Master Thesis:
Software Updating of a Bus based cooling appliance

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LIEBHERR

Liebherr-Hausgeräte Ochsenhausen GmbH

- Founded: 1945
- Workforce: 1970
- Annual production: 827.000 devices
- Sales of total refrigeration and freezing line of business: 930 Mio.€ (2017)

- Products:
  - Refrigerators
  - Combined refrigerators and freezers
  - Freezers

Goal Of The Master Thesis

- The updating node can update the whole Cooling Appliance or a certain part or sub – System of it by using a proprietary system - bus
- The updating node is connected to this system – bus to communicate and perform the update
- The updating node provides a wired or non-wired interface for receiving the content used to do the update
- Elicitation of the requirements for bootloader, like timing and memory limitations
- Specify the behaviour of the node and/or the system, which is updated, before, during and after the updating phase
- Specification of failure and security scenarios: like errors during transmission or updating phase
  - System Robustness (e.g. data transmission, fall back mechanism)
  - System Security (e.g. data integrity checks, malware)
- Fall back mechanism in a stable software version in case of an update error

Work Areas

- Fundamental understanding and research in:
  - Used ARM processor
  - Installed Liebherr Bus
  - Bootloader techniques
- Bootloader concept
  - Requirements
    - Bootloader, Bus and interface capabilities
    - Timing estimations
    - Robustness & Security concept
  - Implementation
  - Testing (Functional, Failure and Stress)

Kontakt

- Liebherr AG
  - www.liebherr.com
- Liebherr-Hausgeräte Ochsenhausen GmbH
  - https://www.liebherr.com/de/deu/%C3%BCber-liebherr/liebherr-weltweit/deutschland/ochsenhausen/ochsenhausen-gmbh.html

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