

**Joint Demonstration Project Launched for an AI-based Component Estimation  
System for the Manufacturing Industry  
Leveraging Google Cloud's AI Platform Technology and Osaka Gas's Sensing  
Technologies**

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Osaka Gas Co., Ltd.

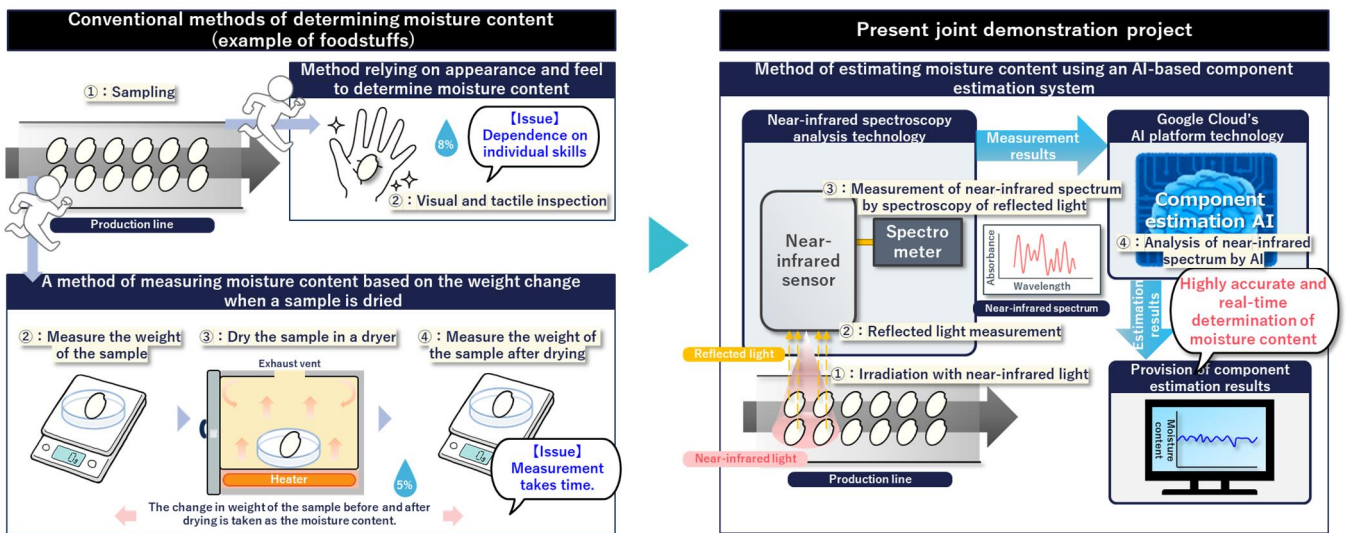
Osaka Gas Co., Ltd. (President: Masataka Fujiwara, hereinafter "Osaka Gas") and Google Cloud Japan G.K. (hereinafter "Google Cloud<sup>1</sup>") have launched a joint demonstration project for the development of an AI-based system to estimate the components within materials, utilizing Google Cloud's AI platform technology combined with Osaka Gas's sensing technologies<sup>2</sup> with the aim of improving product quality and productivity in the manufacturing industry.

Osaka Gas has been developing cooking equipment for many years and has gained extensive knowledge on the changes that occur in various foodstuffs during cooking or processing. Based on this knowledge, the company has developed its own proprietary sensing technologies, including gas sensing technology, image analysis technology, non-contact temperature measurement technology, and near-infrared spectroscopy analysis technology<sup>3</sup> and has been working to quantify and visualize the changes in the components of foodstuffs (moisture, gas generation, etc.) and the changes in their state (structure, temperature, etc.) that take place during food production.

Going forward, the company aims to combine these sensing technologies with Google Cloud's AI platform technology for the estimation of components and state changes of various materials in the manufacturing industry.

As the first step of this initiative, in October 2024, the two companies started a joint demonstration project focused on an AI-based component estimation system that combines near-infrared spectroscopy analysis technology with Google Cloud's AI platform technology to estimate the moisture content of foodstuff or resins with high accuracy and in real time.

Conventional methods of determining the moisture content of foodstuffs include determination by an expert of the moisture content based on the appearance and feel of the material and measurement based on the change in weight when the sample is dried; in the case of resins, moisture content is measured using specific reagents. However, these methods have certain issues, such as being time-consuming and dependent on individual skills, which we aim to solve through this initiative.



Osaka Gas will develop an AI-based component estimation system that combines Osaka Gas's sensing technologies with Google Cloud's AI knowledge and cutting-edge technology as a service that meets the challenges and needs of customers in a wide range of fields within the manufacturing industry.

## 1. Overview of the Joint Demonstration Project

Item	Description
Demonstration period	October 2024–March 2025
Major objectives of demonstration	Verification of the accuracy of estimating moisture content in materials using sensing technologies and AI
Target industries	Food-related industries and resin-related industries
Division of roles	<ul style="list-style-type: none"> <li>■ Osaka Gas               <ul style="list-style-type: none"> <li>① Measurement of the near-infrared spectra<sup>4</sup> of objects using near-infrared spectroscopy analysis technology</li> <li>② Estimation of moisture content by analyzing the near-infrared spectra of objects using AI</li> </ul> </li> <li>■ Google Cloud               <ul style="list-style-type: none"> <li>① Provision of AI platform technology</li> <li>② Provision of technical information, proposals and advice that contribute to improving the accuracy of component estimation</li> </ul> </li> </ul>

1: Google Cloud is a trademark of Google LLC.

2: A general term for technology that uses sensors (detectors) to measure and quantify various types of information.

3: A method of irradiating a target object with near-infrared light and identifying and quantifying its components based on the degree of light absorption.

4: A light intensity distribution arranged with respect to each wavelength with the light being split into wavelengths