CellSage™

ridgetopgroup.com

Advanced Battery Health Modeling, Simulation, and Analysis

- **A unique modeling toolbox to determine the long-term performance and aging effects of battery packs used in Electric Vehicles (EVs), robotics, power tools, stationary power backup systems, consumer electronics, and other battery powered systems**
- **Helps to reduce costs associated with upfront cycle life testing, while also reducing the cost of battery pack designs**
- **Proven to reduce battery aging between 10-25% by refining Battery Management System (BMS) strategies for a variety of target applications**
- **Optimizes battery life and warranty periods by investigating thermal management, string anomalies, and other customized operating conditions observed with complex duty cycles**
- **Powerful software analysis covering annual temperature profiles in over 130 U.S. cities and can be easily expanded to include any global geographic region**
- **Under license from the United States Department of Energy's Idaho National Laboratory (INL) and protected by 5 U.S. patents**

CELLSAGE'S ROLE IN A BATTERY'S LIFE CYCLE

1) Raw Material Mining, Extraction, & Processing

2) Battery Manufacturing
- Improved Battery Design, Development, & Deployment Strategies

3) Battery 1st Use / Initial Service Life
- Improved Battery Diagnostics & Prognostics by comparing near-real time BMS Data to CellSage Model Data

4) Battery 2nd Use
- Second Use Qualification & Assignment
- Second Use Monitoring, Diagnostics, & Prognostics

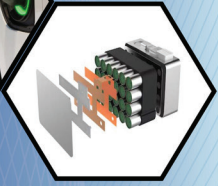
5) End of Battery Life & Material Recycling

MAJOR APPLICATION AREAS

GRID ENERGY STORAGE

ELECTRIC VEHICLES (EVs)

BATTERY SYSTEMS



Ridgetop Group Inc
ENGINEERING INNOVATION

CORPORATE OVERVIEW

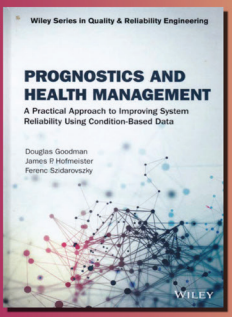
Founded in 2000, and headquartered in Tucson, AZ, USA, Ridgetop Group Inc. provides best-in-class solutions for Aerospace, Defense, Transportation, Energy, and Industrial sectors for the following core domains and engineering disciplines:

- **Condition-based Maintenance (CBM/CBM+)**
- **Prognostic Health Management (PHM)**
- **Integrated Vehicle Health Management (IVHM)**
- **Reliability Engineering**

WHY CHOOSE RIDGETOP?

- **World-class researchers, engineers, and subject matter experts for CBM, PHM, and IVHM applications**
- **Modular products and solutions that can be customized for diverse applications**
- **Engineering design services for hardware, firmware, and software design and development**
- **Global reach with engineering and sales support in North America, South America, Europe, and Asia**
- **AS9100D and ISO 9001:2015 certified by Management Certification of North America (MCNA)**

Ridgetop Group's Highly Rated PHM Publication



GET IN TOUCH WITH US FOR YOUR UNIQUE ENGINEERING CHALLENGES TODAY!

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