



IoT streamlines aircraft production

Fujitsu has developed a system that uses Internet of Things (IoT) to visualize operational status, progress, and failures to improve production line efficiency at the Commercial Aircraft Divisions of Mitsubishi Heavy Industries (MHI). The project adopted the Fujitsu COLMINA platform as a cloud service to start operating the system, and User Experience (UX) design for the visualization to intuitively identify problems and take countermeasures.

About the customer

With over 400 locations worldwide, MHI is headquartered in Tokyo and is the center of the MHI Group which consists of 300 companies. It provides solutions to a range of industries from railways and other transportation systems to the energy sector and space development. Aerospace is an important part of MHI's production landscape and in particular, its passenger aircraft business at the Nagoya Aerospace Systems works.



Industry: **Heavy Industry Manufacturing**



Location: **Japan**



People: **14,501**



Web: **mhi.com**

Challenge

MHI wanted to gain a quick and accurate visualization of the production status at its aircraft manufacturing subsidiary.

Solution

- Fujitsu COLMINA cloud-based platform and IoT to visualize operational status and Fujitsu UX design to pinpoint problems



4 months

to develop the system

“We needed to achieve real-time understanding of production status and to come up with quick countermeasures to the problems.”

Spokesperson, Mitsubishi Heavy Industries

Health check for production systems

With a complex environment of production lines fabricating many components, Nagoya Aerospace Systems wanted to gain an accurate understanding of its production status so that it could quickly implement remedies if things went wrong. Previously, production had been monitored with a manual system which meant it took several hours to gather information from multiple systems and on-site checks. It was difficult to obtain a quick picture of the total operation and the progress or failure of on-site facilities.

“We wanted a production equipment monitoring system that would monitor, ensure communication, and manage the health of production, as well as investigate causes of failures,” says a spokesperson at Mitsubishi Heavy Industries (MHI).

Visualization combined with intuitive troubleshooting

MHI chose Fujitsu to support these aims. It implemented a cloud-based solution that uses IoT technology to visualize operational status and progress. Fujitsu User Experience (UX) methodology pinpoints problems and takes countermeasures intuitively, rather than through traditional manual intervention.

The project adopted the Fujitsu COLMINA platform as a cloud service to start operating the system. Fujitsu COLMINA enables data on everything from design to production to be linked throughout the entire supply chain and is designed to facilitate the digital transformation of all manufacturing work.

By using the COLMINA platform, Fujitsu was able to develop the system in four months from requirements definition to release, and MHI started the full-scale operation of the system in its Nagoya Aerospace Systems works from spring 2018.

During development, visualization screens were designed using Fujitsu Intelligent Dashboard which is an analysis and visualization tool that provides manufacturers with a single real-time view of their entire operating environment, complete with management reporting.

Swift remedies when problems occur

As a first step towards efficient monitoring, the system automatically acquires the positions of products, independent transport devices and jigs, and visualizes equipment operational status and production progress. Using IoT to acquire information direct from the equipment, the system can instantly get more accurate information on progress and utilization rates.

By issuing alarms and sending email messages to persons in charge when equipment problems occur or when work is behind schedule, the system enables swift counter measures to be taken.

Leveraging open APIs and mechanisms for data accumulation and utilization, MHI has been able to gradually connect more equipment to the system while verifying effectiveness. In the future, the company will gradually add a production status analysis feature, a failure prediction feature, and will apply the system to other relevant processes, thus achieving highly efficient production lines that leverage IoT.

Outlining the business benefits, the MHI spokesman said: “Fujitsu User Experience (UX) enables us to understand the user’s sense of a product or service and the value of that experience.”

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