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Commonwealth Center for Innovation in Autonomous Systems (C2IAS) Request for Proposals For Fiscal Year 2020 (July 2019-June 2020) Funding

Background

Virginia Tech and Old Dominion University have submitted a proposal to the Virginia Research Enhancement Fund (VRIF) for formation of C2IAS. A key component of C2IAS is providing targeted funding to Virginia businesses and to researchers working in the unmanned systems area (UMS). Funding will be focused on **advancing promising UMS technology to market** to include land, sea and air vehicles; control systems; safety systems; sensors; and data capture, analysis and visualization tools specifically geared to unmanned systems. Funding will target customer discovery efforts, technology acceleration, technology push, proof of concept and testing support activities. Awards will range between \$5k and \$50k per project. Participants will be requested to provide a cost match to the best of their ability (see below for more details on cost match).

For more information, please contact Jon Greene, C2IAS Director, at 540-231-8566, greenej@vt.edu or Yiannis Papelis, C2IAS Co-Director, at (319) 331-2404, ypapelis@odu.edu

Introduction

Virginia Tech (VT) and Old Dominion University (ODU), the lead institutions of the C2IAS, are soliciting white papers from eligible Virginia businesses, faculty members and researchers working in the field of unmanned systems (UMS) for this funding opportunity with anticipated support beginning August 1, 2019 (FY 2020). The purpose of the projects will be to ***transition promising UMS technologies to market***. Proposals must demonstrate the potential to grow UMS business for a Virginia company or to move a potential technology into the market. C2IAS requests 4-page (maximum) technical proposal for panel review and consideration for funding. Proposals by companies that include the participation of Virginia Tech or ODU faculty will receive preference. Companies desiring/considering faculty collaboration should request Jon Greene or Yiannis Papelis make introductions to faculty members that may be of assistance. Additionally, all proposals will be requested (but not required) to provide a cost match (discussed below). C2IAS must match VRIF funds 1:1 so projects that meet or exceed this level are desirable.

NOTE: While C2IAS will have a preference for cost match that meets or exceeds the 1:1 value and for projects that include Virginia Tech or ODU faculty, not meeting this criteria should not be construed as disqualifying. **The primary criteria for project selection will be the anticipated impact on Virginia UMS businesses.**

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It is anticipated that a total of \$450,000 will be awarded with awards being announced by August 1st.

Eligibility

Participating research institutions and small businesses (fewer than 200 employees) with a Virginia presence are eligible to apply for funding. Partners may submit more than one proposal, but C2IAS will preferentially award to the broadest range of partners as possible. That said, again, **the primary criteria for project selection will be the anticipated impact on Virginia UMS businesses.**

Cost Match

C2IAS must provide a cost match of 1:1 to VRIF. As a result, when projects are awarded, we will need to manage the portfolio to ensure we are meeting at least the 1:1 criteria. Proposals that meet or exceed the 1:1 cost match will receive preference, but, we recognize that cost match for small business can be challenging. Projects with less than 1:1, even zero, cost match could be selected in the case where they demonstrate the greatest promise for growing UAS businesses.

Cost match can be achieved through either cash contribution to the project or, for what we expect to be the majority, in-kind contribution. There are a broad range of categories that might be considered; as long as it contributes to the project and does not come from state funding, there is a good chance it is allowable for cost share. This activity could be new activity as a result of award of the funding, or it could be activity that would have occurred anyway. As long as it contributes to project objectives, it should meet cost share requirements. The following examples are examples of types of activities that could be considered in-kind contribution:

- Labor a company executes that contributes to successful completion of a project.
- Services a company provides, pays for, or are donated by a third party that contribute to successful completion of a project (e.g. if a successful entrepreneur is mentoring a startup CEO in customer discovery, the entrepreneur's time could be considered cost match).
- Access to facilities or use of equipment that contributes to completion of a project.
- State university participants are precluded from charging indirect costs on this project. The unrecovered indirect will be considered cost share.
- Federally- or industry-funded grants or projects that contribute to successful completion of the project goals.
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If you have questions or concerns on this topic, you are encouraged to contact Jon Greene 540-231-8566, greenej@vt.edu or Yiannis Pangelis, 319-331-2404, ypangelis@odu.edu .

Research Topics

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The following research topics are of particular interest to C2IAS:

- UAS for First Responders. There is a gap in the market and an opportunity in this niche.
- Maritime Systems. Virginia has a unique geography and strengths in this field that create an opportunity.
- UMS Safety. Effective systems to mitigate risk have significant opportunity and Virginia has significant expertise in test and evaluation of these systems.
- Emerging Opportunities. C2IAS is aware that, while there may be focus areas with significant opportunities, we want to remain open to business opportunities that fall outside of these focus areas.

Funding Categories

- **Customer Discovery Grants**. C2IAS intends to fund three types of grants to individuals and companies in this category:
 - Initial customer discovery grants: Up to \$5,000 to permit travel for customer discovery of who is the potential customer, what are the pain points and what are they willing to pay to address the pain.
 - Customer validation grants: Up to \$15,000 for travel to determine the minimum viable product and develop a clear understanding of revenue streams.
 - Business case development grants: Up to \$20,000 for travel to understand and articulate pricing strategy, cost structure and key partners in the business.
- **Accelerator Grants**. These grants will fund a member accelerator program to support an unmanned systems startup company. Technology companies with a minimum viable product will be provided training, mentorship, co-working space and access to expertise in a variety of fields and some seed capital. Grants will be up to \$25,000.
- **Technology Push**. This funding will be provided to university or other research team members to develop promising technology to the prototype stage. Researchers will be expected to have an understanding of potential customers, their pain points and what those customers are willing to pay. Researchers that do not have this understanding may be granted a customer discovery grant in lieu of this grant (potentially with a technology push award pending completion of the customer discovery). These grants are intended to result in intellectual property disclosures. Grants will be up to \$40,000.
- **Proof of Concept Demonstration**. These grants will be initiated by entrepreneurs or small companies and will provide funding to the company with potential support from a research team member. The intent will be to

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develop a prototype where there is a clear understanding of the minimum viable product and a clear understanding of revenue streams. Companies that do not have this understanding may be granted a customer discovery grant in lieu of this grant (potentially with a market pull award pending completion of the customer discovery). These grants are intended to result in a prototype of a minimum viable product. Grants will be up to \$50,000

- Test and Evaluation Support Grants. These grants will provide funding to the test and evaluation facilities such as Virginia Tech Transportation Institutes SmartRoad, Virginia Connected Corridors, the Mid Atlantic Aviation Partnership, the NASA Langley CERTAIN urban UAS test range and the Virginia Commercial Spaceflight Authority's Wallops UAS test range to permit them to support smaller innovative organizations. These grants are intended to provide seed funding that will attract additional investors to support a full test and evaluation program. Grants will be up to \$50,000.
- Technology Maturation Grants. These grants will fund a consulting company that is a team member to provide consulting to a startup or small business to provide late stage technology transition support (from prototype to production). Issues addressed include performance requirements, testing and certification requirements, price points, large-scale manufacturing, regulatory issues, and IP protection. Grants will be up to \$10,000.
- Matching funds for SBIR Proposals: Companies preparing proposals for Phase I, Phase II SBIRs may simultaneously apply to C2IAS for matching funds which would be added to the awarded SBIR project. Award levels of \$10,000 for Phase I, \$20,000 for Phase II and \$50,000 for Phase III are planned.

Proposal Submission

Submit a PDF copy of your proposal by email to **TBD** no later than **5pm Monday July 15, 2019**. You will receive an acknowledgement that the proposal has been received within 24 hours. If you do not receive the acknowledgement, please check the email address and resubmit. If there is still no acknowledgement, contact Jon Greene, greenej@vt.edu, 540-231-8566.

Proposals should be submitted in 11-point font or larger, single-spaced with 1" margins. Figures must be legible.

In the body of the email, include:

- Proposal Title
- Submitting Entity

Attach a PDF proposal with the following sections:

1. Cover page with
 - a. Proposal Title

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- b. Proposal Category (Customer Discovery, Accelerator, Technology Push, Proof of Concept Demonstration, Test and Evaluation Support, Technology Maturation, or SBIR Matching Funds).
- c. Submitting entity and team members
- d. Anticipated period of performance
2. Statement of Problem and Proposed Solution
3. Lead entity profile (explaining the entity's footprint in Virginia)
4. Technical Approach and Plan of Work
5. Expected outcome (jobs, future funding, start-up launched, invention disclosures, patents, IP licensing to Virginia companies, etc.)
6. Proposed budget: how much are you requesting and how will you use the funding?
7. Cost match: 1:1 cost match or greater is desired, but not required—especially for small businesses/entrepreneurs. In-kind cost match is acceptable—see above. No indirect funding or margin will be provided—waived indirect is an accepted cost match for Virginia universities.
7. (optional) References
8. (optional) Letters of commitment or support from partners or customers (3 maximum)

Note: Items 2-5 above count toward the 4-page limit for the technical proposal.

Review Process

There will be a two-part review process.

1. The Director and Co-Director will review proposals for compliance.
2. Proposals will then be reviewed by a panel of C2IAS members and stakeholders
3. Selection criteria:
 - Most Important:
 - Potential for leading to the creation of jobs for Virginia UMS companies
 - Potential for leading to future funding for Virginia UMS companies
 - Potential for launching start-up companies
 - Second level of importance:
 - Potential for filing of invention disclosures or patents
 - Potential for licensing of intellectual property to a Virginia company
 - Additionally, reviewers will consider:
 - Reasonable link between requested funds (budget details) and proposed outcome

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- The specific role of team members must be clearly defined along with a statement defining the contributions of the team
 - Probability and impact of success
4. The panel will make recommendations to the Director and Co-Director who will make the final determination of funding.

Awards

Funding decisions will be announced on or about August 1, 2019 (or as soon as possible after a determination of C2IAS funding by VRIF is made). Review panel feedback will be provided on request.

Questions/advice? Please Contact: Jon Greene, 540-231-8566, greenej@vt.edu or Yiannis Papelis, 319-331-2404, ypapelis@odu.edu

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