



2024 Design, Build, Fly Competition Summary



Beechcraft



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AIAA
FOUNDATION

The 2023-24 AIAA/Textron Aviation/Raytheon Design, Build, Fly Competition Flyoff was held at the Textron Aviation Employees' Flying Club in Wichita, KS on the weekend of April 18-21, 2024. This was the 28th year for the competition. Of the 149 proposals submitted and judged, 110 teams were invited to submit a formal report for the next phase of the competition. 107 teams submitted design reports to be judged, and 93 teams attended the flyoff (19 international teams). About 1100 students, faculty, and guests were present. This was a record year for the number of teams and students attending the flyoff. Of the 93 teams in attendance, 85 successfully completed tech inspection. The weather was just about perfect all weekend, which allowed for non-stop flying. Of the 236 official flight attempts, 156 resulted in a successful score with 65 teams achieving at least one successful flight score and 31 teams successfully completing all four missions (one ground and three flight). The quality of the teams, their readiness to compete, and the execution of the flights was exceptional.

The contest theme this year was Urban Air Mobility. The airplane was limited to a maximum of a 5 foot wingspan but had to be able to fit in a 2 ½ foot wide parking space. The airplanes were required to complete three flight missions, each taking off within 20 feet. The first mission was a Delivery Flight with a crew but no payload for three laps within five minutes. The second mission was a Medical Transport Flight with a crew, 2 EMTs, a patient on gurney and a Medical Supplies Cabinet with the score based on the weight of the Medical Supplies Cabinet and the time to fly three laps. The final mission was an Urban Taxi Flight with a crew and passengers with the scored based on the number of passengers, number of laps flown in 5 minutes and the capacity of the propulsion battery. Teams were also required to complete a ground mission demonstrating the efficiency of converting from the parking configuration to the medical transport configuration and then to the urban tax configuration. The total score is the product of the total mission score and design report score plus participation score. More details on the mission requirements can be found at the competition website: <http://www.aiaa.org/dbf>.

First Place went to Embry-Riddle Aeronautical University Daytona Beach, Second Place went to Georgia Institute of Technology and Third Place went to University of Washington Seattle. A full listing of the results is included below. The Best Paper Award, sponsored by the Design Engineering TC for the highest report score, went to the University of Southern California with a score of 93.60.

We owe our thanks for the success of the DBF competition to the efforts of many volunteers from Textron Aviation, Raytheon, and the AIAA sponsoring technical committees: Applied Aerodynamics, Aircraft Design, Flight Test, and Design Engineering. These volunteers collectively set the rules, judge the proposals and reports, and execute the flyoff. Thanks also to the Premier Sponsors: Textron Aviation and Raytheon, and to the AIAA Foundation for their financial support as well as our Gold sponsors this year – AeroVironment, General Atomics Aeronautical and Mathworks. Special thanks go to Textron Aviation for hosting the flyoff this year.

Finally, this event would not be nearly as successful without the hard work and enthusiasm from all the students and advisors. If it weren't for you, we wouldn't keep doing it!!

DBF Organizing Committee



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2024 Design/Build/Fly Competition Final Results

Rank	Team		Participation	Mission Scores					Report Score	2024 DBF Score
	Queue #	Name		P	GM	M1	M2	M3		
1	5	Embry-Riddle Aeronautical University Daytona Beach	3	0.11	1.00	1.90	3.00	6.01	90.62	547.96
2	4	Georgia Institute of Technology	3	1.00	1.00	1.71	2.07	5.78	90.67	527.34
3	8	University of Washington Seattle	3	0.21	1.00	2.00	2.59	5.79	89.40	521.02
4	3	Virginia Polytechnic Institute and State University	3	0.13	1.00	1.69	2.36	5.18	91.20	475.46
5	13	FH Joanneum	3	0.14	1.00	1.45	2.55	5.14	87.37	452.07
6	33	The University of Akron	3	0.14	1.00	1.46	2.71	5.31	83.33	445.54
7	6	University of Notre Dame	3	0.31	1.00	1.18	2.41	4.90	89.70	442.67
8	18	Embry-Riddle Aeronautical University - Prescott	3	0.19	1.00	1.52	2.33	5.04	86.28	437.93
9	26	University of Michigan	3	0.22	1.00	1.58	2.32	5.12	84.42	435.63
10	16	The University of Sydney	3	0.15	1.00	1.40	2.38	4.93	86.97	431.40
11	52	Rensselaer Polytechnic Institute	3	0.16	1.00	1.22	2.83	5.21	79.57	417.22
12	17	Rutgers, The State University of New Jersey - New Brunswick	3	0.45	1.00	1.08	2.16	4.70	86.83	410.72
13	41	The Pennsylvania State University	3	0.08	1.00	1.56	2.29	4.93	81.58	405.44
14	24	University of California, Los Angeles	3	0.13	1.00	1.21	2.25	4.60	84.67	392.34
15	35	University of Massachusetts, Amherst	3	0.19	1.00	1.13	2.30	4.62	83.28	387.67
16	42	The Hong Kong University of Science and Technology	3	0.22	1.00	1.16	2.30	4.67	81.55	383.99
17	22	The University of Oklahoma	3	0.22	1.00	1.07	2.19	4.48	84.87	383.26
18	37	The Hong Kong Polytechnic University	3	0.16	1.00	1.17	2.25	4.58	82.77	382.27
19	27	Washington University in St. Louis	3	0.12	1.00	1.12	2.21	4.45	84.20	377.36
20	48	Auburn University at Auburn	3	0.34	1.00	1.11	2.21	4.66	80.23	376.95
21	49	Universidad de Antioquia	3	0.20	1.00	1.23	2.24	4.67	80.05	376.67
22	25	Utah State University	3	0.10	1.00	1.18	2.10	4.39	84.50	373.81
23	77	The University of California, Irvine	3	0.54	1.00	1.06	2.41	5.01	70.17	354.47
24	39	University of New South Wales	3	0.18	1.00	1.01	2.09	4.28	82.13	354.40
25	66	University of Illinois Urbana-Champaign	3	0.26	1.00	1.11	2.20	4.58	75.38	347.89
26	45	Birla Institute of Technology and Science, Pilani, K.K. Birla Goa Campus	3	0.15	1.00	1.04	2.01	4.21	80.67	342.30
27	70	RWTH-Aachen	3	0.13	1.00	1.08	2.17	4.38	72.70	321.65
28	68	California State Polytechnic University, Pomona	3	0.14	1.00	1.07	2.08	4.29	73.38	317.83
29	78	North Dakota State University	3	0.22	1.00	1.06	2.14	4.42	67.37	300.45
30	28	University of Massachusetts Lowell	3	0.83	1.00	1.01	0.00	2.84	83.97	241.18
31	96	Royal Melbourne Institute of Technology University	3	0.41	1.00	1.14	2.26	4.80	48.78	237.31
32	1	University of Southern California	3	0.33	1.00	1.08	0.00	2.41	93.60	228.83
33	23	Stanford University	3	0.22	1.00	1.38	0.00	2.60	84.67	222.77
34	9	Massachusetts Institute of Technology	3	0.17	1.00	1.25	0.00	2.42	88.90	218.04
35	94	The University of Memphis	3	0.07	1.00	1.00	2.06	4.13	50.70	212.51
36	29	University at Buffalo	3	0.04	1.00	1.45	0.00	2.49	83.92	211.58
37	60	University of Texas at Austin	3	0.39	1.00	1.21	0.00	2.61	77.13	204.07
38	34	Colorado State University	3	0.10	1.00	1.31	0.00	2.41	83.30	203.80
39	15	Universidad Pontificia Bolivariana	3	0.19	1.00	1.09	0.00	2.28	87.00	201.35
40	32	The University of Hong Kong	3	0.11	1.00	1.18	0.00	2.29	83.73	195.12
41	31	University of Kansas	3	0.14	1.00	1.15	0.00	2.29	83.87	194.95
42	55	University of Texas at Dallas	3	0.16	1.00	1.24	0.00	2.40	78.67	191.85
43	59	Case Western Reserve University	3	0.41	1.00	1.03	0.00	2.43	77.17	190.76
44	36	Missouri University of Science and Technology	3	0.14	1.00	1.09	0.00	2.23	83.23	188.69
45	53	Columbia University	3	0.23	1.00	1.03	0.00	2.26	79.28	181.83
46	44	Iowa State University	3	0.16	1.00	1.02	0.00	2.17	80.92	178.95
47	80	San Diego State University	3	0.15	1.00	1.26	0.00	2.40	65.10	159.36
48	93	New Mexico State University - Main Campus	3	0.31	1.00	1.00	0.00	2.31	51.08	121.10
49	56	Khalifa University of Science, Technology and Research	3	0.31	1.00	0.00	0.00	1.31	78.67	106.12
50	19	West Virginia University	3	0.16	1.00	0.00	0.00	1.16	85.93	102.71
51	12	University Of Maryland, College Park	3	0.14	1.00	0.00	0.00	1.14	87.70	102.68
52	46	Clarkson University	3	0.21	1.00	0.00	0.00	1.21	80.50	100.51
53	20	Purdue University, Main Campus	3	0.10	1.00	0.00	0.00	1.10	85.77	97.51
54	50	Western Michigan University	3	0.17	1.00	0.00	0.00	1.17	79.82	96.70



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First Place – Embry-Riddle Aeronautical University Daytona Beach



Second Place – Georgia Institute of Technology





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Third Place – University of Washington Seattle





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Past Winners

Year	Team
2024	Embry-Riddle Aeronautical University Daytona Beach
2023	RWTH Aachen University
2022	Georgia Institute of Technology
2021	Dayananda Sagar College of Engineering
2020	University of Southern California
2019	University of Ljubljana
2018	Clarkson University
2017	University of Southern California
2016	San Jose State University
2015	University of Ljubljana
2014	University of Southern California
2013	University of California, Irvine
2012	San Jose State University
2011	Georgia Institute of Technology
2010	Oklahoma State University Team Orange
2009	Oklahoma State University Team Black
2008	Oklahoma State University Team Black
2007	Massachusetts Institute of Technology
2006	Oklahoma State University Team Black
2005	Oklahoma State University Team Black
2004	Oklahoma State University Team Black
2003	San Diego State University
2002	University of California San Diego
2001	Oklahoma State University Team Orange
2000	Utah State University
1999	Utah State University
1998	University of Southern California
1997	University of Illinois at Urbana-Champaign



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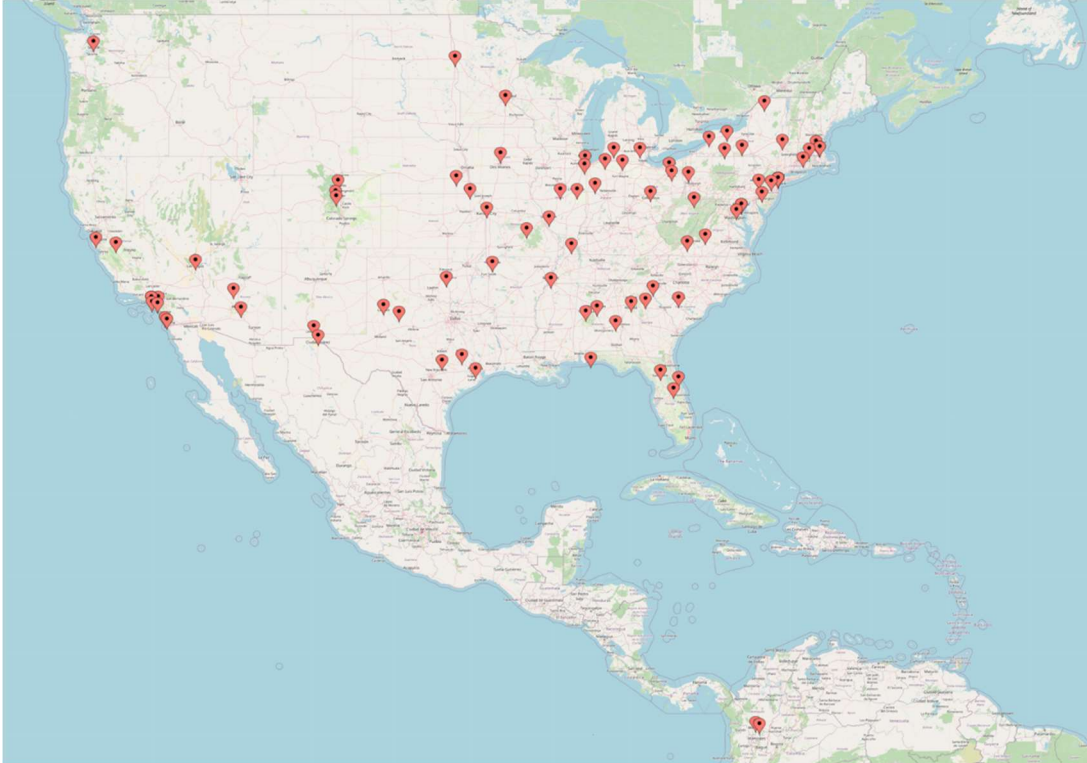


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Team Locations

The Americas



International

