December 12, 2017

Japan Airport Terminal Co., Ltd.
Haneda Robotics Lab

Public Robotic Experiments to Be Held at Haneda Airport Again This Year

Haneda Robotics Lab Selects Seven Participants for 2nd Round of Robot Demonstration Experiments

Japan Airport Terminal Co., Ltd. (JATC; Address: 3-3-2 Haneda-Kuko, Ota-ku, Tokyo; Representative: Nobuaki Yokota, President & COO), which manages and operates Haneda Airport, established the Haneda Robotics Lab as an “all-Haneda” initiative in 2016. Haneda Robotics Lab has been conducting the Haneda Airport Robot Experiment Project, in which it conducts demonstration experiments of robotic products (including prototypes) at the airport with the aim of verifying robot technologies for future introduction into airport operations. After launching a public call for participants in the 2nd round of Haneda Airport Robot Experiment Project 2017 in September, the Lab is now pleased to announce the seven enterprises that have been selected to take part in that 2nd round.

* Taking advantage of the Ministry of Economy, Trade and Industry’s Robot Introduction Demonstration Program, the Haneda Robotics Lab Project is an initiative that aims for the realization of the government’s Reform 2020 Project. It is conducted with the cooperation of the Ministry of National Land and Transport and the Ministry of Economy, Trade and Industry.

- **Names of Selected Enterprises and Their Robots**

Security Robot	
Robot Name	Company
Reborg-X	SOHGO SECURITY SERVICES CO., LTD
Logistics Robots	
Robot Name	Company
OTTO 100/1500	ALTECH CO., LTD.
Relay	NEC Networks & System Integration Corporation
Translation Robots	
Robot Name	Company
cinnamon	donut robotics Co. Ltd.
Hearable Device (PROTOTYPE)	Dentsu Live Inc.
KIZUNA	Tifana.com Co., Ltd.
Robocot	Takerobo Corporation

- **Overview of Demonstration Experiment Project**

➢ Schedule (to be confirmed): Wednesday, December 13, 2017 – Friday, February 9, 2018

* The above will include the time required to prepare for the experiments.

➢ Schedule by category (to be confirmed)

Security Robot: Tuesday, January 9 – Wednesday, January 17, 2018

Logistics Robots: Monday, January 15 – Tuesday, January 23, 2018

Translation Robots: Monday, January 29 – Friday, February 9, 2018

➢ Location (TBC)

Security Robot

→ Near Clock Tower 1, Departure Lobby, South Wing, 2nd Floor, Terminal 1

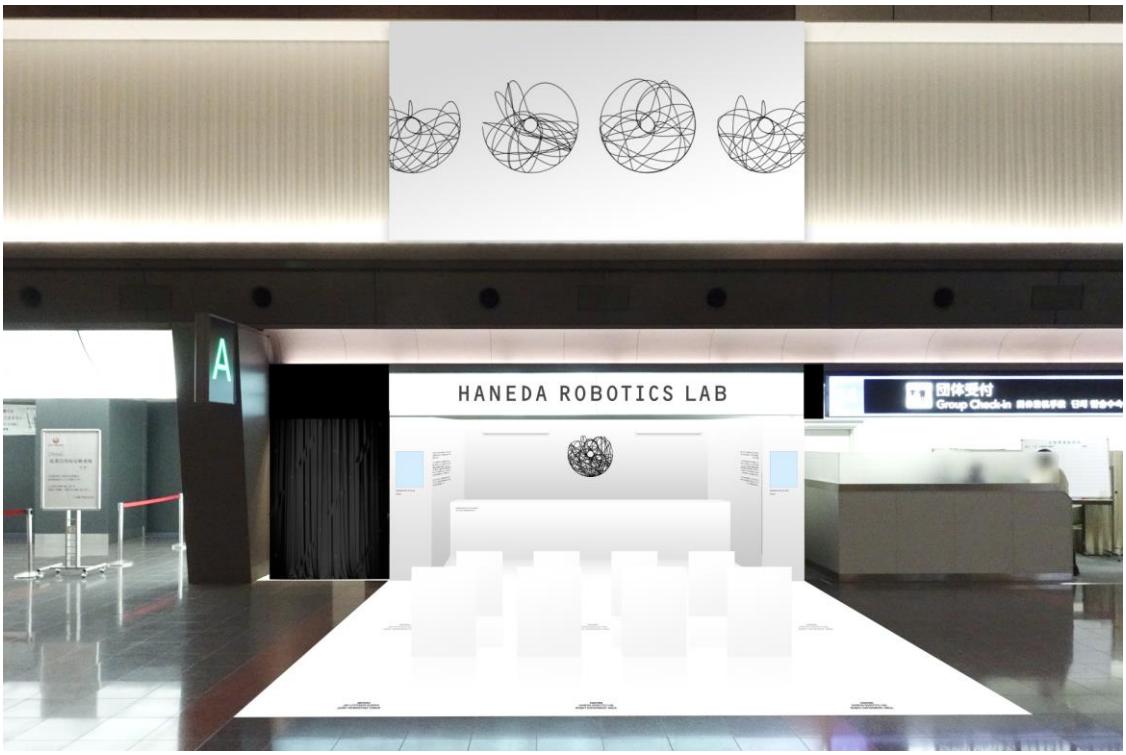
Logistics Robots

→ Departure Lobby, 2nd floor, Terminal 1; center of Arrival Lobby, 1st floor, Terminal 1; Service Corridor, Terminal 1

Translation Robots

→ Booth near Clock Tower 1 and adjacent to Information Desk, Departure Lobby, South Wing, 2nd floor, Terminal 1

➢ Artist's rendering of exhibition booth



- **Details of Demonstration Experiment Project**

It is envisaged that the robot demonstration experiments will trial the use of robots in the public space of an airport, which is used by many and unspecified people, in the following three phases: (1) demonstrate the safety of the robot (product) itself; (2) demonstrate the safety of operating the robot in a public space; and (3) verify the effectiveness of introducing the robots into actual operations.

- **Project Background and Objectives**

In an all-Haneda initiative, Haneda Airport is making efforts to further raise the quality of services at its passenger terminals and increase the satisfaction of airport patrons in the lead-up to 2020. However, with the size of Japan's working population in decline, in the belief that the use of robotics technology is essential to solving various operational challenges, JATC has pursued the introduction and demonstration experiments of a variety of robots.

For robotic technologies to be introduced into all manner of situations in society, it is important for enterprises and research institutions to conduct repeated user tests in real

environments that are closer to the general public, to enable them to refine their technologies. JATC is confident that this project at Haneda Airport, where more than 80 million people pass through every year, will shed light on the technological and legal issues regarding robots and that the findings shared through the project will contribute to the dissemination of robotics technologies throughout Japanese society.

Japan Airport Terminal Co., Ltd. also hopes that, by offering Haneda Airport as the stage for the use of a variety of cutting-edge robots, the airport's many patrons will become more familiar with robots, and that Japan's advanced technologies will be communicated to the rest of the world.

Special Website

Basic information about the project and details of the public call for participants can be found on the following website set up specifically for the project.

Regular updates will be posted on the website while the demonstration experiments are in progress.

- Special website URL:

  https://www.tokyo-airport-bldg.co.jp/hanedaroboticslab/

- Official Facebook page:

  http://www.facebook.com/hanedaroboticslab/

- **Detailed Information about the Selected Robots**

Security Robot

◆ **Robot Name: Reborg-X**

◆ **Company: SOHGO SECURITY SERVICES CO., LTD. (ALSOK)**

Reborg-X is an autonomous patrol/information robot. Not only does it enhance the efficiency of patrol/information operations, it can also be used for a range of applications, including, as an attraction. So far, 9 units have been introduced across Japan. With safety as the top priority, it has a collision avoidance function, automatically stopping when it draws close to people or objects. Thanks to this function, Reborg-X has had no accidents since its release in 2015. Haneda Robotics Lab will test how its security functions, such as patrolling and detecting intruders and the like, will work in the vast spaces of the airport.

Logistics Robots

◆ **Robot Name: OTTO100/1500**

◆ **Company: ALTECH, CO., LTD**

OTTO 100/1500 is an autonomous transportation robot with a laser sensor that allows it to move about the facility without the need to lay markers, etc. on the floor. OTTO 100 is able to carry loads of up to 100kg, such as cardboard boxes, container boxes and storage boxes, rather than using manpower. OTTO 1500 has extended functions such as to act as a pallet, conveyor and lifter, and can carry heavy loads. Haneda Robotics Lab will investigate how effectively this machine works to assist transportation operations.

◆ **Robot Name: Relay**

◆ **Company: NEC Networks & System Integration Corporation**

Relay is an autonomous delivery robot that can carry things from one person to another. It is equipped with a variety of sensors that allow it to avoid people and objects. Even in a crowded area, it selects the most suitable route to its destination and delivers its payload “intelligently, “safely,” and “securely.” The aim of Haneda Robotics Lab is to have Relay deliver souvenirs and other goods to airport patrons. The Lab will also investigate how patrons from different nationalities, genders and ages react and behave toward robots.

Translation Related Robots

◆ **Robot Name: cinnamon**

◆ **Company: donut robotics Co.Ltd.**

cinnamon is a self-propelled, smart robot equipped with a camera and AI functions that the user can enjoy communicating with. It can be controlled remotely via a smartphone app by pressing buttons and by voice commands. Haneda Robotics Lab will collect data with the aim of improving voice recognition efficiency in AI conversations, while providing multilingual information services for customers and remote operator connection tests.

- **Robot Name: Hearable Device (PROTOTYPE)**
- **Company: Dentsu Live Inc.**

The Hearable Device is a prototype earphone device. Along with microphones and speakers, it has a 9-axis motion sensor that can recognize the user's face position, posture and movement information at all times. With the information collected by multiple sensors, it is able to identify the user with its otoacoustic recognition system and measure the user's position in the building using geomagnetic positioning. In the Haneda Robotics Lab demonstration experiment, the indoor positioning technology will be used to verify the location of airport staff wearing the device. The microphone and speaker will be used to test hands-free operational assistance using voice guidance.

- **Robot Name: KIZUNA**
- **Company: Tifana.com Co., Ltd.**

KIZUNA is an AI customer service system that answers users' questions by voice and text. A combination of voice recognition, voice synthesis technology, animation and natural language processing enables it to achieve human-like motion. It boasts a correct answer rate of over 70%. Haneda Robotics Lab will test how well it can perform information services for customers at the airport's facilities and shops in 4 languages – Japanese, English, Chinese, and Korean.

◆ **Robot Name: Robocot**

◆ **Company: Takerobo Corporation**

Robocot is an AI-connected touch-panel communications robot. It is equipped with a chat-based dialogue screen that allows it to answer customers' questions by both text and voice. With the use of a software connection system, its content can be managed and distributed in a unified manner via a cloud platform, which allows it to be used in different scenarios and locations with easy operation. In this Haneda Robotics Lab experiment, it will be connected to a simultaneous translation app called the "Smart Interpreter Service" to test how well the robot can converse naturally in multiple languages, as well as its ability to provide simultaneous translation.

▪ **Inquiries**

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