

Bodkin Design Develops Drone Inspection System to Safeguard Navy Communications

Machine learning and AI boosts Navy antenna and guy wire safety with smarter inspections.

NEWTON, MA, UNITED STATES, March 12, 2026 /EINPresswire.com/ -- [Bodkin Design & Engineering](#) (BD&E) has been awarded a \$1,000,000 Small Business Innovation Research (SBIR) contract by the U.S. Navy. BD&E is creating a drone-based inspection system to help the Navy manage their very low frequency antenna facilities that are critical to submarine communications. These antennas use kilometer long cables supported by guy wires.

Corrosion can weaken the cables over time and may lead to failure. BD&E's system is designed to spot early signs of damage using AI to process drone born inspections, so repairs can be made before communications are disrupted.



Drone Inspects Guy Wire for Deterioration

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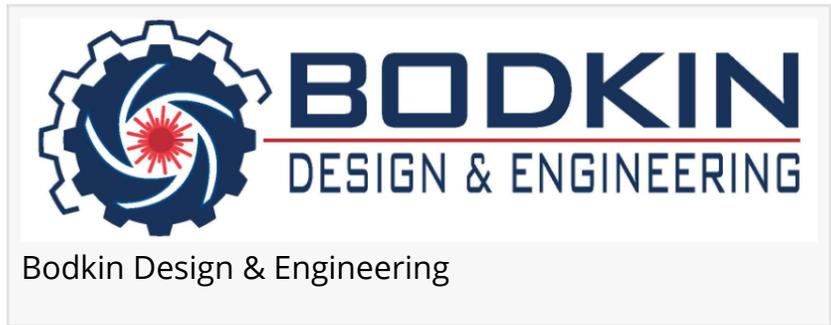
By catching corrosion early, this technology can help protect everything from Navy antennas to bridges and power lines, keeping critical infrastructure safe and reliable.”

*Andrew Bodkin, President of
BD&E*

Current methods are subjective as they rely on human inspection with binoculars from the ground. This requires significant resources and is highly variable. Previous attempts at semi-robotic corrosion assessment used cable crawlers which were unable to bypass the obstructions built into the antenna system. BD&E's drone based solution navigates around obstructions and uses spectral analysis linked to [machine learning](#) to automate guy wire inspection and improve corrosion detection.

This system will automatically fly the length of the cable, collect spectral and dimensional data, geotag each spatial position, and evaluate the spectral data-cubes for corrosion defects using Artificial Intelligence and Machine Learning (AI/ML). The software will concatenate the results into a single enhanced

data file and present the processed results to the inspector for further assessment. Archival data sets will be integrated into the graphical user interface (GUI) so that degradation over time can be evaluated.



Beyond Navy antennas, the same technology can improve safety across many industries; monitoring bridges, power lines, and other critical infrastructure where corrosion is a constant threat. By finding damage early, this system can reduce downtime, lower maintenance costs, and help prevent dangerous failures.

About Bodkin Design & Engineering

Bodkin Design and Engineering, the Imaging System Experts™ has been providing concept development, and design and build services since 1992. Headquartered in Newton, Massachusetts, the company serves the international OEM, commercial, military, and research communities. Specializing in visible and infrared cameras and imaging spectroscopy, BD&E has overseen the successful introduction of products ranging from miniature infrared cameras and dental imagers to spectroscopic instruments for drug discovery. To learn more, visit the website at www.bodkindesign.com.

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