



# Press Release

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## The Vertical Flight Society Announces the Winners of the 39<sup>th</sup> Annual Student Design Competition

### *Rensselaer Polytechnic Institute and University of Maryland take top honors*

Fairfax, Virginia, USA — The Vertical Flight Society (VFS) today announces the winners of its 39<sup>th</sup> Annual Student Design Competition: **Rensselaer Polytechnic Institute** took first place in the Graduate category and **University of Maryland** in the Undergraduate category. In addition, a team of four schools in Turkey — **Erciyes, Eskisehir Osmangazi, Necmettin Erbakan and Samsun Universities** — took Best New Undergraduate Entrant honors. [Bell](#) was the sponsor of this year's competition with a total of \$12,500 in prize money.

Each year, the VFS competition challenges students to design a vertical takeoff and landing (VTOL) aircraft that meets specified requirements, providing a practical exercise for engineering students at colleges and universities to promote student interest in VTOL engineering and technology.

Academic teams from around the world submitted entries in this year's competition, with a total of 14 proposals from four different countries. Executive summaries for the top-winning entries from the 39<sup>th</sup> Student Design Competition are available at [www.vtol.org/sdc](http://www.vtol.org/sdc), along with past winners.

The 2021-2022 Student Design Competition was entitled, "**eVTOL Air Taxi for Passengers with Reduced Mobility (PRM).**"

New electric propulsion technology is shaping a future for advanced air mobility (AAM) that could transform the way people and cargo are moved. To live up to this vision, designers must account for a broad spectrum of travelers that includes persons with disabilities of all types. This calls for an electric vertical takeoff and landing (eVTOL) concept that factors the unique requirements for such passengers.

The goal of this year's Request for Proposals (RFP) was to develop an all-electric eVTOL aircraft that supports (PRM) customers. The effort was comprised of a conceptual design of an eVTOL aircraft to execute the required mission while accommodating PRM riders, and the detailed design and analysis to



*Rensselaer Polytechnic Institute Oliwhoper  
1st Place Graduate Category*



*University of Maryland Blitzzen  
1st Place Undergraduate Category*

substantiate the critical aspects of the results. The UK charity [Aerobility](#) provided advice and support on the competition parameters.

Students had to design an eVTOL aircraft with that met the specified air taxi mission. In addition, teams had to design the cockpit, cabin and baggage compartment to accommodate a single pilot and no less than two passengers with disabilities, and alternative seating of four passengers with full mobility.

The winning teams for the graduate category are as follows:

<u>Place</u>	<u>University (Graduate)</u>	<u>City, Country</u>	<u>Design Team</u>
1 <sup>st</sup>	Rensselaer Polytechnic Institute	Troy, New York, USA	Oliwhoper
2 <sup>nd</sup>	University of Maryland	College Park, Maryland, USA	Starling
3 <sup>rd</sup>	Georgia Institute of Technology	Atlanta, Georgia, USA	Balto

The winning entry in the graduate category was **Rensselaer Polytechnic Institute’s** “Oliwhoper” eVTOL aircraft, with an accessible cabin design, effective aerodynamic performance and a user-friendly design for all passengers to travel comfortably and reliably to their destination. A spacious cabin design with carefully designed lighting, handholds and audio cues makes it easy for anyone with mobility, visual or auditory challenges to ride safely and easily in comfort. The vehicle design features make it accessible to PRM and allows for operators to flexibly service customers in a variety of locations, without the need for specialized ground equipment. Operators will also appreciate Oliwhoper’s efficient lift + cruise design, which maximizes the performance advantages of distributed electric propulsion, while maintaining the redundancy and control authority expected from modern aircraft.

The winning teams for the undergraduate category are as follows:

<u>Place</u>	<u>University (Undergraduate)</u>	<u>City, Country</u>	<u>Design Team</u>
1 <sup>st</sup>	University of Maryland	College Park, Maryland, USA	Blitzen
2 <sup>nd</sup>	Delft University of Technology	Delft, The Netherlands	Aether
3 <sup>rd</sup>	Pennsylvania State University	State College, Pennsylvania, USA	MG-76 Catacopter
Best New Entrant	Multi-School Team: Erciyes University Eskisehir Osmangazi University Necmettin Erbakan University Samsun University	Turkey	Demirkanat

The **University of Maryland** was the winning undergraduate team. The “Blitzen” concept was inspired by the German word “Blitz” (“lightning”), as well as the name of the mythical flying reindeer. The Blitzen design follows an energy-efficient lift-and-thrust-compounding single main rotor (SMR) design with a fixed wing and swiveling rotor-prop that provides anti-torque in hover and forward thrust in cruise. Its spacious cabin provides several disability accommodations, including wheelchair accessibility, storage for large medical devices and resources for those with impaired hearing. A compact wide-screen

avionics suite minimizes pilot workload. Outside the cockpit and cabin, all of Blitzen’s systems are designed to prioritize safety and comfort without compromising vehicle performance.

Two members of each of the first-place winning teams are invited to the 79<sup>th</sup> Annual Forum & Technology Display ([www.vtol.org/forum](http://www.vtol.org/forum)) — scheduled for May 16–18, 2023 in West Palm Beach, Florida — to present the details of their designs.

The Annual Student Design Competition sponsorship rotates between Airbus, Bell, Boeing, Bell, Leonardo, Sikorsky and the US Army Research Lab.

As announced previously, the 2022–2023 RFP for the 40<sup>th</sup> Annual Student Design Competition, sponsored by [Sikorsky, a Lockheed Martin Company](#) is also now available at [www.vtol.org/sdc](http://www.vtol.org/sdc). A total of \$12,500 in cash prizes is again available to the winning student teams. University teams must submit a letter of intent to participate no later than Feb. 1, 2023.

This new RFP is entitled, “*High-Speed Vertical Takeoff and Landing (HSVTOL) Aircraft,*” and challenges students to design air vehicle concepts which incorporate technologies and design features enabling threat avoidance to meet critical military needs in highly contested environments. VFS encourages universities from around the world to form teams and take part in this exciting and challenging competition, which is conducted to attract the best and brightest engineering students to the vertical flight industry.

The Vertical Flight Society is the world’s premier vertical flight technical society. Since it was founded as the American Helicopter Society in 1943, the Society has been a major force in the advancement of vertical flight. VFS is the global resource for information on vertical flight technology. For nearly 80 years, it has provided global leadership for scientific, technical, educational and legislative initiatives that advance the state of the art of vertical flight.

***The Vertical Flight Society***

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