

Single-Stage implementation of a bidirectional On-Board charger (OBC) for Vehicle to Grid (V2G) applications



BRUSA HyPower AG is developing and producing high performance energy conversion systems for the electro mobility applications. Highly efficient, cost effective and volume constraint systems make the design and implementation of them quite challenging. On-Board chargers (OBCs) require bidirectional power transfer capability and high efficiency, while cost and volume need to be further minimized.

In this work, single-stage bidirectional isolated AC-DC converters are considered. An overview of suitable candidates is conducted, and a comparative evaluation is performed, among the most suitable candidates, to identify the best performing topologies in terms of efficiency, power density, weight, reliability and cost. A preliminary design of the most suitable candidate is made, and a prototype converter* is realized.

The project is carried out in an industry environment at **BRUSA HyPower AG** and/or at the university.

Type of work

Master thesis (6-9 Months, full time)

Content of work

30 % Overview

50 % Comparative Evaluation

20 % Prel. Design and Prototype*

*To be decided

Requirements

Hands on experience in the laboratory, studies in electrical engineering (focus on Power Electronics)

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