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Experimental Robots' Hands Make Short Work of Delicate Packaging

Developed in-house, robot hands replace human fingers to deal with national workforce shortage

TOKYO, May 11, 2021 – Kirin Holdings Company, Limited (Kirin Holdings), will conduct a demonstration at Kirin Brewery Company Limited's (Kirin Brewery) Tokyo East Logistics center from April 23 to May 18, using specially-designed robots developed by Kirin Brewery's Package Innovation Laboratory in the product assortment and processing of box sets and other assortments, etc. Until now this process has been handled manually. In addition to efficiency improvement, the introduction of robots in this particular process aims to promote automation as a solution to labor shortages that arise from an aging and shrinking population.

Automation in manufacturing is not new; but this kind of automation is. They can quickly and precisely put together complex packaging that require meticulous folding and forming of multiple parts, in addition to presentation of the cans themselves. This normally requires the delicate handling of human fingers. During this demonstration, approximately 30,000 sets of *KIRIN ICHIBAN* box sets will be made. The parts have been designed with an inner box that can be easily formed by the robot's "hands." In addition, the box sets made using automation are the size of the most widely distributed gift products. If successful, automation of box set manufacturing could be expanded further.

Beer box sets - popular as gifts - account for more than half of the product assortment and processing work that Kirin Brewery does. This demonstration is part of the research and development to automate (via robots) the processing of these gift items, which requires a lot of manpower. By automating tasks that require a lot of manual labor, such as folding inner boxes, assorting gift items, and stacking processed items on pallets, work efficiency is expected to improve by approximately 50% and reduce the physical workload of carrying heavy items.

● **Background: The "2030 Problem"**

Japan's continuously aging society and decreasing birthrates is expected to result in about one-third of the entire population to be composed of the elderly by 2030. This phenomenon is called the "2030 Problem" in Japan. One of the many issues that will arise from the 2030 Problem will be a declining workforce. Logistics require manual labor; so an aging and declining the population creates scarcities in available workers suited to manual labor.

This, in addition to the increasing demand for specialized or themed box sets and unique assortments (which also require elaborate packaging) creates a shortage of available workforce for this specialized packaging and processing.

In fact, according to a survey by the Ministry of Land, Infrastructure, Transport and Tourism, the gap between labor supply and demand in the logistics industry as of 2020 is 30%, and it is predicted that the gap will be 40% in 2030 - less than 10 years from now - and 50% in 2050.

● **What's So Special About Box Sets?**

Box sets and assortments as gifts are popular with different kinds of food products in many countries. In Japan, special box sets of beers have been a popular gift item for decades, as a congratulations, such as in weddings, finding a new job, etc. Elaborately styled Japanese packaging and presentation have been a part of Japanese culture for centuries including *furoshiki* or *origami*. Beer box sets feature specially themed box designs with complex packaging and packing (the beer cans themselves must also be pleasing to the eye by uniformly positioning them showing the front label). Seasonal box sets are also popular. These sometimes feature even more complex packaging, for example a Christmas-themed box fully adorned and featuring an openable front flap that can be personalized inside, cellophane wrapping, or even a handle. These kinds of packaging designs normally require a higher-than-usual amount manual labor to put the packaging together by hand.



Conventional inner box forming work by hand



Forming of inner box by new robot

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About Kirin Holdings

Kirin Holdings Company, Limited is an international company that operates in the Food & Beverages domain (Food & Beverages businesses), Pharmaceuticals domain (Pharmaceuticals businesses), and Health Science domain (Health Science business), both in Japan and across the globe.

Kirin Holdings can trace its roots to **Japan Brewery** which was established in 1885. Japan Brewery became **Kirin Brewery** in 1907. Since then, the company expanded its business with fermentation and biotechnology as its core technologies, and entered the pharmaceutical business in the 1980s, all of which continue to be global growth centers. In 2007, Kirin Holdings was established as a pure holding company and is currently focusing on boosting its Health Science domain.

Under the [Kirin Group Vision 2027](#) (KV 2027), a long-term management plan launched in 2019, the Kirin Group aims to become “A global leader in CSV*, creating value across our world of Food & Beverages to Pharmaceuticals.” Going forward, the Kirin Group will continue to leverage its strengths to create both social and economic value through its businesses, with the aim of achieving sustainable growth in corporate value.

* Creating Shared Value: combined added value for consumers as well as for society at large.

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