

Use case for IoT

Branch: special-purpose plant construction

Customers: Automotive OEM

Problem:

A manufacturer of special-purpose plant construction and machines for Automotive OEMs has to follow rigid contractual restricted service intervals and maintenance cycles with the plants of the auto manufacturers.

So, although machines/robots are controlled within auto part production flow within the plant and in sequence, their maintenance is within rigid contractual restrictions concerning service intervals and maintenance cycles.

IoT use case:

Use of sensors at robots and special purpose machine to get more insight into their status and conditions. Setting up a condition-based maintenance would help reduce sometimes – despite the rigid maintenance cycles – **overnight and highly labor intensive services on the sites.**

Architecture:

Sensors i.e. from Pepperl&Fuchs (functionality: vibrations, temperature, sound, motion, electricity, ...), connected via MQTT or http protocol and message in json format (SAP Predictive Maintenance and Service Scenario, security features) via SAP Leonardo IoT Bridge to SAP Leonardo IoT Foundation.

An edge computer has to be installed at customer site, best for one production cell, that collects all the data streaming information from the connected machines in the production cell. This edge computer is connected via edge services to SAP CPI at machine producer sites and for analytical examination of the streamed data to SAP Analytics (i.e. anomalies detected with Machine Learning algorithms).

I.e. great argument to change current machine producer's current ERP to SAP S/4 HANA especially Cloud for a better connection through extended business processes with the edge.

Possible consequences:

trigger earlier and now less planned service or maintenance trips (versus formally unplanned and highly expensive trips) to the customer's production site which shows higher identification with customer process and success and finally generates less service costs and thus higher EBIT.

Major challenges:

Get data about different customers' production flows out of their production sites and connect it to the machine manufacturers site.

The data need to be separated from other customers' data with setting up multi tenant functionality through the whole data insight process.