Department of Defense Bloggers Roundtable With Jim McCormick, Program Manager, Defense Advanced Research Projects Agency (DARPA) Via Teleconference Subject: The UAVForge Competition To Design, Build and Manufacture Advanced Small Unmanned Air Vehicle (UAV) Systems Time: 2:03 p.m. EDT Date: Friday, October 7, 2011

(Note: Please refer to www.dod.mil for more information.)

LIEUTENANT TIFFANI WALKER (Office of the Secretary of Defense, Public Affairs): OK. Hello, everyone. I'd like to welcome you all to the Department of Defense's Bloggers Roundtable for Friday, October 7th, 2011. My name is Lieutenant Tiffani Walker, with the Office of the Secretary of Defense for Public Affairs, and I will be moderating the call today.

This afternoon, our guest is Mr. Jim McCormick, a program manager at the Defense Advanced Research Projects Agency, also called DARPA, who joins us to discuss UAVForge, a global crowdsourcing competition that is currently underway to design, build and manufacture advanced small unmanned air vehicle systems. We are pleased to have you as a guest today, sir.

A note to our bloggers on the line today: Please remember to clearly state your name and blog or organization in advance of your question. Respect our guest’s time, keeping questions succinct and to the point. Please do not put your phone on hold, but on mute when you are not speaking. This will increase the audio quality of the recording for all of us.

Now we'll take an opening statement from Mr. McCormick. Sir?

JIM MCCORMICK: Thank you, Tiffani.

ERIC MAZZACONE (DARPA public affairs officer): Tiffani, thanks.

This is Eric Mazzacone, the DARPA Public Affairs officer. Before Jim provides you with some opening comments, I just want to let everybody know that what we're talking about today, UAVForge, is supportive of the agency's broader advanced manufacturing initiatives, where we seek to increase the number, diversity and speed of innovators contributing to the defense mission.

So with that, Jim, please.

JIM MCCORMICK: Great. Thanks.

So what I'm here to talk about today is an initiative that we call UAVForge. And a great amount of detail is available on a website that we've developed: uavforge.net.

This is a crowdsource competition, and the end result is a -- is a capability of military relevance, a rucksack-portable UAV which can conduct persistent ISR at a distance. So it's very specifically defined within the kind of things that DARPA needs to be looking at.

But what's also innovative here is the way we're going to go about developing this capability and we're going to use this crowdsource competition. And now I'm basically reading from the website, but I'm going to add a little bit of commentary along the way. The objective is to facilitate the exchange of ideas among a loosely connected international community united through common interests and inspired by innovation and creative thought.

So the real focus here is innovation, and we're looking at an alternative way to tap in to innovative approaches from around the world. We seek to lower the threshold to entry for hobbyists and citizen scientists, hoping to yield greater innovation, shorter timelines, better performance and more affordable solutions. So this ties into the broader manufacturing initiative that DARPA is pursuing, that better, faster, cheaper is important.

On the other side -- you know, that's what we're after, but the participants, the crowd that we're reaching out to, is going to compete to win a fly-off. And the winner gets a $100,000 prize. They have a chance to work with the manufacturer that we're going to select to produce up to 15 copies of the winning design. And we're going to give them an opportunity to participate in an exclusive military exercise venue, which is something that, you know, money probably can't buy, but it's also in line with our mission to bring emerging technologies and capabilities out and put them in the warfighter's hands so we can see how well they work and the warfighter can be exposed to them.

So I'd like to step through some of the particulars. We've teamed up with the Navy's SPAWAR, Space and Naval Warfare Systems Command, the East Coast branch down in Charleston, South Carolina. So we've brought them on as our agent, and we work with them, so they will provide a good amount of the execution and conduct for this initiative.

The initiative, I characterize as three main elements. There's the website, there's also a fly-off event, and then there's a manufacturer, and I want to describe those individually.

First, talking about the website, you can go look at it yourself. In fact, all of you are more than welcome to participate. You can come in as a visitor. You can see what people have posted. You can

see what's going on, you can see the details of the fly-off competition and the schedule that we're working to. And if you want to register, you can also see the teams that have already joined and you can comment in our –forums, our discussion forums, and you can also, within certain windows, you can vote on some of the solutions that are posted there. So the key is to broaden the source of inspiration and enthusiasm.

A person doesn't have to have a solution to compete and [is] able to participate on the website. They can provide their expertise in a limited area. They can just enjoy what's going on. They can share their opinions. And that collective sharing of opinions, we think, is going to create more value than a single person in a vacuum trying to work through this.

LT. WALKER: Mr. McCormick, I apologize. This is Lieutenant Walker. I'm going to have to interrupt you.

The audio recording from this won't be you know, won't be discernible, as there's somebody that does not have their phone on mute on the call. If everyone could check and make sure that they have their phones on mute, that would surely help everyone. Thank you.

MR. MCCORMICK: Thanks, Tiffani. Yeah, that would help a lot.

So, talking about the website, we've had considerable participation. We have, with tens of thousands of visitors, we have almost 800 registered users and 93 teams that intend to compete. So we're very excited about the amount of participation that we've seen so far. In about two weeks, we're going to launch our first milestone down the path towards the fly-off.

The event is going to be broken up into three steps, three different video-based milestone events. This first event, we're asking each team to publish a video that describes their solution and why they think it would win. After a two-week window where they post those videos, we're going to open it up to voting, and there will be peer voting from all the participants on the different entries. And the results will help the teams to determine if they're on the right track and perhaps might offer some inspiration for them to refine their design towards a more successful track.

In the December time frame, we're going to have another milestone. This will be a first fight event. So the teams should have developed a system that's capable of flying, and they'll send us video of that, and the same thing will happen. There will be a peer review and voting that will help to steer the different teams.

In the January time frame, we'll have our third milestone, which is going to be a live-fly event. And here we will be -- interacting over the phone, we'll direct the team to take off now, turn left now, land now. That will all be captured on video and be made available for the crowd to observe.

And then the system will be able to not just show that it can fly, but it will exhibit those behaviors that might lend themselves towards the ultimate mission of the fly-off.

The third milestone is actually going to be a down-select. And we're going to pick the top 10, we're going to pick the top-10 solutions and invite them to come out to the fly-off competition, which will be held in the spring time frame at Camp Lejeune in South Carolina. So we've recently, after reviewing a bunch of potential sites, focused in on Camp Lejeune. So we're excited to be going down that way.

Now there's a third element here which I should explain, and that's a manufacturer. We're selecting, through an open competitive process which we call a scientific review, a single manufacturer that will be paid to advise the teams to establish a design template that will help map between a design and the ability to produce it. They will help us to determine the producibilty of the different designs. That will be factored into the selection of the top 10. And then ultimately they're going to build up to 15 copies of the winning design.

I guess, before I open it up to questions, I'd like to pose a couple of questions myself that will help get at some of the issues that have been rising amongst the participants, and I think might be natural.

So the first question would be, why did we pick this mission of the persistent, rucksack-portable perch and stare ISR? It's an area that we have been investigating for several years. We do have a program of record. We have determined that there is promise in that kind of a capability. We have also determined that there's still likely a hurdle to be crossed before the military services could implement this kind of a capability. We think that hurdle is associated with cost of the unit and the complexity of use. It takes an operator a lot of time and attention to use something like this. So we're hoping that those two areas in particular we're going to come up with significant innovation and come up with better solutions through this crowd-source approach.

The Perch and Stare UAV is fairly close-reach technology. It's not as far out as other things that DARPA has going after. And I think that allows us to be a little more experimental in the approach that we use, as opposed to the solution that we're after.

So why pursue the crowd source? We're fairly confident that a standard defense industry solution is out there. And again, I think it suffers from the cost, and it suffers from the workload that it imposes on users. So those are the areas that we think the crowdsourcing has the opportunity to exceed what we could do through other means.

And I want to emphasize, you know, this isn't a sure thing. We're trying something new, and it has a lot of promise. But we're going to have to work through. And hopefully the results will help inform similar activities in the future.

So what's hard about the challenge? I talked about how we're not reaching as far into technology. There's certainly technical aspects --

getting a platform that can operate efficiently so there's enough battery life to go; we're asking them to fly two miles perch, observe through relayed video imagery for a period of two hours or longer and then recover. There are many complexities in there.

But at the same time, there's a lot of challenge associated with the process and all the ancillary challenges, like what do I use -- what frequencies do I use for my radios? What kind of FAA approvals do I have to get to operate this kind of a platform?

And those are things that we think will benefit from collaboration amongst many individuals. Somebody may come up with a way of dealing with those challenges, share it with their peers, and that might even inspire further innovation that would come back around. So we think the crowd sources [are] well-suited to those kinds of indirect challenges that aren't directly technology.

A final issue I want to talk about is intellectual property. And first of all, the whole goal here is innovation. And the incentive for individuals to innovate is far more important to us than the innovations themselves in this case. So there is, I guess, naturally some concern about participants, the fact that there's a collaboration side associated with the competition side. And a team may not want to share their design because they're concerned that someone will take it, or maybe they're concerned that the government is going to take that design without, you know, paying for it.

And again, that's not our intent. This -- the confidence that an innovator has that he will retain the intellectual property of the -- of the effort that he puts into it is the driving factor behind all of this. So we don't want to jeopardize that.

We will sign the top 10 players up to provide government purpose rights for the fabrication of up to 15 copies, and that's it. Beyond that, our intent is to leave the intellectual property rights free and clear to the innovators. If they want to team up with that manufacturer for follow-on efforts, that's purely up to them, and we're not going to interfere with that process.

And I guess a last aspect of that is that, you know, intellectual property is just one of many challenging areas, and there's a legal framework and there's a body of practice out there that we're not going to change. It's up to the innovators to determine how best to protect and defend their intellectual property. And we hope to make a venue here that will make it easy for people to collaborate on things like how do I protect my intellectual property as much as they can collaborate on coming up with that intellectual property.

So I think I've covered everything I set out to cover, and I'm glad to answer any questions you might have.

LT. WALKER: OK. Thank you, Mr. McCormick.

Up first we have Sharon Weinberger from Popular Mechanics. Go ahead, Sharon.

Q: Hi. Yeah. I was curious. Are there any ITAR implications of this? I mean, these are sort of designated military-related UAVs and it is international. How do you either get around ITAR or not deal with it or deal with it?

MR. MCCORMICK: Well, ITAR stands on its own. So individuals are bound by the law to comply with those rules. So kind of by definition if something is ITAR-controlled, it can't be brought into this environment. If something that's ITAR-controlled emerges from this environment, there are rules for how we deal with that, how we protect those things. We're not -- we're not doing anything new there.

But I think the positive aspect here is that these citizen scientists that we're dealing with may not have an appreciation of what ITAR means and what they can and can't do. So where out of fear in the past they may just stay away from an area, here they can rely on their peers to help them to make a[n] educated decision process or even go find other professional resources to answer the questions, if they're serious, where, you know, in the past maybe they might have been blind, and they might go off and do something dangerous without realizing it.

Q: So does that mean you're relying on sort of the crowd to inform what ITAR controls? I guess I'm curious how that works. (Chuckles.)

MR. MCCORMICK: The -- you know, every individual is beholden to those laws and those rules. That doesn't change. If we see something that's restricted according to ITAR, we're certainly going to take action on that. We're going to -- we're going to correct that issue immediately.

Q: OK.

LT. WALKER: OK. Thanks, Sharon.

Up next we have Jared Serbu from Fed News Service (sic; Radio), if he's available.

Q: Yeah. Hi. I don't know how much of this you covered. Most of your -- not most but -- I don't know -- half of your opening statement -- (chuckles) -- was kind of unintelligible. I mean, what have you put out there in terms of requirements? I mean, I know you said that, you know, it has to have some military relevance, but what else specifically are you telling these teams to go build?

MR. MCCORMICK: We have -- we have put down a very specific set of requirements, and they are documented on the website, but basically, a platform that will fit in a rucksack. We haven't gone to great measures to determine what a rucksack is. We think a certain amount of common sense will prevail and the vote will take care of any extreme cases. So it has to be man-portable, rucksack-portable; has to do a vertical take-

off, has to fly two miles into some kind of an urban terrain -- and we've actually posted pictures of a -- of an urban terrain site at Camp Lejeune that we intend to use, so people have an idea of what that means; we don't want to design to a specific environment, but this gives them enough to make design choices on -- and perch in a place.

Now people have asked if they can hover, and we think hovering demands too much energy for the battery. But if someone can find a way to overcome that, they can hover and watch or perch and watch. That's fine -- watch for two hours -- something of military relevance. We're going to script -- you know, people walking by, vehicles going by. They have to be able to detect things of significance.

We haven't defined that -- more precisely, we're counting on them to help us determine what's achievable and what makes sense. The platform after those two hours would recover back to the original launch site.

And then there's a series of extra credit -- and this is all point-based -- extra-credit capabilities: the ability to operate in a lost com situation; ability to avoid obstacles; the ability to have the launching team bug out, if you will, and move to a different location, and have the aircraft follow them on the way out. All those would go towards extra credit points.

Q: OK, and I think you said there's -- you think there's a standard industry solution out there, but it suffers from hurdles as far as the government procuring it? Did I understand that correctly? What did you mean there?

MR. MCCORMICK: So what I -- what I said is that we have experimented with this kind of a capability. And we have a program of record. We have produced prototypes. We've given them to war fighters. War fighters have experimented with those prototypes, and we've found that they're promising. You know, I -- and I can talk about that program at length; I want to stay focused on UAVForge.

But we've found that the -- that there's utility, that it's feasible to do this, and we've found that it's practical do to this. But we haven't found that it's kind of crossed the threshold to where it's going to be worth investment for the war fighters. We think there's more potential out there. And we're continuing to experiment with those prototypes, so we're learning every day. But my opinion, I guess -- I don't say it's much more than that -- my opinion is that the cost and the workload associated with operating these things are the limiting factors right now. And those are both things that we think that crowdsource may be able to overcome.

Q: Got you. Thank you.

LT. WALKER: OK, thanks, Jared. Up next, we have Mr. Chris Horb (sp). Go ahead. (Pause.) We must have lost Chris.

Are there any other bloggers on the line that would -- that are next, that I missed?

Q: Oh, it's Walter Pincus at The Washington Post.

LT. WALKER: Oh, hello, Walter. We'll go ahead and take your question, and then we'll move on. Go ahead, Walter.

Q: It was also blocked out. How many teams have you got interested in this so far?

MR. MCCORMICK: We have 93 registered teams.

Q: And I gather some of them are foreign. Is there a percentage of how many are foreign, how many domestic?

MR. MCCORMICK: We don't know. There clearly are some foreign teams, based on the materials that they've chosen to post. I've seen an Italian team. There's a team from an institution in South Korea. So we think there is a global interest. And in case there is a question about that, our focus is on innovation, regardless of where it comes from. That's what we're looking for.

Q: Fine. Thank you.

LT. WALKER: OK. Thanks, Walter.

And anybody else on the line, any other bloggers on the line? (No audible response.)

OK, we'll head back around to the top. Sharon, do you have anything else?

Q: Oh, yeah. I'm sorry, can you briefly, just in very brief, review the schedule again -- you know, for choosing, flying, et cetera?

MR. MCCORMICK: You bet, and I'll even back up. I believe it was April of this year that we launched the website. We have our first milestone event, which is a concept video, coming up the end of this month; so it'll be in October. In the December time frame, we'll have our second milestone event, which will be a first flight video. In the January time frame, we'll have a live fly video. We'll down- select, and in the spring, we will host the fly-off event.

After that -- and we really haven't specified the timeline -- we're going to produce up to 15 copies, and we're going to arrange for this exercise venue, military exercise venue.

Q: Thank you.

LT. WALKER: OK. Jared, do you have any other questions?

Q: Yeah. Just real quickly, once those 15 are produced, what happens next? Is that just a further round of actual tests after those

are actually constructed, or do you -- are those basically ready to be acquired by the military?

MR. MCCORMICK: Those are for experimentation. We will provide those to military customers, who will use them, most likely in exercise scenarios, and provide feedback on what works and what doesn't work.

Q: Understood. Thanks.

LT. WALKER: OK. Did anybody else join us? (No audible response.)

All right. Well -- I'm sorry -- we need to wrap up today's call. I'd like to thank everyone for their great questions and comments. Mr. McCormick, do you have any final statements?

MR. MCCORMICK: I guess I'd like to reinforce the fact that anybody is welcome to participate. The diversity and the different backgrounds just contribute, I think, to the quality of what comes out of this. We're focused on the -- on the innovation and -- and, I guess, I appreciate your time.

LT. WALKER: All right. Thank you, Mr. McCormick.

Just to let everyone know, today's program will be available online at the Bloggers Roundtable link on www.dodlive.mil, where you will be able to access a story from this -- a story based on today's call -- excuse me -- along with source documents such as this audio file, print transcripts and a biography of Mr. McCormick.

If there are any questions about this program, please contact the Department of Defense Social Media Team at 301-222-6254 or at newmedia1 -- numeral 1 -- @dma.mil.

Thank you again, Mr. McCormick and all of our blogger participants. This concludes today's event. Feel free to disconnect at this time. Goodbye.

END.