University of South-Eastern Norway

FM4017 Project

Title: Design and Development of Test-Platform for Data Exchange

USN supervisor: Hans-Petter Halvorsen

External partner: Ineos Rafnes AS

Task background:

Ineos Rafnes is an ethylene plant located at Rafnes Industriområde in Bamble, Norway. The plant produces 650.000 tons of ethylene and 80.000 tons of propylene per year, and is a key ethylene producer within the Ineos Group, which is one of the largest petrochemicals companies in the world.
Reporting of reliable data for produced and exported quantities, environmental emissions and energy consumption is a requirement from both customers and authorities. The current tools are developed over the years using several technology platforms, but they are now outdated and unsupported by suppliers.
Ineos Rafnes is therefore looking for a new tool for extracting data from the plant historian database, performing required calculations and presenting the data in a uniform format.

Task description:

The aim of the project is to design and develop a test-platform for using and testing ways to handle data exchange with the Process Historian Database (PHD) and other system at Ineos Rafnes.

Project requirements:

- Develop a functional design specification (FDS) for a reporting system which satisfies the requirements of Inoes Rafnes.
- Design and develop a test-platform which contains a replica of the plant Process Historian Database (PHD). The test platform shall be independent from live systems and shall support testing of implementation strategies.
- Develop an application inside the test platform for reading and writing data from and to the PHD replica. The application shall support the requirements of the FDS.

Project extensions (if possible)

- Do a literature study on different type of machine learning algorithms. Look into the pros and cons of different machine learning algorithms and how they can be applied to different data.
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Student category:

IIA – Industry master

Practical arrangements:
This project will be performed in close cooperation with Ineos Rafnes personnel. The student is already integrated into the company organisation as an industry master student and may perform the majority of the work using the company facilities.

Ineos Rafnes will be responsible for providing a sensor for the project that will grade the work in collaboration with the supervisor from USN.

The resulting report should be public available.

Signatures:

Supervisor (date and signature):

Students (date and signature):