

Digitized chains

RUD is using the Industrial Internet of Things to enhance transparency in conveyor systems

Reference project:



“With T-Systems’ IoT solution, we are positioning ourselves as an innovator and are creating tangible added value for our customers.”

Klaus Pfaffeneder, Head of Conveyors and Drives at RUD Ketten

From Aalen to the world: Nowadays, the RUD Group operates on every continent with its sales and production units. The Swabian creative powerhouse and its nearly 1,600 employees generate sales of roughly 220 million euros with their chain systems and components. This hidden champion – winner of several awards for its innovative strength – has products that are characterized by their high quality. The RUD Group’s customers value the operational excellence of their products, which have proven themselves in various applications such as drive and conveyor technology, industrial and hoist chains, and in protection systems against the forces of nature. Just like a top innovator in their market segment, RUD is also increasingly using digital components to enhance their products for comprehensive solutions – and to create significant added value for their customers.

At a Glance

People who need high-quality and powerful chains choose the RUD Group’s products. They are one of the market leaders for high-performance chains and industrial conveyor technology. RUD products are used in extreme situations, e.g. during ash removal in coal-fired power plants. Until now, users had to rely on their intuition to determine the right time for servicing and replacing the chains. For instance, status checks were performed right on the production system using a simple traffic light system. With the introduction of Industrial Internet of Things (IIoT) functions by T-Systems, RUD has brought greater flexibility to conveyor system analysis, allowing users to proactively plan maintenance.

- Customized optimization of the conveyor systems thanks to real-time RUD service
- Continuous recording and visualization of measurement data via a dashboard
- Save data to T-Systems’ Cloud of Things backend
- Specific evaluations using add-on modules (“widgets”)
- Optimized service, minimization of downtimes
- New, internationally available business model
- All-in-one solution

Reference in detail

The Challenge

RUD is the market leader for conveyor chains in the ash dischargers of coal-fired power plants. These chains are essential for the energy production process. If the incinerated waste is not taken away, the power plant comes to a halt. The weight of the ashes, the heat, and the continuous use are very strenuous on the chain material. But when is it the right time to replace the chains? What load do the chains bear? Until now, routine maintenance was the only time, at which the system operators received information about it – or when the “red little light” blinked on the system. In most cases, the latter indicated a possible production loss. Furthermore, this also entailed quickly providing replacement chains and a maintenance team so that the power plant could start again. This is not a service-oriented situation for RUD, an innovative leader in its industry. How can operators prevent production losses and how can RUD optimize service as a supplier?

The Solution

A data-based, digital solution was needed because transparency is impossible without specific data about the status of the chains' wear or service life. RUD opted to use the capabilities of the Industrial Internet of Things (IIoT) for their purposes. Together with T-Systems, RUD

implemented the first prototype within three months, and it only took six more months for the final, complete solution. As part of the solution, T-Systems equipped the conveyor systems with IIoT devices. Using the SIM cards installed in the devices, the measurement values of the installed sensors are sent encrypted via GSM to T-Systems' secure Cloud of Things backend. RUD customers can access their system data using a specially secured dashboard. However, providing data is just one part of IIoT. The relevant added value for the customers is created only when the measurement data is evaluated. As such, T-Systems provides specific widgets for various evaluations, and they allow for long-term analyses and up-to-date status reports. For instance, the accumulated operating time, the average and current chain load and wear can be determined at the touch of a button. “Complex background knowledge that reflects the engineering know-how from RUD Ketten's 140 years of operational expertise has been incorporated into these widgets and made available to the customer in an easily understandable manner,” says Rupert Wesch, Application Technology at RUD. On the dashboards, real-time rules can be used to set alarms as well, which immediately notify RUD's customer whenever the system exhibits peculiar behavior. Thanks to T-Systems' solution, RUD is able to give their customers' staff transparent access to their virtual system data and critical operational states. By using the cloud in the backend, the IIoT solution can scale very quickly – regardless of the system's location. As such, systems in Brazil are already connected, and there are specific plans for a rollout for Australia.

Customer Benefits

Thanks to the IIoT solution, both RUD and the user companies achieve significant benefits in terms of system transparency, and both parties can optimize maintenance intervals using the newly acquired information. For users in the power plant, this means that the systems are maintained only when necessary; for RUD, the analyses mean that maintenance staff and the provision of replacement materials can be adequately planned according to needs. In other words, the findings from operating the systems also provide RUD with insights for production planning. Using T-Systems' IIoT solution, possible outages are already identified in advance, and timely measures can be taken. Furthermore, learning of the situation using automatic alarms allows RUD to actively notify its customer about maintenance. Precise service optimizes the customer relationship. At the same time, access to the RUD dashboard provides the opportunity for a new business model that goes beyond the classic provision of systems, wear parts, and maintenance. The IIoT solution simplifies continuous systems management for operating staff. In addition to the operational advantages, RUD is once again positioning itself as a pioneer and innovator in its market with this digital solution. If demand for innovative solutions increases, it can be operated worldwide virtually at the touch of a button, which is one of the cloud's major advantages.



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