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NAVY SBIR TRANSITION PROGRAM

SPOTLIGHT

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Small device, big impact: Beyond the initial SBIR transition, enDAQ continues to evolve

Midé Technology Corporation's enDAQ (Engineering Data Acquisition) platform exemplifies how a small business can leverage early investment from the Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) programs to grow a sustainable and successful commercial brand.

Derived from a Navy SBIR-funded technology originally developed for the Tomahawk missile program—the Low Cost Missile Environmental Monitor (LCMEM)—enDAQ sensors are compact, portable, wireless devices that record shock and vibration data for aerospace and industrial applications. These sensors are part of a product ecosystem that also includes the free enDAQ Lab measurement and analysis software and the enDAQ Cloud platform. Launched in 2020, the Cloud platform allows users to remotely upload, access, organize and share raw data from the device. The latest version of enDAQ sensors, the W-Series, are WiFi-enabled, supporting real-time data upload to Cloud accounts.

According to enDAQ's product manager, Robert Parent, and director of marketing and engagement, David Manion, Midé has sold more than 17,000 enDAQ devices since 2016.

"A true success story if ever I have seen one," said Brett Gardner, a business development consultant for Midé. When Midé launched the enDAQ sensor (originally called Slam Stick) as a commercial product in 2010, Gardner was a team lead at the Navy's F/A-18 and EA/18G program management office, PMA-265. He spotted the product at an SBIR technology conference and recognized its potential value for naval aviation.

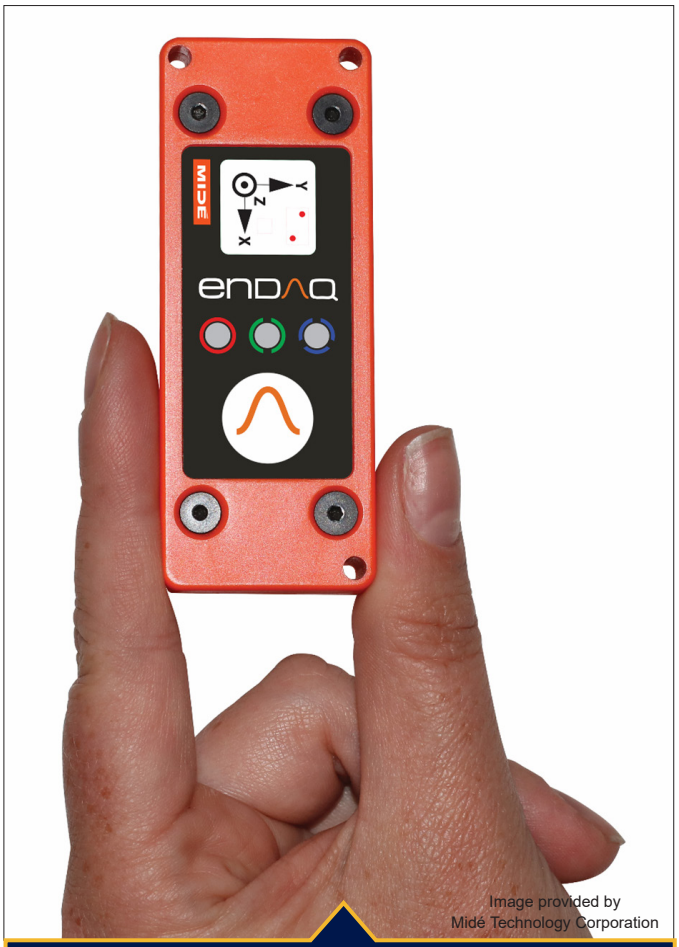

Image provided by Midé Technology Corporation

The compact size of enDAQ sensors is a key benefit for many applications.

At that time, the Navy relied on a limited number of specially instrumented test aircraft to gather vibration and acceleration data needed to analyze and diagnose internal component failure—testing that cost around $100,000. Diagnosing issues with excessive vibration on individual aircraft required installing wired accelerometers

throughout the platform, a time consuming and costly process.

PMA-265 saw the potential of a wireless device like the enDAQ sensor—simple to use and easy to install—to enable efficient testing in the field, saving significant money and time.

However, the product needed further development to meet the Navy's technical requirements. Championed by Gardner, Midé applied for and received a Rapid Innovation Fund (RIF) award to improve enDAQ's capabilities. RIF funding allowed Midé to enhance enDAQ's acceleration measurement capacity and add pressure and temperature sensors, along with other improvements to enhance the device's overall functionality, such as extended battery life and recording time.

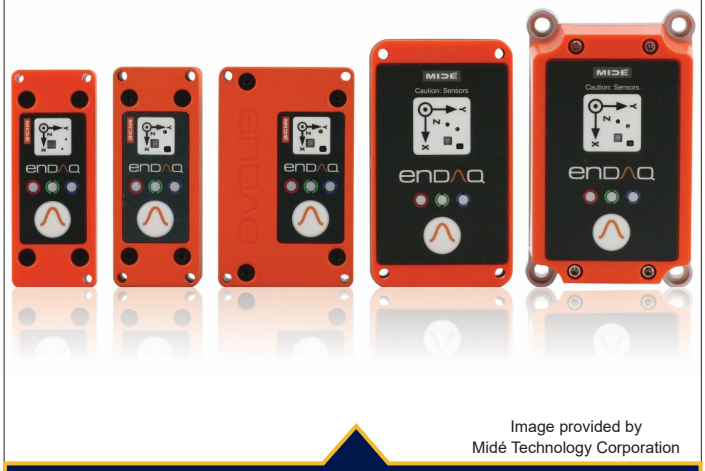

Image provided by Midé Technology Corporation

Midé's enDAQ devices are available in a range of sizes and options.

"Brett's support in recognizing the potential and then backing it through that RIF program was instrumental in developing enDAQ for the Navy and the commercial market," said Manion. "The RIF funding was an opportunity for us to develop a unique product that bridges the gap between traditional low-cost shock and vibration recorders and full data acquisition systems."

Once it met the Navy's requirements, PMA-265 began procuring enDAQ sensors in 2015. A 2016 case study projected that the Navy would save $3-5 million in vibration test costs over four years by using enDAQ sensors in place of traditional wired systems. Today, enDAQ technology is widely adopted throughout NAVAIR to help identify and remediate vibration issues and streamline maintenance, repair and overhaul (MRO) efforts.

Not long after the sensors were first deployed, the Navy found another critical application: monitoring cabin air pressure during a spike in physiological events (PEs) in the F-18 fleet. The Navy's Physiological Episodes Action Team (PEAT) used enDAQ sensors to investigate causes of hypoxia symptoms in Navy aviators. Small enough to fit in a pilot's pocket and powered by battery, enDAQ devices played a key role in determining that failing components in the Environmental Control System (ECS) were causing abnormal pressure. By comparing data collected during PEs with routine maintenance data, the Navy was able to establish large-scale condition monitoring to identify and replace failing components proactively.

By 2019, the Navy had more than 2,000 enDAQ sensors in service for this purpose and monitoring continues today. "That's when we really started to gain traction—when we put them in the pocket of every F-18 pilot," said Parent. "This remains a large contract of ours. We sold them more units in 2024 for the same purpose."

In the years since enDAQ's initial successful Navy transition, Midé has continued to advance the technology. The company reinvests a significant portion of its revenue back into R&D, adding new features and capabilities that add value for users.

According to Parent, while the Navy remains Midé's largest enDAQ customer, about 60% of sales come from the commercial market. "We are used in a lot of different applications," he said. "The drone market especially is really picking

up." Engineers designing new uncrewed aerial systems (UAVs) use enDAQ to measure the stress experienced by various components and determine whether the system under development will stand up to operational use.

"With our upcoming products in 2025, we'll be able to wire in additional sensors to pull in higher frequency data," said Parent. "The aerospace community is still our largest customer, so we're building products that we think will help them. We will continue to help the Navy, but we sell to many different industries. Our solutions need to be broadly applicable so we can push the technology beyond what the Navy might currently use."

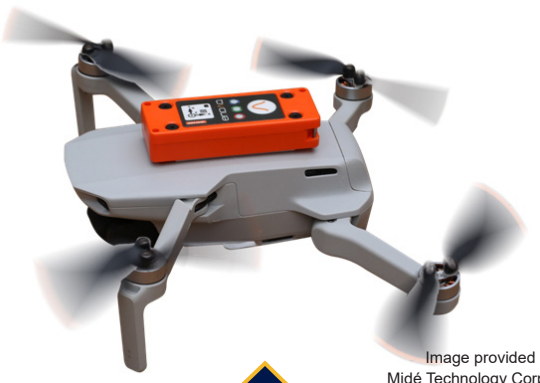

Image provided by Midé Technology Corporation

enDAQ sensors can be used in the design and maintenance of aerospace platforms, including UAVs.

In 2019, Midé launched enDAQ as a separate brand, introducing the new name and a dedicated enDAQ website providing technical support, video tutorials, a blog, community user forum, product specifications and software tools.

The rebranding coincided with Midé's acquisition by Hutchinson Industries, Inc., a global manufacturer of tires, wheels and other mobility components for combat and off-road vehicles with U.S. headquarters in Trenton, New Jersey.

Parent and Manion describe Midé's role within Hutchinson as an in-house research and development incubator, helping solve difficult engineering problems much as they did for the DoD through their SBIR efforts. "Historically, the military was our Hutchinson," said Parent. "They have problems to solve and want to give them to a team of competent engineers. When Hutchinson bought us, they were looking for an agile R&D company that could innovate at a rapid pace. Now they give us projects and we do the same sort of thing we did for the military. Sometimes we develop a solution for a specific project and when we realize it could appeal to a wider audience, we incubate and grow it to become a commercial product."

enDAQ is just one of several successful Midé products that originated in the Navy SBIR program. The company's marine products portfolio includes innovative bulkhead shaft seals developed as a solution for failing shaft seals on the Arleigh Burke Class destroyers (DDG), as well as a fully shock qualified state of the art shaft seal initially designed for use on the Littoral Combat Ship (LCS). Midé also designs and manufactures piezoelectric products, combining its own innovations with those of Piezo Systems, a company it acquired in 2017.

Midé's wide range of brands and capabilities reflect the focus on customer needs that has characterized the company since it was founded in 1989. As a Hutchinson company, Midé continues to conceptualize, design and deliver high-performance products and services for many industries, including aerospace, automotive and manufacturing industries from its headquarters in Woburn, Massachusetts.

For more information, visit www.Midé.com, www.endaq.com, and www.piezo.com.