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Marubeni Corporation

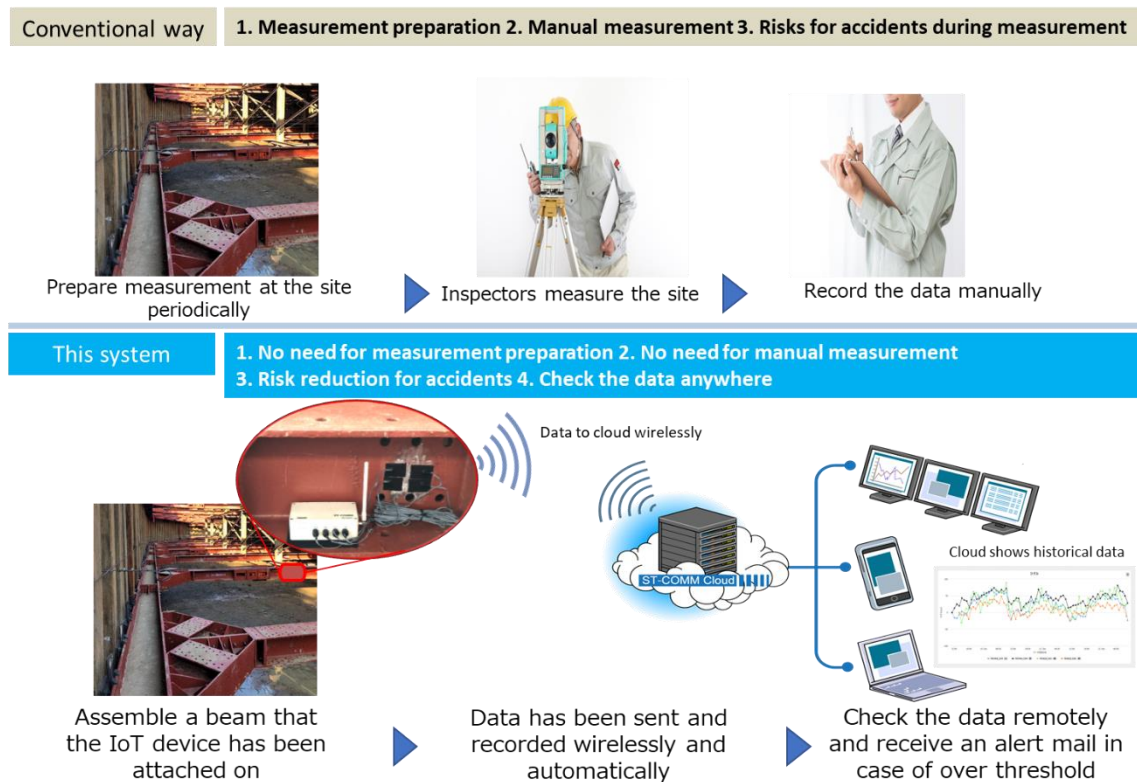
CACH Inc.

Marubeni Construction Material Lease Co., Ltd.

**Launch of IoT System that Automatically Monitors the Status of Temporary Structures Built at Construction Sites**

Marubeni Corporation (hereinafter, “Marubeni”), CACH Inc. (a Japanese IoT startup, hereinafter, “CACH”), and Marubeni Construction Material Lease Co., Ltd. (hereinafter, “MCML”) hereby announce the release of a trial version of a new IoT solution for temporary construction structures developed by CACH. This IoT device is attached to steel support structures (also called, “struts”, one type of temporary construction structure used by MCML), and monitors their axial force, automatically sending an alert message should any irregularities be detected. A visual representation of how this system works can be seen in the image below.

<Conventional Method vs. This System>



**[Problems in the Construction Industry and with Conventional Methods]**

The construction industry is seeking solutions for safe management, accident prevention and productivity improvement against lack of human resources such as skilled workers or supervisors at construction sites. Convention dictates that, after assembling temporary structures at construction site, supervisors of the site manually check hydraulic pressure jacks or sensors and measurement instruments are attached by professionals to the structures to monitor the axial force in strut structures. Such methods are subject to human error caused by decreasing the number of supervisors and risks are also associated with the

complex nature of instrument wiring, as well as the accident risk associated with working at significant heights.

### **[How This System Works]**

The IoT devices have already been attached to the temporary structures prior to their arrival at the construction site, so no on-site measurement preparation is required, saving time and contributing to safe management. In addition, strut axial force data collected by the devices is sent automatically to the cloud in real time, and is available to be checked from anywhere at any time. Furthermore, the devices send push alert messages via phone, tablet or PC as soon as they detect any irregularity in the temporary structures so that quick action may be taken.

### **[Future Prospects]**

Feedback from users during this trial will be utilized for further product improvements at CACH and for the creation of new added value for MCML's temporary structures. Moving forward, the goal of the trial is to strive for market developments using Marubeni's network in Japan and overseas.

#### < Marubeni profile >

Company Name : Marubeni Corporation  
Representative : Masumi Kakinoki  
Headquarter : Tokyo Nihombashi Tower, 2-7-1 Nihombashi, Chuo-ku, Tokyo, Japan  
Incorporated : December 1, 1949  
Main Business : Marubeni Corporation and its consolidated subsidiaries use their broad business networks, both within Japan and overseas to conduct importing and exporting (including third country trading), as well as domestic business, encompassing a diverse range of business activities across wide-ranging fields. Additionally, the Marubeni Group offers a variety of services, makes internal and external investments, and is involved in resource development throughout all of the above industries.  
Company URL : <https://www.marubeni.com>

#### < CACH profile >

Company Name : CACH Inc.  
Representative : Yoshimasa Suzuki  
Office : Osaki Bright Core 4F, 5-5-15 Kitashinagawa, Shinagawa-ku, Tokyo, Japan  
Incorporated : October 3, 2016  
Main Business : Development of IoT devices and software.  
Company URL : <https://www.cach-inc.com/>

#### < MCML Profile >

Company Name : Marubeni Construction Material Lease Co., Ltd.  
Representative : Shoji Kuwayama  
Headquarter : 2-4-1 Shibakouen, Minato-ku, Tokyo, Japan  
Incorporated : November 1, 1968  
Main Business : Leasing, sales, repair, fabrication, etc., of temporary steel construction materials (Sheet Pile, H-Beam, Steel Support, Steel Deck, Steel Plate, etc.) for foundation construction work; also, installing and extracting of piles,

earth retainment work, and underground continuous wall work.

Company URL : <http://www.mcml-maruken.com>

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