

“We chose to work with Fujitsu because it was the only company with a solution that could ascertain the location of workers regardless of whether they were indoors or outdoors.”

Taka Miyamoto
Senior Supervisor of the Production
Facilities Management, NIPPO



The NIPPO Corporation is working with Fujitsu to leverage the power of IoT to reduce occupational accidents.

At a glance

Country: Japan

Industry: Construction

Website: www.nippo-c.co.jp/english/

Challenge

Serious accidents are a common occurrence in the construction industry. Workers cannot always call for help in emergencies and their location cannot always be located in real time.

Solution

Fujitsu, through its UBIQUITOUSWARE solutions introduced Beacon and GPS technology to monitor worker safety.

Benefits

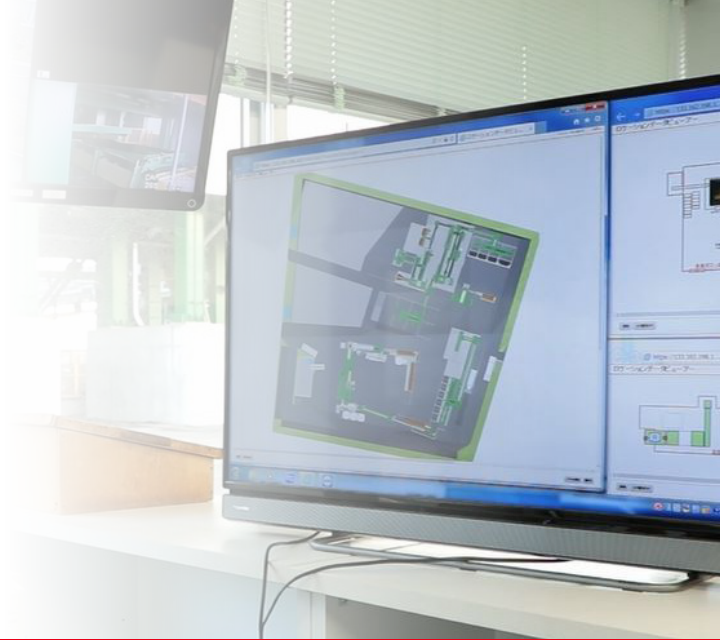
- Using Beacons and GPS to detect the location of construction workers both indoors and outdoors
- Provision of an SOS button and an automatic fall notification feature to improve worker safety

Customer

NIPPO Corporation is Japan's largest road construction company, with asphalt composite materials plants throughout Japan. Today the company not only continues to handle pavement construction in a broad range of areas such as expressways, airports, and parks, but it is also involved in a wide variety of business activities that include the manufacture and sales of asphalt composite materials, construction, and real estate.

Products and Services

■ Fujitsu UBIQUITOUSWARE solutions



A Zero Harm philosophy

Akio Arai, a managing executive director at Nippo, is passionate about solving health and safety issues. He explains: "in 2016, 928 people died in occupational accidents in Japan and the data shows that 30% of these were in the construction industry. In some cases, construction and manufacturing-related accidents produce not only victims, but unintentional perpetrators as well, and are accompanied by much suffering. It's our desire to work together with our coworkers to prevent this, and we're implementing a variety of measures to reach our goal of zero serious accidents."

NIPPO is working on initiatives to completely eliminate serious accidents. But accurately understanding where workers are all the time presents a challenge: a unique characteristic of plants that manufacture asphalt composites is the fact that a small number of workers carry out their duties scattered throughout expansive facility grounds. In addition, they often move between work areas alone, making it difficult for them to continuously watch out for each other. This sort of situation demands safety measures that allow the control center to see who is where in real-time and enables workers to immediately call for help in emergencies, such as when they become injured or fall ill.

Using Beacons and GPS to detect construction worker locations in Real Time

NIPPO's project team went through trial and error to find a way to detect workers' locations. That's when Fujitsu suggested it could help. As Taka Miyamoto, Senior Supervisor of the Production Facilities Management explains: "Fujitsu suggested a variety of solutions based on its UBIQUITOUSWARE solutions. I thought its safety management support solution, which can detect locations both indoors and outdoors, met our needs."

The solution NIPPO introduced consists of a system that can detect the location of a worker just by having them wear a location badge or tag. Combining a Beacon for indoor detection and GPS for outdoor detection, the badge and tag can be used to track workers regardless of whether they are inside or outside of a building.

With the introduction of Fujitsu's safety management support solution, NIPPO was able to ascertain where workers were with much more precision than before. The company achieved a detection error of about 3m for locations indoors and partially outdoors, and around 5m

outdoors. "We can get a good idea of where workers are in a certain area, so we're very pleased with the result", says Mr. Miyamoto.

Yuhi Matsumoto, Production Supervisor at Keiyo EarthCon's plant says that he feels that his daily duties have changed since the solution was introduced. "The new system is really convenient because we can see where a worker is at a glance on the control center monitors. The SOS button on the badge and tag has improved workers' sense of safety on the job. Even though we work to improve safety awareness by holding safety courses and inspecting past accident case studies, human error can't be eliminated completely. Since this solution was introduced, I now think that ICT is an effective way to make up for that."

He also explained that a conversation he had with one of the veteran plant workers left quite an impression on him: "this person told me they had an accident thirty years ago where they got caught in a machine and the complications still remained. They remarked that 'if we had this system back then, maybe the accident could have been prevented'. In the beginning, the plant staff didn't share things like this with us, but I think that our relationship of trust grew even stronger as we moved ahead with the safety measures project."

Mr. Aida says that the implementation of this system is raising morale among employees: "We are actively calling attention to this initiative both inside and outside the company to raise corporate value and improve awareness in the industry as a whole. It's being covered by the newspapers and other media, which is also having a good effect on our employees."

A goal of continuous improvement

NIPPO's safety measures continue to evolve. "We would like to refine the system by adding even more convenient features, such as making use of smartphone apps", Mr. Miyamoto commented.

Mr. Aida elaborated on NIPPO's vision for the system: "we want to tailor the system to match our operations more, for example stopping machinery when a worker enters a high-risk area or adding the ability to assign access to these kinds of areas only to certain people. We're also looking into implementing this system at our other plants throughout Japan. It's our goal to keep improving it, consulting with Fujitsu along the way."

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Contact a representative at: AskFujitsu@uk.fujitsu.com