DARcorporation

Design • Analysis • Research

April 2021

Announcements

U.S. Air Force Awards Contract to DARcorporation

Challenge 1, GA-AS Inc., Neff Aeronautics, and DARcorporation (Design, Analysis and Research Corporation, Lawrence, Kansas)

TCO invests $5.9M to explore In-Flight Aerial Rearming

The U. S. Air Force Research Lab (AFRL) Transformational Capabilities Office (TCO), in coordination with the Air Force Warfighting Integration Capability (AFWIC), awarded $5.9 million across three contracts to analyze the military utility of in-flight rearming and logistics technologies for conventional and unmanned aerospace platforms.

This transformational technology effort addresses one of three challenges that were identified in support of the Air Force Explore program, a new enterprise that seeks to understand technical solutions to high priority Air Force challenges. The challenge problems were formulated by a partnership comprised of AFRL, AFWIC, and military operators. A broad call drew proposals from all relevant sectors including within the Department of Defense. These seedlings are leveraging new methodologies that quantify military utility using analytics before progressing to developmental and operational testing.

TCO is partnering with DARcorporation (Design, Analysis, and Research Corporation), an aeronautical engineering firm founded in 1991 by Dr. Jan Roskam and Dr. Willem Anemaat, whose mission is to provide integrated aircraft design, development and consulting services. They have worked on numerous government projects, including with the US Air Force, US Navy, and NASA.

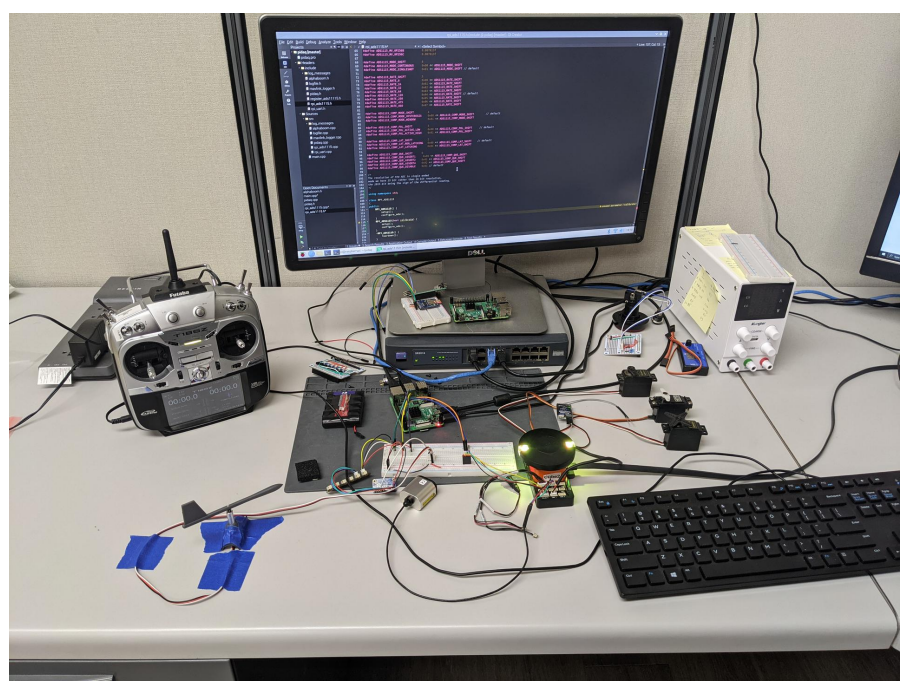
DARcorporation, based in Lawrence, KS, was awarded a contract in September 2020 for $1.9M as part of the inaugural Air Force Explore program. The scope of work includes the design and prototyping of a UAV capable of both short take-off and landing (STOL) and vertical take-off and landing (VTOL), allowing it to operate in austere or degraded environments. Additionally, the TCO has selected Radiance Technologies as an analytics partner to conduct operational assessments and use-case validation for the DARcorporation UAV.

General Atomics and Neff Technologies were also awarded contracts under this program.

Featured Services

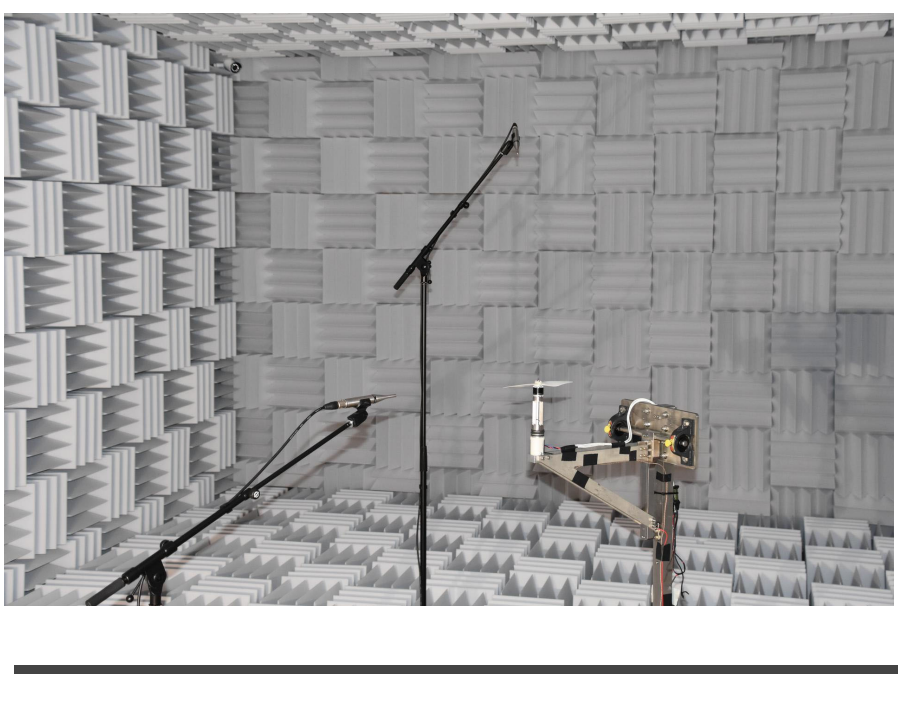
Avionics and Electronics Development and Testing

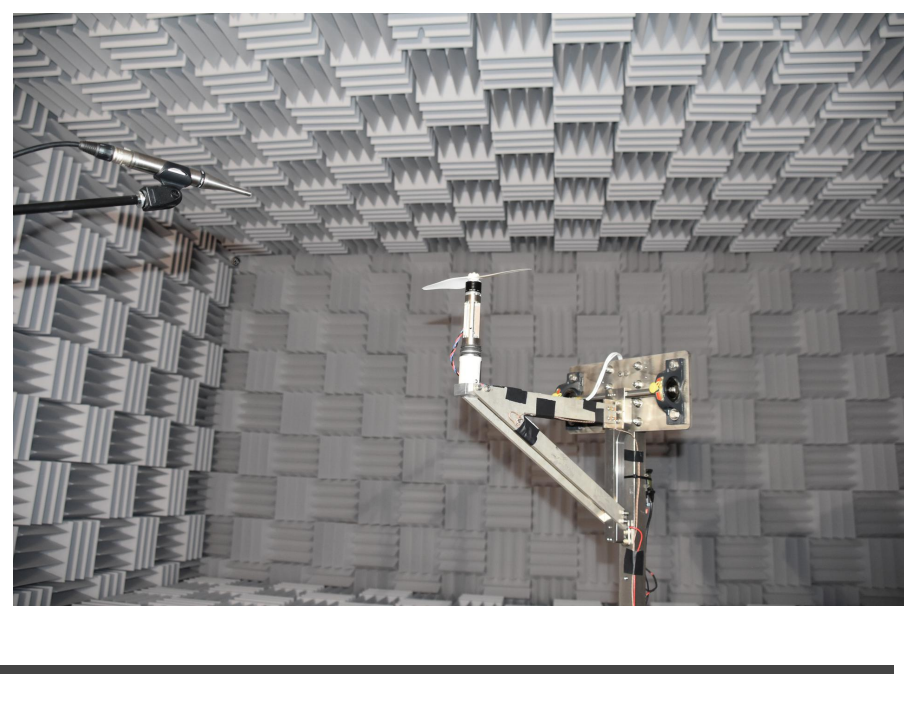
DARcorporation has consolidated and expanded its Avionics and Electronics Laboratory (AEL) into a 510 ft^2 facility on the upper floor of the building. The consolidation of work areas and equipment allows engineers and technicians to focus their efforts on manufacturing, assembling and modifying RC aircraft, UAV drones and prototype air vehicles. The new AEL is located next to our testing facilities which allows easier access and better support of the UAV drone and prototype air vehicle testing.



UAV Propulsion Acoustics Testing

Often lost among the desire to maximize thrust and minimize size and power requirements is the impact design has on the noise generated by a propulsion system (motor and prop/rotor). Our newly operational 23’ x 18’ x 8’ Anechoic Chamber provides DARcorporation engineers the capability to validate and benchmark analytical acoustic analyses and perform experimental analysis of propeller and ducted fan systems.





Software News and Tips

FlightStream 2020.2 Is Released

New features include:

- New Geometry Import
- New Geometry Operation
- IGES CAD Import Options
- New Motion Definitions
- Enhanced User Interface

Download Release Notes

How to Model a Y-tail or an Inverted Y-tail using AAA

The current version of the Advanced Aircraft Analysis (AAA) Software, Version 4.0 only allows for single vertical tail, twin vertical tails and V-tails. None of them together on the same configuration. DARcorporation Memo 959B shows how to use AAA to model a Y-tail or an inverted Y-tail. It requires three AAA project files. One with a single vertical tail (either above or below the fuselage) and one V-tail, either with dihedral or anhedral. The third AAA project file is used to combine the two tails. All the equations are described in the memo for a Y-Tail. For an inverted Y-tail the process is very similar. Instead of inverting the vertical tail, a regular vertical tail is used and the V-Tail will have anhedral.

Coming Soon: Airplane Design Website

We are excited to announce a new website that will provide references for basic aircraft design information. This new website will also include a forum to ask questions, respond to member questions or carry on a discussion about aircraft design. Because this website is being developed specially for aircraft designers, we encourage you to e-mail your suggestions for the website to aircraft.designer@darcorp.com.

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