

**TIS support for practical social implementation project
for utilization of service robots at Tokyo Big Sight**
**- Integrated management using Robotic Base of four kinds of service robots
for transport / cleaning / guide and security -**

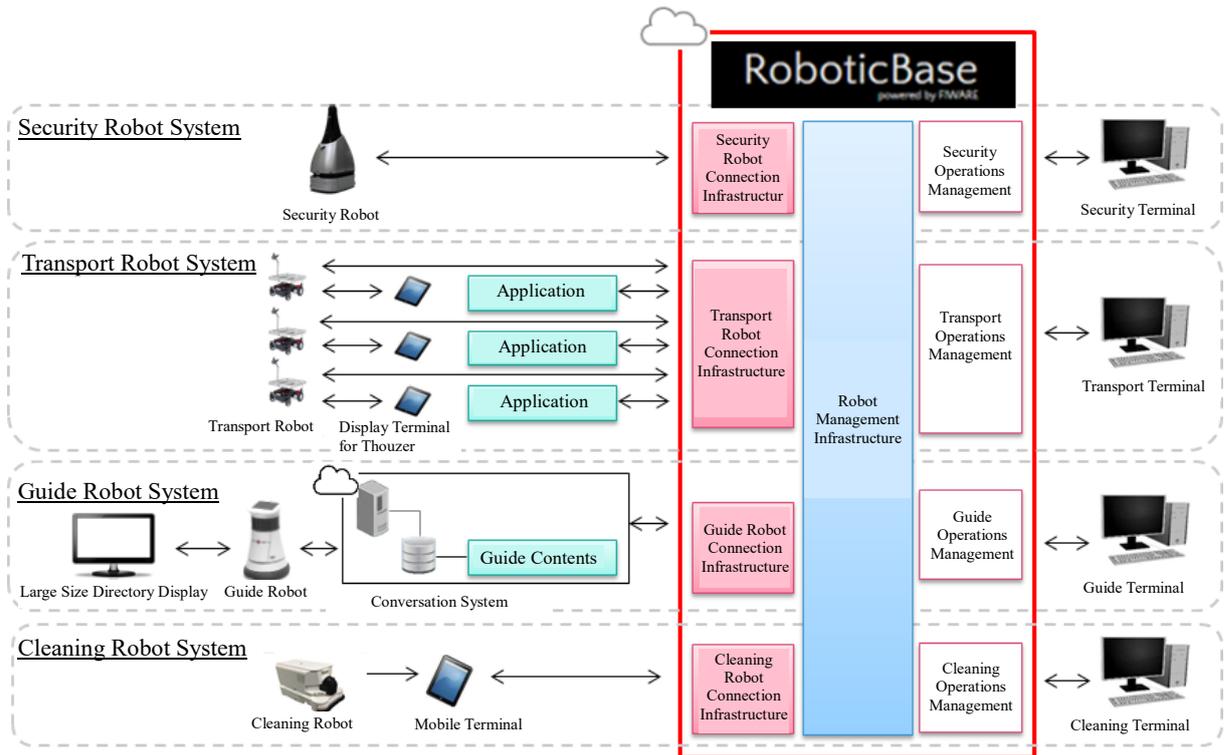
Tokyo, November 28, 2019 - TIS Inc., a company of TIS INTEC Group (headquarters: Tokyo, Japan, Chairman and President: Toru Kuwano, hereafter “TIS”) announces that it has provided support for a social implementation project of using service robots (hereafter the “Project”) implemented by the Tokyo Metropolitan Industrial Technology Research Institute (President: Tsugunori Okumura, hereafter “TIRI”) and Tokyo Big Sight, Inc. (President and CEO: Kiyotsugu Ishihara, hereinafter “Tokyo Big Sight”) since November 2019 at Tokyo Big Sight (Tokyo International Exhibition Center).

The Project is a social practical implementation trial to actually operate four kinds of service robots for transport, cleaning, guide, and security inside the facilities at West Halls and South Halls of Tokyo Big Sight. The robotic systems requirements definitions for each of the service robots were based on interviews of workers that actually perform these four operations, taking into account task efficiency improvement and convenience in operation.

TIS provided RoboticBase, which is a platform for realizing “integrated control of robots and IoT devices and linkage between enterprise systems,” and performed the following system integration.

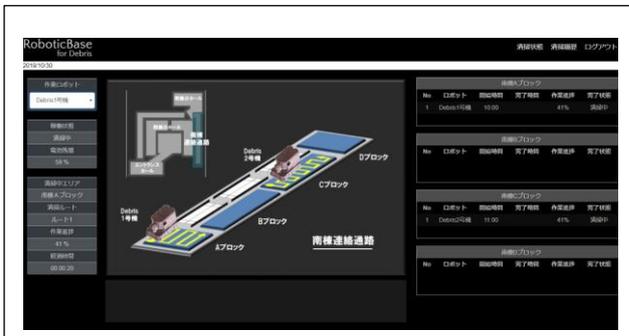
1. Establishment of method of quantitative and qualitative evaluation for four types of service robots, transport/cleaning/guide/security
2. Robot Risk Assessment formulation
3. Robotic Systems Requirements Definitions, System Development, Implementation, Maintenance
4. Project management as system integrator with multi-vendor

<Project System Overview>

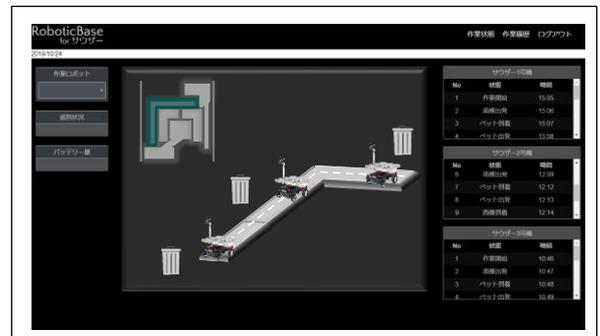


<RoboticBase user interface (example)>

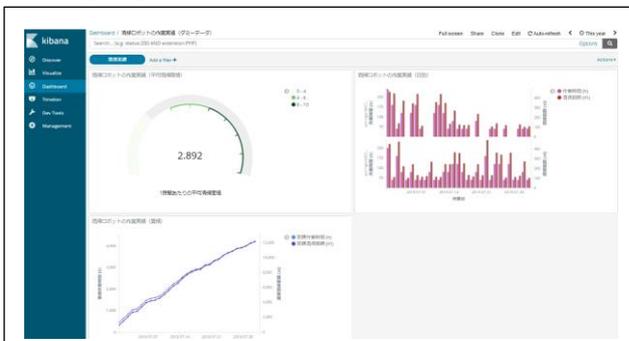
“Cleaning Status” and “Cleaning Log”



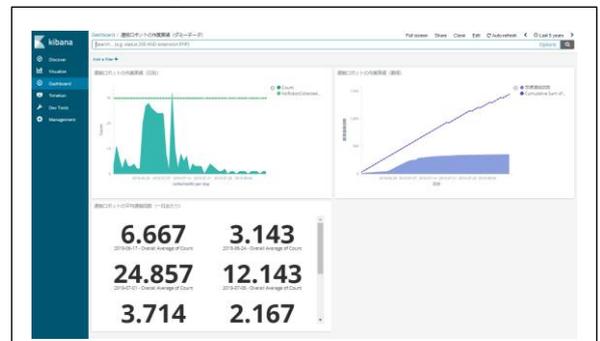
“Transport Status” and “Transport Log”



Cleaning Log Statistical Data



Transport Log and Statistical Data



■ Project Overview

- Project Start: November 2019
- Target facility: Tokyo Big Sight (Tokyo International Exhibition Center)
- Overview: Identifying the merits and demerits of incorporating robots in actual work of “Transport/Cleaning/Guide/Security of facilities using “RoboticBase” of TIS. The aim is to develop a scenario for full-fledged robot operations that divides operations between robots and humans.

< Purpose and Inspection Points >

1. Configuration of objectives and evaluation methods at time of changeover of Transport/Cleaning/Guide/Security services from humans to robots.
2. Validation of user interface and risk assessment for introduction of robots in facilities management.
3. Data model for interface between RoboticBase and autonomously traveling robots

For details see the announcement below.

<https://www.iri-tokyo.jp/uploaded/attachment/10797.pdf>

■ Background

To solve such social issues as hiring difficulties and the aging society, making use of service robots that incorporate AI/IoT as substitutes for people in physical operations is considered promising. For service robots to coexist with people at all sorts of facilities and company premises, unlike how this has been handled up to now, it will become necessary to design scenarios that consider risk management and safety of working IoT devices. By considering to the maximum extent convenience and efficiency and safety in the use of service robots, we can realize new services for cooperative work between humans and robots.

TIS has developed and is using RoboticBase as a means of incorporating the service robot into an operating system as a kind of moving IoT device.

■ Future plan

TIS aims to enhance RoboticBase functionalities for managing service robots (operations monitoring, task management, robot control, risk management, asset management, open data linkage, data analysis, recommendations, settlement consolidation, etc.) through the Project. Service deployment is planned sequentially through the combination of service robots and RoboticBase to meet the characteristics and facilities uses of convention centers, airports, and redevelopment blocks, as well as station type complexes, office buildings, hospitals, hotels and the like.

■ About RoboticBase

TIS's RoboticBase has the basic functionality of integrated management of different types of service robots such as transport, cleaning, guide and security, and IoT devices such as sensors, cameras and signage, facilities management, and collaboration with enterprise systems and external data, etc.

About TIS Inc.

TIS Inc., a member of the TIS INTEC Group, provides several IT solution services including development, data-center and cloud services. At the same time, TIS contributes to the growth of its customers business, by being their technology partner and offering global support. TIS has more than 3,000 customers in wide-spread of various industries, such as financial services, manufacturing, logistics/distribution, public services and telecommunications, with a presence mainly in China and the ASEAN region. For more information about TIS, please go to <http://www.tis.com/>

About the TIS INTEC Group

The TIS INTEC Group comprises 60 IT companies and 20,000 employees. Each company utilizes its field of expertise to provide IT services that support clients' businesses across many industries, including finance, manufacturing, services and public services, both inside Japan and overseas.

* The company names and products named herein are trademarks or registered trademarks of the respective companies.

* The information contained herein is current as of the announcement date. Please note that the content may differ from the latest information.

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- **Regarding the contents of this press release**

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