SCIENCE · PASSION · TECHNOLOGY

TU Graz

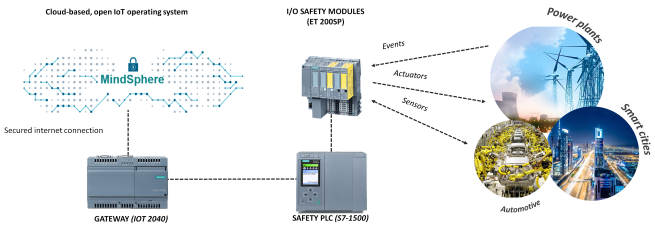
Open Thesis / Project

Cloud-based analytic services for industrial PLCs

Motivation

Programmable Logical Devices (PLCs) are widely used across all industrial domains. PLCs can be seen as local data hubs, which are constantly supplied with various data from the underlying machines, however due to the limited capabilities of PLC devices, the data is nowadays rarely utilized in the context of advanced analytic applications or services. Cloud computing, on the other side, is a rapidly growing technology that provides sufficient resources for advanced analytic strategies. In combination PLCs and cloud computing can increase the service portfolio of automation solutions, by streaming data securely from low level devices (PLCs) to a cloud platform where additional analyses or services can be realized based on the incoming data.

Aim of the thesis to design and implement prototypical cloud services, which allow a user to get a full overview on his industrial environment and furthermore enhance customer experience with additional analytic services.



Target Group

Students in ICE/Telematics and Comp. Science.

Thesis Type

Bachelor Thesis / Master Project.

Goals and Tasks

- Get acquainted with the Siemens Mindsphere cloud environment and Simatic automation devices
- Design prototypical cloud-based analytic services for PLCs.
- Implement and test services in an industry-oriented setting

Required Prior Knowledge

- Solid background in data analytics and statistics
- Programming skills in Python, Java, Go or similar
- Understanding of web and communication technologies (REST, OpenAPI, CoAP, MQTT etc)
- Interested in cloud computing

Used Tools & Equipment

- MindSphere - open IOT cloud based platform from Siemens.
- Simatic S7-1500 PLC as a data source

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