# Autonomous Snowplow Competition



ION North Star Section
Outreach Program

**Autonomous Snowplow Committee** 



Final Presentation Information & Outline 2011-12 Competitors

**January 1, 2012** 

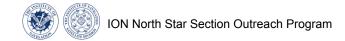
#### **Final Presentation Rules**

- Final Presentation slides must follow the provided outline
  - Standardized judging for all Teams
- Final Presentation Slides Submission Deadline
  - January 23, 2012 (extended to Monday)
  - Time: 12 pm (noon) CDT
  - Email submission: <u>vibhor.bageshwar@honeywell.com</u>
  - Please submit a PDF formatted version of the presentation to minimize file size
- Final Presentation: January 26, 2012 (Thursday)
  - Final Presentation Venue: Science Museum of Minnesota
  - Final version of the Final Presentation Slides must be delivered to Dr.
     Vibhor Bageshwar at 5pm on January 26 at the Final Presentation Venue
    - Final presentations will be hosted using the Science Museum's A/V equipment and Vibhor's Laptop
    - Supported media: standard Microsoft applications or Adobe Acrobat format



#### **Final Presentation Rules**

- Final Presentation time: each Team is allotted 25 minutes.
  - Team Presentation order will be determined by random draw at 5pm on January 26, 2012 at the Final Presentation Venue
  - First Team Presentation begins at 6pm on January 26, 2012
  - Presentation time: 20 minutes maximum
  - Q&A time: 5 minutes maximum
- Team Scoring and Reviews
  - Team reviews will be returned to Team contacts following the ASC Competition Week
  - Final Presentation scoring is independent of Final Reports
  - Team standings will be updated by January 28, 2012
    - Website <u>www.autosnowplow.com</u>
    - ASC Scoring Board at the Competition Venue



#### **Final Presentation Outline**

- Title Slide (1 slide)
  - Team university/name/logo
- Objectives (1 slide)
  - Team objectives
  - Snowplow vehicle plowing strategy (1 pass or multiple passes)
  - Team composition
- Snowplow Vehicle Program Top-Level Requirements (1 slide)
  - Table format
  - ASC Committee hint: a requirement is a metric that indicates when a design satisfies an objective
    - Ex: Heading angle accuracy: 0.25 deg

#### **Final Presentation Outline**

- Snowplow Vehicle Description (please follow the give order)
  - Concept/Plowing strategy
  - Snowplow vehicle design (minimum 1 slide)
    - Snowplow vehicle and blade design
    - Snowplow vehicle physical dimensions
    - Sensor + processor component housing
  - Navigation system design (minimum 1 slide)
    - Concept
    - Sensors
    - Navigation augmentation system
      - Placement of navigation aids in competition field
  - Guidance system design (if applicable) (minimum 1 slide)
    - Way-point selection concept
  - Control system design (minimum 1 slide)
    - Concept & available actuators
    - Bandwidth & actuator response speed
  - Processor & Software design (minimum 1 slide)
    - Timing and action sequence flowchart

### Final Presentation Outline

- Safety System (minimum 1 slide)
  - System description
  - Emergency shut-off options
    - Physical and remote
  - Stopping distance from maximum speed
    - Identify surface
- Failure Modes and Recovery Actions (1 slide)
  - Identify failure mode and recovery actions
  - Table format
- Overall Risk Assessment Summary (1 slide)
  - Evaluate each subsystem
  - Identify known issues
  - Table format

# Final Presentation Schedule

Team	Presentation Time (CST)
Dunwoody College of Technology "Snow Devil 2"	TBD: random draw at 5:00pm on 26 January 2012, 1 hour before the first final presentation time slot
Miami University "RedBlade"	
Ohio University "M.A.C.S."	
University of Michigan "Geili"	
University of Michigan "Yeti 2.0"	
University of Minnesota "Blizzard Buster"	

### **Final Presentation Scoring**

• Final Presentation scoring: 10% of the total Competition score

Category	Scoring
Quality of Presentation Slides	40
Technical Presentation	40
Ability to Engage Audience	20
<b>Total Points</b>	100