

Application of Axiomatic Design in Industrial Control and Automation Software

Authors : Aydin Hoday, Mario de Sousa, Martin wollschlaeger

Abstract : Axiomatic Design is a systems design methodology that systematically analyses the transformation of customer needs into functional requirements, design parameters, and process variables. Developed by Professor Nam P. Suh at MIT, this approach aims to create high-quality product or system designs by adhering to specific design principles or axioms, namely, the independence and information axiom. Applying axiomatic design in the design of industrial control and automation software systems could be challenging because of the high flexibility exposed by the software system and coupling enforced by the hardware part. This paper aims to present how to use axiomatic design for designing industrial control and automation software systems and how to satisfy the independence axiom within these tightly coupled systems.

Keywords : Axiomatic Design, Decoupling, Uncoupling, Automation.

Conference Title : ICAD 2024 : International Conference on Axiomatic Design

Conference Location : Zurich, Switzerland

Conference Dates : September 16-17, 2024