

Autonomous Snowplow Competition



**ION North Star Section
Outreach Program**

Autonomous Snowplow Committee



**Preliminary Design Review
Presentation Information & Outline
2012 Competitors**

October 2011

PDR Presentation Rules

- PDR presentation slides must follow the provided outline
 - Standardize judging for all Teams
- PDR presentation slides held in confidence until the end of competition
 - All Team materials eventually made public
- PDR presentation slides submission deadline: final version
 - 9 pm (central); October 27, 2011 (Thursday)
 - Email submission to Vibhor and Suneel:
vibhor.bageshwar@honeywell.com & sheikh@asterlabs.com
 - Please submit a PDF version of the presentation to minimize file size
 - CD submission (not necessary if you email the presentation slides)

Dr. Vibhor Bageshwar
1985 Douglas Drive
MN10-182B
Golden Valley, MN
55422

PDR Presentation Rules

- PDR presentation day: October 29, 2011 (Saturday)
 - Presentation medium: conference call
 - ASC Committee will call each Team 2 minutes before your PDR presentation time
 - Teams provide a call-in number by October 24, 2011
 - Email call-in number: vibhor.bageshwar@honeywell.com
- PDR presentation time: each Team is allotted 25 minutes
 - Teams provide their 1st, 2nd, and 3rd choices of time slots starting October 17, 2011 (please see slide 8)
 - Email time selections: vibhor.bageshwar@honeywell.com
 - ASC Committee will make every effort to assign Teams with their first choice
 - First Team presentation begins on October 29, 2011 at 9:00 am (central)
 - Presentation time: 20 minutes maximum
 - Q&A time: 5 minutes maximum

PDR Presentation Rules

- Team scoring and reviews
 - Team scoring and reviews will be returned to Team contacts: November 23, 2011
 - Team standings will be updated on website in November 2011
 - www.autosnowplow.com

PDR 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: Navigation system position accuracy: 0.25 m

PDR Presentation Outline

- Snowplow Vehicle Description (please follow the given 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

PDR Presentation Outline

- Safety System (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

PDR Presentation Schedule

Team	Presentation Time (Central)
Dunwoody "Snow Devil 2"	9:00 am
Miami University "Redblade"	9:30 am
University of Michigan-Dearborn "Yeti"	10:00 am
University of Michigan-Dearborn "Geili"	10:45 am
University of Minnesota "Blizzard Buster"	11:15 am
Ohio University "M.A.C.S."	11:45 am

PDR Presentation Scoring

- PDR presentation scoring: 5% of the total Competition score

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