







Deep learning-based prediction of lithium-ion batteries state of charge for electric vehicles in standard driving cycle

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Abstract

Significant climatic shifts occurred during this period, resulting in threatening consequences for people's lives and industries. Global warming is one of the most serious consequences of these climate changes, and it has disastrous consequences for daily human existence. The utilization of public transportation has been encouraged at the societal level as a solution. An all-electric vehicle is evaluated in this research paper. Using two various types of regular driving cycles, we were able to evaluate the battery performance of electric vehicles (EVs). The variables influencing vehicle performance, such as battery state of charge (SOC), energy consumption, and battery functioning temperature, are investigated. The results demonstrate that the rate of urban traveling significantly impacts travel efficiency and the range. In addition, owing to the significance of battery capacity, the influences of different variables on forecasting battery state of charge were assessed in the second step. The results show that the driving behavior and acceleration rate of the vehicle influence the SOC of the battery. The results of this study also showed that city driving has a significant effect on Ev performance in the travel distance range.