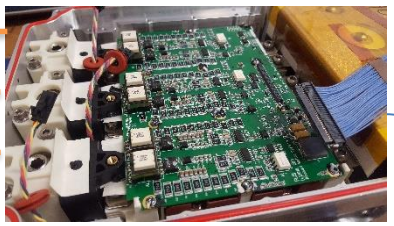
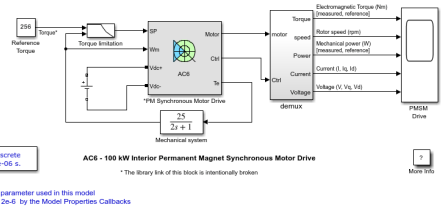
Graz University of Technology

Institute of Automotive Engineering

Master Thesis

Source: evwest.com





Source: matlab.com

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Conversion to external control of a vehicle inverter

The powertrain test bench of the Institute of Automotive Engineering uses two PSM motors to load powertrain components with torques and corresponding speeds. For special tests, it is necessary to address the motors via a very fast control. In the course of this master thesis an external control of an inverter shall be developed and implemented. For this purpose, a real-time development controller (FPGA programmable), passenger car inverter and a high-voltage system are available. Further necessary components are to be selected and/or built. Likewise a model for the regulation of PSM machines is to be integrated in the real time system.

Tasks:

- Analysis of existing components
- Investigation of possible control approaches
- Development of an electrical interface between inverter and real-time system
- Review of inverter models for the control of PSM machines
- Parameter identification
- Setup of a control model for PSM in the real-time system
- test bench run

Requirements:

- Good knowledge of electrical engineering
- Basic knowledge of control engineering
- Knowledge of FPGA programming advantageous

duration: 6 month
Start of work: now
workplace: Institute of Automotive Engineering

An expense allowance is offered for the completion of the master's thesis.

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