Electric Vehicle Modeling: A Review

Lecture Notes in Mechanical Engineering • Conference Paper • 2023 •
DOI: 10.1007/978-981-19-9509-5_27

Alzehawi, Ibraheem. S. M. [a]; Faris, Waleed F. [a]; Darsivan, Fadly Jashi [a]; Rafeeq, Mohammed [b]

[a] Mechanical Engineering Department, College of Engineering, International Islamic University, Gombak, Kuala Lumpur, 53100, Malaysia

Abstract

The emission of conventional vehicles nowadays contributes significantly to the escalating pollution issues. However, hybrid systems have more fuel economy than standard automobiles, and the end purpose is to have all-electric automobiles. Nowadays, hybrid electric vehicle systems can be located in various journal articles. However, there are few research papers to offer a detailed technical analysis of pure electric vehicles. The features and common types of energy sources and drive machine for Electric Vehicle is described. The current pure electric vehicle types are then illustrated. In addition, study comprehensively reviews and elaborated different approaches specifically using MATLAB-Simulink tool used for modeling and simulation of electric vehicle to increase performance metrics and build basis for experimental work. The review provides comprehensive understanding of electric vehicle and modelling techniques to address the challenges and issues of electric vehicle.

Author keywords

MATLAB-Simulink; Modeling; Pure electric vehicle

Indexed keywords

Engineering controlled terms

Fuel economy; Hybrid systems; Hybrid vehicles

Engineering uncontrolled terms

'current; Energy source; Hybrid electric vehicle systems; Journal articles; MATLAB/ SIMULINK; Modeling; Pure electric vehicles; Research papers; Technical analysis; Vehicle modelling

Engineering main heading

MATLAB

Corresponding authors

Corresponding author: I.S.M. Alzehawi

Affiliation: Mechanical Engineering Department, College of Engineering, International Islamic University, Gombak, Kuala Lumpur, 53100, Malaysia

About Scopus