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Titel des Beitrags: Fundamental Aspects Concerning the Usability Evaluation of Model-Driven Object Oriented Programming Approaches in Machine and Plant Automation

Abstract: Within the world of automation the trend of model-driven object oriented (oo) engineering has brought up fundamental questions about the applicability of these programming paradigms for Programmable Logic Controller (PLC) software. The authors present the results of previously conducted experiments on the usability of the classic procedural paradigm (IEC 61131-3) in machine and plant automation compared to model based approaches for PLC programming, in particular Unified Modeling Language (UML) and domain specific modeling languages. Extrapolating these experiments, we propose a way of enhancing usability evaluations by two means: First we present an improved modeling tool. Second, in order to determine the complexity of the tasks required to develop a PLC-program and to create constant boundary conditions for experimental studies, we propose using Hierarchical Task Analysis (HTA) on both model-driven oo and the state of the art programming approach, concerning typical scenarios. Finally the results of our work are discussed.

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