Thesis Projects Spring 2017

Product Development Research Lab is the research lab within the Department of Mechanical Engineering[1].

Our vision is

> *With practice and science we support innovation teams in product development through new work methods, tools and processes that will empower them to create and develop new product and services for the sustainable society.*

The research is applied and considers methods and tools that will support companies, and organisations, to enhance their capabilities to deliver value towards customers based on products. The goal is to support companies and organisations both in being more efficient in their development (i.e. incremental improvements) and in finding totally new value adding solutions for the market (i.e. radical innovation). Our platform is the subject of Mechanical Engineering.

For the upcoming spring we're looking for some skilled students who want to join in a collaborative effort to support our ongoing research projects within the research profile of Model Driven Development and Decision Support[2].

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[1] http://www.productdevelopment.se/
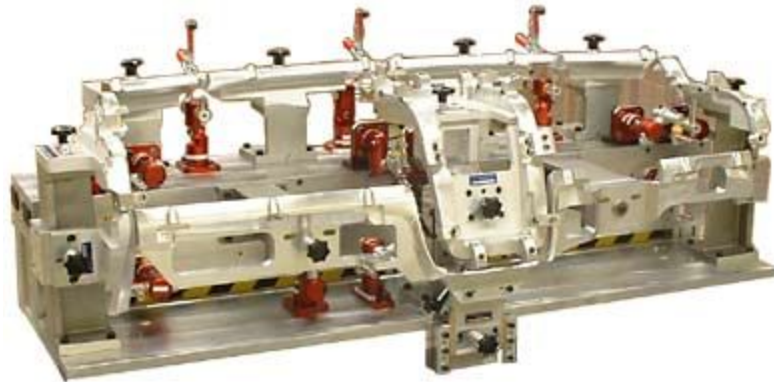[2] http://www.productdevelopment.se/?p=68

DESIGN AUTOMATION OF AUTOMOTIVE PRODUCTION FIXTURES

Master thesis project for Spring 2017

Objective

Development of a demonstrator based on Design Automation techniques to be used in a CAD-based Fixture Design Configurator.

MD3S related objective: PSS for Functional Offering of Automotive Fixtures

Description of the work

The work will be based on the current research effort in the MD3S research profile[3]. The challenge is to improve the competitiveness in the configuration process of automotive fixtures and to reduce the needed manual labor. In addition, the idea is that the customers should have more control of the engineering configuration.
This opens up for new business models where value created can be shared between producer and customer.

Provisional research questions:
- How can automation of tedious engineering tasks be transferred to the customers and thus offer possibilities for mass-customisation?
- How can automation capabilities drive the adoption of a new PSS-based business model?

The work on all the questions shall lead at the end to the development of a UNIQUE PROTOTYPE encompassing the automation of all or parts of the automotive fixture configuration tasks.

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[3] http://www.productdevelopment.se/?p=68

Industrial context

The project will be carried out in collaboration with research profile partners.

Number of students involved and skills required

Potentially a project group of 2 people
- 1 mechanical engineering student (with skills in CAD, and some orientation skills in knowledge engineering, software programming)
- 1 Industrial Engineering and Management (computer science) student with programming skills (VBA preferred)?

Timeline

Starting on January 2017, final prototype presentation on May 2017. End of thesis June 2017.

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