

## Document details

< Back to results | 1 of 1

Export Download Print E-mail Save to PDF Add to List More...

Full Text View at Publisher

Indonesian Journal of Electrical Engineering and Computer Science  
Volume 8, Issue 2, November 2017, Pages 475-481

### A series regeneration converter technique for voltage balancing of energy storage devices (Article)

Ahasan Habib, A.K.M., Motakabber, S.M.A., Ibrahimy, M.I.

Faculty of Engineering, International Islamic University Malaysia, Kuala Lumpur, Malaysia

#### Abstract

View references (18)

A single series resonant converter has been designed to balance the voltage level of a storage battery for electric vehicles. The proposed design has been simulated and verified by using two 100F supercapacitors instead of the conventional rechargeable battery. A voltage monitoring circuit detects the voltage condition of the individual capacitor and sends the voltage status to the control circuit for action. A technique has been developed to control a set of switches to transfer the current between the capacitor to balance the voltage level. The MATLAB simulated result shows the balancing circuit decreases the voltage difference between the two supercapacitors from 200 mV to 0V in 140 seconds, which is less than the existing methods. This fast voltage balancing technique can be used in the battery management system or electric vehicles for long lasting the battery life. © 2017 Institute of Advanced Engineering and Science. All rights reserved.

#### Author keywords

Battery Electric vehicles Series resonant converter Supercapacitor Voltage balancing

#### Funding details

Funding number	Funding sponsor	Acronym
FRGS15-190-0431		

#### Funding text

This research has been supported by the Malaysian Ministry of Education through the Fundamental Research Grant Scheme under the project ID: FRGS15-190-0431.

ISSN: 25024752  
Source Type: Journal  
Original language: English

DOI: 10.11591/ijeecs.v8.i2.pp475-481  
Document Type: Article  
Publisher: Institute of Advanced Engineering and Science

#### References (18)

View in search results format >

All Export Print E-mail Save to PDF Create bibliography

- 1 Pistoia, G. (2008) *Battery Operated Devices and Systems: From Portable Electronics to Industrial Products*. Cited 11 times. Hungary: Elsevier
- 2 Dhameja, S. (2001) *Electric Vehicle Battery Systems*. Cited 77 times. USA: Newnes
- 3 Sirmelis, U., Grigans, L. Capacitance balancing for supercapacitive energy storage system (2011) *Proc. Int. Symp. Electr. Power Eng. Pärnu*, pp. 38-41. Cited 4 times.
- 4 Zhao, C., Yin, H., Ma, C. Two-level energy management strategy for a fuel cell-battery-ultracapacitor hybrid system (2016) *IECON Proceedings (Industrial Electronics Conference)*, art. no. 7793296, pp. 2135-2140. Cited 2 times. ISBN: 978-150903474-1

#### Metrics

0 Citations in Scopus  
0 Field-Weighted Citation Impact

PlumX Metrics  
Usage, Captures, Mentions, Social Media and Citations beyond Scopus.

#### Cited by 0 documents

Inform me when this document is cited in Scopus:

Set citation alert > Set citation feed >

#### Related documents

Find more related documents in Scopus based on:

Authors > Keywords >