

## BELLSYSTEM24 began providing BUJIDAS, Japan's first cattle lameness prevention AI service jointly developed with NTT TechnoCross

Using dust- and waterproof network cameras supplied by I-O Data

NTT TechnoCross Corporation (Head Office: Minato-ku, Tokyo, President & CEO: Atsuko Oka; hereinafter “NTT TechnoCross”) and BELLSYSTEM24, Inc. (Head Office: Minato-ku, Tokyo; President, CEO: Hiroshi Kajiwara; hereinafter “BELLSYSTEM24”) launched in the April 2024 an AI service to prevent cattle lameness<sup>\*1</sup>, titled BUJIDAS<sup>\*2</sup> (hereinafter, the “service”), as a joint service to solve issues in the Japanese livestock industry. The service aims to reduce the burden on farmers through DX of cattle barn monitoring, which has traditionally required regular checks even at night, by using a Japan-first AI service developed by NTT TechnoCross to prevent cattle lameness as well as annotation<sup>\*3</sup> BPO and a remote around-the-clock, 365-day-a-year support system provided by BELLSYSTEM24.

Service URL: <https://www.ntt-tx.co.jp/products/bujidas/>



The service uses the dust- and waterproof network camera TS-NA230WP (hereinafter, the “network camera”) provided by I-O Data Device, Inc. (Head Office: Kanazawa City, Ishikawa Prefecture, Chairman and President: Akio Hosono, hereinafter, “I-O Data”), an electronic equipment manufacturer that develops, manufactures, and sells digital device peripherals.

\*1 Lameness: Abnormally produced gas in a cow's body presses on the diaphragm, making it difficult for it to breathe or stand up.

\*2 BUJIDAS: Software as a Service (SaaS) provided and contracted by NTT TechnoCross. Trademarks and patents pending.

\*3 Annotation: The process of attaching tags and metadata to data such as text, audio, and images.

### 1. Background to the service development

In the beef cattle business, fattening farmers who raise calves from breeding farmers as fattening cattle\*4 have a risk of major financial loss in excess of about 1.2 million yen\*6, which includes the cost of purchasing the calf\*5 and feed costs, if they lose a cow due to illness or accident during the breeding period of about 20 months. For this reason, it is necessary to carefully monitor the condition of all cattle raised and detect signs of danger, such as diseases and accidents in advance. However, monitoring cattle barns is physically and mentally taxing, and it is difficult to secure new personnel due to labor shortages, which is a factor that reduces the productivity of farmers.

Considering this, NTT TechnoCross and BELLSYSTEM24 have combined their technologies and expertise to develop the service for monitoring the cattle barns of fattening farmers, with the aim of preventing fatal accidents caused by lameness, which are especially likely to occur in the five months prior to shipment.

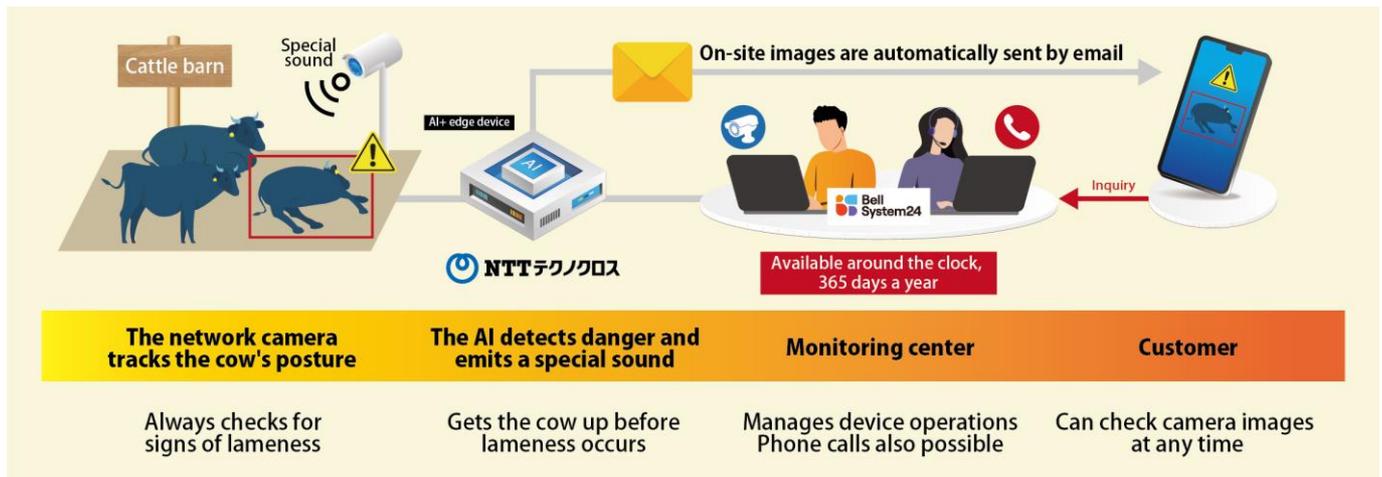
\*4 Fattening cattle: Cattle raised for meat

\*5 The cost of purchasing a calf that is 6-12 months old before it is raised as fattening cattle.

\*6 Cabinet Office website

<https://www8.cao.go.jp/kisei-kaikaku/suishin/meeting/wg/nourin/20190424/190424nourin03-5.pdf>

### 2. Outline of the Service



Flow of the service

The service is the first contactless service in Japan that aims to prevent lameness\*7 by using AI to determine the posture of cattle filmed with network cameras and to change the cattle's posture with sounds emitted by the network cameras (patent pending).

First, a number of network cameras are installed to suit the environment of the cattle barn and the number of cattle, allowing the interior of the barn to be filmed constantly. When first installing the system, images of dangerous postures that can result in lameness are defined by annotation and the AI is fine-tuned according to individual conditions to improve the accuracy of its judgments about cattle in dangerous postures. After starting up the system, if the AI determines that a cow has adopted a dangerous posture, a special sound will be emitted from the network camera, after which the cow may respond to the sound by raising its neck and returning to its normal posture, thus preventing lameness.

If the cow does not respond to the sound and stays in a posture that comes with a risk of lameness for a certain period of time, the AI will automatically send an email to the user to alert them or take other means, thus preventing lameness by a step-by-step approach. Moreover, the monitoring center is responsible for human monitoring of active equipment and responding to inquiries from users around the clock, 365 days a year. As

an optional service in the future, the monitoring center can keep track of cattle whose risky posture does not improve and make emergency telephone calls to the user.

Using the service makes it possible to cut expenses associated with loss from lameness, reduce the burden of cattle barn monitoring, and decrease monitoring personnel costs.

Moreover, by allowing payments using a corporate card for sole proprietors and small and medium-sized enterprises (SMEs) provided by American Express International, Inc., who support the management of livestock producers, the aim is to promote the introduction of this service by cutting payment man-hours through cashless payments and rewarding points for each payment.

■ Inquiries about the American Express® corporate card

Contact: American Express International, Inc.

<https://www.americanexpress.com/japan/amex.jp/b2b-inquiry/>

\*7 This service does not guarantee 100% prevention of lameness

[Role of each company]

- NTT TechnoCross: Develop and maintain AI to prevent cattle lameness as well as provides the service.
- BELLSYSTEM24: Responsible for the installation and operation of the service. In addition to government support such as registration and subsidy applications when a user sign up for a new contract, BELLSYSTEM24 is also responsible for annotation tasks to ensure the accuracy of AI judgment during installation. After the start of operation, the around-the-clock, 365-day-a-year monitoring center is responsible for regularly checking the operations of the AI system and network cameras as well as responding to inquiries from users.
- I-O DATA: Provide a development API for controlling the TS-NA230WP network cameras, the designated model for the service, as well as manufacture and sell products.

3. About the AI to prevent cattle lameness



4:24 The AI detects a cow that presents with a risk of lameness (Remaining in this posture will lead to lameness)



4:25 In the image one minute later, the posture has changed. (The posture that carries with it a risk of lameness has been corrected.)

#### 4. Future outlook

The aim is to introduce the service to cover 50,000 animals in five years and achieve annual sales of one billion yen. Going forward, there will be sustained promotion of DX in livestock breeding through human-technology hybrid approaches that combine the knowledge and technologies of the two companies as well as continuous efforts to solve problems and improve operational efficiency in a wide range of livestock areas.

#### **About NTT TechnoCross: Corporate website: <https://www.ntt-tx.com/>**

A software development company that continues to co-create the future with its customers by combining world-class cutting-edge technologies and services centering on technologies from NTT Laboratories. NTT TechnoCross focuses on real issues in collaboration with its customers and provides total support that ranges from consulting to design, system development, operation, and maintenance.

#### **About BELLSYSTEM24: Corporate website: <https://www.bell24.co.jp/en/>**

In 1982, BELLSYSTEM24 began fully operating its call center services for the first time in Japan. Since then, the company has rolled out wide-ranged outsourcing businesses centering on contact centers, the point of contact between companies and consumers, and created the standard model for the industry. We will continue to implement our mission, Creating Better Communities through Communication through the development and provision of various solutions based on operational knowledge accumulated by combining People and Technology.

#### **About I-O DATA: Corporate website: <https://www.iodata.com/>**

Electronic equipment manufacturer founded in 1967, with its head office in Kanazawa City, Ishikawa Prefecture. Develops, manufactures, and sells digital device peripherals as well as software and related services.

Names of companies and products described in this article are registered trademarks or trademarks of their respective companies.

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