

Battery Design to Extend Operational Lifespan

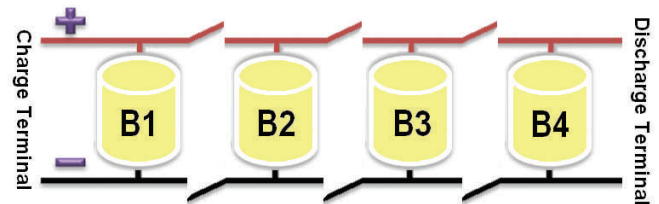
A Business Perspective

Background

US battery demand is projected to reach \$14.8 billion in 2009 ([Source](#)). Consumers of electronic devices want batteries that last longer and the disclosed battery design extends battery discharge time up to 36% and prolongs the useful life of the battery. Most battery packs will fail when an individual cell fails or is undercharged while this battery design will continue to function until all cells have fully discharged.

Competitive Advantages

- Prolongs battery lifespan
- Requires less frequent recharging
- Decreases waste and disposal costs
- Increases the operation time of a battery 14% and in some cases up to 36%
- This design may allow the discharge behavior of battery packs to be regulated based on the present computing task



Applications

- Batteries for hand held electronics like cell phones, PDAs, and laptops
- Use in active RFID tags
- Prevent immediate failure of batteries in critical applications like medical devices
- Use in wireless sensors
- Storage for renewable energy such as wind and solar energy
- Electrical car battery system



For more information about:
Technology ID # 1557-999
Patent Pending

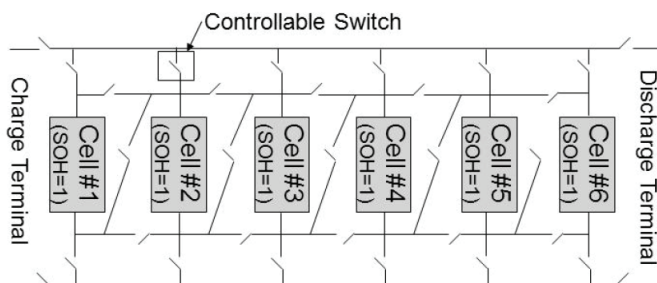
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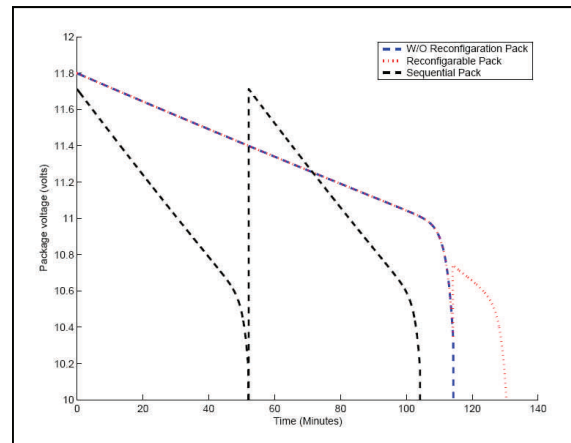
A Technical Perspective

Technical Specifications

- In low voltage and low current scenarios the proposed battery design improves both the battery operating time and the battery useful life.
- Allows the battery to remain useful even after an individual cell has failed.



Proposed battery design



Pack voltage vs. Battery operating time

- Increases usage time by at least 14%
- Some usage times increase just over 36%

Publication

A Novel Design of Adaptive Reconfigurable Multicell Battery for Power-Aware Embedded Networked Sensing Systems. Ci, Song; Zhang, Jiucui; Sharif, H.; Alahmad, M., Univ. of Nebraska-Lincoln, Lincoln, NE, USA. Proceedings of IEEE GLOBECOM (2007), Global Telecommunications Conference, 1043-1047. Publisher: GLOBECOM '07, IEEE.

Inventor

Dr. Song Ci led the group of University of Nebraska inventors that developed the reconfiguring self-adapting battery. Dr. Ci's research interests include: dynamic complex system modeling and optimization, content-aware quality-driven cross-layer optimized video over wireless, cognitive networks and service-oriented architecture. He has published more than 70 research papers in referred journals and international conferences in those areas, and his research has been sponsored by federal and state funding such as NSF, NRI, and UNL. Inventor homepage: <http://www.engr.unl.edu/~sci/>



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