
Behaviour and integration of service-oriented automation and production devices at the shop-floor

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Abstract: Automation and manufacturing systems are changing in the direction of cooperative ecosystems with heterogeneous entities. An important feature that should be considered is the vertical integration from the business needs down to the shop-floor where the real action takes place. This paper analyses the integration of shop-floor devices into the IT-enterprise but maintaining also a certain degree of independence in terms of behaviour. Service-oriented paradigm is used as the main backbone due its proven merits in the business levels and recently also in automation and production systems. In the provided example, high-level Petri nets (HLPN) demonstrate a set of useful features, namely the partial behaviour description and analysis and some parameters of the integration. The resulting application leads to an easy integration of autonomous devices in the IT-enterprise, taking especially in account the requirements of the shop-floor level.

Keywords: service oriented architecture; IT-integration; Petri nets; industrial automation.

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