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Abstract	This report summarizes the work done on CAD/CAM data structure modeled with UML of the Fresh WP2
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CAD/CAM DATA STRUCTURES MODELLED WITH UML

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1. INTRODUCTION

The analysis and recognition phases generate objects based on a graphical description of the digitalized document. The export phase towards CAD-Drawing generates objects dedicated to the vectorial display of the diagram.

The two environnements are totally separated.

When the image segmentation work is finished, all the necessary data are organized inside a owne object. This one must be exported to obtain an electrical shematic drawing.

During the export step, some CAD objects are created and their properties assigned.

In this step, the processing of connections, setting on grid and scaling are realized.

2. DATA STRUCTURE MODELLED WITH UML

2.1. SEGMENTATION ENVIRONNEMENT:

The object is created at the beginning of the segmentation process.

It is built gradually until the end of the process.

The segmentation is the closest part of the digitalized image.

The structuring data will enable to manage the intersections, the proximities and the sort of elements characteristic of the document.

The display data are used by the graphical interface to present to the operator the results of the analysis and recognition processing.

2.2. RECOGNITION ENVIRONNEMENT :

The recognition is the intermediary part between the image and the vectorial display in CAD-Drawing.

The data generated in this step will be used in CAD-Drawing to create the graphical objects.

Unlike the segmentation step, the objects generated here have an identity and hierarchy links.

This is also during this step that the setting on grid can be calculated, as well as scaling.

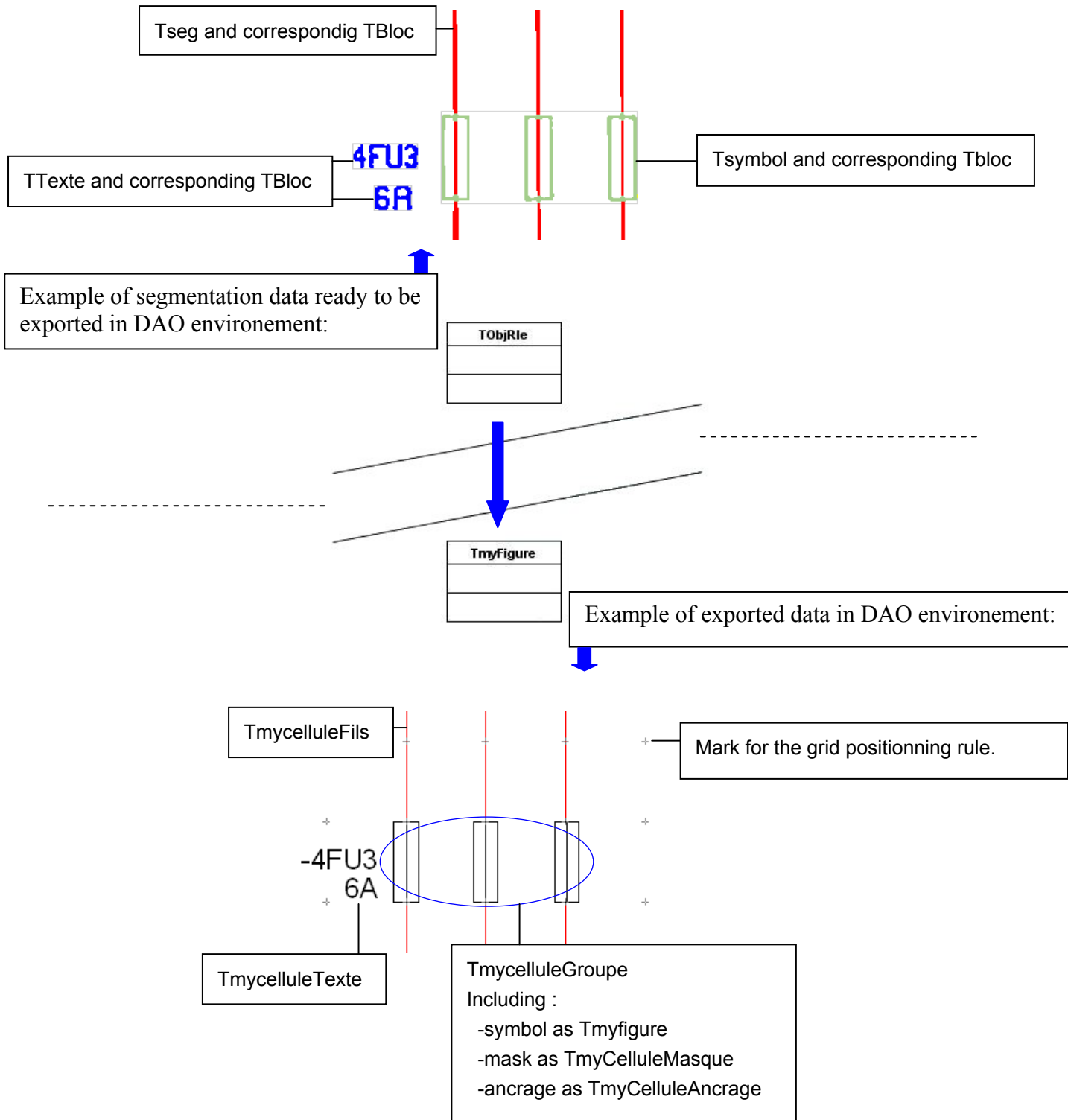
These two operations enable to get a diagram directly changeable by CAD tools.

2.3. CAD/CAM ENVIRONNEMENT :

A schema is totally included in an object and can be modifiable by CAD tools, and is easy to handle with the graphic DAO interface.

At this step, the differents electrical data processing can be applied, like generation of the wiring list.

2.4. INTERFACE FROM SEGMENTATION TO CAD/CAM :





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3. GRID CALCULATION

A new object has been implemented to process the grid calculation. It makes the list of all the source positions given by the detected wires.

After to have complete the conversion to DAO grid values, it modify the anchorage points and the scale values of the detected symbols.

4. CONCLUSION

The different types of data necessary to the complete processing of an electrical diagram document, from the image to the CAD, have been defined and implemented.

The integration of the works of the different partners of this working group is realized.

The final program includes now all the functionalities described in the objectives.