

Defense & Security Newsletter

Q2 2020

Welcome to Boston Engineering's inaugural newsletter focused on product development for the defense & security industries. We are spotlighting the following innovative projects and company news in this issue:

1. AFWERX Awards Contract for sUAS Wind Profile Generator
2. U.S. Navy Improves Sensing for Adhesion of Surface Coatings
3. Boston Engineering Named Ansys Simulation Partner
4. COVID-19 Disinfection Resources
5. Full Operations Amid COVID-19

1. AFWERX Awards Contract for sUAS Wind Profile Generator™



Boston Engineering received an AFWERX SBIR Phase I contract to advance its beta Wind Profile Generator™ for small Unmanned Aerial Systems (sUAS). The portable system accelerates sUAS testing and training by monitoring sUAS tests in controlled, uniform, laminar air flow. The Wind Profile Generator is the only standard/networked sUAS system that combines robust testing capabilities, scalability, and portability

to operate in enclosed areas such as outdoor netted sites or hangars. Boston Engineering has also developed an optional motion-capture camera system that collects 3-D position data for further analysis.

The Wind Profile Generator benefits sUAS operators, trainers, and researchers with multiple capabilities:

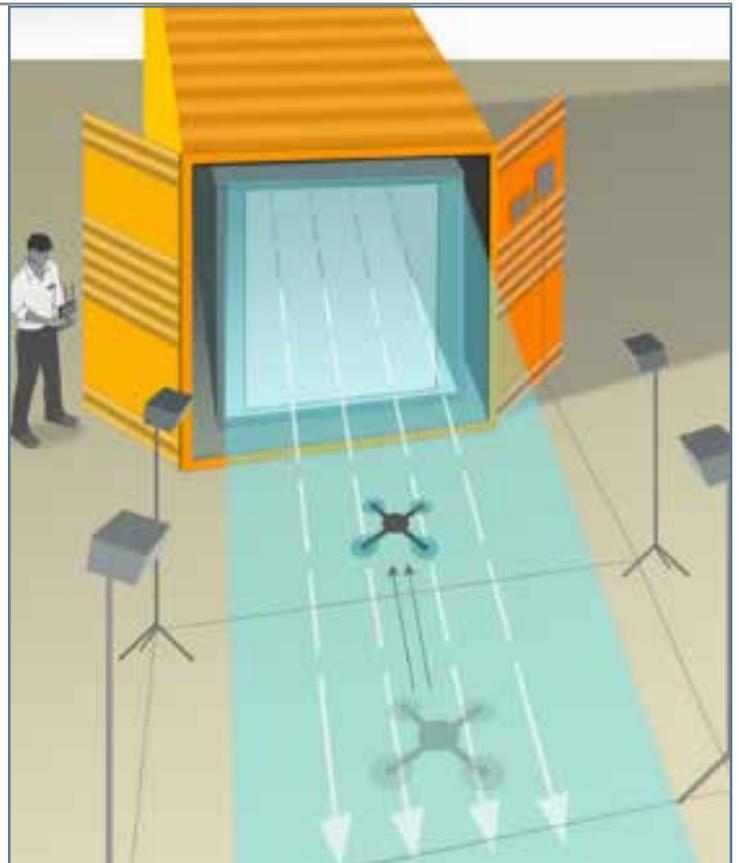


Wind Profile Generator Portable Fan

- Enables standardized testing and performance criteria via repeatable testing and profiling
- Integrates with other test capabilities (e.g., GPS denied tests + wind tests)
- Provides exact sUAS position (e.g., when it enters, is within, and exits defined boundary zones)
- Triggers events, such as a gust or defined wind profile, when a sUAS enters a defined area
- Monitors ambient temperature, humidity, pressure, wind speed, and wind direction
- Shares data via network connectivity
- Enables integration as part of an advanced sUAS obstacle course

The U.S. Air Force is supporting further beta unit refinement through an AFWERX SBIR Phase I contract award to Boston Engineering. The project genesis was the development of an earlier system for the U.S. military.

A beta system is being deployed at Northeastern University's Kostas Research Institute (KRI) for testing and user feedback from organizations including KRI and the Army Research Laboratory (ARL).



Portable Wind Profile Generator

For additional information on technical specifications and availability, please contact us at info@boston-engineering.com.

2. U.S. Navy Improves Sensing for Adhesion of Surface Coatings



Specializing in detection and analysis technologies, Optowares required complementary product development expertise to commercialize a handheld surface condition sensor with field analysis capabilities. The Optowares Raman spectroscopic system has broad applications because it measures the spectroscopy return of a coated surface in a nondestructive manner to determine if maintenance is required.

This system incorporates a rugged spectroscopy device with artificial intelligence and machine learning (AI/ML) analysis to provide sample results in the field – thereby eliminating time and resources traditionally required for lab analysis. Key milestones for the two-year product development timeline include:

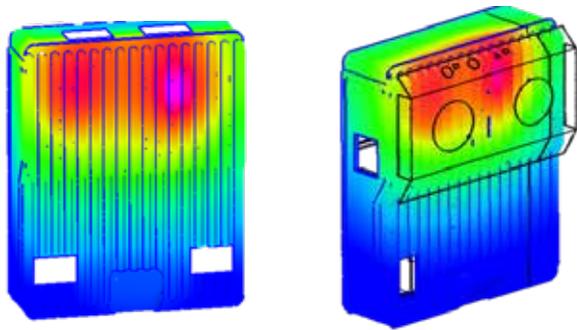
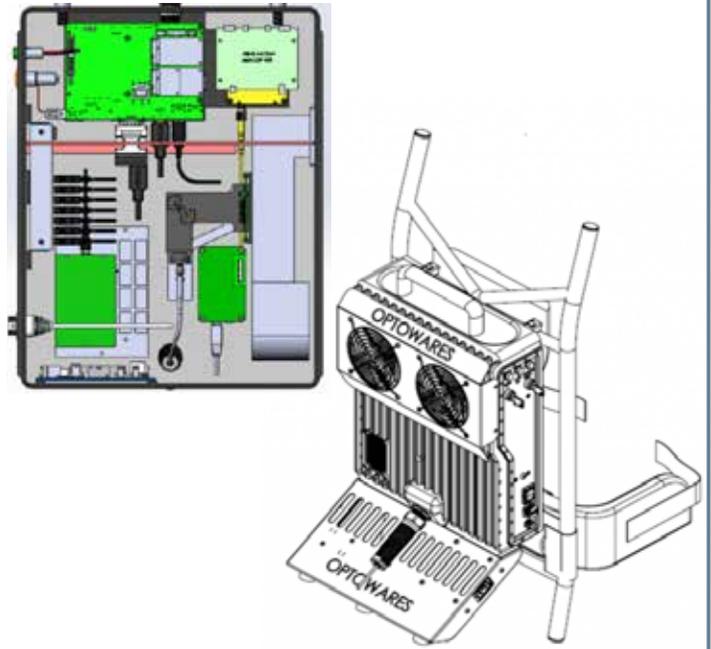
Year 1:

- Implement a rugged, field-portable system to scan light-colored materials

Year 2:

- Incorporate motion capabilities into a handheld probe to also test dark-color (light absorbent) material coatings
- Integrated a high-power, Class 4 Laser into a Class 1 System, which made it safe for field use without requiring eye protection
- Conducted computational fluid dynamics (CFD) analysis to ensure appropriate device heat dissipation in a fully enclosed device
- Designed to meet DoD standards (MIL-STD-810)
- Implemented computer and display to see results in the field

Ruggedized Backpack Case Design



Computational Fluid Dynamics (CFD) Analysis for Backpack Case

The Impact

With the technology, the U.S. Navy gains a quantitative measurement of how well coatings adhere to surfaces.

The technology can mitigate the risk of material failure, and reduce shipbuilding and maintenance costs. The technology has applicability in other coating uses.

3. COVID-19 Disinfection Resources

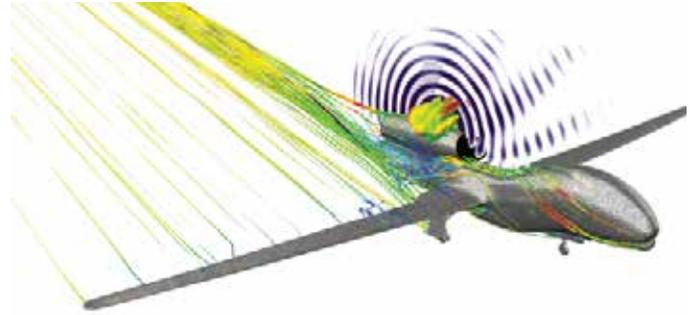
We've centralized disinfection resources from the CDC, FDA, and other noted authorities to help you find information that you need quickly.

Visit our Disinfection Resources Web Page

4. Boston Engineering Named Ansys Simulation Partner

We are excited to be Ansys' simulation software and consulting partner for New England, the tri-state area, and government partners.

Boston Engineering applies 25 years of product development and simulation experience to provide Ansys software and support, training, and simulation/product development consulting.



**Click Here
to Learn More About our
Simulation Solutions**



5. Full Operations Amid COVID-19

Boston Engineering continues to serve our nation's defense, homeland security, and medical/health clients. Our team is working remotely to the greatest extent possible, and is using safety best practices at our facilities and laboratories.

Read our COVID-19 Response Plan

Learn More

Contact us to discuss how we can support your defense and security product development and commercialization requirements.

Contact us:

boston-engineering.com

info@boston-engineering.com

781-466-8010



© 2020 Boston Engineering Corporation. All rights reserved. Boston Engineering, Imagine the Impact, and Wind Profile Generator are trademarks of Boston Engineering Corporation. All other brand or product names are trademarks or registered trademarks of their respective owners. CM200428v1.0

SBIR Data Rights Notice (Dec 2007): These SBIR data are furnished with SBIR rights under Contract No. WC-133R-15-CN-0112. For a period of 4 years, unless extended in accordance with FAR 27.409(h), after acceptance of all items to be delivered under this contract, the Government will use these data for Government purposes only, and they shall not be disclosed outside the Government (including disclosure for procurement purposes) during such period without the permission of the Contractor, except that, subject to the foregoing use and disclosure prohibitions, these data may be disclosed for use by support Contractors. After the protection periods, the Government has a paid-up license to use, and to authorize others to use on its behalf, these data for Government purposes, but is relieved of all disclosure prohibitions and assumes no liability for unauthorized use of these data by third parties. This Notice shall be affixed to any reproductions of these data, in whole or in part. (End of Notice)