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Optimization of manufacturing process at PCa factory by identifying location of workers in real-time

- Implementation of manufacturing management system "PATRAC-PM" that utilizes IoT -

Sumitomo Mitsui Construction Co., Ltd. (2-1-6, Tsukuda, Chuo-ku, Tokyo. President: Hideo Arai) developed and implemented a manufacturing control system "PATRAC-PM (Precast Automatic TRACing system - Production Management)" at the factory ^(*1) that produces precast (PCa) members used in high-rise condominiums, etc. to optimize the manufacturing process by visualizing the operating status and production of production lines using IoT.

The company is developing the next-generation PCa production control system "PATRAC" that will bring further quality and productivity improvement at the PCa factory. This follows the shipping process management system "PATRAC-DL (DeLivery)" ^(*2).

(*1)SMC Precast Concrete Co., Ltd. (Group of Companies) Ibaraki Factory

(*2)Released on December 18, 2018



【Overview of PCa factory production line】

■ Features of manufacturing management system "PATRAC-PM"

① Visualization of production data

Using the Quoppa Intelligent Locating System ^(*3), wherein a Locator is attached to the factory ceiling, and a BLE (Bluetooth Low Energy) tag attached to the positioning targets (person, crane, etc.), it is possible to automatically collect a big amount of production data with high accuracy at 1-second intervals and with an error of about 50 cm for in each process as each PC member production time and each worker movement history.

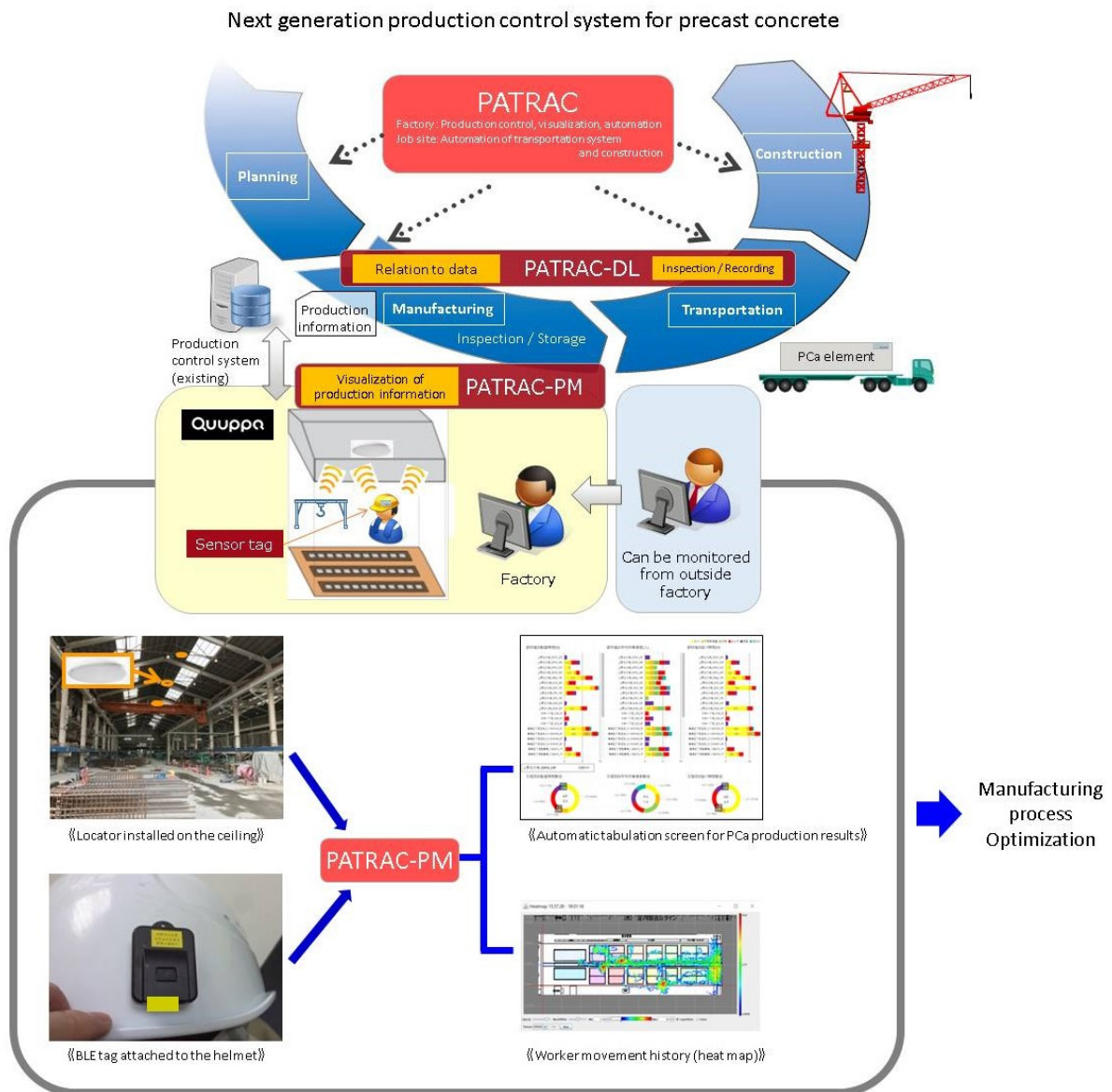
(*3)Angle radio waves positioning technology based on Bluetooth

②Automatic aggregation and accumulation of production results

After each PCa element production completion, production data is automatically aggregated by an independently developed BI tool (business intelligence tool) and displayed on a screen as appropriate. It is possible to easily evaluate and review from the macro production status of the entire factory to the micro-production status of one work.

③Manufacturing process visualization tool

By quantifying and graphing daily production results, various analyzes for improving work efficiency, labor leveling, and productivity can be easily performed. It can significantly save the time required for manufacturing for each influential factor such as manufacturing date and time, manufacturing line, manufacturing bed, material type, individual worker, etc., and use it to extract points that can improve production.



【Illustration of PATRAC (PATRAC-PM)】

■Next deployment

Sumitomo Mitsui Construction Co., Ltd. set a policy "Reform of construction production process" as one of our basic targets in our "Medium-Term Management Plan 2019-2021" and we are now working to improve productivity at construction sites. In the future, we will focus on the development of the next-generation PCa production control system "PATRAC" to improve quality and productivity, taking advantage of the five PCa component manufacturing plants nationwide, including our group of companies, and ICT. We will promote the automation of PCa manufacturing plants and the automated construction of PCa parts by actively utilizing ICT / IoT.

■Contact

For inquiries regarding this matter, please contact the following.

Sumitomo Mitsui Construction Co., Ltd.

Email: Info-tech@eb.smcon.co.jp