

Autonomous Snowplow Competition



**ION North Star Section
Outreach Program**

Autonomous Snowplow Committee



**Final Presentation Information & Outline
2014-15 Competitors**

December 2014

Final Presentation Rules

- Final Presentation slides must follow the provided outline
 - Standardize judging for all Teams
 - ASC Committee hints:
 - *Judge's scoring form follows the outline exactly*
 - *Slide titles should match outline titles*
 - *Teams will not score points if sections of the given outline are not addressed*
 - *Example: presentations that do not address "Implementation" will receive 0 points for that Section*
 - *Figures/tables should be included where possible to illustrate the system*
 - *Figures/tables can be reused effectively in the Final Reports*

Final Presentation Rules

- Final Presentation slides (initial draft) submission deadline
 - 19 January 2015
 - Time: 12 pm (noon) Central
 - Email submission: vibhor.bageshwar@honeywell.com
 - Please submit a PDF version of the Presentation to minimize file size
- Final Presentation Day: 22 January 2015 (Thursday)
 - Final Presentation Venue: Science Museum, Saint Paul, MN
 - Final version of the Final Presentation slides must be delivered to Vibhor by 4:30pm on January 22 at the Final Presentation Venue
 - Final presentations will be hosted using the Science Center'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 20 minutes
 - Team Presentation order will be determined by random draw at 4:30 pm on 22 January 2015 at the Final Presentation Venue
 - First Team Presentation begins at 5:30 pm on 22 January 2015
 - Presentation time: 15 minutes maximum
 - Q&A time: 5 minutes maximum
- Team scoring
 - Final Presentation scoring is independent of Final Reports
 - Team standings will be updated by 24 January 2015
 - ASC Scoring Board at the Competition Venue

Final Presentation Outline

- Title Slide *(1 slide)*
 - Team university/name/logo
- Objectives *(1 slide)*
 - Team objectives
 - Team composition
- Snowplow Vehicle Program Top-Level Requirements *(1 slide)*
 - Table format
 - *ASC Committee hints*
 - *A requirement is a number that indicates when a design satisfies an objective*
 - *Highlight the top-level requirements that indicate the snowplow vehicle design is completed*
- Snowplow vehicle plowing strategy *(minimum 1 slide)*
 - Single “I”
 - Triple “I”

Final Presentation Outline

- Snowplow Vehicle Description (please follow the given order)
 - Concept/Plowing strategy (*1 slide*)
 - ASC Committee hint: address how vehicle will satisfy plowing strategy from a top level
 - 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 (*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
 - Description can be captured in a figure
 - 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 Outline

- Vehicle Design Challenges (*minimum 1 slide*)
 - Highlight vehicle or system design changes from the existing snowplow vehicle design
 - Teams should indicate whether the vehicle or its systems are pre-existing or newly designed
 - Highlight the design challenges the Team faced adapting the vehicle and its systems to this year's competition
- Commercialization and Implementation (*2 slides*)
 - Identify components and their cost
 - Identify snowplow vehicle and navigation aid cost for sale to the general consumer
 - *ASC Committee hint: convey cost to a consumer buying the product at the local hardware store*
 - Identify steps consumers would follow to set-up the snowplow vehicle and navigation aids in an operating environment
 - Operating environment example: garage and driveway
 - Identify time to set-up the snowplow vehicle and navigation aids in an operating environment
 - *ASC Committee hint: convey the ease or difficulty the consumer would encounter setting up the snowplow vehicle and navigation aids*
 - Table format

Final Presentation Schedule

Team	Presentation Time (central)
Case Western Reserve University Herr Auto von Snowmower	TBD: random draw at 4:30 pm on 22 January 2015
Dunwoody College of Technology Snow Devils 0101_2	
North Dakota State University SNOWMENATOR	
North Dakota State University THUNDAR	
University of Calgary The Fighting Mongooses	
University of Michigan Dearborn Team Yeti 5.0	
University of Michigan Dearborn Team Zenith 2.0	
University of Minnesota Ground Squirrel	



Final Presentation Scoring

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

Category	Scoring
Technical and Quality of Presentation	200
Ability to Engage Audience	50
Total Points	250