An Orchestration Engine for Service-oriented Field Level Automation Software

The flexibility of field level automation software is inevitable in order to realize intelligent, flexible production control systems. One way to achieve increased flexibility of field level automation software is to separate the control flow of software, i.e. the workflow, from executing respective functionality as typically applied in business software. This paradigm is used also within service-oriented applications where workflow models define the orchestration of services. In order to apply this paradigm to field level automation software, some conditions have to be considered. Especially, field level automation software is typically operated on programmable logic controllers according to the cyclic executed IEC 61131 standard. In this paper, a service model is presented which is applicable to such field level automation software and the behavior of an orchestration engine which can operate in IEC 61131 environments is specified. Its applicability on a lab-scaled manufacturing system is presented.

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