Institut für Elektronik

Master’s thesis

In Cooperation with Fronius International GmbH

Application-oriented knowledge and data management system to support EMC laboratory operations

Context and motivation

Company-internal EMC testing laboratories conduct development-related and certification-relevant EMC measurements and tests, to ensure that products comply with regulatory and legal standards and requirements mandated by supervisory authorities in many countries. During these activities, a substantial amount of data is required and generated, and extensive knowledge is necessary for their correct execution, continuously expanding. The storage of all data and required knowledge primarily occurs in lists, filing systems, documents, and internal web pages, which coexist independently and can only be managed alongside each other with difficulty – "frictional losses" increase, lead times lengthen, and errors become more probable. To mitigate these challenges, a system is needed to store typically required and accrued data, as well as necessary and accrued knowledge during operation, and present them to different actors according to the use case. This thesis focuses on conceptualizing such a system and its prototypical implementation.

Research topic(s)

What data and knowledge are associated with the operation of an EMC laboratory?
What actors and perspectives exist on this data and knowledge, and how should they be maintained and represented accordingly?
What is the optimal structure for storing and providing knowledge and data related to the operation of an EMC laboratory?

Approach/methodology

Familiarization with the topic and surveying the state of the art in technology, research, and development.
Examination and description of data, knowledge, and information related to an EMC laboratory.
Considerations and requirements gathering for the structuring, classification, storage, and provision of data and knowledge in the context of the EMC laboratory.
Creation of a software concept for structuring, classifying, storing, and providing knowledge and data related to an EMC laboratory.
Prototypical implementation of the software concept for an EMC laboratory.
Commissioning and "live testing" of the prototypical implementation of the software concept in the EMC laboratory environment.

Organizational matters

- Start: immediate
- Workplace: Fronius International GmbH; Location 4600 Thalheim/Wels

Contact/Supervisior

IFE: Univ. -Prof. Dr. techn. Bernd Deutschmann; bernd.deutschmann@tugraz.at
Fronius: Peter Boxleitner (boxleitner.peter@fronius.com; +43 7242 241 5840)
Fronius: Ingomar Müller (mueller.ingomar@fronius.com; +43 7242 241 2316)