

Theses in English  
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1.1

I realized, that the control device for the management of industrial cells can be generalized for several types of industrial, production technologies, and also for different manufacturing tasks, furthermore I defined a generalized model for a set of cell-control functions.

1.2

By decomposing the set of cellcontrol functions, I defined an intelligent cellcontrol submodule, that can undertake real-time communication functions within a cellcontroller to match the time-critical requirements.

2.1

I defined a reference model for the information management of SME-s, in which all relevant functions are represented. The system, running on a MAP data network, opens testing, development and verification opportunities. The MAP Training Centre allows testing and teaching of the MAP networking technology. The variety of the reference model allows a large number of specific devices in the system, and demonstration, tests and experiments are forming the main utilities for the audience.

2.2

I defined a harmonized model for implementing the MAP interfaces. Derived from the same model, controls with and without MAP interfaces can be specified and implemented.

3.

I defined an Open System module for industrial controls with the functions of testing, servicing and verification.

4.

I defined an MMS VMD model of a human operator based automation environment for production and manufacturing. I suggested an architecture, in which the control and supervising information subsystem has access to a standards based data network, through which the multi-media oriented information flow can fully be managed.