DEMONSTRATION FACTORY FOR VERTICAL INTEGRATION

Applications in the field of vertical integration – case study and experimentation field for I4.0

SUMMARY

The model factory reproduces a real production facility from the Web shop and ERP/MES systems through to storage, transport and production cell, where products can be manufactured flexibly with batch size 1. A number of scenarios introduce students to the subject of vertical integration and demonstrate benefits as well as pitfalls.

CURRENT SITUATION

The buzzword Industrie 4.0 covers many projects that either concern themselves with technical questions like predictive maintenance or cover planning aspects. In these split approaches, the current separation of the abstract and concrete levels of the automation pyramid is maintained. Vertical approaches that bridge this gap are difficult to implement as they require know-how and technologies from both the office and the production area.

SOLUTION

The test lab provides a completely integrated “model company” covering the entire field of vertical integration from the Web shop, ERP system and a workflow system through to the machine. Here, users can either follow predefined study units to familiarize themselves with details such as the automatic feedback of machine data to the planning level or the analysis of workflows in terms of inefficiencies, or they can try out their own approaches such as the incorporation of maintenance work into the planning system or enhanced planning algorithms.

PARTNERS

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INDUSTRIE 4.0 – FEATURES

The hardware is controlled via various hardware controllers (PLC, embedded DOS, propriety controller and Java application). Production and material planning as well as the complete ordering and producing processes are automated.

STANDARDIZATION APPROACHES

The set-up shows how legacy systems and ERP and workflow systems are coupled using existing interfaces. Future architectures such as administration shells, Edge-to-Cloud and Cloud-to-Cloud should be quickly incorporated into standards so that companies can use them.