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Procedia CIRP 00 (2021) 000–000

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54th CIRP Conference on Manufacturing Systems

Automatized Generation of Alternatives for Process Monitoring in Cyber-Physical Assembly Systems

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Abstract

The assembly of products in small lot sizes requires constantly changing and flexible assembly systems. The required process modifications lead to uncertainties in the process quality, which contradict the increasing customer demands on product quality. Inline process monitoring enables a constant process quality to be ensured while maintaining production efficiency. To reduce the effort of manually planning process monitoring, this paper presents an automated approach for generating different planning alternatives. Monitoring requirements that originate from a new product variant are matched with the monitoring skills of an existing assembly system using multiple assignment approaches.

Keywords: Skill-based Planning; Semantic Matchmaking; Requirement-Skill-Comparison; Decision Support System; Automated Process Planning