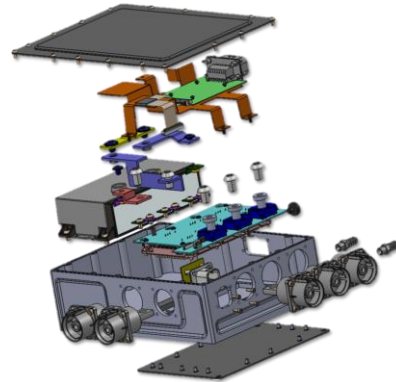


Traction Inverter Characterization Test Bench

FLAG-MS was founded in 2012 in Turin. The working group has gained experience in the field of mechatronics thanks to the work carried out since 2005 at the Mechatronics Laboratory of the Polytechnic University of Turin in applied research in the industrial and automotive field. The attention of FLAG-MS in the automotive sector is focused on electric powertrains whose development and diffusion have grown strongly in recent years. The offer of FLAG-MS for the development of components is focused on Inverters, Electric Powertrain Control Units, BMS, Battery Modules and Battery Packs.



Type of work: Master Thesis

This thesis main goal: analysis, modelling and implementation of the **Bench Inverter Control**, to setup a test bench able to test and characterize a **IUT** (Inverter Under Test) for electric and Hybrid vehicles. IUT and Bench Inverter are connected back-to-back with LC(L) connection filters (TBD by the candidate), with the **Bench Inverter** being capable of emulating arbitrary load and sinking power thanks to the bidirectional power supply both inverters are connected to.

The candidate will study and improve existing MATLAB-Simulink model and control code of the Bench Inverter, that will receive and execute commands in real time from an external controller (**Bench Automation**).

The candidate will be supported by FLAG-MS R&D Department.

Expected tasks:

- Improvement of existing MATLAB-Simulink models
- Evaluation and design of the LC(L) connection filter
- Development of C code to implement the modelled control algorithms on the real hardware
- Development of C code to receive and perform the commands sent by the Bench Automation software in real time
- Definition and execution of test cases to validate Bench Inverter behavior and capabilities

Requirements:

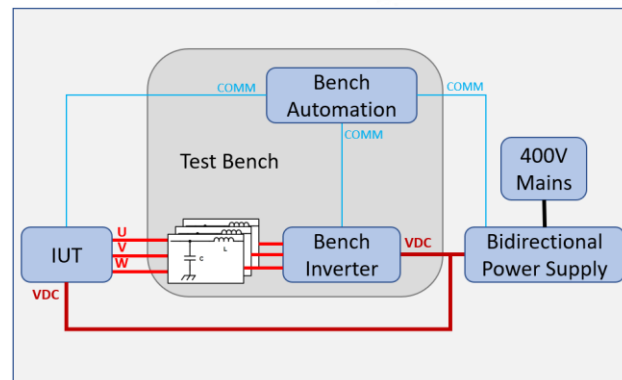
- Student of Electrical/Electronic Master's Degree courses
- Knowledge of Power Electronics topologies and control
- Knowledge of MATLAB-Simulink
- Embedded C firmware development

Duration:

6-9 months full time.

Contact:

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