Japan Airlines Co., Ltd.

Using IoT to Protect Employees: Test of health monitoring system gets results and positive feedback from JAL staff

Services: NTT Com's cloud platform and mobile communication services

Mr. Toshiki Fujinami
Future Technologies Planning
IT Planning & Management Department
Japan Airlines Co., Ltd.
"NTT Communications has introduced us to new technologies, and we have been cooperating to create new business solutions with them."

Mr. Hideyuki Takemura
Assistant Manager
IT Project Planning & Management
IT Planning
Japan Airlines Co., Ltd.
"NTT Communications has a track record of diverse solutions, so we were confident they would be a strong partner."

Company profile

Name: Japan Airlines Co., Ltd.
Business: JAL delivers scheduled and non-scheduled air transport services, aerial work services, and other related business.
URL: http://www.jal.com/en/

Challenges
- Design a health monitoring system and heatstroke measures for employees who work outdoors
- Contribute to better heatstroke prevention in society at large by studying test results

Solution
- Utilize hitoe® wearable devices to monitor health conditions and process data

Benefits
- Verified the system's effectiveness in monitoring employee health
- Positive user feedback that data transmission devices did not interfere with work

Challenges

Better protection in the summer heat
Test health monitoring system for airport ground staff

JAL has been pursuing its Embrace New Challenges initiative since June 2014 as part of its goal to "become the most preferred and valued airline in the world." This measure aims to support those who take on the challenge of deploying innovative products and services.
The test of the health monitoring system incorporating the hitoe® wearable device was conducted in August 2015 as part of the initiative. hitoe® is capable of measuring biometric information such as heart rate by just wearing it. In this test, airport ground staff, who work outdoors in punishing heat, wore a device made of the revolutionary smart material that collected health data and sent it to the cloud for processing.
"NTT Communications introduced hitoe® to us, and after considering many ways of leveraging its unique capabilities, we came up with the idea of heatstroke prevention. Since the risk of heatstroke is a well-known problem for anyone working outdoors in summer, we also considered that the test data would contribute to the development of more effective heatstroke measures for everyone," said JAL's Mr. Toshiki Fujinami, Future Technologies Planning, IT Planning & Management Department.
"The health monitoring system utilizing hitoe® will lead to improved safety at worksites, and employees will feel more secure," said Mr. Hideyuki Takemura, who has also worked in machinery maintenance. "In summer, employees work in very hot temperatures, especially when you consider the sunlight reflecting off the pavement. Sometimes the temperature inside the storage area is forty degrees. Preventing heatstroke has always been of utmost importance, but we couldn't do much more than encouraging employees to drink water and take a salt pill. We weren't able to monitor their condition in a quantitative way, but with hitoe® we can. To get a sense of the system's performance in challenging conditions,

we conducted the test at the busy Naha Airport in tropical Okinawa Prefecture."

Solution

Three employees participated in the test The data gained from hitoe® was analyzed via the cloud

Since the ground handling department at Naha Airport is also interested in more actively monitoring employee health, the project proceeded smoothly.

The three participating employees were engaged in conveying luggage and loading and unloading carriages. The hitoe® garment checked their heart rate and other biometric information and sent the data to their smartphone via a transmitter. From their smartphone, the data was uploaded to the cloud to be analyzed.

Mr. Katsuki Nagahama at Okinawa Airport Service Company, Ltd. (OAS) said, “I sweat a lot during work in the summer, so I change clothes at least once.” Mr. Hiroyasu Gageko, who also works for OAS, said, “I have sometimes felt I would get heatstroke if I kept working. At those times, I go to a break area to cool down.”

Mr. Toru Kuroshima, Chief Operating Officer and Head of Operation Office at OAS worries that some employees overstrain themselves and put themselves at risk because of a strong sense of responsibility. “Since ground handling is conducted in a team, employees sometimes push themselves too hard because they don't want to cause problems for the others. So managers monitor their condition and make those that don't seem well take a break or go home early.”

The system used in the test was built by leveraging NTT Com’s cloud platform and NTT Com’s mobile communication service was adopted for the network. Mr. Fujinami felt confident about using cloud. He said, “JAL was an early adopter of cloud, and our stance is that we should focus on how we can assure robust cloud security instead of wondering whether to use cloud or not. We expect a lot from the cloud in the future, for example in innovating work styles, since it is easy to create environments you can access from anywhere."

Benefits

Visualizing employee heat stress enables immediate measures for heatstroke prevention

You can take measures to prevent heatstroke before it happens if you can visualize your employees’ health status and detect problems quickly. Since having managers check in with their staff is limited in its effectiveness, NTT Communications and JAL wanted to determine if early detection was possible by leveraging the IoT.

One concern was whether the data transmission devices would have any effect on employees’ ability to do their job. Mr. Takahiro Uehara at OAS said, “I was able to load and unload carriages while wearing the hitoe®-equipped shirt for this test, and the transmitter and smartphone did not affect my work either. Although this test was only for a short period, I don't think there would be any problems wearing them every day."

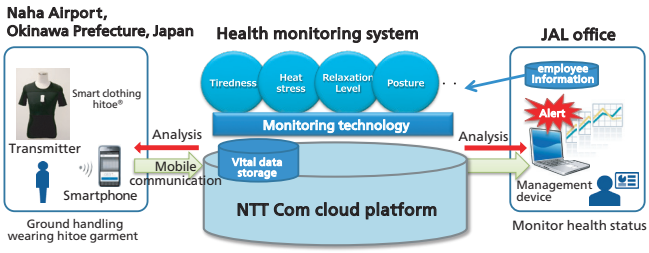
“During the test, participants had to wear a shirt equipped with a hitoe® patch and carry a smartphone with them. They also needed to be careful about keeping the battery charged. I was worried about the burden this would create, but the test went well without any complaints from the participants, so my concerns were groundless in the end,” Mr. Fujinami says.

Mr. Kuroshima thinks the system would be highly advantageous for other work beyond ground handling. "Airport work can be quite dangerous, with one problem triggering huge accidents. If we were able to monitor signs of trouble in real time and immediately make the appropriate response, safety could be improved. For example, this system would also be effective for the drivers of aircraft-towing vehicles or busses running inside the airport.”

Mr. Takemura sees possible future applications in cold weather protection. “We can also leverage this system to monitor the health of employees who work at northern airports to help protect against the cold.”

As JAL's test has demonstrated, wearable devices like hitoe® make it possible to leverage the IoT to monitor not only things but also the human body, ensuring safety and good health.

Diagram: Health monitoring system



NTT Communications Corporation
Website www.ntt.com