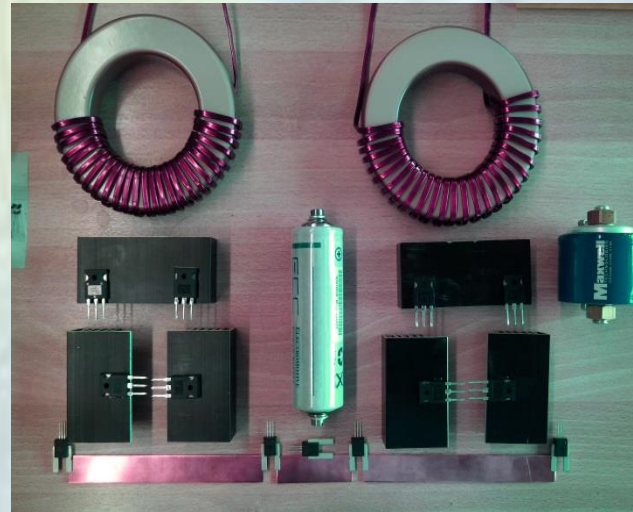


# Development of a bi-directional 2-phase Buck-Boost Converter to buffer a Lithium-Accumulator with SuperCap



Ayyaz Mehmood ,SMA3  
Thesis Presentation  
14. Jan 2014

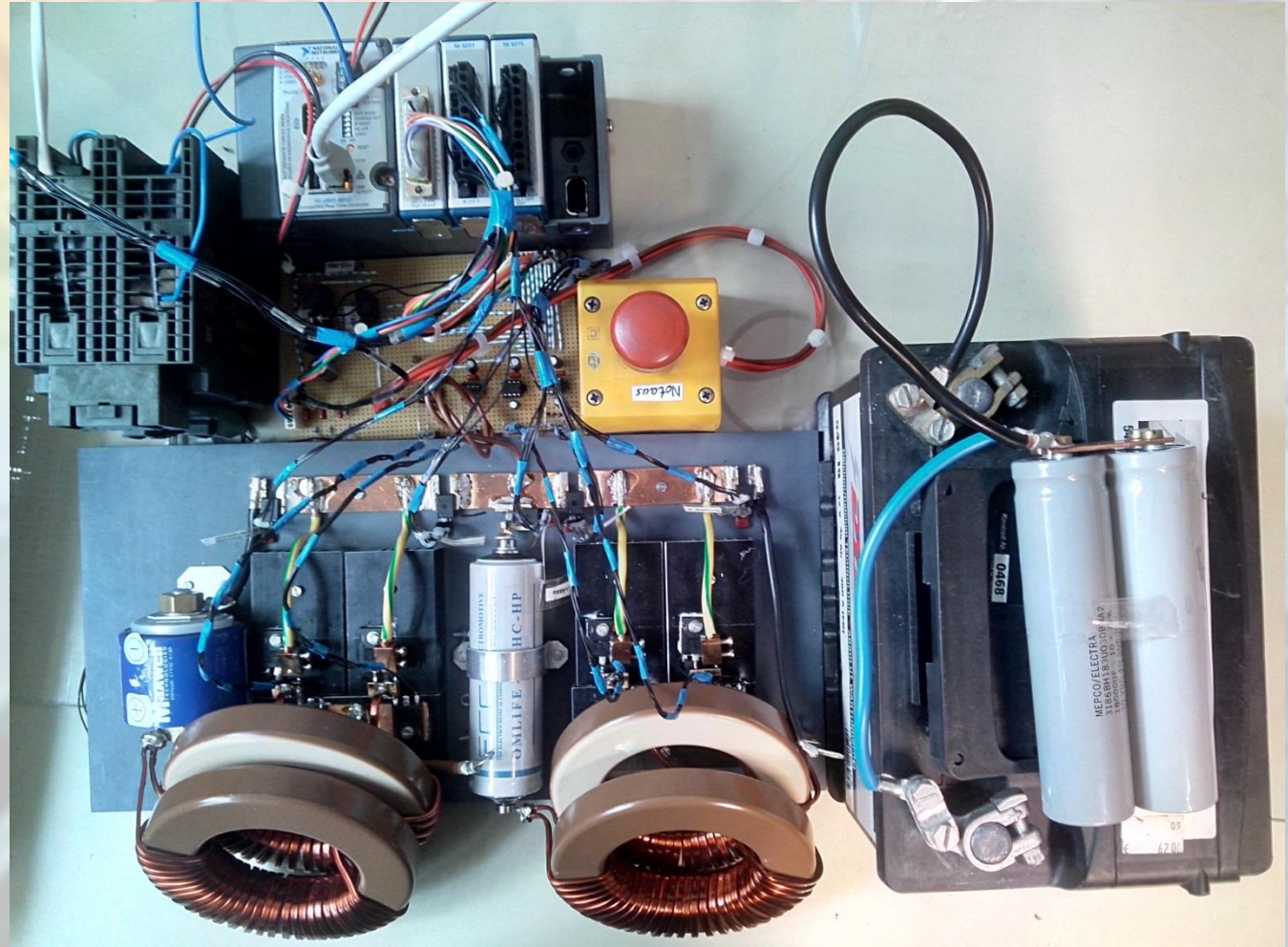
Advisors: Prof. Dr.-Ing. Franz Aßbeck  
Dipl. -Ing. Simon Grigull



# Development of a bi-directional 2-phase Buck-Boost Converter to buffer a Lithium-Accumulator with SuperCap

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- Introduction
- Block Diagram
- Synchronous Converter
- Simulations
- Hardware Setup
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- Regulation
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# Development of a bi-directional 2-phase Buck-Boost Converter to buffer a Lithium-Accumulator with SuperCap

- F&E Project sponsored by the MWK Baden-Württemberg and promoted by
  - Landesagentur eMobilität Baden-Württemberg and
  - Brennstoffzellen- und Batterie-Allianz Baden-Württemberg (BBA-BW)
- Targets
  - Development of two high current 2-phase Synchronous DC-DC Converters, controlled by an Industrial Real-time Controller (NI CompactRIO, programmed in LabVIEW).
  - Comparison of the Dynamics of  $\text{LiFePO}_4$ -Accumulator alone with the Dynamics of a combination of  $\text{LiFePO}_4$ -Accu and SuperCap.
  - Increasing the working time of Lithium-Accumulators in Power Applications.
  - Increase the performance of the whole system
  - In future possibility to reduce the size of Li-Accumulators