Project Description

The goal of this project is to design and implement a cruise control for Organic Transit Electric Vehicles (ELFs) in an HIL environment. The resultant platform from this project would be used to study the behavior of the electric vehicle batteries under different loads and test the ADAC developed battery monitoring algorithms. The specific objectives are:

- Connect an electric bike motor used in ELFs to the dynamometer and be able to run it under different loads and acquire its characteristics
- Implement a cruise control system for ELFs using Arduino as the controller
- Enhance the existing GUI of the battery management testbed for setting the road profile and vehicle parameters and sending the appropriate commands to the dynamometer
- Establish Bluetooth communication between PC and the Arduino to set the reference speed and acquire the current/voltage/charge level information
- Display real-time voltage, current, charge level, speed and torque on the PC

The structure of the finished project is shown in Figure 1.

Figure 1. The structure of the finished project