October 10, 2024

Press release

Japan Electronics and Information Technology Industries Association

Announcing the Winners of CEATEC AWARD 2024:
The Minister for Internal Affairs and Communications Award, The Minister of Economy Trade and Industry Award, The Minister of Digital Agency Award, 25th Anniversary Special Award, and Category Awards

The Japan Electronics and Information Technology Industries Association (JEITA: Kazuhiro Tsuga, Representative Director and Chairperson; also Chairperson of the Board, Panasonic Holdings Corporation) is pleased to announce the recipients of CEATEC AWARD 2024, including the three ministerial awards – The Minister for Internal Affairs and Communications Award, The Minister of Economy, Trade and Industry Award, and The Minister of Digital Agency Award – as well as the 25th Anniversary Special Award and Category Awards, all of which are selected from technologies, products, and services on display at CEATEC 2024. The CEATEC AWARD 2024 review board panel of judges has selected the CEATEC AWARD 2024 to be implemented with the goal of realizing Society 5.0, which will contribute to the creation and development of new value and markets while invigorating related industries.

The Minister for Internal Affairs and Communications Award

ViXion01S—Next-generation eyewear
that replaces and enhances the focusing function of the eye
by ViXion Inc.

The Minister of Economy Trade and Industry Award

A0-size ePoster for Indoor/Outdoor Use
by Sharp Corporation

The Minister of Digital Agency Award

TRANCITY Digital Twin Software
by CalTa Inc.

Please refer to the following pages for the outline and assessment of the Ministerial Awards, as well as the details of the 25th Anniversary Special Award and Category Awards.

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Winners of CEATEC AWARD 2024

The Minister for Internal Affairs and Communications Award

ViXion01S— Next-generation eyewear that replaces and enhances the focusing function of the eye

ViXion Inc. (Next Generation Park | Booth No.: 5H251）

Outline:
Eyewear that automatically adjusts the focus to suit the way an individual sees and what they are looking at, to achieve smooth autofocus. The built-in sensor measures the distance to the object and instantly changes the shape of the small special lens based on a unique algorithm to achieve stress-free focusing. It is suitable for people with poor vision, such as farsightedness due to age, nearsightedness, and lazy eye, and is suitable for detailed close-up work that takes up both hands, or when repeatedly switching between near and far objects.

Assessment:
This device could be a blessing not only for people with low vision (aka lazy eye), but also for those who have problems with their eyesight, such as presbyopia (aka age-related farsightedness) or myopia (aka nearsightedness). Originally developed by Hoya Corporation for the visually impaired, this technology has been repurposed and commercialized. In the past, it has also been successful in crowdfunding, exceeding its target by a wide margin. While the current product is already highly refined, it is also being further developed based on user feedback, making it a promising project for the future. Given the increase in the number of people with myopia, it was highly evaluated as a technology that is “necessary for society in the future”.

The Minister of Economy Trade and Industry Award

A0-size ePoster for Indoor/Outdoor Use

Sharp Corporation (General Exhibits | Booth No.: 7H502)

SHARP

Outline:
Sharp has developed a large A0-size electronic paper display, which can maintain a static image with zero power consumption. This ePoster can be installed outdoors and, as it uses reflected ambient light to display images, it is ideal for bright outdoor locations. There is demand for adopting digital technologies to create such large poster-style displays to serve as outdoor signage, at bus stop, etc. Combining a solar power generation system, this smart electronic poster is environmentally friendly, suitable for outdoor installation, and offers large dimensions.

Assessment:
This electronic paper display uses E-ink technology and consumes no power when displaying a static image. As well as an environmental performance equivalent to IP65, it features an anti-glare screen which is highly visible outdoors. At night, it lights up to improve visibility, and it can potentially be used as a light source. With connection to an LPWA wireless network, ePoster display data can be updated. This product has been highly evaluated for its unique features, the fruit of combining several of the company’s own technologies. And thanks to its durable, energy-saving design— solar power is enough to provide 16 hours of illumination on a full charge—it is expected to find a wide range of uses, such as signage and lighting in the event of a disaster.

The Minister of Digital Agency Award

TRANCITY Digital Twin Software

CalTa Inc. (General Exhibits | Booth No.: 6H163)

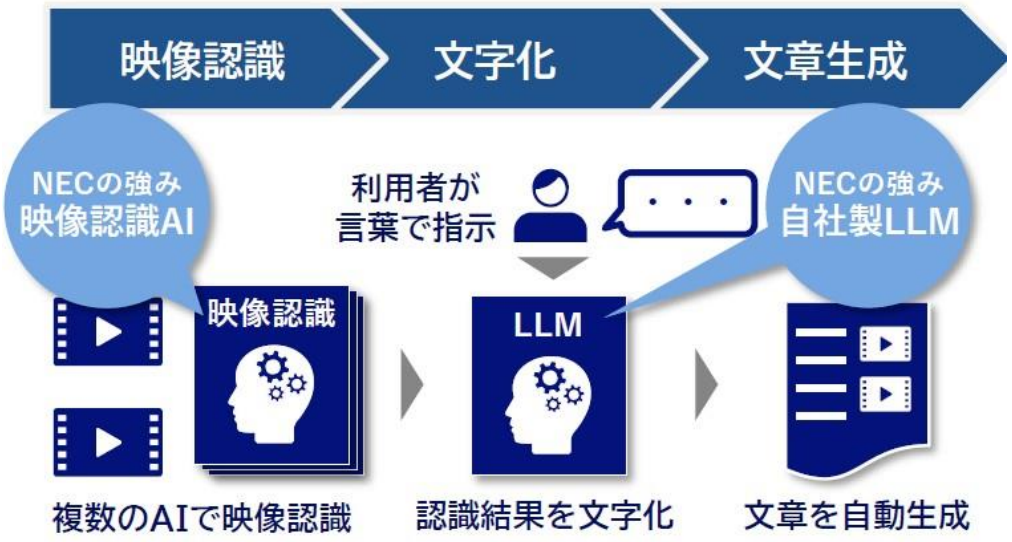
Outline:
By simply uploading video clips to a web browser, anyone can easily generate 3D data with this digital twin software. As well as dimensional information, the resulting 3D data contains positional and chronological information. By overlaying this (at actual size) on various maps, such as Google 3D maps, it is possible to grasp at a glance the “what, when and where” of infrastructure facilities. It is already being used for a wide range of purposes focused on infrastructure maintenance and management as well as construction.

Assessment:
These days, an increasing number of issues are arising with the maintenance and management of infrastructure because of aging and natural disasters. Using TRANCITY digital twin technology, one can generate 3D data simply by taking a video. As well as helping with infrastructure maintenance and management, this is expected to be used in a wide range of fields, particularly the construction and manufacturing industries. Potential applications are numerous, including automatic 3D data generation, image data management, information sharing, and collaboration with Google 3D. The company is a subsidiary of the East Japan Railway Company, and since TRANCITY was developed as a solution to meet on-site needs, it was highly evaluated for its practicality.

25th Anniversary Special Award

NEC's Video Recognition and Generative AI for Advancing Industrial DX and Enhancing Operational Efficiency

NEC Corporation (General Exhibits | Booth No.: 4H125)



Outline:
This is the world's first technology that can distinguish and understand a broad range of objects and environments—such as people, vehicles, buildings, animals, trees, and weather conditions, as well as changes in these—in extended video material, and can automatically generate short videos and explanatory text, customized to suit the user's purpose, using a large-scale language model (LLM) and generative AI developed by NEC. This technology makes it possible to utilize the vast quantities of video data generated in digital cities, and will contribute to advancing industrial DX and enhancing operational efficiency.

Assessment:
This is the first technology in the world to analyze extended video data by combining an LLM with video recognition AI, and to harvest information required by the user to generate short videos and explanatory text. Compared to conventional methods, it is said to halve the time required to prepare accident investigation reports for insurance purposes. Featuring NEC's own generative AI, this technology is now regarded as market leading. As the technology evolves, it is hoped that it might, for example, reduce the number of car accidents, as well as find uses in various other fields. Taking into consideration the CEATEC 2024 theme of "Innovation for All," it was judged as being the most suitable candidate for CEATEC's 25th Anniversary Special Award.

Category Awards

■ Innovation Category

GEMBA 3D—Automated rebar inspection system combining 3D sensing and 3D recognition using proprietary AI

HMS Co., Ltd. (General Exhibits | Booth No.: 5H141)

Outline:
Rebar inspection, which is essential for concrete structures, is carried out almost entirely by hand within a limited inspection time, and is a task that places a heavy burden on the construction site for which there is a remarkably high expectation of efficiency improvement. By combining an existing rebar inspection reporting system with a system that utilizes 3D sensors, and point cloud processing/edge clouding AI technologies, it is possible to create a 3D model of the rebar in almost real time, enabling automatic design data verification and automated report creation, as well as achieving unprecedented efficiency in the field of construction rebar inspection.

Assessment:
While labor and workforce savings are being called for at construction sites, rebar layout inspections, which check whether the rebar is correctly placed according to the design drawings, are of great importance, but are currently almost always carried out by hand. This system uses AI cameras to take photographs, synthesizes point cloud data and RGB data to create 3D data to achieve highly accurate rebar layout inspections, and contributes to labor savings. The company is also working on automating the report generation function, and its ambition to revolutionize the construction industry, together with its practicality, has been highly evaluated.

■ Innovation Category

A fourth passive element using spintronics technology reduces the power consumption of AI devices by 1/100

TDK Corporation (General Exhibits | Booth No.: 4H100)

Outline:
The rapid spread of AI has led to a sharp increase in power consumption in the ICT field, which has become a social issue. One of the factors contributing to this is the power consumption of semiconductors. Memristors are analog elements that mimic the synapses of the human brain, and are referred to as the fourth passive element following resistors, capacitors and inductors. AI circuits that include spin memristors using spintronics technology no longer have to perform digital logic calculations, and ultra-low power consumption can be expected in AI products from data centers to the edge.

Assessment:
Spin-memristors, which are ultra-low power consumption neuromorphic devices that use spintronics technology, are AI circuits that mimic the human brain. Also known as the “fourth passive element” after resistors, capacitors and inductors, memristors are devices whose conductivity and resistance values change in response to the electric charge that passes through

them. Compared to the multiply-and-accumulate operations performed by GPUs currently in use, memristors are expected to achieve energy savings of 1/100. The company aims to produce a prototype with a larger diameter using 12-inch wafers in three years, and to commercialize the product around 2030. The company was highly evaluated for its expectations in future technological progress and market development, such as greater energy efficiency through the realization of low power consumption, high-speed operation, and the spread of AI use in edge environments for tasks such as learning.

■ Innovation Category

Integrated Passive Substrate (iPaS) with Embedded Capacitors & Inductors Offering Higher Performance and Lower Power Consumption for Cutting-Edge Semiconductors

Murata Manufacturing Co., Ltd. (General Exhibits | Booth No.: 6H104)

Outline:
With the steady progress of AI and IoT, the volume of data traffic is growing rapidly. And while there is a strong demand for high-performance semiconductor packages, their increased power consumption poses a problem. The challenge is to achieve both high performance and energy efficiency. Developed exclusively by Murata Manufacturing, iPaS is a substrate product that integrates components such as capacitors and inductors. By embedding into the substrate SMD components that require a large mounting area, iPaS contributes to reducing the space and power requirements of a customer's products while enhancing their functionality.

Assessment:
This substrate product has embedded within its components such as capacitors and inductors. Incorporating surface-mount devices that require a large mounting area into the substrate is expected to contribute to space saving, power saving, and higher functionality. This is a particularly effective solution for products that can only offer limited mounting space. Designed to reduce power consumption, iPaS was also highly evaluated for its ability to eliminate noise. The future potential of iPaS was also reflected in the evaluation, as it enhances the performance and reduces the power requirements of semiconductor packages that are designed to handle the rapid growth in data traffic resulting from the increasing use of AI and IoT.

■ Next Generation Category

Synchronous, Multi-channel, Battery-free Wireless Sensing System

Backscatter Communication Research Consortium, Keio Research Institute at SFC (Next Generation Park | Booth No.: 5H221)

Outline:
By combining wireless power transmission with backscatter communications—using reflected signals to transmit data—this team has devised and developed a wireless chip, a reader, and a wireless communication protocol for enabling wireless communications while wirelessly powering commercially available sensors. It is now possible to create wireless sensors that are battery-free and ultra-lightweight (<1g), which can be embedded in products to enable 24/7

sensing, even when the object is in use. The team is conducting a battery of verification tests at the same time as promoting the adoption of this made-in-Japan wireless communication protocol as a new ISO standard.

Assessment:
This technology can be thought of as a more evolved, extended version of RFID, which does not require batteries and permits sensing on multiple channels. By wirelessly powering and communicating with commercially available sensors, it makes it possible to attach IoT sensors to almost anything—and in places where sensing was previously difficult. It has promising potential for use in a wide range of applications, including aging infrastructure monitoring, robotics, failure prevention, and predictive maintenance. The team is aiming to have it adopted as an international standard in 2025. They have worked hard for many years, promoting protocol standardization and conducting verification tests, and their achievements are reflected in the evaluation.

■ Next Generation Category

CMOS/Spintronics Fusion AI Semiconductor

Tohoku University (Inside New Energy and Industrial Technology Development Organization <NEDO> booth | Booth No.: 5H102)

Outline:
The increasing volume of data that is being processed today poses a problem. As a possible solution, the team has developed an edge AI computing technology based on CMOS/spintronics fusion (high-level fusion of CMOS and spintronics technologies). This R&D project encompasses the development of technology for the efficient design of a CMOS/spintronics fusion semiconductor, as well as applied research aimed at using it in edge-based surveillance systems and in-vehicle systems.

Assessment:
A problem with AI edge computing is the large amount of power it consumes. However, by combining mainstream CMOS technology with area-efficient nonvolatile spintronics technology, the team has realized a computing technology with high power efficiency. Commercialization is set for 2029, but the steady progress of the project, including the completion of line verification at a global company, has been highly evaluated. There are also high hopes that this will result in strengthening the competitiveness of the semiconductor industry, which underpins Japan's key industries such as IT electronics and automobiles.

■ Co-creations Category

Reposaku— "Just plug it in, it's that easy. It's an agricultural DX" made possible by a super-high-precision GPS logger

Ezowin Inc. (Inside the Digital Garden City Nation Concept Special Pavilion | Booth No.: 3H091)

Outline:
This product, developed by Ezowin, a startup company based in Shibetsu, Hokkaido, created the “Just plug it in, an Easy DX” system. Simply plug the GPS logger into the vehicle’s power supply to draw an accurate real-time map of the vehicle position of all workers on the field. It has been proven to improve work efficiency by 18% by making it easier to check progress and reducing unnecessary movement. In addition, it has also been proven to have a stress-reducing effect including reduction of the administrative task burden by 58%. It is also possible to output daily reports and perform analysis using high-precision data.

Assessment:
By using the Quasi-Zenith Satellite System “MICHIBIKI”, it is possible to obtain a work trajectory with an error of 12 cm. In Hokkaido, because the population is expected to fall by half in most areas by 2040, there is a growing need for agricultural digital transformation (DX). By simply attaching a GPS logger to a tractor or other agricultural vehicle, it immediately starts collecting and displaying data, making agricultural DX a reality through its implementation simplicity. There are high hopes for it as a solution to the problem of a shortage of workforce due to farmers retiring due to the aging population or otherwise leaving farming. In addition, the enthusiasm and technical capabilities of the company were also highly evaluated. For instance, even though the SLAS (sub-meter-class augmentation service) system, which also uses MICHIBIKI, can handle things like pastures, its accuracy was insufficient for agricultural DX. The company developed its own GPS loggers for better accuracy than the SLAS system that can be used to make ridges.

■ Co-creation Category

Underwater Fusion Sensor

Trimatiz Limited (Inside the Marine DX Pavilion | Booth No.: 2H098)

Outline:
This is a sensor that acquires 3D data in real time underwater. Equipped with three colors of visible light lasers (red, green, blue) that have low propagation loss underwater, it is possible to switch the light source used for each season and/or sea area, and to measure detailed 3D data underwater at high speed, which has previously been impossible. It is also equipped with an RGB camera, and it is possible to acquire 3D point cloud information underwater, in color. It will assist in the acquisition of learning data to promote AI in the future underwater and undersea.

Assessment:
It is now possible to acquire measurement information using LiDAR even underwater, thanks to the fusion of a 3-color LiDAR and camera, and the use of 3-color lasers in the visible light range. Real-time measurement is also possible by combining color information from the camera, and in addition to applications such as measuring the shape and number of moving objects in water, such as farmed fish swimming in fish tanks, it can also be used for automating ship inspections and underwater infrastructure inspections. The technology was highly evaluated for its potential to contribute significantly to the future use of 3D data and ocean DX, including the use of 3-color laser technology, which is commonly used on land, in underwater environments, and for visualizing and networking underwater environments, as well as for being the world's first technology of its kind.

About CEATEC AWARD 2024

The CEATEC AWARD 2024 Review Panel of Judges will review the technologies, products, and services exhibited at CEATEC 2024, from among the entries of exhibits and projects submitted in advance by exhibitors, and award those that are deemed highly innovative and outstanding from academic and technical perspectives, as well as marketability and future potential.

■ Judging Criteria of Each Award

1. Ministerial Awards (in the order of establishment)

The Minister for Internal Affairs and Communications Award

This award recognizes candidates judged to make the greatest contribution to the development of the CPS/IoT society and the realization of Society 5.0, including the innovative utilization of information and communications, networking, data, AI and IoT technologies in the digital age, the provision of services using these technologies, AI networking and digital utilization in local communities, will be selected for the award. In particular, the projects, technologies, products, services, or supporting software, applications, components, devices, etc. that are evaluated to make the greatest contribution to solving regional issues and revitalizing local communities, improving living standards of society as a whole, and promoting efficiency and high added value in economic activities that contribute to the realization of the Vision for a Digital Garden City Nation, will be awarded the CEATEC AWARD 2024 Minister for Internal Affairs and Communications Award.

The Minister of Economy Trade and Industry Award

This award recognizes candidates that are most likely to contribute significantly to the advancement of the CPS/IoT community and the realization of Society 5.0 to generate new value using AI, robotics, Big Data, as well as to create transformational approaches to manufacturing via services utilizing digital transformation of industry and the development of technology to promote IoT across diverse fields, will be selected for the award. In particular, the projects, technologies, products, services, or supporting software, applications, components, devices, etc. that are recognized to make the greatest contribution to future lifestyles, society, business, and industrial advancement, with creativity and marketability to promote digital transformation (DX) and strengthen the digital industry, thereby facilitating the realization of the Vision for a Digital Garden City Nation, will be awarded the CEATEC AWARD 2024 Minister of Economy Trade and Industry Award.

The Minister of Digital Agency Award

This award recognizes candidates deemed to offer the greatest contribution to creating a prosperous, resilient society — one in which people can select the most appropriate services for their stage of life — through solving a variety of issues by harnessing the potential of digital technologies and leveraging them to realize a digital society on a global level. In particular, the projects, technologies, products, services, software, applications, components or devices judged to best contribute to the development of innovative digital infrastructure and advanced services — or to the use of digital technology to stimulate the advancement of local industries — which will promote the realization of the Vision for a Digital Garden City Nation, digitally transforming regional lifestyles and communities, education, R&D, industry, and economy, will be awarded the CEATEC AWARD 2024 The Minister of Digital Agency Award.

2. 25th Anniversary Special Award

The 25th Anniversary Special Award will be presented to a project that is selected from among all entries (with the exception of the Global Category) as being particularly outstanding in terms of AI-related technology and its application, and that is deemed to be in line with this year's theme of “Innovation for All”.

3. Category Awards

Innovation Category

This award is open to a wide range of new technologies, products, services, software, applications, solutions and business models that will contribute to the realization of Society 5.0, as well as elemental technologies and devices used in them, or developmental concepts, which will sustain and enrich industry, business, society, and lifestyles. The awards will be presented to those that are judged to be superior in terms of innovation, concrete feasibility, and contribution to society.

Next Generation Category

This award is given to start-ups that develop advanced technologies, products, services, software, applications, business models and such, and bring them to market, as well as to universities and research institutions that aim to implement them in society. The award will be presented to the projects that are evaluated as superior in terms of feasibility, contribution to society, technological excellence, and marketability.

Co-creation Category

This award is given to technologies, products, services, software and applications that are co-created to realize Society 5.0 by setting original themes and partnering with companies from diverse industries and business sectors, as well as solutions and business models that include such technologies, products, services, software and applications. The projects must also be evaluated as innovative in terms of their ability to make an outstanding contribution to future society.

Global Category *Note: To be reviewed on the show floor and announced during CEATEC 2024*

This award is given to technologies, products, services, software, applications, business models, etc. by an exhibitor from abroad that the judging committee deems particularly outstanding and are evaluated as superb in terms of concrete feasibility, contribution to society, technological excellence, and marketability in the world.

■ CEATEC AWARD 2024 Review Panel of Judges

Academic Societies (in no particular order)

- Information Processing Society of Japan
- The Institute of Electronics, Information and Communication Engineers
- The Institute of Image Information and Television Engineers
- The Institute of Electrical Engineers of Japan

Research Institute and Media Related (in no particular order)

- MM Research Institute, Inc.
- The Nikkan Kogyo Shimbun, Ltd.
- Nikkei Business Publications, Inc.
- ITmedia Inc.
- Techno-core Corporation

CEATEC 2024 Official Website: https://www.ceatec.com/en/

Name:	CEATEC 2024
Dates:	October 15 (Tue.) ~ 18 (Fri.), 2024 • Premium Time October 15 (Tue.) 10:00 am ~ noon Premium Time is open for invited guests and members of the press • General Admission (Hours) October 15 (Tue.) noon ~ 5:00 pm October 16 (Wed.) ~18 (Fri.) 10:00 am ~5:00 pm
Venue:	Makuhari Messe
Admission:	Free of charge (registered admission required for all visitors)
Sponsor:	Japan Electronics and Information Technology Industries Association (JEITA)
Co-Sponsors:	Communications and Information network Association of Japan (CIAJ) Software Association of Japan (SAJ)

■Joint exhibition with the Japan Mobility Show Bizweek 2024

Japan Mobility Show Bizweek 2024

CEATEC 2024 will collaborate with Japan Mobility Show Bizweek 2024, which is a business-focused event to promote co-creation between established mobility-related companies and startups leading the next generation. Extending the value of and expanding the experience in mobility through co-creation will lead to the realization of Society 5.0 initiatives. Collaboration across industries will enrich people's lives through technologies and seek to realize a dream-enriched future.

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