Abstract
The Function Block (FB) concept, which is used in the field of control applications for years, is now enhanced by the evolving IEC 61499 standard to support the development of modular, re-usable, open, and vendor-independent distributed control applications. The Unified Modeling Language (UML) on the other hand is the industry standard for modeling software systems. This paper presents an approach that integrates the FB concept with the UML notation in order to simplify and strengthen the development process of distributed control applications. Use cases are used to capture the requirements of the specific control application. UML models are next used to capture the static and dynamics of the system. A set of Transformation Rules enhances the transition from UML diagrams to FB design diagrams. CORFU ESS, an IEC-compliant engineering tool, supports the whole process.

Keywords- Function Block, UML, developing control applications, IEC 61499, CORFU ESS.