Institut für Mechatronik

Dokumenttyp: Konferenzbeitrag

Autor(en) des Beitrags: Kormann, Benjamin; Vogel-Heuser, Birgit

Titel des Beitrags: Automated Test Case Generation Approach for PLC Control Software Exception Handling using Fault Injection

Abstract: The development of PLC control software in machine and plant automation is facing increasing challenges, since more and more functionality and safety aspects are in the control software's responsibility. Reliability and robustness of reactive systems in long-term operation is being influenced by physical conditions. These aspects must be considered at an early development stage in order to reduce development costs and fulfill quality requirements at the same time. We propose an automatic test case generation approach to verify the system behavior in erroneous situations using fault injection, simulating component (device) defects during runtime. We focus on the generation of a reduced set of meaningful test cases to be executed in a simulated environment to increase reliability. The applicability is demonstrated on a laboratory plant.

Kongress- / Buchtitel: 37th Annual Conference of the IEEE Industrial Electronics Society (IECON)

Verlagsort: Melbourne, Australien

Jahr: 2011

Seiten: 365-372

Nachgewiesen in: Scopus; Web of Science

Volltext / DOI: http://doi.org/10.1109/IECON.2011.6119280