DARPA-BAA-12-52

Frequently Asked Questions

Last Updated: August 7, 2012

GENERAL INFORMATION

Q: What DARPA programs predate this effort?
A: This effort will be managed as a track in the Maximum Mobility and Manipulation (M3) program:

http://www.darpa.mil/Our_Work/DSO/Programs/Maximum_Mobility_and_Manipulation_%28M3%29.aspx

Q: If my research is relevant in this field, but is not geared specifically to meet these goals, is there a solicitation that I can respond to?
A: Yes. DARPA/DSO has an Open solicitation (DARPA-BAA-11-65) for which responses are being collected through 9 Aug 2012. We STRONGLY encouraged that a Proposal Abstract be submitted (prior to a Full Proposal) to determine the acceptability of the proposed concept to the BAA.

Q: Will there be a "Virtual Proposers Webcast" for the potential proposer community, with a presentation on this RFP and the opportunity for a Q&A session?
A: There are currently no plans to hold a webcast/workshop associated with the subject BAA. Any such events would appear on the Federal Business Opportunities (https://www.fbo.gov) website if and when they are announced.

Q: Will responses to Q&A's from potential proposers be posted/available to the entire proposer community?
A: Per the BAA, DARPA will post a consolidated FAQ, which will be posted on http://www.darpa.mil/Opportunities/Solicitations/DSO_Solicitations.aspx. The FAQ will also be posted on the teaming website (https://team.sainc.com/M3).

PROPOSALS

Q: Can a prime or collaborator be an international company?
A: Yes, international companies and universities are acceptable.

Q: Is subcontracting to a National Lab or Federally Funded Research and Development Center (FFRDC) permitted?
A: Yes. Proposer should comply with the section on FFRDCs as stated within the BAA.

Q: Should the Administrative (Cover Sheet, Transmittal Letter) section not count against the 30 page limit?
A: The cover sheet and transmittal letter do not count towards the 30 page limit.

Q: For the summary chart PowerPoint template, please define "Key Innovations" and "Unique Aspects", and particularly the difference between the terms.
A: Key Innovations are the proposed new ideas, methods, or devices (the innovations) that you consider most significant (key). Unique Aspects are the novel and distinctive parts of your proposal, in other words, the characteristics that set your ideas apart from others' ideas.

COST

Q: What is the overall DARPA budget for the M3 Actuation track? Are there funding limits for individual proposals?
A: As stated in the BAA: "DARPA anticipates Goal 1 project funding of no more than $2.5M per project per phase (i.e., $5M total per project). DARPA anticipates Goal 2 project funding of no more than $500K per project per phase (i.e., $1M total per project). Smaller efforts are also encouraged."

PROGRAM STRUCTURE

Q: How many awards are anticipated?
A: The number of awards will depend on the merits of the proposals received and funds available.

Q: What is meant by performing a "reference mission" at the end of Goal 1, Phase 2? Does DARPA choose this mission, do the performers choose, and what type of activities are expected or acceptable?
A: DARPA will define the reference mission, which is expected to include activities similar to the DARPA Robotics Challenge events.

Q: For goal 2, the BAA states that ``DARPA will fund efforts in applied science and engineering that will enable revolutionary improvements in energy efficiency in actuation." Can proposers assume that Darpa is interested in higher energy efficiency without increasing actuator size?
A: Yes, DARPA is interested in higher energy efficiency without substantially increasing actuator size and/or mass.

Q: For goal 2, Section G. Scope, does Goal 2 also assume some form of electrochemical battery power supply?
A: For Goal 2, energy may be stored in devices other than batteries. Development of the energy storage component will not be funded by this solicitation.

Q: For goal 2, Section G. Scope, does “this program will not fund the development of new classes of transducer materials.”' also apply, or is the transducer material limitation intended mainly for Goal 1?
A: The transducer material limitation applies both to Goal 1 and to Goal 2. Note however that the BAA excepts "revolutionary quantitative improvements in efficiency or performance" from this limitation.

TECHNICAL

Q: Is my approach consistent with the objectives of the BAA?
A: DARPA is not able to suggest specific research approaches. If you feel that your chosen effort is consistent with the objectives of the BAA and capable of meeting the goals stated within the BAA, then you should feel free to propose them. It is strongly encouraged that you read the BAA carefully. It is your burden to make clear within your proposal that your approach is supportive of your innovative claims, and includes a detailed analysis of the technical motivation.

Q: Are marine propulsion applications in-scope for M3-Actuation?
A: Goal 1 efforts are focused on the humanoid platform as specified, so marine applications will be considered non-responsive. Goal 2 efforts might apply to marine propulsion, but most likely not for continuous rotation (e.g. propeller) applications.

Q: Must the M3 actuation technology be demonstrated on the DRC GFE robot or can it be demonstrated on a different robot that matches or exceeds the capabilities of the DRC GFE robot?
A: To provide for a basis for relative comparisons of performance with as many other variables as possible held constant, DARPA desires that the mechanical specification of the M3-Actuation Goal 1 robot to be as similar as possible to the DARPA GFE robot.

Q: Should the proposed platform demonstrate bipedal locomotion? Is a platform capable of quadrupedal walking as a major locomotion method appropriate?
A: Goal 1 platforms must be able to perform the same motions as the DRC GFE Platform, including bipedal locomotion, with greater energy efficiency. Goal 1 efforts should not primarily seek platforms that perform functions that the DRC GFE Platform cannot currently perform.

Q: The GFE is estimated to be 150kg. Is the proposed platform expected to have the same mass?
A: The proposed platform must have the same kinematic structure as the DRC GFE Platform. It is expected that novel actuators may have different masses and mass distributions than the DRC GFE Platform actuators, so it is reasonable for the proposed platform to have a mass that is approximately the same but not identical to the DRC GFE Platform mass.

Q: Can locomotion control algorithm development be part of the effort?
A: It is expected that the GFI package will include some control software. It is reasonable that new actuators may require changes to that control software, for example filtering. However, the goal of the M3 Actuation program is not primarily to develop new locomotion control algorithms.

Q: What level of detail will be contained in the GFI – full CAD so that parts can be directly ordered/machined if they remain unchanged or only higher level specifications?
A: The GFI package has not yet been defined. Because the present GFE platform has integrated actuator inside of its structure, it is expected that the design of new parts for new actuators will differ significantly.

Q: The BAA provides a targeted battery technology and weight (Li-ion 23 kg ~ i.e. 3 to 3.5 kW-hr) and operation time (10 to 20 min.). Will DARPA also provide measured power consumption for the various activities that the robot will perform?
A: The power of the DRC GFE platform is expected to average between 8 and 12 HP (6 – 9 kW). A breakdown of the power consumption by task is not yet available.