NEWS RELEASE

Niterra Co., Ltd.

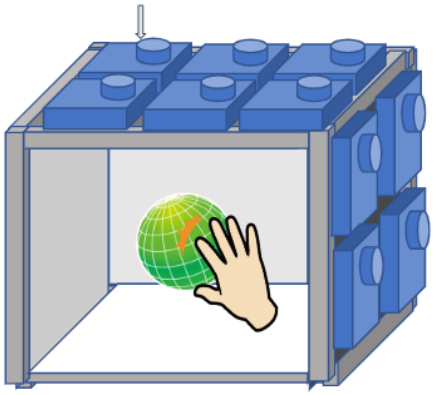
Niterra Announces Exhibition of Future "Aerial Sense Device"
Utilizing Lead-Free Piezoelectric Ceramics at EXPO 2025 OSAKA, KANSAI, JAPAN
- The exhibition will offer a unique interactive experience -

NAGOYA, JAPAN, Dec. 3, 2024 — Niterra Co., Ltd., Japan's leading manufacturer of spark plugs and sensors with an evolving portfolio focused on ceramics and beyond, is pleased to announce that they will exhibit the "Aerial Sense Device" (hereinafter referred to as the device) utilizing lead-free piezoelectric ceramics (*1) developed by the company at the Future Society Showcase project, "Future City," (hereinafter referred to as "Future City") (*2) at EXPO 2025 OSAKA, KANSAI, JAPAN.

■Overview of the "Aerial Sense Device":
The device, installed at Niterra's booth, can directly impart sensory experiences (touch, hearing, vision) in mid-air. At "Future City," visitors can interact with the original characters called "Niteon" (*3) and experience the future through the device and virtual Expo venue.

The device consists of the following components: (1)Tactile technology using ultrasonic waves, (2)Directional speakers, and a (3)Glasses-free 3D display. By using this device, visitors can experience unique sensations, such as physically feeling the texture of the Niteon projected in mid-air (visual) through tactile and auditory sensations, and hearing the Niteon's vocalizations exclusively. Furthermore, each Niteon possesses distinct abilities, and visitors can perceive the sensations generated by these abilities, enabling two-way interactions and communication.

Board with Ultrasonic Transducers



Visitors can experience interacting with floating 3D images inside the device

Image of the Aerial Sense Device

■The device consists of the following components:

(1)"Haptic Technology utilizing Ultrasonic Waves": Numerous ultrasonic transducers are arranged on the walls, generating independent ultrasonic waves. By controlling them, visitors can feel tactile sensations even without physical contact.

(2)"Directional Speaker": The device uses ultrasonic waves' directivity to deliver, sound to precisely targeted locations. Although humans cannot normally perceive ultrasonic waves, generating special waveforms makes them audible to human ears.

(3)"Glasses-Free 3D Display": This is a display where images appear to pop out without the need for special glasses.

With this device, Niterra proposes a future where more immersive communication can be achieved with people in remote locations, bringing real and virtual spaces closer together. The device's tactile and auditory experiences are developed using our lead-free piezoelectric ceramics, which are widely used in various applications such as buzzers and sensors. By expanding the possibilities of lead-free piezoelectric ceramics, the company aims to contribute to the realization of a vibrant future society that is both safe and environmentally friendly.

<Collaboration>

In developing the "Aerial Sense Device," Niterra received cooperation from the Graduate School of Frontier Sciences at the University of Tokyo for image processing and control of ultrasonic transducers.

Additionally, the research at the University of Tokyo is supported by the "Establishment of Foundation Technologies and Rules for the Expansion of the Virtual Economy" of the Cabinet Office's Cross-Ministerial Strategic Innovation Promotion Program (SIP), managed by the New Energy and Industrial Technology Development Organization.

<Note>

*1 "Lead-Free Piezoelectric Ceramics": Piezoelectric ceramics can convert pressure into electrical voltage and vice versa. Lead is commonly used in piezoelectric ceramics, which poses risks to the environment and human health. Since around 2000, Niterra has been developing niobate-based, lead-free piezoelectric ceramics.

*2 "Future City" is one of the six Future Society Showcase areas. It is an incubation-type project that implements various ideas. "Future City" is one of the main projects of the Future Society Showcase and is based on the concept of Society 5.0. It is composed of five fields in various business areas. In the field of "Environment and Energy," which the company will exhibit, the theme is "Creating various 'circulations'

to generate new bounties of energy. Evolved initiatives for a sustainable Earth."

*3 "Niteon": A coined term combining its English company name "Niterra" and "Add-on" representing technology transfer. It is a collective term for multiple original characters (autonomous portable circulation devices) that embody its circular technology.

<References>

Press Release on our exhibition (August 28, 2024):
https://www.ngkntk.co.jp/english/news/upload/dca19dd4ce7843ea7d168334494e1a33_1.pdf

Special page for our sponsorship of the Osaka-Kansai Expo:
https://www.ngkntk.co.jp/english/expo2025/

Special page for our sponsorship of the Osaka-Kansai Expo (Picture Book Style):
https://www.ngkntk.co.jp/english/expo2025/picturebook

"May this story also illuminate the hearts of everyone who carries the present and those who will shape the future".

About Niterra

Founded in Nagoya, Japan in 1936, Niterra Co., Ltd. (formerly NGK SPARK PLUG CO., LTD.) is renowned for its NGK-branded spark plugs and NTK-branded ceramic products. Niterra, a coined word combining the Latin words "niteo" (shine) and "terra" (Earth), was introduced in April 2023 to express the reborn company's commitment to sustainability through an evolving portfolio focused on ceramics and beyond. Under the corporate message "IGNITE YOUR SPIRIT," Niterra is now expanding into the growth fields of mobility, healthcare, environment and energy, and communications. The company's consolidated revenues in fiscal 2023 (to March 2024) totaled 614.4 billion yen (4,389 million USD). Niterra has 32 bases in Japan and 61 overseas, and approximately 16,000 employees worldwide. Please visit https://www.ngkntk.co.jp/english/.