Design-to-Test Approach for Black-Box Testing of Programmable Controllers

Abstract:
This paper focuses on a global consideration of design and testing phases of an automation system with programmable controllers. A design-to-test approach is proposed to improve the testability of programmable controllers and reduce overhead during the testing phase, under the premise that the nominal behavior of a system is guaranteed to remain unchanged during normal execution. The approach is elaborated and applied on a case study to analyze and improve the entire testing process from different aspects.