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Abstract
Southern Taiwan University (S.T.U.T) has been developing the application of solar energy for many years , and also devoted to solar car manufacturing. PHOENIX II solar car was finished after one year hard work, it participated 2007 World Solar Challenge and eventually won the fifth position in challenge class. PHOENIX II was purpose-made for solar car racing, therefore, this study focused on investigating its lithium battery performance and installed energy management system. Concerning about the battery, characteristics of different charging/discharging conditions and state of charge (SOC) were studied, data were collected to build up a database for the energy management system. In the energy management aspect, an ADVANTECH ADAM 4017+ DAQ module and ADAM 6501 communication controller were used, through a RF Modem the energy data were delivered to a control vehicle in the rear. Coulomb method and derived database were adopted to calculate battery SOC, which provided the real time residual energy condition and optimal driving speed suggestion for the solar car.
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