

UVS Canada 2008/09 Student UAV Competition Summary

Those who were at Canadian Forces Base (CFB) Gagetown on the weekend of 8-10 May 2009 were witness to a successful finale to the UVS Canada 2008/09 Student UAV Design/Build/Fly Competition. The competition began in the fall of 2008 when 10 teams of university students representing 8 different institutions registered. Their challenge was to design, build and then fly their own UAV to assist forest fire fighters in monitoring fires and providing visibility of personnel and vehicles in the surrounding area.



The submission of a satisfactory detailed design paper was a pre-requisite to continuing in the competition. Nine excellent papers were submitted in January 2009 and assessed, graded and commented on by a team of expert judges. The next phase, building the UAV, integrating the necessary sensors and developing the ground control station was the real challenge. These are not model aircraft; all teams also had to submit design and operational details to Transport Canada requesting a Special Flight Operations Certificate (SFOC) to be permitted to fly. Transport Canada subsequently issued SFOCs

to 6 teams based on a combination of the design and operating data from the teams and the event location and management information provided by the UVS Canada organizing committee.



In November 2008, four members of the organizing committee slogged through rain, sleet and mud on the army training range at Gagetown to find an appropriate area to hold the competition. They were looking for an area of approximately 5km in radius with varying terrain and a suitable area for launch and

recovery of the vehicles. The area chosen was a grassy hill top which sloped off in all directions to alternately grassy and wooded areas – the UAV operators could not see the targets. On 8 May 2009 four teams arrived at the flight location to compete in the flying portion of the competition. The sleet from November was gone and the temperature was better, but some rain and a lot of mud remained.

Friday, 8 May was reserved for a welcome introduction and detailed logistics and safety briefings by the committee. This was followed by briefings from each team on their vehicle and its capabilities (a judged activity). The competition Air Program Director along with the judges conducted a Flight Readiness Review (FRR) of each vehicle to determine that they could safely fly in the competition. The day brightened up by mid afternoon permitting the teams to get in some test flying. Friday concluded with an evening Ice Breaker event – pizzas and presentations on UAV operations and potential uses from DND, Department of Natural Resources for New Brunswick and Forest Protection Ltd.





Saturday was a bright, mostly sunny day for the actual flying competition. All four teams were given two opportunities to fly and detect the targets distributed around the area. Teams received a flight bonus for passing the FRR, successfully launching their vehicle and performing a figure 8 controllability test. They were then eligible for additional prize money if they conducted an organized search pattern and returned search results.

Since all 4 teams had received their two opportunities to fly on Saturday and, as Sunday was forecast to be rainy, it was decided to hold a mini-expo where each team could display their vehicle and ground stations and interact with each other and the sponsors to share experiences. This proved to be one of the highlights of the competition and was well received by all teams and sponsors. The event was capped off with an Awards Banquet on Sunday evening where prizes were awarded for the top papers submitted during Phase 1 and the presentations flying activities from the previous days. In all about \$8,000.00 in prizes were awarded:

Phase 1: Detailed Design Paper



1 st place	Team RAGNAROK	Niagara College
2 nd place	Team Smoke Jumpers	U of T Institute for Aerospace Studies
3 rd place	Team VAMUdeS	University de Sherbrooke

Phase 2: Safety Briefing and Flight Competition

1 st place	Team Elise	University de Sherbrooke
2 nd place	Team RAGNAROK	Niagara College
3 rd place	Team VAMUdeS	University de Sherbrooke
4 th place	Team Smart Bird	Ecole Polytechnique de Montreal

This event has once again confirmed that there is tremendous talent in the next generation of engineers and we need to continue to encourage them to be involved in all aspects of unmanned vehicle systems.

We would like to thank all of our sponsors; without their financial assistance events such as this would not be possible. A special thanks also goes to Colonel Chadder and LCol Regush of CFB Gaagetown plus Lt Tranquilla and his many volunteers for hosting the competition and providing the logistics support. Our judges deserve a special mention, their professionalism was noted by the students as well as their varied experiences. One judge came from each of DND, academe, industry and from the forestry service.

UVS Canada has determined that this event is now a regular part of our calendar. There will be another competition in 2010/11 to be kicked off at our conference in Victoria from 2-5 November 2009. At the conference, the winners of this year's flight competition are invited to present their project and experiences and we will announce the dates and general scenario for the next competition. Be sure to watch the web site at www.uvscanada.org for more details.



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