Methodology for Architecture Level Hazard Analysis, A Survey

A. Hassan

LDCSEE, West Virginia University Morgantown, WV26506-6109 hassan@csee.wvu.edu

K. Goseva-Popstojanova

LDCSEE, West Virginia University Morgantown, WV26506-6109 katerina@csee.wvu.edu

H. Ammar

LDCSEE, West Virginia University Morgantown, WV26506-6109 ammar@csee.wvu.eduAbstract

A variety of hazard analysis techniques have been proposed for software-based systems. But individually, the techniques are limited in their ability to deal with system complexity, or to derive and prioritize component safety requirements. As the complexity of modern software systems increases, using one technique at different stages of design is becoming increasingly more challenging. The use of Object Oriented methodology (in analysis, design and coding) in the real-time embedded systems, the birth of new areas for certification such as the space industry and the increasing complexity of software based applications which need to be certified motivate the need for a new technique. In this paper we survey the current hazard analysis techniques, and conclude that a new technique is needed. Also we explore the suitability of Unified Modeling Language (UML) as a foundation of a new architecture level hazard analysis technique.

Keywords

UML, Hazard, Analysis, Software, Architecture.