in 2004 and have qualified engineers located worldwide.

While our plans are to expand into automotive in the future, we will first work to capture business and offer services related to AVS in Non-Automotive segments.

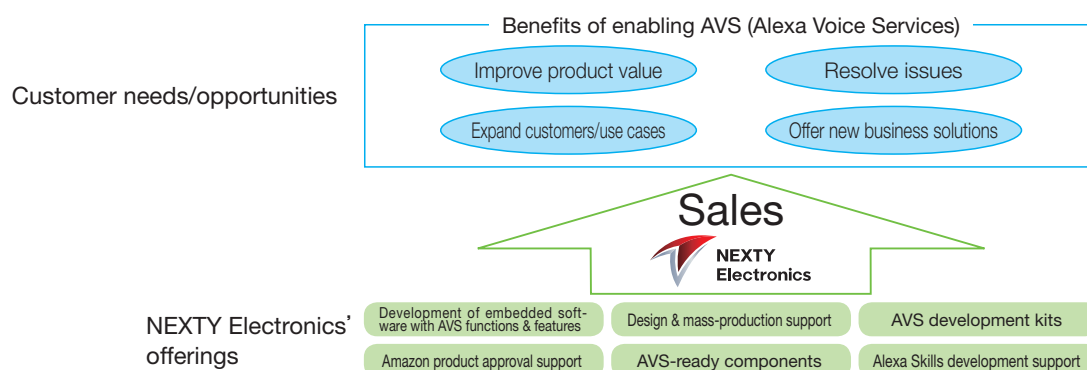
■ Our vision of the future

As an AVS SI, we will help spread the use of Alexa while offering support for the Alexa Skills Kit tailored to specific needs and expanding our offering of services so we can help solve the problems faced by customers who want to introduce smart home devices works with Alexa.

In order to meet the needs of customers who want to add support for voice assistants besides Alexa, such as those offered by Google and LINE, we are working to become the company they think of when looking for help with creating a voice-enabled product.

2. What Do We Offer?

We provide customers with support for every step of the way in enabling Alexa on their products, from planning and development to sales. We offer various support to customers with full use of our in-house resources and external partners.



3. Partner Information

■ Alexa Skills development partner 株式会社 ISAO

ISAO is Alexa Skills Builder agency qualified by Amazon. With its broad expertise and experience in designing voice-controlled apps, which includes development for Google Assistant, ISAO is known as a leader in the Voice UI field in Japan.

One of the company's strengths is that it offers its own Voice UI design sprint^{※1}, enabling it to help customers with everything from the planning stage to service design. As an AWS and Microsoft Azure Partner, it provides services to leverage the cloud, PaaS^{※2} and data intelligence as well as Alexa Skills. With experience in the areas of security and authentication, ISAO provides comprehensive support for development and operations that also includes infrastructure and backend systems. Please feel free to contact the company.

※1 Design sprint: A process embodying behavioral science and design thinking concepts that answers important business questions quickly from a design standpoint.

※2 PaaS: Platform as a Service. A software execution environment that can be used remotely as a service over the Internet. Also refers to such services or business models.



4. Press Release July 8, 2019

■ NEXTY Electronics Becomes Japan's First Alexa Voice Service System Integrator Qualified by Amazon

～ NEXTY offers development and approval support services for Alexa Built-in devices ～

In July 2019, NEXTY Electronics has become the first system integrator[※] in Japan with a solution qualified by the Amazon Alexa Voice Service ("AVS").

※Systems integrator: A company that supports a series of processes from system development to market introduction.

■ Background to acquiring qualification

- Rapid growth in the market of user interfaces using speech recognition and voice interaction. An increasing demand for rapid introduction into Japanese market.
- Amazon is a leader driving the voice assistant market.
- Commercialization of Alexa Built-in devices requires product approval by Amazon.
- Qualified systems integrators that can assist with product approval process are only located outside of Japan.

Drawing on its amassed expertise in supporting the prototype development and approval of Alexa Built-in devices in Japan, NEXTY became the first Japanese company to be qualified by Amazon as an AVS systems integrator.

■ Future initiatives

By being qualified as an AVS systems integrator, NEXTY can now offer one-stop support for planning, product development, manufacturing and product approval for customers who want to introduce voice-enabled products to the rapidly growing voice UI market.

★NEXTY Electronics' page introducing its AVS services: <https://www.nexty-ele.com/business/software/amazon-alexa/>

★Amazon's website introducing AVS: <https://developer.amazon.com/ja-JP/alexa>

~Technology allows sensorless realistic haptic feedback~ NEXTY Completes Real Haptics Demo Machines

NEXTY Electronics recently has become a member of the Real-Haptics Engineering Council, which is organized by the Keio University Haptics Research Center at Keio University. By doing so, NEXTY Electronics is now able to offer modules and other supports incorporating “real-haptics”, technological IP owned by Keio University.

Real-haptics makes it possible to sense at a distance the hardness, softness, elasticity and other characteristics of objects, as well as gently grasp soft and delicate objects, all of which were previously difficult to achieve. In addition, this technology enables systems to be built at extremely low cost for its sensorless technique.

Together with NEXTY System Design Corporation (“NSD”), a joint venture between NEXTY Electronics and Toshiba Electronic Device Solutions Corporation, we will offer customers real-haptics engineering support in their development of products and systems.

About the Real-Haptics Engineering Council

Official name: Real-Haptics Engineering Council

Organizer: Keio University Haptics Research Center (Keio University)

Address: Shin-kawasaki, Saiwai-ku, Kawasaki-shi, Kanagawa

Established: 2015 (NEXTY Electronics has been a member since May 2019)

Purpose: To serve as an industry-academic council operated by Keio University that focuses on launching new businesses that use real-haptics.

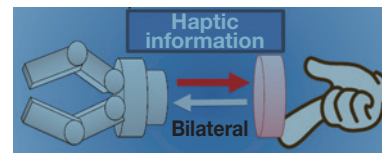
What is Real-Haptics Technology?

Real-haptics is a world-first future technology brought to life through research by Professor Kouhei Ohnishi of Keio University. The technology communicates, reproduces, scales and preserves the sense of touch of the human hand, and the technology's basic principles have been patented by the University.

Real-haptics' strengths

Real-haptics enables optimal movements by combining position and force control. By digitizing force sensation, transmitting it to a remote place, and finely controlling the amount of force used, robots can be imparted with gentleness, dexterity and fineness of control.

An additional strength of real-haptics is that it is extremely low cost because it does not use any sensor devices.



Digitize and return the tactile sensation of object to human operator

About haptics

The sensation that allows humans to immediately feel whether an object is hard like iron, soft like a sponge, or elastic like a balloon just by touching it.

Comparison of Current Technology With Real-haptics

Object	Robots using current technology (only capable of stiff movements)	Robots using real-haptics
Baby chick	Can only grasp with a fixed amount of force, consequently the chick gets away	Gently grasps the chick so it cannot get away
Shortcake	Squashes the shortcake because it cannot grasp it gently	Grasps the cake with the appropriate amount of force by determining its hardness and condition

Our Goals

With the severe labor shortage accompanying Japan's shrinking population coming to the fore as a social issue, the number of robots that will replace humans in performing time-consuming tasks is set to increase. Furthermore, it is predicted that if the world's major factories are fully automated, we will see nearly 50 billion robots, or five times the global population, doing the jobs of humans by 2050.

As the robotics market continues to grow, real-haptics is the technology that will enable robots to gently grasp soft objects, a vital factor in these machines' evolution. By synergizing our network and information resources with NSD's technological strengths, we will support customers with planning, development, design, manufacture, sales and business creation related to the next generation of robots for factory automation, collaborative applications and service. We will also play a part in the further development of robotics technology and solving related social issues.

What Real-haptics Can Achieve

1. Enable actions to be performed from anywhere

Real-haptics allows a worker to feel an object by touch even from a distance, allowing tasks to be performed in harsh environments that require haptics.

2. Make actions visible

Real-haptics can decipher the experienced actions of a craftsman, converting tacit knowledge into explicit knowledge, and passing those expert techniques on to unskilled people.

3. Make actions super-human

By using amplified haptic data, tasks can be performed where a large force is controlled with a small one. This allows humans to perform tasks that require power and speed beyond what they are physically capable of.

4. Make objects visible

Quantifying touched objects allows their states to be known, enabling performance of tasks that confirm whether objects have been inserted or pressed into place.

5. Make actions into content (from IoT to IoA*)

By creating a library of actions as mentioned above in 1-3, specifying times and actions in cyberspace, and installing into an object, it is possible to reproduce the required actions when needed

※IoA: Internet of Actions. A concept that is attempting to open the way to completely new fields of application where the actions of humans and robots are gathered together and exchanged over a network.



NEXTY Electronics Completes Its Own Demo Machines!

We developed demo machines supposing single and triple-axis robots that allow users to experience real-haptics.

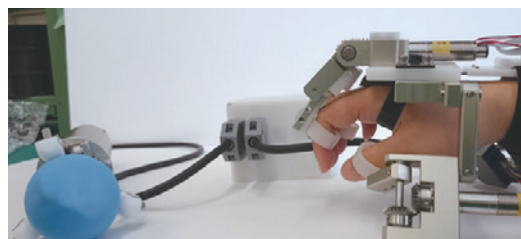
Single-axis Robot



■ Holds objects by moving two fingers simultaneously with a single-axis motor.

Holds fragile items, like a potato chip, without breaking them

Triple-axis Robot



■ A robot arm with three fingers, each with three independent joints. It grasps objects by moving each finger individually.

Firmly grasps an elastic blue ball

Contact NEXTY Electronics to sign up for a demo.

About NEXTY System Design Corporation

A joint venture between NEXTY Electronics Corporation (51% share) and Toshiba Electronic Device Solutions Corporation (49% share).

With around 60 employees, the company's primary business is automotive electronics software. It is working to achieve further growth while enhancing its engineering resources with a view toward more wide-ranging software development.

NEXTY System Design is also involved in joint development activities and providing engineering support as a core member of the Real-Haptics Engineering Council.

Company website: <http://www.nxt-sys-design.co.jp/>

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