



DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

3701 NORTH FAIRFAX DRIVE
ARLINGTON, VA 22203-1714

Grand Challenge Entrants,

Welcome again to the Defense Advanced Research Projects Agency (DARPA) Grand Challenge. This is the first newsletter in a planned periodic series. We will use this as a means to update you on issues of interest as we progress closer to the event – only 8 months to go! We have generated a lot of excitement since our last competitors' conference, February 22, 2003. To date, we have 49 teams signed up for the event.

First, I encourage each team to turn in its technical papers early. All entrants are required to submit a technical paper no later than October 14, 2003, (see attachment). By having the Grand Challenge staff review your technical paper early, you are ensuring that the challenge vehicle design complies with our rules and that you will have time to correct incomplete papers. The Grand Challenge staff is here to assist you, so take advantage of this. Please, don't wait until the deadline to turn in your papers; take your time and do it correctly, but get it in early. It is to your advantage.

Grand Challenge staff will respond to each technical paper within 2 weeks of receipt. If a technical paper is not initially accepted by the DARPA staff, you will receive a detailed review outlining the issues that require your attention. You may resubmit as many revisions as necessary until the application deadline. Only by having an approved technical paper will you ultimately qualify for the event.

Common weak areas in technical paper submissions are a lack of completeness and a lack of detail. For example, requirement 3.c. (top speed) can be answered with one word, but requirements 1.c. (processing) and 1.e. (environment sensing) certainly cannot. As discussed at various forums, navigational accuracy on the route is critical to completing the Grand Challenge. As a reminder, teams should review the rules of engagement especially Sections 6.7, 8.1.1, and 8.1.2. Severe lateral boundary constraints will be encountered along portions of the route thus requiring Challenge vehicles to navigate on trails 10 feet wide. This navigational difficulty will require accuracy on the order of differential global positioning system (GPS). As a result, DARPA requires that Challenge vehicles include a differential GPS capability or have other means to achieve a positional accuracy on the order of differential GPS. Navigational accuracy will be tested at the California Speedway during the qualification, inspection and demonstration on March 12, 2004. Vehicles that cannot reliably navigate within a 10-foot corridor will not be allowed to compete. Technical papers should clearly discuss how the vehicle will stay on trails of this width.

An explanation of the requirements, can be found at http://www.darpa.mil/grandchallenge/team_resources.htm.

Second, DARPA will host the next Competitors' Conference – for qualified participants with approved papers – in Las Vegas on November 6-7, 2003. The conference will be in conjunction with the Specialty Equipment Market Association (SEMA) automotive convention November 4-7. The event should assist some teams to further solicit sponsorship. For you and the Defense Advanced Research Projects Agency Grand Challenge staff, it will provide the latest planning details of the Challenge. The tentative agenda is:

- Detailed Overview of Activities, March 8-14, 2004
- Discussion of the Route Status
- Review and Discussion of the Rules
- Discussion about DARPA Team Visits
- Team Question/Answer Period

We recommend that no more than two members of each team arrive on the afternoon of November 5. We will have a small reception at 7:00 pm to ensure we are ready for the following days (details to follow). The DARPA staff and Grand Challenge participants then reconvene on November 6 at the Orleans Arena from 1:00 to 5:00 pm followed by dinner and a show in the Las Vegas area. We will continue our discussion on November 7 from 8:00 am to 12:00 pm to finalize the progress of the Grand Challenge event. Of course, attendance at these is voluntary. All topics or briefs will be posted on our web site, but it would be helpful for team representatives to attend this conference.

We have reserved 75 rooms at the Orleans Hotel in Las Vegas on a first-come, first-serve basis. Tell the hotel receptionist (702-365-7111) that you are attending a DARPA/SCORE event. Hope to see you in Vegas on the 5th.

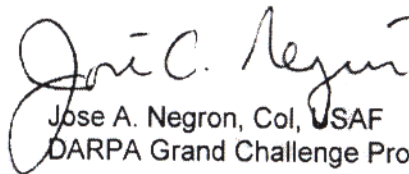
The Associated Press, *Newsweek*, *Wired*, *Los Angeles Times*, *Pittsburgh Post-Gazette*, *Baltimore Sun*, *Voice of America*, and *Science* are among the respected media outlets that have written stories on the Grand Challenge and plan to continue coverage.. Numerous other newspapers and magazines have inquired about covering the event, as well as documentary TV shows and networks such as Discovery, PBS NOVA, National Geographic Television, *New York Times* Television, and numerous other independent producers.

As media interest grows, the Grand Challenge public relations team encourages you to let us know if your team leaders are available for interviews. You are welcome to submit photographs of your team for the media section of the Grand Challenge website. The Team Resources and Media sections of the Grand Challenge website contain a wealth of useful information to help with your public relations efforts. In addition, we have a link to team websites on the Teams page. If your team has a website that isn't listed there, feel free to send the link to grandchallenge@darpa.mil. Contact the Grand Challenge

media representative, Don Shipley, at 202-289-2001 or dshipley@stratacomm.net, with questions or requests.

As we continue our countdown, don't forget to take advantage of the opportunities offered above. As always, if you have any questions, concerns, or general feedback, my staff and I can be reached at grandchallenge@darpa.mil, or toll-free at 1-866-DARPA-GC (1-866-327-7242).

Sincerely,

A handwritten signature in black ink, appearing to read "Jose A. Negron". The signature is fluid and cursive, with a large initial "J" and "N".

Jose A. Negron, Col, USAF
DARPA Grand Challenge Program Manager

Attachment:
As stated

DARPA Grand Challenge Technical Paper Requirement

This paper is an integral part of the rules enforcement process that will help ensure this event is a fair and safe competition for all involved. Judges performing the technical inspection on the day prior to the main event will use the paper to validate the vehicles. Therefore, the paper should contain sufficient detail that a person could compare the vehicle to the paper and verify all the hardware that is present. As an example, "the vehicle will use lidar" is not sufficiently detailed. If a commercial system is used, a reference to its specifications should be provided, as well as the planned location on the vehicle. If the system is completely home built, the components should be described in detail.

Second, the paper is part of the safety assurance process for this event. For example, the review panel will need to know the power and wavelength/frequency of emitted radiation. The paper is used to ensure that completely ineffectual vehicles do not interfere with the efficient operation of this event. The reviewers will need to know how the information from the lidar system would be processed to enable a vehicle to stay on the course with an appropriate speed.

Publication of the technical completion of papers after completion of Challenge will ensure they become part of the legacy of this event. They will be the primary mechanism from which knowledge gained from this event is utilized in future research and development. The technical paper does not need to be so detailed that someone could immediately build the vehicle themselves, but it should be detailed enough to teach an interested individual about the design. The 10-page limit is a good guideline for this.

If you have any questions or concerns, feel free to contact the Grand Challenge staff at grandchallenge@darpa.mil or toll-free at 866-DARPA-GC (1-866-327-7242).