gambling industrial reality: a SHACL-ed OWL graph-ical adventure

Masterarbeit

a generator for knowledge graphs of realistic industrial plants generated randomly

Motivation

Research has defined many formats for standardized data representation of industrial plants. But the adoption in industry is quite low. One main objective is that providing the data in a structured, machine readable format requires additional effort without presenting clear value so far.

To show that value we need realistic, structured data. So we have a circular dependency here. To overcome this, a generator for random realistic plant data shall be created.

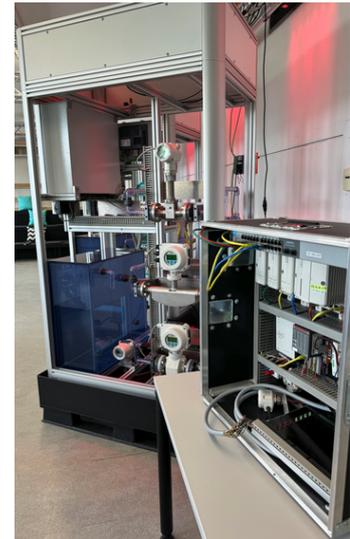*hint: this thesis can also be written at SEW-EURODRIVE*

Figure 1: simple industrial plant

Goals

- understand what characterizes plausible data for several involved domains
- create an ontology from it
- develop a plausible random data generator
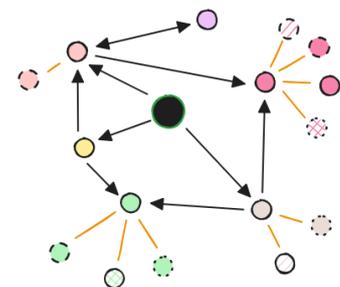- develop measures to proof plausibility of created plant graphs

Figure 2: knowledge graph

Helpful interests and prior knowledge

- interest in information modelling, ontologies and digital twins
- programming skills and fun in software development
- lecture digital twin engineering provides usefull prior knowledge

Supervisor
Benedikt Geib, M. Sc.
building 30.33, room 110
phone: 07251/75-24809
benedikt.geib@partner.kit.edu

Thesis: Masterthesis
Starting Date: asap
Tags: *knowledge graphs, industrial environment, information modelling, ontologies*