



## AHS 69th Annual Forum and Technology Display

### 1<sup>st</sup> VTOL MAV STUDENT CHALLENGE

Tuesday, May 21, 5:30 pm – 6:30 pm (During Industry Reception)

The AHS International is inviting student teams to participate in the 1<sup>st</sup> electric powered VTOL MAV competition. The competition is designed to award both “form” and “function” of the MAV. With respect to “form”, teams with unique, innovative and robust VTOL MAV air-vehicle design would be awarded points. With respect to “function”, teams that demonstrate the best flight and autonomy capabilities would be awarded. Teams can receive multiple awards based on these aspects.

**Criteria:** A panel of judges would select awardees based on the following tasks:

- A. Innovative Design Poster Presentation:** The team must do a poster presentation showcasing various aspects of their design, including innovation or uniqueness of a) air-vehicle design, b) system integration, and c) potential performance or mission capabilities.
- B. Take-Off, Flight and Hover Demonstration:** Teams will be asked to demonstrate a stable take-off, forward-flight and precise OGE hover 3m above a prescribed floor-painted target for 5 minutes. ***Teams can choose to execute this task either manually (e.g. R/C pilot) or autonomously, but not both.*** Autonomous demonstrations would be awarded higher points and prize award.

**Prizes** – The judges would select teams for the following three prizes:

- Best Original Airframe Design and Poster Presentation (Task A) - \$500
- Best Manual Execution of Task B - \$1000
- Best Autonomous Execution of Task B - \$1500

**Team Restrictions:** Competition is restricted to teams with full-time university and high-school students. All members of the team should be AHS Student Members and at least one member must be registered at the AHS Forum as a student. If there more than two teams per university, the selectors reserve the right to select a single team to participate in order to preserve time constraints.

**Vehicle restrictions:** The competition is restricted to electric-powered VTOL vehicles with weight less than 500g, including batteries. The size of the vehicle is limited to 1.5 ft in any dimension. The vehicle should be equipped with an emergency “kill-switch” that instantly cuts power to the vehicle upon receiving a R/C-Radio command.

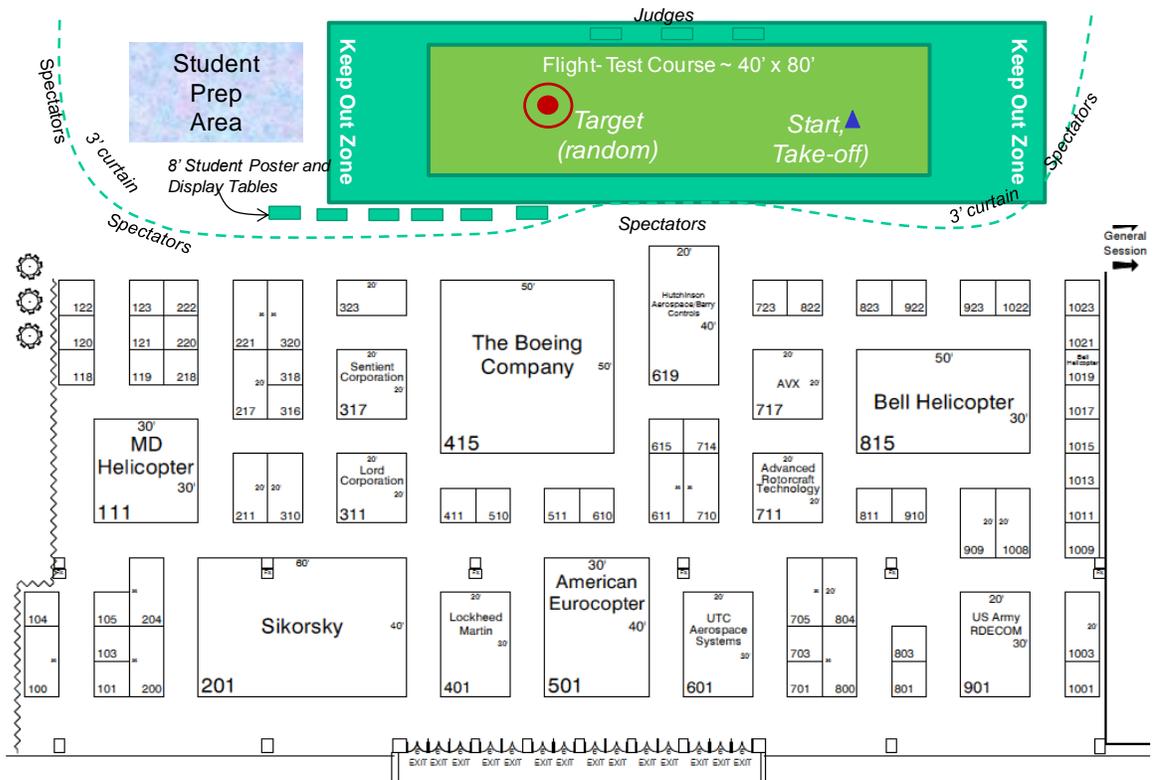


Figure 1: Exhibit Hall Layout and Test/Competition Area

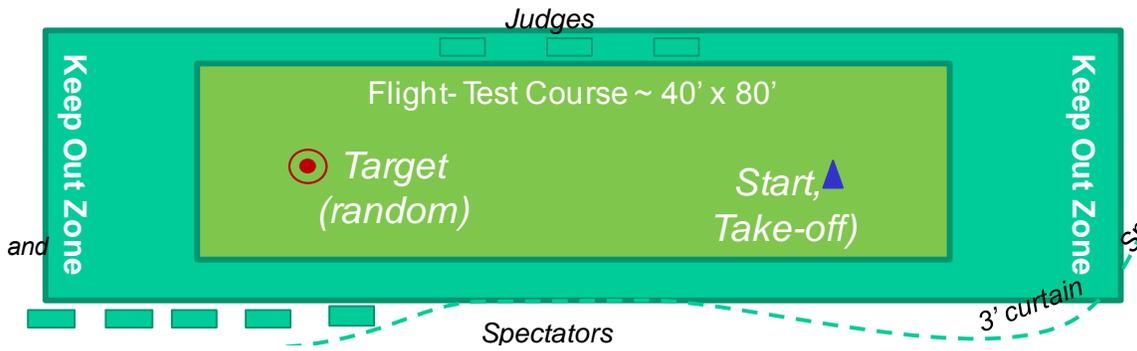


Figure 2: Zoom-In: Competition Area

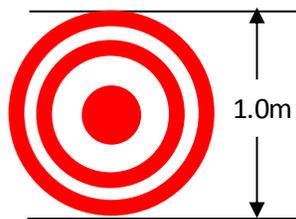


Figure 3: Floor Target



## 69<sup>th</sup> AHS FORUM: VTOL MAV Student Competition Entry Form

Team Name: \_\_\_\_\_

School/Department Name: \_\_\_\_\_

(Selectors may limit the number of teams.)

Point of Contact (Faculty, Email, Phone No.): \_\_\_\_\_

AHS Session Reference (if any): \_\_\_\_\_

### Electric MAV Details

MAV Type (Quadrotor, Helicopter, etc.): \_\_\_\_\_

MAV Weight (without batteries): \_\_\_\_\_

MAV Weight (with batteries): \_\_\_\_\_

MAV Dimensions (all inclusive): \_\_\_\_\_

MAV GCS Interface (data-link, RC, etc.): \_\_\_\_\_

MAV Sensor Payload: \_\_\_\_\_

MAV Max Speed (if known): \_\_\_\_\_

Will this MAV have a RC operated power-kill switch? Elaborate implementation.

Current Autonomous/Control Capabilities:

**Submission:** Please send completed forms to [icherepinsky@sikorsky.com](mailto:icherepinsky@sikorsky.com) by April 30, 2013, with subject "AHS MAV Student Challenge". Teams would be notified of acceptance by May 10, 2013.

**Questions:** Please direct your questions to Igor Cherepinsky ([icherepinsky@sikorsky.com](mailto:icherepinsky@sikorsky.com)) and Harshad Sane ([Harshad.sane@sikorsky.com](mailto:Harshad.sane@sikorsky.com)).