In Our Customers' Words

Industrial Machinery

Working to Achieve Contactless Service

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Working toward a Future Where Robots Play an Active Role

Based on the "Global Gateway Shinagawa" concept for the Shinagawa Development Project, which included the opening of the Takanawa Gateway Station in March 2020, JR East has been working with the surrounding areas to investigate ways to create cities with international appeal. A particularly critical issue we are facing now is the ability to provide contactless service as a way to prevent the spread of the coronavirus. That is why we conducted a proof-of-concept trial at the JR Takanawa Gateway Station, using robots such as THK's **SEED-Mover** with Lifter* to perform four tasks: cleaning, acting as security, guiding commuters, and transporting objects.

I first encountered this robot at THK's booth in a robot exhibition two or three years ago. They explained that the base mainly serves to transport an upper robot that can be customized for different purposes. Since this aligned with what I was envisioning, a proposal was eventually made to use the robot for JR East's proof-of-concept trial.

Challenges Identified during the Trial

We are aiming for future widespread use with this experiment, so we have been identifying problems and process bottlenecks that need to be resolved on both the robot and user side of things. For example, we learned that the robot cannot detect clear glass and will run into it, but we can get it to recognize glass as an object if we stick a decal on the surface.

THK's **SEED-Mover** with Lifter has superior mobility and is very easy to use. It can even travel over tactile paving without issue, and you do not need to be an engineer to operate it. However, the robot is currently unable to move between floors on its own. For example, in order to bring an order from a coffee shop on the first floor of the station to a customer on the second, someone would have to operate the elevator for the robot. Additionally, the range of remote operation is limited to a 10 m radius around the robot. Considering the current issue of preventing the spread of the coronavirus, for the safety of employees, I hope the robot can be made completely contactless and capable of being operated by people working from home.

SEED-Mover with Lifter being used in the trial

Looking Forward to Developments/Proposals Regarding Fully Contactless Robots

While the proof-of-concept trial is unfortunately not open to the general public, a number of people involved with the trial have come to see it. We have gotten various kinds of feedback and are looking into what functions can be built into the robot to allow it to perform the four tasks I mentioned earlier. However, stations are places a lot of people use, so we would like to first try introducing the robot to office buildings with a limited number of users and then expand to commercial facilities.

As to be expected from a world-renowned machine component manufacturer, THK has the technological prowess to propose robot products that combine machine elements. Because they also have sales and engineering groups as part of their organization, they are a company that is very easy to work with. Users tend to want to have everything be a perfect 10 out of 10 from the get-go, but I think it is good to start at 5 or 6 and then have the robot manufacturer and user work together to achieve that perfect 10. Once we have summarized all of the issues with this trial, I would like to meet with THK again. I hope that THK will use the technology it has accumulated over many years to develop new offerings and proposals that will meet our needs.

*An autonomous transfer robot that combines an independently moving trolley and a lifter that raises and lowers its height. The trolley can move in any direction and turn 360°, even in tight spaces, and the lifter can both raise/lower objects and move them forward and backward.