



Sponsor the

Student UAS Competition

Hosted by



Webster Field, St Inigoes, Maryland



Proposal for a New UAV Student Event

**Presented to the AUVSI Board of Trustees
Strategic Planning Meeting
October 4-5, 2002**



Seafarer / Webster Field Venue

- **2001 UAV demo stimulated regional interest**
 - Extends existing AUVSI-NAVAIR partnership
 - Proximity to nation's capital yields opportunity to rally government agency, military and industry interest and involvement
- **Low-risk venue**
 - Cooperative base, experienced with UAV operations
 - Repeatability -- build on lessons learned
 - Opportunities for additional student benefits
- **Seafarer Chapter is logical regional coordination activity**
 - Focus on UAVs, goal to expand academic involvement
 - Established government, industry and community relationships
 - Track record demonstrated at 2001 UAV Demo



Proposed Strategy / Timeline

Summer 2003

- Limited Event
- Leverage AUUVSI Experience, Resources
- Selected/Targeted Universities (4-6)
- Selected/Targeted Sponsor(s) (1-3)
- Identify Judges
- Gain lessons learned
- Create “marketing” package
- Invite prospective entrants

“Crawl”

Summer 2004

- Refined Mission
- Additional Participants (6-12)
- Sponsors (2-6)
- Introduce Student Interest Items
- Local Press

“Walk”

Summer 2005+

- Well-Oiled Machine
- Additional Participants (15-20)
- Sponsors (3-10)
- Add/Refine Student Interest Items
- National Press

“Run”



In partnership with

8th Annual AUVSI Student UAS Competition

The Association for Unmanned Vehicle Systems International (AUVSI) continues the Student UAS Competition aimed at stimulating and fostering interest in unmanned systems, technologies and careers. The focus will be on engaging students in a challenging mission, requiring the design, fabrication and demonstration of a system capable of completing a specific autonomous aerial operation.

Student teams will be judged based on their system design and performance, and top teams will earn a share of at least \$20,000 in prize money (in 2009 we awarded over \$78,000 in prize money). Opportunities for interaction with top UAS designers, engineers, scientists and leadership will be provided.

Preparations for this competition are being coordinated by the AUVSI Seafarer Chapter and will culminate June 16 to 20, 2010 at the United States Navy's Webster Field, site of the UAS Test & Evaluation Unit and nestled in the heart of scenic St. Mary's County, Maryland – an emerging technology corridor on the Chesapeake Bay and a center of excellence for UAS development and test. Additional events and interactions are being planned, including recruiting opportunities, and an awards ceremony.

Universities, Student Groups --

please reserve your interest in the 2010 competition now by contacting the Competition Director, Joe Brannan, 301 757 8594 or 240 538 1064 , Joe.Brannan@navy.mil, or Jim Curry at 301 866 6750, james.curry@bowheadsupport.com.

Industry and Government Organizations -- be recognized with an exciting, high-tech, high-talent and fun event. Please contact Joe or Jim (above) or Dennis Bostich at 301 757 5032, dennis.bostich@navy.mil, for further information regarding sponsorship and partnership opportunities.

For more information on AUVSI, visit: www.auvsi.org or www.auvsi-seafarer.org.



June 16 to 20, 2010

Webster Field, St. Inigoes, Maryland, USA



8th Annual AUVSI Student UAS Competition

Qualifications and Rules

An outline of anticipated competition qualifications and rules are provided herein for advanced general information only. Detailed rules, regulations and applications are available on the Seafarer website, www.auvsi-seafarer.org.

Qualifications: This competition is geared primarily to undergraduate students with academic experience in aerospace, electrical, computer and/or mechanical engineering curricula. It is open to bona-fide high school and undergraduate college/university students. Teams of up to 10 students are permitted

Application: In order to register for this competition, student teams will complete an application, available over our website. A \$500 fee will be required with the registration form. Refunds will be made for rejected applications only.

The Competition: The competition will consist of a point scoring strategy, with points being assigned for a written technical proposal, airworthiness of vehicle, total system performance on the competition course, system innovation and oral briefing. Judges will score each event, and student teams will be ranked according to total score.

The Mission: The mission will focus on *autonomous behavior* of an air vehicle and payload(s). Required features will include: waypoint navigation; ground target location, identification, and feature recognition; and safety. An instrumented course will be provided for scoring purposes, and an element of timeliness will be injected.

Judges: An independent team of judges will include individuals with experience, education, and recognition in the UAS field.

Awards: Top scoring teams will vie for at least \$20,000 in prizes. Additional cash awards might be possible. Awards and checks will be presented at an Awards Banquet on Saturday evening, June 19, 2010 if all flight competition is completed on June 19.

Questions? Contact Technical Lead Mark Pilling at 301-863-5895 x5280, mark_pilling@emainc.com.







RESULTS

Journal Paper/Oral Brief

1st	Cornell
2nd	North Carolina State

Mission Performance

No Score

Overall

1st	Cornell	\$3000
2nd	North Carolina State	\$2000



2nd Annual

Student UAV Competition

Association For
Unmanned Vehicle Systems International

June 24 – 26, 2004

Webster Field, St Inigoes, Maryland







Competition Results

2nd Annual Competition



1 st	<i>Virginia Commonwealth University.....</i>	<i>\$5,000</i>
2 nd	<i>Istanbul Technical University.....</i>	<i>\$3,500</i>
3 rd	<i>Texas A&M and Santa Clara U.....</i>	<i>\$1,500 each</i>
Best Paper.....	<i>Texas A&M.....</i>	<i>\$500</i>
Best Flight.....	<i>VA Commonwealth.....</i>	<i>\$500</i>
Safety Award.....	<i>Texas A&M.....</i>	<i>Plaque</i>

– **\$12500 total prize money awarded**



3rd Annual

AUYSI 2005 Student UAV Competition

Student UAV Competition

June 30 – July 3, 2005

Webster Field, St Inigoes, Maryland



Competition Staff



- Joe Brannan.....Competition Director
- Mark Pilling.....Technical Director
- Jim Curry.....Security & Admin
- Ron Domenicki.....Logistics
- Dennis Bostich.....IT
- Rich Klessner..... Sponsor Recruiting



Schedule of Events



- Thursday June 30
 - Orientation & Check In
- Friday July 1
 - Oral Briefs
 - Static Display
 - Practice Fly
 - Base Tour
- Saturday July 2
 - Flying Competition
 - Awards Banquet



11 of Fourteen University Teams Registered attempted flight challenge

- Cornell University
- Istanbul Technical University
- Mississippi State University
- North Carolina State University
- University of Kentucky
- University of Manitoba, Red River College
- University of Texas (Arlington)
- Virginia Commonwealth University
- Virginia Polytechnic Institute & State University
- Unsuccessful Flight Attempt
- Parks College, Saint Louis University
- Polytechnic University of New York
- No Flight Attempt
- Massachusetts Institute of Technology
- California Polytechnic at Pomona









RESULTS

Journal Paper

- 1st North Carolina State
- 2nd Virginia Commonwealth
- 3rd Cornell

Oral Brief

- 1st North Carolina State
- 2nd Virginia Commonwealth
- 3rd University of Texas @ Arlington

Mission Performance

- 1st University of Texas @ Arlington
- 2nd Virginia Commonwealth
- 3rd North Carolina State

Safety

- Tie - University of Texas @ Arlington
North Carolina State



RESULTS

Overall

- 1st University of Texas @ Arlington**
- 2nd Virginia Commonwealth**
- 3rd North Carolina State**
- 4th Virginia Polytechnic**
- 5th University of Manitoba**
- 6th University of Kentucky**

\$18750 total prize money awarded to 9 schools with \$6500 going to Overall winner

4th Annual AUVSI
Student UAV Competition
Thanks to our Sponsors

AUVSI

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Schedule of Events

- **Wednesday June 14**
 - Orientation & Check In
- **Thursday June 15**
 - Oral Briefs
 - Static Display
 - Practice Fly
- **Friday & Saturday June 16 & 17**
 - Flying Competition
- **Saturday June 17**
 - Flying Competition
 - Awards Banquet
- **Sunday June 18**
 - Rain Date











Overall

1. **University of Manitoba**
2. **Brigham Young University**
3. **University of Texas at Arlington**
4. **Virginia Polytechnic Institute and State University**
5. **University of California at San Diego**
6. **North Carolina State University**
7. **New York Polytechnic University**
8. **University of Kentucky**
9. **University of Colorado at Colorado Springs**
10. **Mississippi State University**
11. **Istanbul Technical University**
12. **Massachusetts Institute of Technology**
13. **University of Mississippi**
14. **Embry Riddle Aeronautical University (Autono-NAS)**
15. **Virginia Commonwealth University**
16. **Embry Riddle Aeronautical University (Hathor)**
17. **Cornell University**
18. **University of West Florida**



- ***AUVSI and AUVSI Foundation***

Cash Awards (\$20,000.00)
Insurance

Prize Money

Overall	\$5,000; \$3,500; \$2,000; \$1,000	\$11,500.00
Mission		\$ 4,500.00
Brief		\$ 3,200.00
Journal		\$ 3,200.00
\$\$ Barrel	\$400 - fly, search, find target	\$ 6,000.00
Safety		\$ 500.00

\$29,500 total prize money awarded to 17 schools with \$6650 going to Overall winner



5th Annual AUVSI

Student UAS Competition

Thanks to our Sponsors



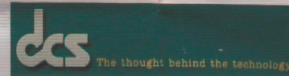
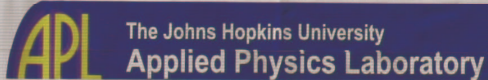
AUVSI



The Patuxent Partnership



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2007 AUVSI Student Competition Scoring

	Journal Paper		Oral Present		Mission Perf		Overall	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank
BYU	17.12	6	19.60	3	23.34	3	60.06	3
Cornell	11.89	13	13.20	11	0.00	10	25.09	13
ER_Auto	9.66	14	17.40	6	10.14	7	37.20	7
MsState	18.11	4	15.80	9	0.00	10	33.91	10
NCState	18.07	5	18.80	5	12.55	6	49.42	5
UCSD	16.67	9	19.30	4	0.00	10	35.97	8
UofColo	3.94	15	5.40	14	0.00	10	9.34	15
UofKy	12.50	11	14.80	10	18.67	5	45.97	6
UofMan	18.48	1	17.20	7	18.83	4	54.52	4
UofPR	12.50	11	16.20	8	7.08	8	35.78	9
UTXArl	18.30	2	11.00	13	0.00	10	29.30	12
UTXAus	16.91	7	0.00	15	0.00	10	16.91	14
UWF	13.67	10	12.40	12	6.44	9	32.51	11
VAComm	18.26	3	21.10	1	27.68	2	67.04	2
VATech	16.70	8	20.20	2	33.48	1	70.38	1



Results

- Overall
 - 1st Virginia Polytechnic
 - 2nd Virginia Commonwealth
 - 3rd Brigham Young University
 - 4th University of Manitoba
 - 5th North Carolina State
 - 6th University of Kentucky
-
- \$34,500 total prize money awarded to 13 schools with \$9000 going to Overall winner



6th Annual AUVSI

Student UAS Competition

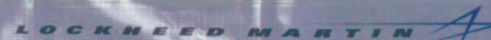
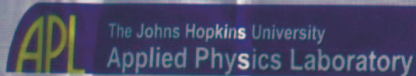
Thanks to our Sponsors



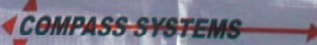
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Rank	Overall	Mission	Oral	Journal	Safety
1	MSU	MSU	UTA	UTA	UWF
2	Utah	Utah	MSU	MSU	
3	UTA	UTA	NCSU	NCSU	
4	UWF	UWF	UWF	ERAU_B	
5	UCSD	UCSD	ERAU_B	UWF	
6	NCSU	Manitoba	Utah	Utah	
7	ERAU_B	Oakland	Oakland	Sherbrooke	
8	Oakland	Alberta	UCSD	UCSD	
9	Manitoba	ERAU_S	ERAU_S	ERAU_S	
10	ERAU_S	Sherbrooke	Sherbrooke	Oakland	
11	Alberta	NCSU	Alberta	Sharjah	
12	Sherbrooke	ERAU_B	Manitoba	Manitoba	
13	UCLA		UCLA	Alberta	
14	Sharjah		Sacramento	UCLA	
15	Sacramento			Sacramento	



Results

Overall

- 1st Mississippi State University**
- 2nd Utah State University**
- 3rd University of Texas @ Arlington**
- 4th University of West Florida**
- 5th University of California @ San Diego**
- 6th North Carolina State University**

**\$45,450 total prize money awarded to 15 schools
with \$10,500 going to Overall winner**





7th Annual Student Unmanned Aircraft System Competition

June 17 -21, 2009

Webster Field

St. Inigoes, Maryland





Premier Sponsors

AUVSI FOUNDATION NAVAIR PEO(U & W) Office of Naval Research

- Northrop Grumman Corp
- Lockheed Martin
- The MathWorks



7th Annual AUVSI Student UAS Competition

June 17 - 21, 2009 Webster Field, Maryland

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The Competitors

- North Carolina State University *****
- Cornell University *****
- Mississippi State University *****
- Virginia Commonwealth University *****
- University of Manitoba *****
- University of California at San Diego ****
- University of West Florida ****
- Embry Riddle Aeronautical University (Blackbird) ****
- University of Alberta **
- Utah State University **
- Oakland University **
- Embry Riddle Aeronautical University (SOAR) **
- University of California, Los Angeles **
- University of Puerto Rico at Mayaguez **
- University of Texas at Austin **
- USAF Academy
- Delhi College of Engineering
- Florida International University
- Great Mills High School, MD





What the Students Learned

- **Correctly identifying the targets is no good if you don't write them down**
- **The one subsystem for which you don't have a spare is the one that will break**
- **Autoland adjacent to the runway is OK as long as it's far enough away from the judges' vehicles.**
- **Readable in your lab does not mean sunlight readable**
- **Human launch and recovery from a moving van is not advisable**
- **Bring more accounting majors – because crashes cost money?**





What the Judges Learned

- **A new mathematical relationship:**
 - IF (Student reach > half rotor span) THEN Rotor Brake = ON
- **If we tell you that the targets will ONLY have colors a, b, and c, you will still tell us you see color d.**
- **‘Low’ is a quantitative altitude measurement**
- **Even if we show you a target the night before, you won’t necessarily identify it correctly the next day**
- **When we hear ‘autoland’, we take cover**





Gouge from the Competition

- You get \$\$ for papers and orals, even if you don't fly
- Range check before you fly
- Use a list of target parameters
- Know coordinate valid ranges (i.e. Google Earth)
- Test the ability to ID targets before you come here
- Practice team data acquisition
- Sun shades for your laptops
- Do a system-level test and report results
- Have a checklist – packing, set-up, start-up
- Don't leave anything in the hotel
- Test your system *without* flying





SUAS 2009 Standings

Rank	Overall	Mission	Oral	Journal	Safety
1	USU	USU	ERAU_B	USU	NCSU
2	ERAU_B (Tie)	UWF	MSU	UCSD	MSU
3	UCSD (Tie 2 nd)	ERAU_B	USU	NCSU	UWF
4	UWF	UCSD	UWF	Alberta	USU
5	MSU	Alberta	UCSD	MSU	Alberta
6	Alberta	MSU	VCU	VCU	Manitoba
7	VCU	Manitoba	UTA	UTA	VCU
8	NCSU	VCU	NCSU	ERAU_S	USAFA
9	UTA	NCSU	USAFA	Oakland	UCSD
10	Manitoba	FIU	Alberta	UWF	ERAU_B
11	USAFA	USAFA	Cornell	Delhi	GMHS
12	ERAU_S	ERAU_S	FIU	ERAU_B	FIU
13	Oakland	UTA	Oakland	Manitoba	UTA
14	GMHS	GMHS	GMHS	GMHS	ERAU_S
15	FIU	Oakland	Manitoba	USAFA	Cornell
16	Delhi	Delhi	ERAU_S	UCLA	Oakland
17	UCLA		Delhi	UPRM	Delhi
18	Cornell			FIU	UPRM
19	UPRM			Cornell	UCLA





Results

- **Overall**
- **1st Utah State University**
- **2nd- Tie Embry Riddle Aero. University**
- **University Calif. San Diego**
- **4th University of West Florida**
-
- **\$78,600 total prize money awarded to 17 schools with \$14000 going to Overall winner**





8th Annual AUVVSI Student UAS Competition

June 16 to 20, 2010
Webster Field, St. Inigoes, Maryland





8th Annual AUVSI Student UAS Competition

Sponsorship Opportunities

Premier Sponsor \$10,000	<ul style="list-style-type: none"> • Premier logo position on the competition banner & T -shirts • Premier logo and hyperlink on competition website • Sponsorship announced in competition press releases • Invitation to distribute literature, souvenirs or promotional items to participants • Table for Corporate Literature and Display at Event • 8 invitations to the reception / awards banquet • Certificate of appreciation • Recognition at awards ceremony • Publicity photo with winning teams • ¾ page, 4 -color ad in <i>Unmanned Systems</i> (Sept/Oct 2010 magazine) • Recognition at 2010 AUVSI Symposium
Contributing Sponsor \$5,000	<ul style="list-style-type: none"> • Logo on the competition banner & T -shirts • Logo and hyperlink on competition website • Sponsorship announced in competition press releases • Invitation to distribute literature, souvenirs or promotional items to participants • Table for Corporate Literature and Display at Event • 4 invitations to the reception / awards banquet • Certificate of appreciation • 1/2 page, 4 -color ad in <i>Unmanned Systems</i> (Sept/Oct 2010 magazine) • Recognition at awards ceremony & 2010 AUVSI Symposium
Supporter \$1,500	<ul style="list-style-type: none"> • Logo on the competition banner & T -shirts • Logo on competition website • Invitation to distribute literature, souvenirs or promotional items to participants • Table for Corporate Literature and Display at Event • 2 invitations to the reception / awards banquet • 1/6 page, black & white ad in <i>Unmanned Systems</i> (Sept/Oct 2010 magazine) • Recognition at awards ceremony

Additional sponsorship opportunities are available.

Please contact Joe Brannan at (301) 757-8594 (joe.brannan@navy.mil) or Dennis Bostich at (301) 757 5032, (dennis.bostich@navy.mil), for further information or to lock-in your commitment

