

S.E.B-Super Capacitor Electric-Bicycle

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Abstract: *This literature review examines the research and development of electric bicycles equipped with super capacitors as a power source and . The review provides an overview of the current highlights key advancements of the field, and discusses the potential benefits and challenges associated with this technology. The objective is to provide a comprehensive understanding of the integration of super capacitors and self-made motors in electric bicycles and identify research directions in this domain. This literature review explores the integration of super capacitor battery type in electric bicycles, highlighting its potential to enhance performance, efficiency, and range and battery life. The objective is to provide a comprehensive understanding of the benefits and limitations of utilizing super capacitors in electric bicycles and identify future research directions in this field.*

Keywords: Direct Current Motor (DC Motor)

REFERENCES

- [1]. Alan. A Parker, Electric Power-Assisted Bicycles Reduce Oil Dependence and Enhance the Mobility of the Elderly electric power assisted bicycle. Presented at 29th Australian Transport Research Forum.
- [2]. Don Tuite, "Get the Lowdown on Ultracapacitors", Technology report electronic design online, November 2007. URL: <http://electronicdesign.com/Articles/ArticleID/17465/17465.html>.
- [3]. Adrian Schneuwly, Bobby Maher, Juergen Auer. "Ultracapacitors, the New Thinking in the Automotive World". Maxwell Technologies Inc.
- [4]. Pay, S.; Baghzouz, Y.; "Effectiveness of battery super-capacitor combination in electric vehicles," Power Tech Conference Proceedings, 2003 IEEE Bologna, vol.3, no., pp. 6 pp. Vol.3, 23-26 June 2003
- [5]. Dixon, J.W.; Ortuzar, M.E.; "Ultracapacitors + DC-DC converters in regenerative braking system," Aerospace and Electronic Systems Magazine, IEEE, vol.17, no.8, pp. 16- 21, Aug 2002
- [6]. A.Paymen and S.Oierfederici (2007), Energy control of supercapacitor/fuel cell hybrid power source. Energy Conversion Management 49(2008) 1637-1644
- [7]. H.Farzanehfard and D.S Beyragh (2007), A Bidirectional soft switched ultracapacitor interface circuit for hybrid electric vehicles. Energy Conversion Management 49(2008) 3578-3584.
- [8]. Michael George and Sam Choi (2003), Contrasting Hybrid Electric Bicycles and Electric Bicycle. Inter-Professional Project 315 Spring 2003 p20-25.
- [9]. H[Sobieraj, Sylwester & Sieklucki, Grzegorz & Gromba, Józef. (2021). Relative Stability of Electrical into Mechanical Conversion with BLDC Motor-Cascade Control. Energies. 704. 10.3390/en14030704.]
- [10]. [Qian Lin (2020), "Review of recent development and techniques for lithium battery research", Volume 31, Issue 28]
- [11]. [Yilin Yin, Song-Yul Choe(2020), Actively temperature controlled health-aware fast charging method for lithium-ion battery using nonlinear model predictive control, Applied Energy, Volume 271]
- [12]. [A. Berrueta, A. Ursúa, I. S. Martín, A. Eftekhari and P. Sanchis, "Supercapacitors: Electrical Characteristics, Modeling, Applications, and Future Trends," in IEEE Access, vol. 7, pp. 50869-50896, 2019, doi: 10.1109/ACCESS.2019.2908558]
- [13]. [Prof. Dr. M. Asok Raj Kumar(2018)"Design and Fabrication of Electric Bicycle, ETEDM - 2018,ISSN: 2278-0181]