SONY

USER STORY

Wearable Devices Improve Occupational Health and Safety at Construction Sites

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mSafety

Wearable devices to improve occupational health and safety at construction sites

GRIFFY Inc. is a Japanese company specializing in digital solutions for construction sites. The company provides extensive services to various customers in the construction industry, including AI and IoT base solutions as well as technical consultations. The solution service for on-site use, launched March 2009, has been used at more than 20,000 construction and disaster recovery sites in Japan as of the end of June 2025, with a total of 3,000 construction companies using it.

"GenVital" is a health and wellness management solution for field workers which has been jointly developed by GRIFFY and Obayashi Corporation, one of Japan's largest general contractors. It was first used in May 2024. "GenVital" analyses the heart rate, from a wearable used by each construction worker and combines that with the heat index on the construction site. If the cloud service detects that a certain threshold has been exceeded, it instantly notifies the user.

In May 2025, GRIFFY integrated mSafety as a part of "GenVital LTE". Using mSafety LTE-M connected wearable allows for continuous tracking of the construction workers' location, health and wellness without being dependent on a Bluetooth connection to a communication hub. This enables safer and more efficient site management by monitoring workers' physical condition and location information in real time.

This adds a high degree of risk of miscommunication between supervisors and each individual workers which can create latency in critical information sharing and thereby cause physical risks that may be overlooked (neglected). Safety management, using wearable devices, is expected to simplify communication of safety instructions and allow for user confirmations in a much better way, and as a result, lead to early preventive responses.

In this case study we explain how GRIFFY use wearable devices for efficient safety management at construction sites and the role mSafety plays in this process.

Due to that the GRIFFY service is their ownership, we have deliberately chosen to show GRIFFY's application without translating all parts or changing the graphics for the authentic experience.

Challenges faced by Japan's construction industry

Japan's construction industry is experiencing a severe labor shortage and an aging population, requiring a limited number of personnel to work safely and efficiently. Especially at large-scale construction sites, dozens to more than 100 workers often work at the same time, and it is important to understand the physical condition and safety status of each worker and communicate appropriately.

In June 2025, the Occupational Safety and Health Regulations were revised, making it mandatory to "develop systems," "create procedures," and "disseminate relevant parties" to early detect and appropriately deal with workers at risk of heat stroke in work performed in environments with a high risk of heat stroke.[1] This requires companies to implement measures against heat stroke based on scientific evidence more than before.

According to the Ministry of Health, Labor and Welfare's announcement of the occurrence of fatal accidents caused by heat stroke in the workplace in2023, the number of casualties including deaths and absences of 4 days or more was 1,106, of which 31 were fatal. By industry, the construction industry and the manufacturing industry account for about 40% of the total, and measures are especially urgent in the construction industry.[2]

In many accident cases, symptoms progress before the worker becomes aware of his or her physical condition, or the delay in noticing abnormalities in those around him is cited. At large-scale sites, workers are widely distributed, and it is important for managers to talk to each other and workers to watch over each other, but traditional methods have not been able to fully communicate risks. In particular, when relying on subjective reports from workers, there is a risk that the supervisor will overlook the signs of physical illness and increase the risk of heat stroke as a result of workers' reluctance to "cause trouble for others" or normal bias such as "it's probably nothing serious.

GRIFFY's Approach

To solve the above-mentioned issues, GRIFFY developed GenVital, a health and wellness management solution for on-site construction workers, in collaboration with Obayashi Corporation. With GenVital, the supervisor can monitor the heart rate of individual site workers, and the analytics solution combines that with the heat index on the specific construction site[3]. In case of an alert, the system can instantly notify the construction worker via an alert email. Initially, GenVital used a communication solution based on a gateway device, installed on-site, for relaying data from a wearable terminal using LPWA and BLE communication. However, this communication arrangement created barriers to project expansion, as it required operational procedures such as the installation of gateways at each construction site during deployment.

To address those barriers GRIFFY integrated mSafety from Sony and released a solution called GenVital LTE. mSafety, with a built-in modem, is connected to the cloud at all times via LTE-M communication, eliminating the need for complex arrangement with LPWA gateways and BLE paring.

[1] Source: Ministry of Health, Labour and Welfare, "Formulation of Guidelines for Basic Measures to Prevent Heat Stroke in the Workplace" (April 6, Reiwa).

[2] Source: Ministry of Health, Labour and Welfare, "Reiwa 5 Occurrence of Fatal and Injury Accidents Due to Heat Stroke in the Workplace".

[3] The heat index is determined by using data provided through the API of Weathernews Inc.

GenVital LTE Service overview

"GenVital LTE" instantly notifies the supervisor and the worker via an alert based on the index calculated by the physical condition management judgment algorithm, developed by Obayashi Corporation, The alert detects if the worker has exceeded the threshold, based on the mSafety device heart rate and the heat index at the construction site location. Since the risk of heat stroke can be detected at an early stage and managed beforehand, the assumption is that the worker health and wellness risk can be reduced and thereby support both employees and employers.*

Other features included are "message sending functions" and "IoT linkage functions". This allows the supervisor to send pre-defined or free text messages to the mSafety device, and the construction worker is alerted about the notifications using sound and vibration. In addition, in conjunction with the cloud measurement service, the construction worker can be automatically notified when external conditions like rainfall, wind speed, slope, noise and vibration, and dust concentration exceed acceptable levels. This allows for more complete automation of the worker health and wellness process, from data measurement to alerting on-site workers.

What can you do with GenVital LTE?

- **Health and wellness condition management based on a unique algorithm**

Based on the heart rate and location information collected by the mSafety device, as well as the heat index at the construction site, the worker's health and wellness is displayed on four levels: "dangerous", "alert", "caution", and "normal" using a unique physical condition judgment algorithm.

* GenVital is neither a medical device nor intended for the prevention or diagnosis of heat stroke.

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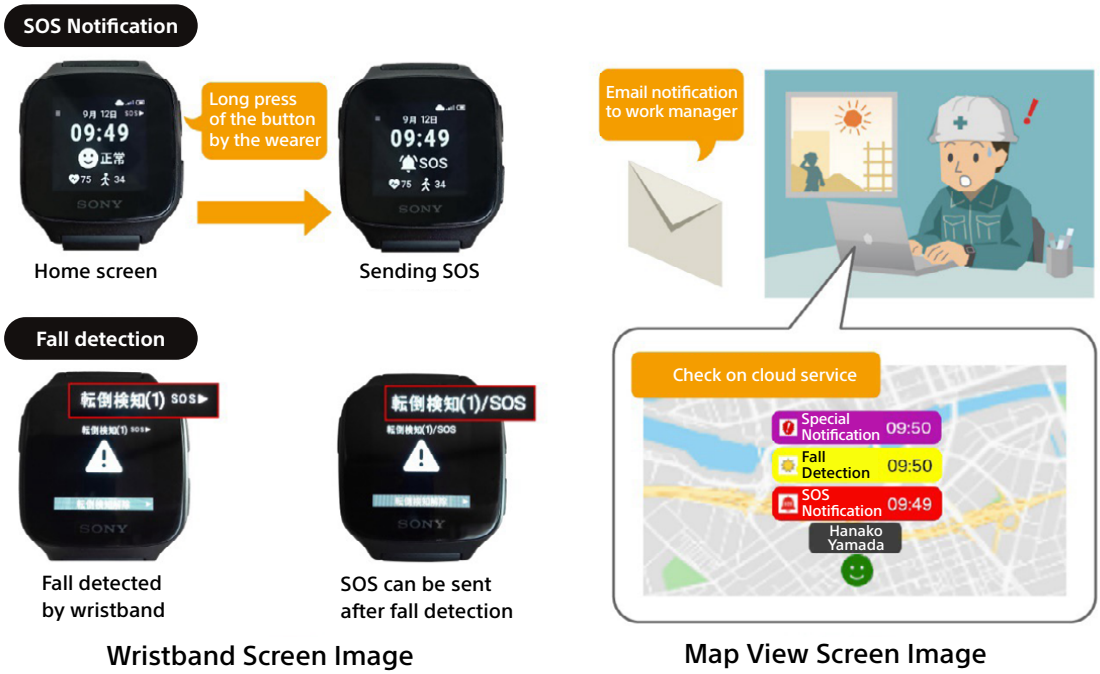
- **Distress notification / Alert in case of fall**

The mSafety device user can inform about a possible health and wellness situation to his or her supervisor by sending an alert using the dedicated button on the device. In addition, when the mSafety device detects a fall, an automatic alarm is sent to the supervisor.



- **Centralized management of workers' physical condition with a dedicated cloud service**

The data from the mSafety device is automatically updated every minute, and the supervisor can check the location of workers, their heart rate and heat index status in real time from the management screen. The location of workers can also be displayed on a map on the same screen. If the risk of heat stroke for a worker increases, the alert level will be increased, and an alert email will be sent to the on-site worker manager with the name of the person concerned.

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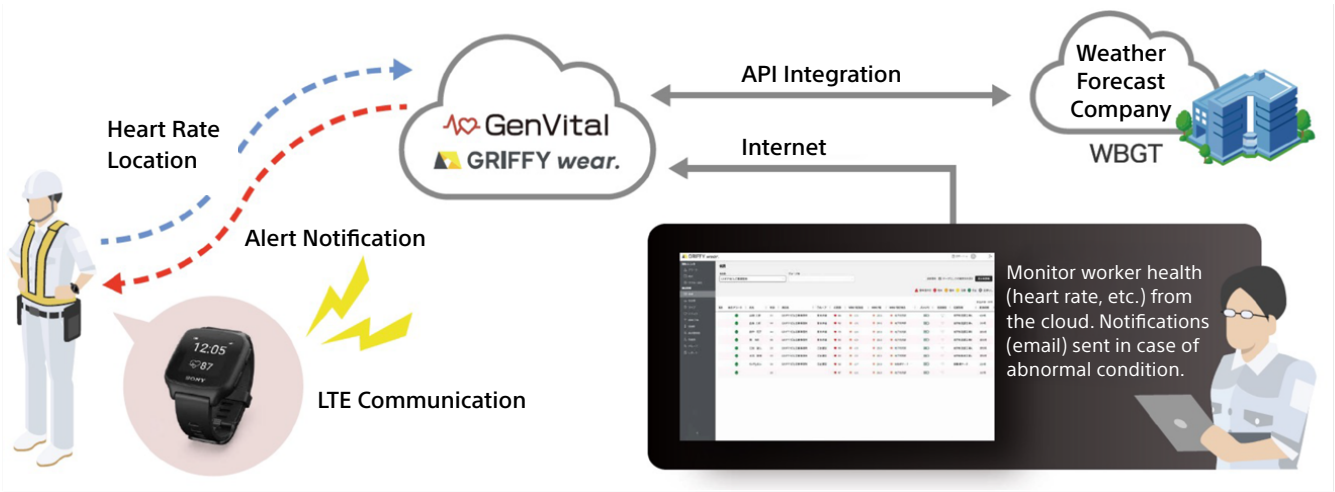
- **Integrated data management**

Outdoor heat index data provided by private weather service companies is obtained through API integration, eliminating the need for on-site measurement. It is possible to link mSafety devices for each worker group according to the site and construction area, and to display location information superimposed on uploaded construction drawings. You can also output comprehensive alerts (number of notifications), heart rate (1-hour maximum), and heat index (1-hour maximum) as daily/monthly reports.



Why did Griffy choose mSafety?

- **User friendly for workers and supervisors**

mSafety is connected to the cloud at all times via LTE-M communication, eliminating the need for on-site gateway equipment. This simplifies for workers using the service. They simply need to strap on the mSafety wearable, and it will automatically support worker health and wellness. Simplicity of operations is crucial on large construction sites, where large numbers of devices would be utilized.

- **UI/UX optimized for sharing information within teams**

Using the mSafety user interface, an intuitive and easy to operate UX is provided for the workers. The worker can notify supervisors, in the case of health and wellness conditions, using the alert button and getting alert messages on the mSafety display.

- **Flexible customization to suit the service**

Seamless integration into external systems with flexible data management allows for integration and export of data from GenVital.

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Company Profile

Industry: General Construction Industry
Scale: Approx. 8,000 employees
Business description: Design and construction of civil engineering and construction work, urban development business

REAL-LIFE USE CASES BY END USERS

Case study at a major general construction company

Use case

Provided GenVital to more than 3,000 construction workers at sites across Japan, such as large-scale construction work in urban centers and restoration work for important cultural properties. Initially, a Bluetooth version was introduced, but it is gradually transitioning to Genvital LTE using mSafety to improve operational efficiency.

Background

At large sites, workers are spread across a wide area, making it difficult for managers to keep track of everyone's physical condition. In addition, there were cases where it was difficult for individual workers to take notice of their health and wellness condition and did not take the recommended breaks. It was necessary to raise worker awareness of safety at the work site and foster a culture of health and wellness among workers.

Key points for selecting GenVital

- ✓ Remotely monitor the health and wellness of each worker using a cloud-based service.
- ✓ Individual alert notifications are given for workers

Feedback on usage results

As a result of the demonstration at around 60 sites, it was confirmed that the incidence of poor health was reduced to 0.1% by using “GenVital”. *

- When an alert was initiated, it was helpful to be able to check with the individual worker and confirm their physical condition. It was also convenient to be able to easily link to a separately introduced group chat tool.
- When an alert notification arrives, it is very good that all team members can share it.
- Workers are taking a break before they realizes their deterioration.
- Originally, it was necessary to know the radio wave coverage of BLE, but now with the LTE model, there is no need to worry about it.

Vision

With the mission of “drawing a picture of the future of the construction industry with digital technology,” GRIFFY operates a rental service business that includes a lineup of many construction DX solutions under the “Site Lloyd” brand, in addition to the co-creation business of DX products and solutions specializing in the construction domain.

With a cumulative track record of over 20,000 installations (as of the end of June 2025), we will contribute to creating an environment where everyone involved in the construction industry can work happily by combining the know-how accumulated through on-site implementation with digitally native ideas to address common issues in the entire construction industry, such as productivity improvement, labor saving, and safety measures.

* Measurement results using other devices before the introduction of GenVital LTE

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Sony´s View

Wearable technology that creates communication opportunities

GenVital LTE is a solution that visualizes and shares workers' health and wellness information in real time using data collected by mSafety wearable devices and can be used for safety management at construction sites. However, the true value extends beyond mere data collection and monitoring. Maybe more importantly, GenVital is also a "tool that creates communication between workers."

When it comes to safety management systems, the focus is generally on detecting the status and location of people who are already in danger and allowing administrators to communicate remotely. However, what has become clear in this case is that early detection of small abnormalities encourages workers to voluntarily communicate with each other, fostering a "preventive safety culture" that prevents accidents and poor health. With the mSafety platform, we feel that this value is even greater.

At construction sites, workers' reluctance to "cause trouble for others" or normalcy bias such as "it's probably nothing serious" can lead supervisors to overlook signs of physical illness, resulting in an increased risk of heat stroke and other health issues. In such a situation, wearable devices could possibly have become a "medium of communication" and provide an environment where it is easy to detect abnormalities and speak out to them at an early stage by providing objective data.

mSafety from Sony

mSafety is a reliable platform designed for companies that provide safety services, remote healthcare services, and more to keep people safe in a variety of use cases. mSafety consists of a secure back-end cloud solution and a mobile-enabled wearable device that combines the two to provide the infrastructure for building remote monitoring applications. mSafety uses IoT communication to reduce the complexity of system design, protecting end users from hazards and complicating tasks. It also provides high-value data to service providers.

For more information about mSafety, please visit **https://sonynetworkcom.com/msafety/**.
If you would like to learn more about Sony's partnership with mSafety and how you can leverage the wearable platform, please contact us.

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