Title: Digital Twin for Virtual Commissioning

Background

Virtual Commissioning uses a Digital Twin of an existing or planned facility, line or cell connected directly to the real (or software) control system to enable virtual testing and verification at a very early stage in development. Virtual commissioning using a digital twin also helps to shorten start-up and ramp-up time when commissioning or upgrading a production process or plant.

A virtual commissioning model of a process makes it possible to test and verify the control systems without affecting the production and increases the chances of getting things right from the start. When the control system is tested and implemented the model can also be used as a tool to test and verify future improvements, but also to analyze scenarios for increased/decreased volumes, production planning etc.

Objective

The following thesis aims to enable virtual commissioning by developing a digital twin of an existing production process at one of our key customers. The model will be developed in a software called Process Simulate, developed by Siemens. The objective is to use the digital twin for offline programming and virtual verification and testing of the control system.

Deliverables

Create a digital twin for virtual commissioning with possibilities for verification and test of low level PLC and robot programming as well as high level programming of SCADA or equivalent.

Prerequisites

- The project must be performed by two automation master students.
- Both students require experience of PLC, Robot and/or SCADA systems.
- Both students must have knowledge and interest in programming, preferably in C, C++ or C#.
- The thesis will be performed at both at ÅF and our customer, Gothenburg.

Contact

Pär Ström, par.strom@afconsult.com, 010-505 34 08

Master Program: Production engineering, Systems Control and Mechatronics

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