SBIR Open Topic 20.3 Company and Solution Overview

About Ridgetop Group Inc.

Ridgetop Group provides Condition-based Maintenance (CBM), Prognostic Health Management (PHM), and reliability engineering solutions to government and commercial organizations to increase safety, efficiency, and operational performance while also reducing maintenance and sustainment costs for complex systems.

Ridgetop, founded in 2000, is an established engineering and technology company that has specialized in the development of advanced CBM, PHM, and Integrated Vehicle Health Management (IVHM) technologies that ensure precise identification and isolation of system anomalies, advance notice of impending failure, and the necessary combination of firmware, hardware, and software solutions for mission critical systems.

When your applications require advanced diagnostic and prognostic solutions at a system or subsystem level, Ridgetop offers high-quality, innovative products, and original answers that surpass conventional standards. Our unique collaborative design portfolio of IP and software tools address advanced diagnostics and predictive reliability. Ridgetop creates value-added results with applications from the integrated circuit level through all areas of complex system design.

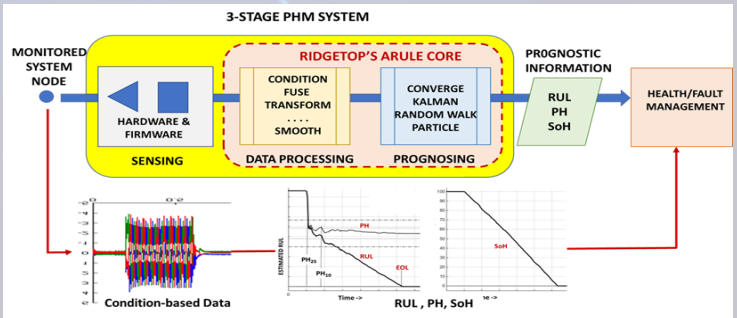
Ridgetop is headquartered in Tucson, Arizona and has a dedicated staff of highly qualified researchers, engineers, and data scientists that support our business development team to develop, deploy, and commercialize the most innovative solutions.

Technology Overview

For U.S. Air Force SBIR topic AF20.3-CSO1, Ridgetop Group Inc. is conducting a Phase I feasibility study to identify clear Air Force end users for an advanced System-on-Chip (SoC) that enables Prognostic Health Management and Condition-based Maintenance for complex critical systems and subsystems across the DoD. With embedded algorithms and sensor signal processing, the Ridgetop PHM SoC will shrink existing implementations from multi-circuit board to IC level solutions. The SoC will also support predictive analytics and diagnostics that provide real-time State-of-Health (SoH) and Remaining Useful Life (RUL) for power supply systems, Electromechanical Actuators, and other UAS subsystems identified by the Air Force, Ridgetop, and Northrop Grumman.

Ridgetop's solution satisfies the request from the AFRL Advance Spectrum Warfare Division, where they are seeking Intellectual Property (IP) and design solutions for SoCs and Application Specific Integrated Circuits (ASICs) using the GlobalFoundries 12 LP 12 nm FinFET process technology platform. Ridgetop and Northrop are planning to integrate the PHM SoC to monitor and diagnose key subsystems in UAS platforms such as the Fire Scout (left) and Firebird (right) as shown below:

Source: https://www.northropgrumman.com/what-we-do/air/fire-scout/



Industry Certifications

AS9100D Certified
ISO9001 Compliant
DO-178B Design Rules
DO-254 Design Rules
DMEA Cetified "1A" Design House

Worldwide Locations

Support and sales locations for Ridgetop Group Inc. exist in Europe, Asia, and the United States.

For office locations and contact information, please call corporate headquarters or visit us on the web.

www.ridgetopgroup.com

Corporate Headquarters

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Finding Faults Through Advanced Diagnostics in Complex Systems

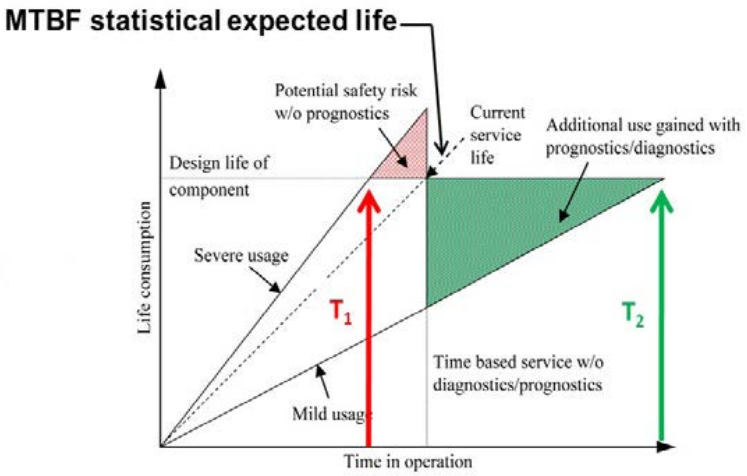
Evolution of Maintenance Practices Going from REACTIVE to PROACTIVE

Prognostic Health Management (PHM) is vital to the efficacy and viability of the entire lifecycle of industry systems and equipment.

PHM turns 'Bad Actors', 'Intermittents', and 'Soft Faults' into scheduled maintenance, ensuring critical mission success.

Condition-based Maintenance (CBM) utilizes real condition-based data to isolate degradation and provide optimal maintenance through preventive measures.

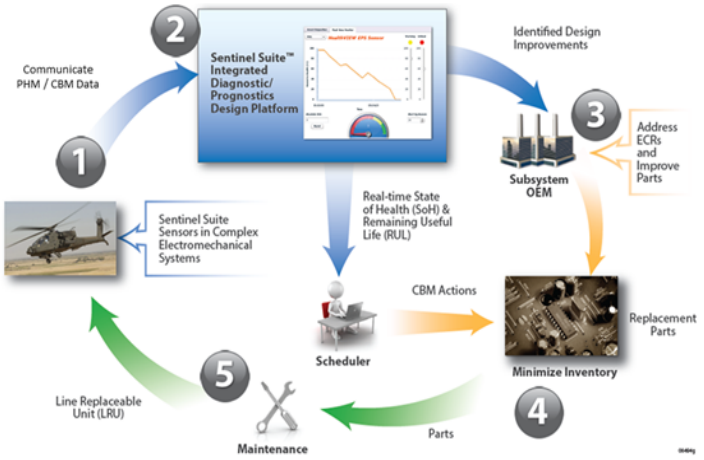
PHM enables replacement only upon evidence of need in a Usage Environment



Usage monitoring would provide a safety benefit if actual usage is more severe than predicted

Service life can be extended beyond normal replacement time if actual usage severity is known

Ridgetop's PHM products and services protect users throughout the entire equipment lifecycle



Integration of sensor arrays that identify, isolate and diagnose degradation and communicate SoH and RUL through the Sentinel Suite™ platform

Reassess system in real-time to schedule maintenance optimally, saving lifetime costs, reducing labor hours, and increasing part quality

Commercial and military benefits from Ridgetop CBM, PHM, and IVHM solution include:

Increased Safety and Mission Reliability

Real-time system monitoring with advanced diagnostics

Reduced Maintenance and Sustainment Costs

Minimize unexpected breakdowns and prevent cascading effects onto healthy systems

Decrease in Unnecessary Maintenance

Optimize maintenance routines and perform actions based on physical evidence of degradation

Ridgetop's 3A Technology Focus Areas:

Awareness

Anomalies are discovered and monitored

Analysis

From being monitored, solutions to anomalies are predicted

Action

Once solutions are predicted, troubleshooting actions are executed for success for all

Ridgetop's innovative technologies address critical faults and impending failures with real-time sensors and systems for:

Aerospace and Defense | Automotive | Industrial Automation

Medical | Transportation | Energy and Utilities