

Bachelor-/Master thesis

Testing of used battery packs via On Board Diagnostics



Initial situation:

Second life use of automotive batteries is a meaningful way of improving the sustainability of electric vehicles and of reducing the cost for energy storage. For the most effective use of second life batteries, every cell must be diagnosed, and a decision must be made, for which application it is most suited. While a test of every module or every cell is possible in principle, it is too time and labor intensive to be economically feasible, so the battery cells must be tested without disassembling the battery, using the values sent by the BMS for On-Board-Diagnostics. These values can be read by OBD2 scanners, but cannot be logged in a battery tester without decoding the CAN messages. So a method need to be developed to allow the battery testing using these data.

Objective of the thesis:

- (1) Setup a testing environment with the battery, the OBD2 scanner and a listening device
- (2) Read the requests sent by the OBD scanner and the answers sent by the BMS
- (3) Interpret the data and write a .dbc file with PeakCAN
- (4) Connect the battery to the battery tester and perform test cycle, logging the voltage response of the single cells with sufficient time resolution

Requirements:

- Understanding of the underlying technical problems and creativity
- Willingness to work hands-on in the E-Lab
- Understanding of CAN bus or willingness to learn

- Interest in electric mobility
- Motivation and effort
- Capability to both work independently and in team

What is offered:

- Comprehensive supervision
- Relevant problems to the industry
- Knowledge in the development of electric powertrains

Have we sparked your interest?

Please send your transcript of records, CV and certificates to the e-mail address below.

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