BÖLÜM 8

Energy And Power Management On Hybrid Electric Vehicles

Bayram KILIÇ[1]
Recep Çağrı ORMAN[2]

INTRODUCTION

The main feature that determines the power and energy consumption characteristics for a Hybrid Electric Vehicle (HEV) is the arrangement of the powertrain as well as the electrical and mechanical components. Because, the hybrid vehicle topology, which determines the conditions under which the vehicle's components such as battery, internal combustion engine (ICE), electric motor (EM) will work together, also determines the energy flow paths while driving. Today, major component arrays for hybrid electric vehicles are defined within the framework of various standard concepts. (series, parallel, series-parallel etc.).

Many parameters such as vehicle design and performance-fuel consumption targets expected from the vehicle, cost, vehicle segment or features of the components to be used and operating constraints generally affect this topology choice in hybrid electric vehicle design. On the other hand, all components that make up the vehicle's traction system must also provide harmonious working

[1] Burdur Mehmet Akif Ersoy University, Vocational School of Technical Sciences, Hybrid and Electrical Vehicles Technology Department, Burdur, Turkey, bayramkilic@mehmetakif.edu.tr
[2] Gazi University, Vocational School of Technical Sciences, Machine Department, Ankara, Turkey, cagriorman@gazi.edu.tr

REFERENCES

1. Kural, E. (2015). Hibrid Elektrikli Araçlar İçin Enerji Yönetim Sistemleri. Doktora Tezi, İstanbul Teknik Üniversitesi Fen Bilimleri Enstitüsü.
2. Altındemir, E. (2008). Hibrid elektrikli taşıtlarda rejeneratif frenleme. Yüksek lisans tezi, İstanbul Teknik Üniversitesi Fen Bilimleri Enstitüsü.
3. Mi, C., Masrur, M.A. (2017). Hybrid electric vehicles: principles and applications with practical perspectives. John Wiley & Sons.
4. Halderman J., Martin, T. (2011). Hybrid and Alternative fuel vehicles. Pearson Prentice Hall.
5. Denton, T. (2020). Electric and hybrid vehicles. Routledge.
6. Erjavec, J. (2012). Hybrid, electric, and fuel-cell vehicles. Cengage Learning.
7. Khajepour, A., Fallah, M. S., Goodarzi, A. (2014). Electric and Hybrid Vehicles: Technologies, Modeling and Control-A Mechatronic Approach. John Wiley & Sons.
8. Ferguson, C. R., & Kirkpatrick, A. T. (2015). Internal combustion engines: applied thermosciences. John Wiley & Sons.
9. Husain, I. (2011). Electric and hybrid vehicles: design fundamentals. CRC press. Scientific Studies on the Edge of Global Warming
10. Pistoia, G. (Ed.). (2010). Electric and hybrid vehicles: Power sources, models, sustainability, infrastructure and the market. Elsevier.
11. Arabacı E., Orman, R.Ç., Kılıç, B., Hepdeniz, K., Yitik, B. (2019). Environmental Impact of Vehicles Waiting at the Signalized Intersections A Case Study of a Four Phase Intersection, Mehmet Akif Ersoy Üniversitesi Uygulamalı Bilimler Dergisi, 3(2), 229-240.
12. Arabacı, E. Kılıç, B .(2018). Novel Over-Expanded Six-Stroke Engine Mechanism. BEU Journal of Science, 7 (2) , 320-338 .