MODULARIZATION OF
MECHATRONIC FUNCTION AND
PROCESS MODULES FOR SPECIAL
PURPOSE MACHINE MANUFACTURE

Application for manufacturing industry in the fields of design and engineering

SUMMARY

Modularization of mechatronic function and process modules for special purpose machine manufacture. The individual nature of the design for customized products requires a high level of interdisciplinary engineering effort.

INITIAL SITUATION

At present, systems produced are developed and designed on a customer-specific, application-specific basis. The main reason for this is very detailed Requirements Specifications. As a result, there is only limited scope for transferability of existing concepts and solutions.

PROJECT DESCRIPTION

- Capture customer requirements
- Analysis of existing diversity of solutions
- Categorization based on product requirements
- Reduction of solution space and transfer into generic modules
- Exemplary software tool support

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SOLUTION

The aim was to investigate whether it is possible in future to modularize individual function modules. The focus here is on variant diversity in gripping and handling systems, for instance. The aim is to take account of and optimize the development chain in its entirety.

Another aim is to create standardized interfaces (or adapters between proprietary and standard interfaces) between process components (from different vendors) or between these and the controllers manufactured by the SME.

M.A.i expects that this will shorten the specific development time from initial customer inquiry through to a production-ready solution.

INDUSTRIE 4.0 – FEATURES

- Harmonization of heterogeneous interfaces (sensors, actuators, control systems, mechatronics).
- Digitally integrated development process.