*Thesis proposal, Masters Thesis:*

Mathematical Model for Lithium Ion Battery State of Charge

Project Description

Lithium Ion Batteries are used in most, if not all modern handheld powered devices and are also showing promise in the car industry as the most capable battery type for the use in electric vehicles.

In a project at Bochum University of Applied Sciences, a Battery Management System (BMS) is being developed.

Together with Chalmers University of Technology, a Mathematical Model is sought for a theoretical prediction of the battery State of Charge (SOC) and State of Health (SOH) in order to give the driver an as-accurate-as-posible estimate of the available range of the current trip and also the remaining life of the battery.
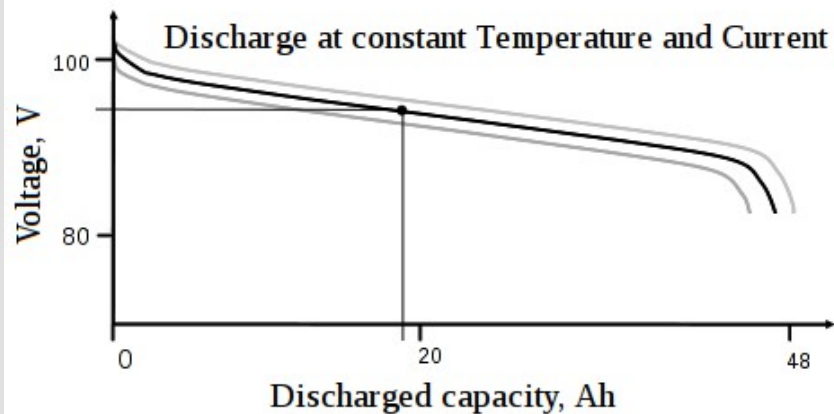
The model shall incorporate Voltage and the instantaneous Current drain as well as the battery Temperature and Internal Resistance/Ageing

Background

Bochum University of Applied Sciences have since the late 1990s participated in the World Solar Challange, a car competition where the contenders race from the northern to the southern coast of Australia using Solar Energy.

The vehicles used by the SolarCar-team from Bochum are currently using laptop-style lithium ion batteries, each with a nominal voltage of 3.7V and a capacity of 2.5Ah, in cooperation with approximatly 6 square meters of photo voltaics to manage the energy and power requirements of the duration of the race.

Work

The thesis work is proposed to comprise the following parts: Literature research, Survey of available models. Work plan, Research, Evaluation of the results, Writing Thesis.

Work can be done at Chalmers University of Technology, Sweden or at Bochum University of Technology (Hochschule Bochum), Germany

Are you interrested or do you have other questions or thesis suggestions? Contact:
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