

Master Thesis

Manage complexity: System architectures for agricultural products

Fachhochschule
Südwestfalen

University of Applied Sciences

South Westphalia Software Engineering Lab (SW²E Lab)

Motivation:

Electronic systems form an essential part of state-of-the-art agricultural machinery: In-field laboratories are integrated into combines in order to analyze crop and fine tune the machine. Precision farming helps to always apply the right amount of plant protectants. Fully automatized vehicles can operate without any driver on board.

CLAAS is a leading agricultural machinery manufacturer developing all these systems with tens of electronic control units embedded into its products. To manage the complexity of our E&E systems and to develop generic re-usable architectures is a substantial challenge. Here, Model-based Systems Engineering is the state-of-the-art approach. Still, within this framework, there are lots of different ways to structure models and to conduct the collaboration between system engineers and architects who are distributed in the whole company.

The goal of this thesis is to develop and compare approaches towards to management of complex E&E architectures – with a focus on our major MBSE tool Enterprise Architect. The approach that is currently used within CLAAS shall be analyzed and compared to alternatives leading to a well-founded proposal that will facilitate the development of our future architecture.

Tasks:

- Develop KPIs to assess alternative approaches towards MBSE at CLAAS
- Develop and compare alternative approaches for collaborative systems modeling in Enterprise Architect
- Provide a well-founded proposal towards the development of the future architecture at CLAAS

Requirements:

- Master Thesis is possible for students of Digital Technologies and Systems Engineering & Engineering Management
- Knowledge in Systems Engineering is beneficial
- Knowledge on System and Software Architecture is beneficial

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Wir geben Impulse



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