

Analysing an automated filtration system

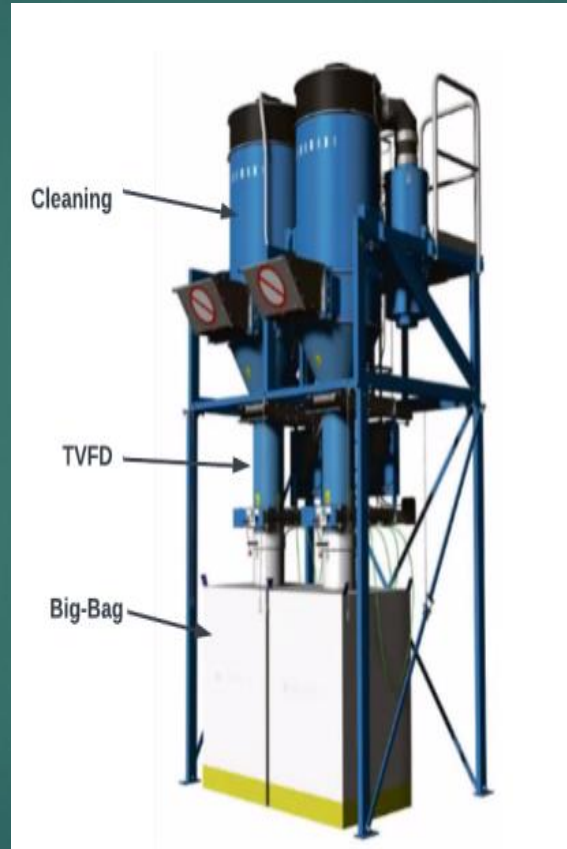
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Introduction

Nederman's Smart-Filter systems are suitable for a variety of industries such as wood, metal, composite processing and agriculture. The equipment consists of a pulse jet collector for welding fumes, a high-vacuum separator for tool processing or a bag filter for furniture manufacturing. The purpose of the thesis is to improve the existing documentation and understanding of the system for people working with it, both Demab AB and Nederman AB. Since there is no clear design specification for the product, documentation is essential. Additionally, methods to modularize both hardware and application to increase the flexibility of the system are evaluated and suggestions are made.

Problem

1. How to analyse and describe the physical process against objects in the existing application.
2. In what way is it most appropriate to describe the model and structure of the application?
3. What calculations are there in the Siemens S7-1200 control system, for example, flow control of filters that are described in the user manual and how can these be documented.
4. How does the graphical interface (HMI) relate to the control system?
5. To find solutions that increase the reliability and availability of the Siemens S7-1200 control system.



Method

Meeting with company to discuss the purpose of the thesis. Then collecting information from Nedermans homepage and their electronic documents to understand how a dust filtration system works, and what components of their products were used in the Smart-Filter system. Analysing and documenting the system were made simultaneously.

Results

The result of the thesis is a design specification, with a detailed description of the Smart-Filter system, and suggestions for improvements when implementing a new application.