**Software Engineering**

**Semester 3**

**Cable Modelling Wizard**

**System Requirements Specification**

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# Purpose

The ultimate end goal of this software shall be to create cable models though a web-based interface written in Angular. The software shall then be capable of exporting the created cable models in AutomationML-Format utilizing CAEX 2.0 and 3.15.

# Product Environment

The resulting application shall be able to run in a docker container, ensuring portability between systems and future-proofing for a cloud-native environment.

# Usecases

## <UC.001> New Cable Registration

|  |  |
| --- | --- |
| **Related Business Process:** | New Cable is registered in inventory system |
| **Use Cases Objective:** | User wants to store information about a new cable in a safe environment where it is easily accessible |
| **System Boundary:** | Inventory system |
| **Precondition:** | The cable must not be already registered, the program has to run without errors. |
| **Postcondition on success:** | The cable is successfully registered with all specifications |
| **Involved Users:** | User and inventory system |
| **Triggering Event:** | The user acquires a new cable which they want to be registered in the inventory system |

## <UC.002> Deprecated cable

|  |  |
| --- | --- |
| **Related Business Process:** | Cable is marked as deprecated in inventory management system |
| **Use Cases Objective:** | User wants to remove a deprecated cable from the database as it is not longer necessary |
| **System Boundary:** | Inventory system |
| **Precondition:** | The user has to choose an existing cable they want to delete, the program has to run without errors |
| **Postcondition on success:** | The cable model is removed from the inventory system |
| **Involved Users:** | User and inventory system |
| **Triggering Event:** | Due to any reasons the need for a certain cable is no longer given |

## <UC.003> Edit Existing Cable Model

|  |  |
| --- | --- |
| **Related Business Process:** | New Cable is Created |
| **Use Cases Objective:** | User wants to change details of a prior created cable |
| **System Boundary:** | Application |
| **Precondition:** | The user has to choose an existing cable they want to edit |
| **Postcondition on success:** | The cable model is updated and saved to the file system |
| **Involved Users:** | User and Application |
| **Triggering Event:** | Cable details have changed for any reason |

## <UC.004> Lookup/Search of Cable Information

|  |  |
| --- | --- |
| **Related Business Process:** | Customer Lookup of Cable Information |
| **Use Cases Objective:** | User wants to access the information and data of a specific cable with known identifier |
| **System Boundary:** | Application |
| **Precondition:** | The user must be aware of the exact identifier of the cable |
| **Postcondition on success:** | The correct cable is returned to the user |
| **Involved Users:** | User and Application |
| **Triggering Event:** | The user requires information on a specific cable for any reason |

## <UC.005> Download of Cable Information in AML format

|  |  |
| --- | --- |
| **Related Business Process:** | Customer Lookup of Cable Information |
| **Use Cases Objective:** | User wants to download the information of a cable in AML format |
| **System Boundary:** | Application |
| **Precondition:** | The user must be aware of the exact identifier of the cable the user wants to download |
| **Postcondition on success:** | The download of cable information is initiated by the application |
| **Involved Users:** | User and Application |
| **Triggering Event:** | The user requires the portability of cable data for any reason, such as compatibility or use-case-analysis on the user side |

# Product Requirements

The following functions shall be implemented in the applications.

## /LF10/ Get Folder & File Structure

To ensure a pleasant user experience, the application must be able to present the user with a listing of currently available files. To this end, the application must gather all the files inside a folder and be able to display them to the user. This part of the function shall ensure that the application can be pointed to a folder location and report back all the files it encounters.

|  |  |
| --- | --- |
| Input Description | Expected Output |
| Folder path | File containing the file and folder names of the provided folder path |

## /LF20/ Generate Display List

The application shall be able to interpret a description file containing file locations and display them as a listing of cables with accompanying information.

|  |  |
| --- | --- |
| Input Description | Expected Output |
| file describing files in a folder | List of cable models located inside the folder described by the file |

## /LF30/ Refresh Display Page

The application shall be able to refresh the list of available cables.

|  |  |
| --- | --- |
| Input Description | Expected Output |
| Current display list | Updated display list containing newly added cable models |

## /LF40/ Delete File from File System

The application must be able to delete a cable model from the file system to remove it from the list of available cable models.

|  |  |
| --- | --- |
| Input Description | Expected Output |
| Path to file to delete | Acknowledgement of successful file delection |

## /LF50/ Search Display List for String

The application shall be capable of receiving a search string by a user and then filter the current display list for that string. This way, the listed cable models can be narrowed down.

|  |  |
| --- | --- |
| Input Description | Expected Output |
| Search string | New display list containing only listings matching the search string |

## /LF60/ Navigation

The user shall be able to navigate through the cable models. To this end, the application must be able to accept clicks on the current display list of cables and open up the selected cable model for viewing in a separate details page.

|  |  |
| --- | --- |
| Input Description | Expected Output |
| Click on specific cable | Clearing of current display list and entering of cable detail view |

## /LF70/ Cable Detail View

The application shall be able to display the details to any cable model in a list of cables.

|  |  |
| --- | --- |
| Input Description | Expected Output |
| Path to cable model | Cable detail view containing the cable model and a way to initiate data download as well as a way to edit cable details |

## /LF80/ Cable Creation Data Input

The application shall be able to receive new data by user input and save them to a format readable to the application that can then be displayed in the display list.

|  |  |
| --- | --- |
| Input Description | Expected Output |
| User input | Cable model in application readable format |

## /LF90/ Save New Cable Data

The application shall be able to take the user input data as file and save it in a suitable location on disk.

|  |  |
| --- | --- |
| Input Description | Expected Output |
| Path to unused file | File at the expected location |

## /LF100/ Export Cable Data as AML

If not yet so, the application shall be able to convert a cable model to AML compliant format and export it for user download.

|  |  |
| --- | --- |
| Input Description | Expected Output |
| File path to cable model | AML-compliant file |

# Product Data

# Non-Functional Requirements