

February 28, 2022

Marubeni Corporation

KYOCERA Corporation

Marubeni and KYOCERA to Implement Proof of Concept for a Smart Checkout System

Marubeni Corporation (hereinafter, "Marubeni") and KYOCERA Corporation (hereinafter, "KYOCERA") will begin a Proof of Concept (POC)* test for a smart checkout system equipped with KYOCERA's AI object recognition technology (hereinafter, "system") at supermarkets in Kanagawa Prefecture, Japan, this summer with the long-term aim of putting the system into practical use.

Improving the efficiency of store operations has become a major issue for supermarkets in Japan due to the country's labor-market shortages, declining birthrate, and aging population. Among in-store operations, cash register work requires improved efficiency the most, as employees or consumers need to scan product barcodes one by one, which takes significant time. During peak times, long lines for cash registers are a regular occurrence and a point of stress for both stores and consumers. However, resolving this problem is difficult at present because of the human capital and implementation costs required to improve cash register operational efficiency.

To help solve this problem, the system will use unique technology developed by the KYOCERA Advanced Technology Research Institute that instantly recognizes multiple overlapping products to save labor and improve efficiency at checkout. In addition, no large-scale capital investment or construction work is required for installation as the system can be easily used at a low cost by installing only a camera, PC, and display.

The POC will leverage Marubeni's network and product data in the retail field-one of Marubeni's core business competencies-with KYOCERA's technology to improve the system's service and aim for future commercialization.

Smart Checkout System Features

- 1) Object recognition is possible even when the target products overlap or are held in the user's hand:

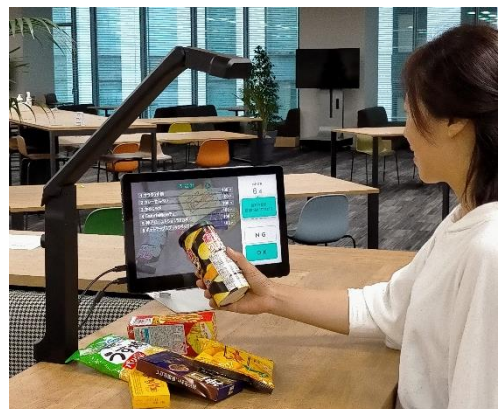
Utilizing KYOCERA's proprietary object recognition AI technology, the system can recognize products with high accuracy even when placed on top of each other or when the user holds a product in their hands.

- 2) Low cost and easy set-up:

Since the system only requires installing one camera, one PC, and one display on the existing cash register, no large-scale capital investment or construction work is required.

- 3) Easy-to-update database

Registering a new product in a conventional system requires the user to re-register all other products as well. In this system, however, a new product can be registered by itself (without re-registering other products),



saving a lot of time.

*Memorandum of Understanding (MOU) between Marubeni and Kyocera for the Proof of Concept was officially finalized in December, 2021.

Conceptual Diagram



Marubeni

Company Name: Marubeni Corporation

Headquarters: 4-2, Ohtemachi 1-chome, Chiyoda-ku, Tokyo, Japan

Established: December, 1949

Representative: Masumi KAKINOKI

Description of business: Marubeni Corporation and its consolidated subsidiaries use their broad business networks, both within Japan and overseas, to conduct importing and exporting (including third country trading), as well as domestic business, encompassing a diverse range of business activities across wide-ranging fields including lifestyle, ICT & real estate business, forest products, food, agri business, chemicals, energy, metals & mineral resources, power business, infrastructure project, aerospace & ship, finance & leasing business, construction, industrial machinery & mobility, and next generation business development. Additionally, the Marubeni Group offers a variety of services, makes internal and external investments, and is involved in resource development throughout all of the above industries.

Website: <https://www.marubeni.com/en/>

KYOCERA

Company Name: KYOCERA Corporation

Headquarters: 6 Takeda Tobadonocho, Fushimi-ku, Kyoto city, Kyoto, Japan

Established: April, 1959

Representative: Hideo TANIMOTO

Description of business: Kyocera Corporation was founded as a producer of fine ceramics (also known as “advanced ceramics”). By combining these engineered materials with metals and integrating them with other technologies, Kyocera has become a leading supplier of industrial and automotive components, semiconductor packages, electronic devices, smart energy systems, printers, copiers, and mobile phones.

Website: <https://global.kyocera.com>