

DARPA Robotics Challenge
Questions & Answers

This document is a continuation of the DARPA Robotics Challenge Round 1 Q&A found at the following URL: <https://www.fbo.gov/spg/oda/darpa/cmo/darpa-baa-12-39/listing.html>

CONTRACTS

- C28. This is my company's first attempt to win an award with DARPA. What exactly is required for businesses to be considered for award with DARPA? We are in development of emerging technology in Artificial Intelligence and are seeking to establish a proper relationship with the US Government.
- A. The BAA, Part II, Section III, Paragraph A describes the eligibility information for applicants.
- C29. We were wondering if you could send us a list of bidders for the DARPA-BAA-12-39, Robotics Challenge?
- A list of bidders to the DARPA Robotics Challenge will not be provided; the proposal due date for all bidders is Thursday, May 31, 2012 by 4:00pm EST. A list of Proposers' Day participants who agreed to have their name shared was sent by email on 26 April 2012 to Proposers' Day participants.
- C30. My company is going to partner with a JPL employee as a consultant. I've been assured that JPL is a branch of CalTech, not the government, and that therefore no conflict-of-interest, SETA, nor direct competition paperwork etc. needs to be addressed. Can you confirm this? Is there a difference if the consultant is a partner or a subcontractor to the project? Otherwise, what do I need to write on this matter?
- A. The eligibility requirements in Section IIIA (p. 18) apply to proposals that may include Government or Government funded entities. See also Paragraphs 1.6 and 1.7 on p. 25. JPL is a Federally Funded Research and Development Center (FFRDC). Therefore the direct competition limitations described in the BAA apply. All proposers must provide an Organizational Conflict of Interest Affirmations and Disclosure as described in Section III.B and Section IV.B.3.1-3. All Proposers as well as proposed subcontractors and consultants must affirm whether they (their organizations and individual team members) are providing SETA or similar support to any DARPA technical office(s) through an active contract or subcontract..
- C31. If submitting for a grant or cooperative agreement, do you have a preference for submitting hardcopy / CD or submitting online at Grants.gov? Which is easier for you?
- Either way is acceptable as stated in the BAA. A hardcopy copy may be easier.

- C32. For your Track A, are you showing a preference for larger primes?
Proposals will be evaluated against the criteria listed in the BAA. No preference will be given to large primes. As stated in the BAA, attention will be paid to expertise and experience.
- C33. I believe that DARPA proposed to work with the winner of DARPA grand challenge for the development autonomous vehicles. Does the winner of the robotics challenge have some obligation to work with DARPA?
A. There is no obligation of the winner of the DRC #2 to DARPA.

PROGRAMMATIC

- P44. On page 11, section G. Program Funding you state that "Funding amounts will be equal for teams in a given track in a given period, that is, DARPA intends for teams to compete on an equal funding footing." We support that strategy, but are having trouble understanding how we reconcile that with having to provide a detailed cost breakdown in the proposal. Should we assume that a Track A proposal must total exactly \$3M? If we wouldn't need that much, do we follow the instruction elsewhere in the BAA for an accurate and realistic assessment of costs? If that assessment is only \$1M, how will DARPA reconcile this with the equal funding strategy?
A. Proposers should cost their efforts to the best ability and proposals will be evaluated against the Cost Realism Evaluation Criterion. Part II, Section G, is meant to imply that teams will not be funded over the stated amounts. If the proposed amount is considered unrealistic for the scope of work proposed to be performed, the proposal will be rated unfavorably against the Cost Realism criterion.
- P45. Are there penalties if the GFE is damaged accidentally?
A. For accidental damage to the robot, Teams will not be penalized, other than they will be without the robot until it can be repaired.
- P46. We have seen the videos of Petman but have never seen it untethered. It is either horizontal (pushups, or vertical with wires). If it falls can it get up?
A. The robot will have the strength and range of motion to self-right if it falls.
- P47. Is there any interest in exploring what is required in the way of electronics hardening, materials, elastomers, seals, sensor specifications and mechanical design for systems to survive and work in Fukushima/Chernobyl type ambient environments? Or is that outside the scope of what you are looking for at this time and will be addressed later in subsequent work?
A. That is not a current focus of the DRC. The intent is to first demonstrate that systems can achieve the tasks required before focusing on the hardening of equipment to operate in extreme environments.
- P48. Why is there no mention of the GFE tele-operation interface? I don't see the option for this work/funding either in track A or track B of this BAA. Track A is building robot itself and track B is simulation first and then GFE platform. I do think that GFE tele-operation interface would be

necessary for any realistic scenario and that it may truly simplify and speed up future work for many researchers/developers.

- A. Teams will need to provide their own interface to control their robot. This is referenced in Part II, Section I, Paragraphs I and J.

P49. The proposal format asks for "the following sections" to start on new pages, and then enumerates subsections 1.1 Cover Sheet, 1.2 Table of Contents, etc. However, the Sections are 1. Administrative; 2. Technical Details; 3. Cost. Would you prefer that the subsections to the first level, 1.1, 1.2 etc., each start a new page? Or do you wish new pages only for the three major Sections?

- A. The preference would be for only major Sections to start on a new page.

P50. On page 9 of the DARPA-BAA-12-39 document it states that modeling in the GFE simulator is desired but not listed as required. However on page 14 under the Critical Design Review section it states as a deliverable "A Model in simulation showing mounted mobility, dismounted mobility, and manipulation". Does this mean that a model is required but non-GFE models are acceptable to meet this deliverable requirement? Are there any performance/feature qualifications that define the acceptability of a non-GFE simulation model?

- A. At CDR, Track A teams will have to convince the Government that their platform will be capable of completing the events. A model of the platform in the GFE Simulation environment would be the preferred approach. If proposers have an alternate approach they need to describe it in their proposal.

P51. The page limitations as described for section 2.7 of the proposal format, Schedule and Milestones, are inconsistent. The section heading lists 6 pages as the limit for the whole section, but there are 4 individual items of 2 pages each. Could you please tell me the correct distribution of page counts for this section?

- A. This total page count cited for Section 2.7 Schedule and Milestones is an error. The subsection limit of 2 pages each is correct; Section 2.7 Schedule and Milestones may be 8 pages long.

TECHNICAL

T87. I do not understand the concept of using a "cloud platform with GPU." Is this envisioned as a remote GPU farm, similar to OnLive? Or is this envisioned as a thick client using the local desktop's GPU driven through a cloud server? Will we have access to a local copy of the GFE Simulator, in case the cloud is down? Will this include source?

- A. Is this envisioned as a remote GPU farm? Remote--yes. Farm--yes, in the sense of a large group of processors. GPU--likely but processors will not necessarily be Graphics Processor Units. Is this envisioned as using local desktop GPU? No, the GFE Simulator is expected to run on a remote platform. Will we have access to a local copy of the GFE Simulator? Yes. The GFE Simulator will be released on an open-source basis, allowing users to use it as they see fit. Will this include source? Yes. The GFE Simulator will be provided on an open source basis.

- T88. Will track B performers be providing software to run on the "Robot Computer" described in the Proposer's Day presentations or only for the "User Computer"?
- A. Track B winners of the Simulation Challenge will receive the GFE Platform, which will have two on-board processors, one "Robot Computer" and one "User Computer." (Note that both processors are on-board the platform.) It is expected that Track B team software will run on the "User Computer." It is expected that only GFE Platform code will run on the "Robot Computer".
- T89. In the DARPA Robotics Challenge Q&A Round 1, the answer to question T29 says, "and include low-level closed-loop controls," the answer to T37 says, "... NOT include closed-loop controls". Could you please clarify?
- A. The answer to T29 is correct (yes, includes low-level closed-loop controls). The answer to T37 will be amended.

AMENDED ANSWERS

T37. Will the GFE Simulator have a built in model of the GFE Platform, or does the performer need to build it?

Original Answer: The GFE Simulator will include a model of the GFE Platform, and not include the closed loop controls.

Amended Answer: The GFE Simulator will include a model of the GFE Platform, which will include closed loop controls.