optimation

Proposal for thesis work

Addressing cybersecurity issues in a signal database for industrial clients

Background

A robust and functional signal database is an important cornerstone to properly sort, analyse and better understand any process that can be measured. It is important to be able to easy access and store data and interface against other applications.

Optimation AB has assisted the process industry with automation and control for more than 20 years. Our customers are global companies in a variety of branches like pulp and paper, minerals and energy.

Motivation

In Optimation's ongoing work there is a need for a signal database to enhance the data collection and coherency of data collection and usage of data. A signal database allows for a standardized way to store and retrieve data, and by extension use a range of tools.

In order for the database to integrate with Optimation's developed software, it must allow for the connection for a range of API's. The database must as well have a clear and coherent structure for handling the ownership of signals, as well as properly allow for sufficient security, protecting the database from any potential data-leaks.

Scope and deliverables

1. Investigate in the literature the best practices for addressing cybersecurity issues in platforms for data storage.
2. Evaluate database structure for Optimation allowing for
    a. Database storage of signal database
    b. Ownerships of signals/data
    c. Security of database
    d. Optimal storage size
    e. Sketch need for API-connectivity
3. Based on 1. Prototype a database in MySQL or appropriate programming language.
4. Test connectivity of API, allowing for import/export via
    a. Python
    b. Csv-file
    c. Excel-file
5. Demonstrate the functionality database and that it adheres to cybersecurity standards and is robust against the most common types of cyberattacks.
6. Report and presentation at Optimation and the student's University.

The work will be carried out at Optimation's office in Luleå. Optimation will assign one main responsible supervisor for the project and we offer a competitive economic compensation for the work. The scope can be adjusted for one or two thesis workers

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