CellSage™

Battery Health Diagnostic and Prognostic Software

CellSage is an advanced prognostic and health management (PHM) software tool from Ridgetop Group that will determine battery state of health (SoH) and remaining useful life (RUL). CellSage is a unique and essential tool to assess battery condition based on the specific chemistry, usage conditions, and the environment in which it operates. CellSage benefits include safety improvements, faster reaction times, greater diagnostics abilities, and methods to achieve a better understanding of incident precursors as well as repair and maintenance techniques for battery storage devices.

Today, the population relies on batteries for everything from powering personal communication devices and running electric or hybrid vehicles to providing storage for the national power grid. Despite advances in technology, unanticipated and unmitigated battery failure is still common, with consequences that range from minor annoyances to catastrophic events, depending on the setting and the application. Battery capacity, remaining power, and rate of aging/degradation are functions of a number of key factors, including the composition and topology of the cells comprising the battery, the profile of its operation, and the environmental conditions to which it is subjected both while in storage and in use.

CellSage can take into account more than 10 environmental and operational parameters, including battery chemistry, temperature and thermal cycling, and cell string topology. CellSage calculates more than 20 vital health metrics and aging effects, including state of charge (SOC), capacity loss, cell/battery conductance loss, and power fade. Originally developed by researchers at the Idaho National Laboratory (INL) of the U.S. Department of Energy (DOE), Ridgetop licenses the underlying CellSage technology to provide users with easy-to-understand metrics, indicators, and alerts, showing the battery's SoH at any point in time and computing RUL based on the aforementioned factors. Through a user-friendly graphical user interface, CellSage users are presented a clear picture of how the battery is aging and an accurate projection of how long the battery will last for given conditions.

In addition to its application for monitoring batteries that are already in use, CellSage can simulate "what if" scenarios to weigh the impact of operational and environmental parameters on battery performance and health, and will help select the most appropriate battery for a given mission.

CellSage is currently being integrated into Ridgetop's Sentinel Suite™ family of diagnostic and prognostic tools for electronic systems.   Please contact Ridgetop for more information.

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