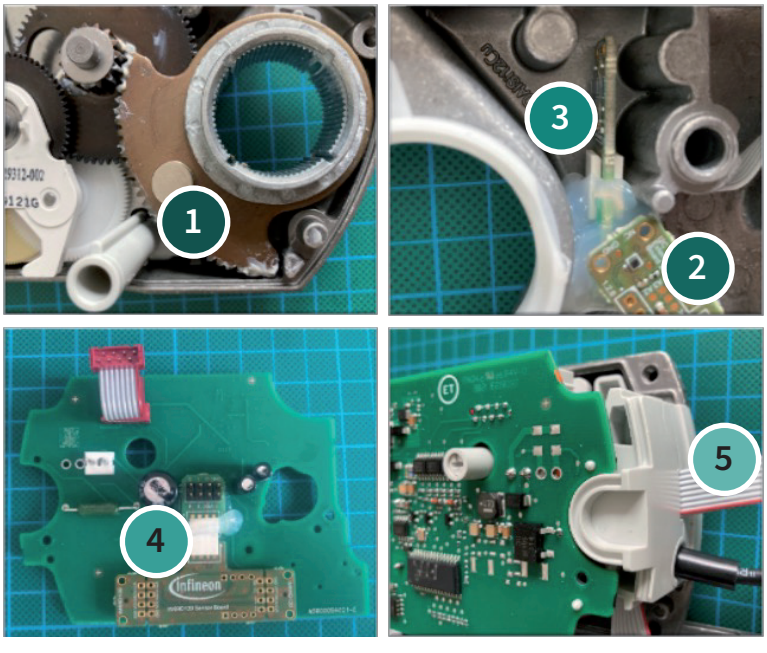
CASE STUDY

Customer case study enabled by XENSIV™ Predictive Maintenance Evaluation Kit

For this case study, one of our customers shared with us an actuator and some signs of failure incl. possible variables to monitor its status. In this one-pager, we will present you the customer's requirements and our solution approach using the XENSIV™ Predictive Maintenance Evaluation Kit to monitor the actuator's condition.

Infineon's solution approached explained step-by-step:
We opened the damper actuator and located potential spots to install the following components, embedding them into the existing actuator. It's crucial to secure a good position so the sensors can collect data reliably and securely. By using the XENSIV™ Predictive Maintenance Eval Kit and its satellite boards, we placed:

1. A magnet in the middle of the gear which is able to monitor its position
2. A XENSIV™ TLI493D-W2BW 3D magnetic sensor, used to collect information about the position of the gear
3. A XENSIV™ DPS368 pressure sensor with an integrated temperature sensor to monitor the overall environment
4. Two XENSIV™ IM69D130 MEMS microphones for noise monitor and sound anomaly detection
5. A flat ribbon cable is guided to the outside



Customer's requirements:

To analyze the performance while the actuator is working, these three variables should be tracked:
- **Cycle times** – to monitor the gear rotation. If it takes longer to complete cycles than stated in the OEM specs, a problem must be indicated
- **Current consumption** – to avoid burnout of electronic components
- **Noise** – to catch a failing or wearing down of a component, indicate a change of sound curve

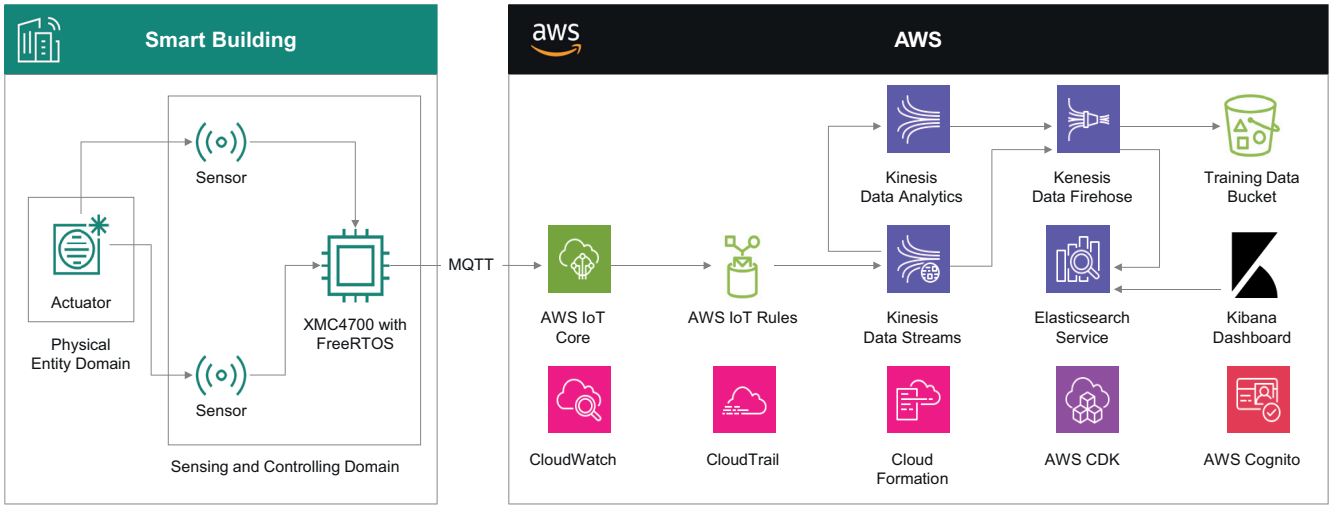
The data that the customer's wanted displayed:
- Current consumption and feedback
- Output segment/shaft adapter rotation

CASE STUDY

Opening Time	Beyond threshold
Noise	Squealing / screeching noises
Power	Increased current / power over time



We are following a generic approach by dividing our solution into an embedded part and a cloud part, allowing an easy kick-off:



A flexible platform for data collection at the Edge
Secure cloud delivery | Analysis for real-time insights | ML-based automation

After implementing the hardware enablement for data collection, we deployed the software stack, including the following solutions.

Real-time Operating System Kernel

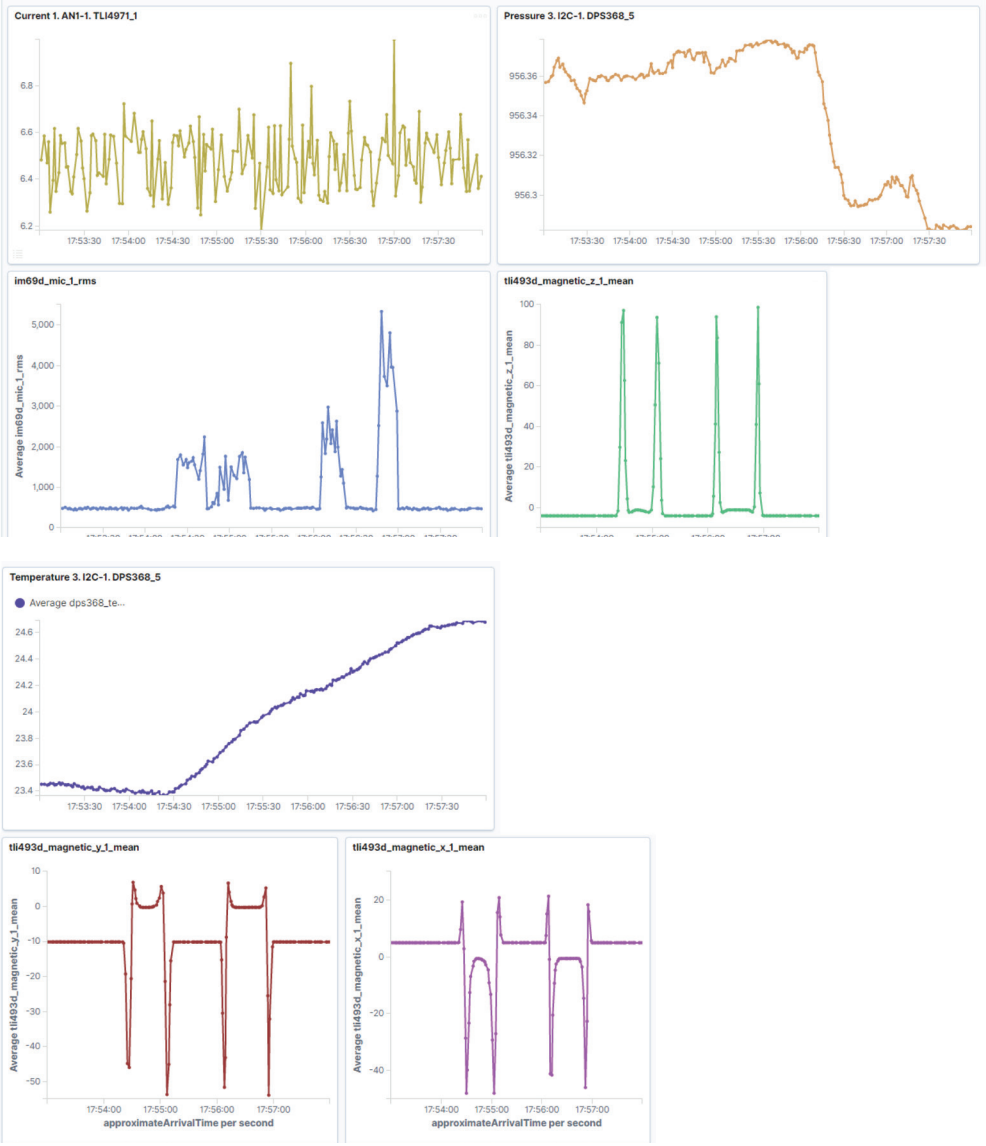
System Integration

Data Processing and Analytics

Data Visualization Dashboard

CASE STUDY

The unit is now ready for real-life sensor data collection!



For more information visit our application page or the board page

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