Abstract:
In machine and plant automation, model-driven object-oriented (oo) programming of Programmable Logic Controller (PLC) software is becoming an alternative to the state-of-the-art programming. The authors present the results of previously conducted experiments on the usability of the classic procedural paradigm (IEC 61131-3) compared to model-driven approaches for PLC programming, in particular Unified Modeling Language (UML) and domain specific modeling languages. Subsequently, the newest study on this issue is presented, including the experimental design and the experiment's parameters, comparing state-of-the-art FDB (IEC 61131-3) programming approach to a model-driven UML supported approach. Finally, we show the study's results and discuss our findings and their meaning for future experiments, concerning the complexity of the tasks required to develop a PLC-program, the influence of previous knowledge, and the realization of constant boundary conditions for experimental studies.
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