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Simulation of Battery Electric Vehicle by Using MATLAB-Simulink

Dhanashree Joshi[1], Gayatri Kulkarni[2], Kanchan Wakode[3], Samiksha Thool[4], Shreya Parkhe[5], Vaishnavi More[5]
Students, Department of Electrical Engineering[1,2,3,4,5]
Shri Sant Gajanan Maharaj College of Engineering , Shegaon, India

Abstract: *As electric vehicles become a more viable option for generating sustainable and greener energy in transportation, academics' interest in modelling and simulation of electric vehicles is growing. The first step in modelling a decent electric car is to choose appropriate electric vehicle parameters and understand their characteristics. This paper focuses on reading vehicle restrictions using an electric vehicle simulation. The simulation's outcome demonstrates the impact of each division's rules on the presentation. All of the work is done in the MATLAB/Simulink environment. Electric vehicles (EVs) are likely to become a substitute energy mode of transportation in the future, as they have demonstrated a high ability to reduce the consumption of petroleum-based and other high CO2 emitting transportation fuels. The components of the BEVs system were reviewed, and a BEV model was stimulated using the MATLAB-Simulink platform. The relevant electrical system components were also identified. Furthermore, all simulation outcomes were quantified. This publication lays the groundwork for future investigation.*

Keywords: Simulink Model, Vehicle Body, Driver Input, Battery Pack, Overall Model, etc.

REFERENCES

[1] J. Y. Yong, V. K. Ramachandaramurthy, K. M. Tan, and N. Mithulananthan, "A review on the state-of-the-art technologies of electric vehicle, its impacts and prospects," Renew. Sustain. Energy Rev., vol. 49, pp. 365–385, 2015.
[2] Z. Chen, R. Xiong, and J. Cao, "Particle swarm optimization-based optimal power management of plug-in hybrid electric vehicles considering uncertain driving conditions," Energy, vol. 96, pp. 197–208, 2016.
[3] Mohd, T. A. T., Hassan, M. K., Aris, I., Soh, A. C., Ibrahim, B. S. K. K., & Hat, M. K. (2015). SIMULATION BASED STUDY OF ELECTRIC VEHICLE PARAMETERS, 10(19), 8541–8546.
[4] Mohd, T. A. T., Hassan, M. K., & A. Aziz, W. (2015). Mathematical Modelling and Simulation of an Electric Vehicle. Journal of Mechanical Engineering and Sciences, 8(June), 1312– 1321. https://doi.org/10.15282jmes.8.2015.6.0128.
[5] Meradji, M., Cecati, C., Wang, G., & Xu, D. (2016). Dynamic modelling and optimal control for hybrid electric vehicle drivetrain. In 2016 IEEE International Conference on Industrial Technology (ICIT) (pp. 1424–1429). IEEE. https://doi.org/10.1109/ICIT.2016.7474967.
[6] D. Houcque, "'Introduction to MATLAB for Engineering Students,'" Northwest. Univ. Version, no. August, pp. 3–43, 2005.
[7] Reddy, G.N. 2012. A MATLAB-based tool for EV design. In: 2012 International Conference on Education and e-Learning Innovations (ICEELI).
[8] L. Buccolini, A. Ricci, C. Scavongelli, G. DeMaso-Gentile, S. Orcioni, and M. Conti, "Battery Management System (BMS) simulation environment for electric vehicles," in 2016 IEEE 16th International Conference on Environment and Electrical Engineering (EEEIC), 2016, pp. 1–6.
[9] Zhou Bing, Jiang Qinghua, Yang Yi, & Wang Jisheng. (2010). Analysis of energy consumption and powertrain parameters optimization of BEV based on running cycle. In 2010 IEEE 11th International Conference on Computer-Aided Industrial Design & Conceptual Design 1 (pp. 1284–1290). IEEE. https://doi.org/10.1109/CAIDCD.2010.5681973