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News

AUVSI Rejects Calls for Unlawful Destruction of Unmanned Aerial Systems
18 May 2012
Today, the Association for Unmanned Vehicle Systems International (AUVSI) released the following statement from President and CEO Michael Toscano in response to recent depictions in the media that put the unlawful destruction of unmanned aerial systems in a positive light:

"To advocate for people to shoot down any object from U.S. airspace is irresponsible, dangerous and unlawful. Unmanned aerial systems are being designed to serve the public good, such as helping search and rescue officers find missing children, monitor weather and wildlife, provide disaster relief and respond to emergencies, as they did in the Fukushima nuclear crisis in Japan last year. The myriad of important uses will be imperiled if they become targets. Meanwhile, the suggestion that Americans take up arms against unmanned aircraft also endangers citizens on the ground.

"AUVSI welcomes civil discussions about privacy and the proper uses of unmanned aircraft, but it cannot and does not condone violence against technology intended to keep citizens safe while saving taxpayer dollars."

Syndicated columnist Charles Krauthammer recently stated that unmanned aircraft should be banned entirely in the United States, and said that "I would predict — I'm not encouraging, but I would predict, the first guy who uses a Second Amendment weapon to bring down a drone that's hovering over his house is gonna be a folk hero in this country."

The NBC television show "Harry's Law" also recently portrayed its main character shooting down a "drone" in just such a situation.

Under New Leadership, FAA's Unmanned Aircraft Systems Integration Office Meets Its Deadline
by Timothy Adelman, Aviation Attorney
14 May 2012

The FAA's Unmanned Aircraft Systems Integration Office (formally the UAPO) and the Department of Justice's National Institute of Justice's Aviation Technology Program (NIJ) have worked diligently over the past 18 months to identify the hurdles to public safety unmanned aircraft operations in the National Airspace System (NAS) and to provide solutions to those hurdles. With the help of the Congressional Unmanned Systems Caucus, chaired by Reps. Buck McKeon (R-Calif.) and Henry Cuellar (D-Texas), the FAA's Reauthorization Bill provided language for a roadmap to lessen the hurdles associated with the deployment of small unmanned aircraft systems (sUAS) by public safety.

When the FAA's Reauthorization Bill was signed into law by President Obama on 14 February 2012, the FAA was faced with a deadline to enter into agreements with appropriate government agencies to simplify the process for issuing Certificates of Waiver or Authorization (COAs) to operate sUAS public aircraft. While the UAS Integration Office had already been working on a solution in advance of the Bill, the 90-day deadline turned up the heat to get the solution completed. Under its new leadership by James Williams, head of the FAA's Unmanned Aircraft Systems Integration Office and in direct coordination with NIJ, the FAA has developed a streamlined COA process for public safety.

With more than 18,000 domestic law enforcement agencies in the United States and many more public safety agencies, including fire service and emergency response teams, the potential demand for aviation assets is high. Through various studies over the years, there are less than 400 law enforcement aviation units. In other words, less than 3% of all law enforcement organizations have aviation assets to support their daily operations. Why so few? Largely because of the cost and complexity of operating manned aircraft.

In 2007 the Bureau of Justice Statistics published a report that examined the use of aviation assets in large law enforcement organizations (100 officers or more). They identified 201 aviation units operating in 46 states. Those units spend more than $300 million in one year on aircraft purchases, leasing, financing, maintenance and fuel, an average of $1.5 million per aviation unit. While almost all law enforcement agencies would benefit from aviation units, not many can afford them.

Unmanned Aircraft Systems (UAS) provide an affordable solution to those agencies that need "eyes in the sky" but don't have the budget or for those agencies that need to supplement their current aviation units with more cost effective aircraft for specific missions. In December 2009, NIJ hosted a conference for all public safety agencies interested or currently using UAS. During that conference, the agencies identified the anticipated scenarios for which UAS could provide vital support: tactical teams, forensics, fire safety, high-risk warrants, marijuana eradication, photographing critical infrastructure, corrections, traffic for ingress/egress under special conditions, payload detection of HazMat, aid in evacuation after natural disasters, critical incidents, and post-event forensics.

Most domestic public safety agencies are looking for small UAS (sUAS) to provide immediate eyes in the sky in response to a defined incident. The anticipated use of sUAS does not include routine patrol, which would require flight for extended distances over an extended time period. Operations would occur within "defined incident perimeter" in close proximity to the individual controlling the aircraft on the ground and most operations would be for a relatively short duration, i.e. less than an hour. Therefore, the FAA's UAS Integration Office in collaboration with NIJ designed a solution that would permit the operation of sUAS in a less restrictive manner than current FAA policy.

While the COA process will continue, many of its barriers will be reduced. COAs will be available for operations within a defined incident perimeter throughout an agency's jurisdiction. There will be no need to obtain an emergency COA for a specific mission. As long as the

agency operates within its COA, it can fly when it wants and where it wants. COAs will require line of sight operations under 400' AGL during VFR conditions. The COA will permit certain operations within Class C, D, E and G airspace. In addition, and with certain restrictions, agencies can get a COA that would involve operations within 5nm of an airport.

The FAA's UAS Integration Office and NIJ will develop a knowledge base exam for those operators that do not have an FAA issued airman certificate. This exam will help agencies demonstrate an adequate level of airman knowledge to ensure the safe operation of UAS, a tremendous asset for individual agencies risk management programs. The COA process will also provide a sample Safety Risk Analysis Plan ("SRAP") to help the agency identify its areas of risk and ensure safe operating procedures.

The FAA is working to streamline the current online application to lessen the burden on agencies applying for COAs and to help expedite review. The COA process currently requires a lot of technical detail on the aircraft and equipment. The FAA, through its work with NIJ, will develop a master list of sUAS that an agency can use to simply select the aircraft with appropriate equipment. Manufacturers will be able to have their aircraft included in this master list through an independent assessment process.

With model standard operating procedures, SRAP, operating limitations and training curriculum, agencies will have an easier time applying for COAs. The streamlined process will eliminate the need to recreate the wheel and simply provide agencies with best practices for sUAS operations.

The news for public safety agencies and manufacturers is good. The FAA was once considered a major hurdle for public safety operations. While I still hear agencies and manufacturers claim that the barrier to sUAS operations is the FAA, that is no longer an accurate statement. The FAA has already issued operational COAs for specific jurisdictions to a number of agencies. Building upon that experience and through discussions with NIJ and public safety officers, the FAA created the new COA process to help reduce the administrative burden for agencies while at the same time ensure adequate safety.

While the new "Common Strategy" which streamlines the COA process has been agreed upon, there remains an ongoing implementation process. A few of these implementation steps include:

- Creating an online knowledge exam for operators.
- Creating a sample SRAP for agencies to use when applying for a COA.
- Revising the on-line COA application website to incorporate the streamlined process.
- Educating manufacturers and end-users on the new process.

The FAA, DOJ and DHS Science and Technology Directorate are working together to host a multiday sUAS focused conference that will include both educational seminars and live sUAS demonstrations by active law enforcement sUAS units. This conference will mark the kickoff for the new "Common Strategy" and it's streamlined COA process. Attendees will have an opportunity to hear from the FAA, DHS S&T and DOJ regarding sUAS operations. Seminars will include information about the new streamlined process, best practices for operating sUAS in a public safety mission, examples of how to develop your own SRAP, and much more. The conference is anticipated to occur in the middle of September. Stayed tuned for more information about dates and locations.

Having had a chance to participate in many of the discussions with the FAA and NIJ about the new streamlined COA process and having had the chance to discuss operations with many public safety entities, I am confident that the "Common Strategy" will be a significant step forward in the employment of sUAS by public safety agencies. There appears to be a fundamental shift in the FAA's perception of public safety operations. Initially, the FAA feared operations by public safety agencies that did not have adequate aviation knowledge, thereby creating a risk in the National Airspace System. Now, the FAA is focused on providing the tools necessary to help those public safety agencies conduct safe operations in the National Airspace System. Many of the new requirements in the streamlined COA process will help agencies identify the risk of operations and implement proper mitigating steps to limit those risks which seems to be in alignment with the FAA's desire to introduce Safety Management Systems concepts. In the end, the goal is to increase our public safety agencies' effectiveness through technology without unnecessarily increasing the risk to persons or property.

The Case for Driverless Cars
10 May 2012

AUVSI recently released a new white paper: The Case for Driverless Cars.

Driverless cars have been a dream for drivers around the world since the invention of the automobile more than 100 years ago, but have yet to be realized on a mass scale. Recent demonstrations and competitions, utilizing corporate and government investments, have shown that driverless car technology is maturing to the point where such vehicles may be commercially viable within a decade.

A variety of non-technical issues remain in order to field driverless cars. Legal, liability, regulatory, culture, and privacy concerns all need to be addressed for consumers to be able to use, and desire to use, driverless cars.

The paper goes into detail in these issues, the potential American consumer market, and technical aspects of driverless cars. The paper is written for people without a strong background in driverless cars looking for more information and is a good background for people interested in the Driverless Car Summit.

AUVSI Presses DOT to Release Small UAS Proposed Rule
4 May 2012

On 4 May, AUVSI President & CEO Michael Toscano sent a letter to U.S. Secretary of Transportation Ray LaHood asking him to expedite the publication of the small unmanned aircraft system (UAS) notice of proposed rulemaking.

The Federal Aviation Administration (FAA) has been examining the issue of allowing small UAS to fly in the airspace since 2008, when it formed an aviation rulemaking committee (ARC) to examine the issue. Although the ARC issued recommendations in 2009, the FAA has not yet released a proposed rule for public comment on how it will safely allow small UAS to fly in the civil airspace.

Congress, in the FAA Modernization and Reform Act of 2012 - which was passed into law on 14 February - requires the secretary of Transportation to publish a final rule on allowing small UAS to fly in the airspace by mid-2014, with the safe integration of all civil UAS by 30 Sept. 2015.

"The UAS industry believes the pending rule is urgently needed and will provide meaningful guidance to manufacturers and end users for design, construction and operation of small UAS to safely operate and deliver crucial services to law enforcement, agriculture and other sectors of the American economy." said Toscano in a letter to Secretary LaHood. "UAS will be the next big revolution in aviation; however, before this industry can really take off, we need rules from the FAA on how to safely operate alongside manned aircraft."

AUVSI continues to actively engage with members of Congress, federal regulators, aviation stakeholders, potential users, and privacy groups to help educate about the importance of unmanned systems.

AUVSI President & CEO Elected to NextGen Institute Management Council
20 April 2012

On 19 April, AUVSI President & CEO Michael Toscano was elected to serve on the NextGen Institute Management Council (IMC), an industry board comprised of 17 senior leaders from the aviation community. The IMC gives direction and advice to the U.S. government's development of the next generation air transportation system (otherwise known as NextGen).

On being elected by a unanimous vote by his peers, Toscano said, "I'm honored to serve the IMC as the representative for the unmanned aircraft systems industry. Without a doubt, unmanned aircraft systems (UAS) will play an increasing role in the National Airspace System, and NextGen will be required to safely integrate routine operation of UAS with manned platforms. I'm confident that in the near future, UAS operations will be an integral part of the NAS providing many benefits to commercial and civil users as our systems heighten the human's situational awareness and help them do their jobs safer and more efficiently."

The NextGen system will update our nation's 50-plus year-old radar-based control system, with a satellite-based, precision navigation system that will allow for increased capacity while also increasing safety. As the airspace becomes more congested, it is important that pilots, air traffic controllers, and UAS operators, all work together to ensure sense and avoid capabilities are mastered. Toscano said, "As the association representing the breadth of the UAS community, AUVSI will work with the other stakeholders of the IMC to ensure that NextGen incorporates seamless integration of UAS into the NAS and ensures safety for all aircraft."

AUVSI Day on Capitol Hill Wraps Up National Robotics Week
By Brett Davis and Stephanie Levy
17 April, 2012

AUVSI Day on Capitol Hill wrapped up National Robotics Week with congressional speakers and AUVSI-member exhibits highlighting the various uses for unmanned systems.

Rep. Mike Doyle, D-Pa., cochair of the House Robotics Caucus, started the day with a breakfast speech in which he highlighted the many uses of unmanned systems, from the war zone to the hospital.

"In the past eight years, the U.S. Army has bought more than 7,000 robots and robotic devices for use in the wars in Iraq and Afghanistan, which has saved the lives of countless American soldiers," Doyle said.

Attendees had 65 meetings with 38 members of Congress during the event.

In the exhibit hall at the Rayburn House Office Building foyer, 16 exhibitors showcased the latest developments in unmanned systems and robotics, highlighting how members of Congress can get involved in the awareness and funding process. For example, engineers from Carnegie Mellon University demonstrated their snake robot, useful for building inspections, mine rescues and other jobs requiring the ability to move through tight spaces. A much smaller version of the coiling robotic critter is currently in use as a heart surgery tool.

"As robotics become more and more important in all our daily lives, not just the military, there are going to be some ethical and legal questions that come up about what the impact of robotics is going to be," said Alan Bignall, president and CEO of ReconRobotics. ReconRobotics literally tossed around it's Scout XT throwbot as part of a live demonstration for congressional members and staff.

Sea Air Space: Knifefish Surfaces, Fire Scout Fights On
By Stephanie Levy
16 April, 2012

General Dynamics has unveiled Knifefish, a new unmanned underwater vehicle for maritime countermine missions.

Capt. Duane Ashton of the U.S. Navy's Program Executive Office for the Littoral Combat Ship, helped the company unveil Knifefish on the first day of the Navy League's Sea Air Space conference on Monday at the Gaylord National Resort and Convention Center in Maryland.

Ashton said Knifefish would be deployed as part of the LCS' mine countermeasures mission package to "detect, classify and identify mines."

"The whole goal is to be able to take the marine or the sailor out of that mine environment, and this is a great start to do that," Ashton said.

The system, scheduled to be in use on the Navy's Littoral Combat Ships by fiscal 2015, is a totally autonomous vehicle that can be deployed for up to 16 hours at a time. Knifefish locates mines planted at any depths using a slow frequency broadband sensor. The vehicle then relays that information back to the ship for post-mission analysis.

Ashton said this sensor makes the vehicle especially adept at locating crowded and buried underwater mines that the Navy can't currently locate. Knifefish can also monitor its own "health" in real-time.

"The purpose of the mine countermeasures program is to provide that standoff, to have the unmanned systems to into the mine field in terms of mine hunting, then be able to identify the mine, report the location of the mine and then go in and neutralize it," Ashton said.

In the air domain, Northrop Grumman highlighted the use of its Fire Scout unmanned helicopter to track pirates with new 3-D laser imaging technology. But those actually wanting to fly the Fire Scout will have to wait; the vehicle came under an operational pause after recent crashes. This means crews can still perform ground work on the vehicle, such as situation assessment and maintenance, as if Fire Scout was getting ready to fly, but it doesn't go up in the air.

"Grounding means red stripe. Grounded. It's a very subtle distinction," John VanBrabant, Campaign Lead-Tactical Unmanned Systems for Northrop Grumman, said. "They are in operational pause while the Navy does mishap investigation."

In all, the three-day event features more than 170 exhibitors.

Brookings Panel Addresses UAS Privacy Concerns
By Danielle Lucey
5 April, 2012

With the 30 Sept., 2015, deadline to give unmanned systems access to airspace looming, members of the privacy rights community are expressing concern about the possibility that "drones" may soon be flying down your street, into your backyard and peering into your home.

However, a panel discussion recently put together by The Brooking Institution, filled with its own fellows, a staff attorney from the ACLU and a fellow from the Heritage Foundation, seemed, in essence, to agree: All things in moderation.

Many panelists acknowledged the technology's impressiveness and cool factor, saying that although privacy concerns should be acknowledged, this technology also needs room to grow.

"Are there measures that can be effective that will minimize any negative impact on the legitimate users of drones, which are of course are the vast majority?" asked John Villasenor, a nonresident senior fellow for Brookings and also and professor of electrical engineering at UCLA. Villasenor says he suspects the solution to this will be technological.

"The presence of challenges regarding privacy, safety and national security don't mean that we should forgo many of the beneficial domestic uses of unmanned aviation systems," he concluded.

Kenneth Anderson, a nonresident senior fellow for Brookings and a professor of law at American University, said though many people in the United States claim to be very guarded about their privacy, few people, especially from younger generations, blink an eye at sharing their life on social media networking sites.

"One the one hand, we wind up insisting we have the right to essentially turn the world away, even at the electronic level, but at the same time we share so much," said Anderson. "I don't think we can actually talk about drones in relations to their impacts on these other areas … unless we talk instead about the prior expectations we have for privacy."

Much like the current state of the unmanned systems industry, the now prolific — and equally privacy invading — Internet once was, and to a large extent still is, a privacy advocate's nightmare. So what lessons learned could the unmanned systems industry possibly take from the boom the Internet experienced? If unmanned systems grow as quickly as the World Wide Web, the panelists agreed that it would be impossible to foresee all the regulations necessary to ensure citizens' privacy.

"With drones I think it would be presumptuous for any of us to sit here and know that 15 years from now we could sit here today and say exactly what those are going to be, so I think humility with respect to acknowledging what we can't predict is probably important as we move forward," said Villasenor.

A few fears addressed by the panelists do seem impossible given the current state of UAV technology. Panelists agreed that unmanned systems posed a different threat than manned aircraft, because few people or even police can afford their own Cessna or helicopter to keep an eye on their community. But with cheaper unmanned systems, virtually anyone could keep an eye in the sky for days or even years.

Realistically, however, most unmanned systems that people could afford are very small and low in weight, quadrotors and small hand-launched fixed-wing systems that rarely have a flight time of more than 30 minutes with current technology. Not to mention, many unmanned systems of this size are often compared flying lawn mowers, noisy and hardly currently capable of being inconspicuous.

Anderson also relayed a story of how in the early days of caller ID, the Pennsylvania branch of the ACLU was strictly opposed to the idea that the freedom of speech could be denied by allowing others to simply not pick up the ringer to hear what a person had to say. This idea is laughable now, says Anderson, and perhaps one day the idea of concern over unmanned systems and privacy might be too.

Some members of the audience wondered if it was the Federal Aviation Administration's place to address privacy issues.

"I can imagine no worse forum for discussing privacy concerns than the FAA. It's not built for that," said the Heritage Foundation's Paul Rosenzweig. "It's like asking the EPA to think about national security concerns. … I do think that the privacy issues are vital, and if you don't think about them you'll get the wrong answer because you'll end up losing all public support. … but the FAA is great at safety issues. It's great at air traffic control issues. … But I would want that privacy discussion to happen somewhere else."

He also warned of "throwing the baby out with the bathwater," where unmanned systems would be prohibited from applications

they're very well suited for, like post-disaster surveillance.

"To my mind, the right answer is regulation," said Rosenzweig. "We should authorize the good uses and be very cautious and careful about the bad uses."

Catherine Crump, staff attorney for the American Civil Liberties Union, said she is concerned that police could readily obtain unmanned systems but the public at large might be more restricted, meaning the police could monitor citizens, but citizens would have a harder time using unmanned systems as a tool for holding government accountable.

Brookings Senior Fellow and moderator Benjamin Wittes wondered if that was a fair assessment, wanting unmanned systems as a public instead of a civil tool as well.

"I was struck when you were talking. It's arguably not a contradiction, but it's certainly an anomaly," he said.

Perhaps the most telling event of the panel occurred when moderator Wittes turned over the panel to questions.

"I should have mentioned this at the outset, but this event is being webcast," said Wittes, to laughter from the audience. "So we have a group of people who are surveilling this, not from a drone." Wittes pointed to a seemingly autonomously pivoting camera eye, broadcasting the event. "Although that thing over there which keeps turning and sensing is eerily familiar."

To watch the full hour and a half discussion, broadcast on C-SPAN, click here.

iRobot Sends UGVs to South Carolina Nuclear Plant
By Stephanie Levy
3 April, 2012

IRobot's PackBot and Warrior unmanned ground vehicles will travel to the H.B. Robinson Nuclear Plant near Hartsville, S.C., to perform routine and periodic maintenance on the plant. Utility company Progress Energy purchased one Warrior and two PackBot systems from the Massachusetts-based company. IRobot delivered the PackBots to the plant in 2011, and the Warrior robot followed in February 2012.

"Robots mitigate risk by keeping personnel out of radioactive environments and serve as a cost-effective way to perform operations. IRobot is excited about growing its presence in this market," said Tim Trainer, iRobot's interim general manager of the Military Robots business unit, in an April press release.

Trainer says Progress Energy had already successfully tested the robots in routine maintenance tasks around the plant. IRobot provided on-site training to Progress Energy workers using the systems.

IRobot systems got a high-profile start in nuclear plant missions when they helped with cleanup at the Fukushima Dai-ichi nuclear plant in Japan in March 2011. Trainer says the difference between the Fukushima job and the work PackBot and Warrior will do at the H.B. Robinson Nuclear Plant is that the domestic robots will not be working in a disaster situation where there are multiple unknowns. For more on how iRobot helped Japan recover from natural disaster, check out the summer 2011 issue of *Mission Critical*.

"The operations with Progress are routine, sustained. There are processes for accomplishing those requirements," Trainer said in an interview with AUVSI. "Robots replace [people] more efficiently, safely with less exposure."

Trainer says iRobot will continue looking for ways to leverage its robots in the domestic energy market. In a nuclear environment, robots allow their operators to stay in a safe location while they go into hazardous or dangerous environments.

"We need to show the success with Progress and work with those operators to show them the value of robotics in their facilities," Trainer says. "We're excited about getting into the industrial markets. This is one piece of the market in the nuclear field that portends the larger use of robotics in industry."

What is Your Vision of Driverless Cars? Enter AUVSI's Driverless Car Film Fest Contest
2 April 2012
AUVSI's Driverless Car Summit 2012 is hosting a film festival to explore the potential societal aspects of driverless cars. Use your creative side to help promote the idea of driverless cars by 2022!

Background: Driverless cars have the opportunity to revolutionize transportation in ways not seen in decades. The potential impacts to society are numerous but not well understood.

Objective: Create a video that explores the potential societal impacts of driverless cars.

Need Inspiration? Visit these sites to get your creative juices flowing! Additionally, the Driverless Car Summit website will be adding background information on driverless cars.

Blind man in a driverless car: http://www.youtube.com/watch?v=peDy2st2XpQ
Sebastian Thruun TED talk on Google Driverless Car: http://www.youtube.com/watch?v=bp9KBrH8H04
Driverless car interior view: http://www.freep.com/videonetwork/1525318013001/-Driverless-car-interior-view

Judging: Eligible submissions will be posted to the AUVSI Youtube page. The

Driverless Car Summit committee will select the top submissions. These submissions will be shown at the Driverless Car Summit in Detroit, 12-13 June 2012. Attendees from the summit will vote on the second day of the summit and the winner will be announced at the closing reception.

Rules:
• Uploadable to youtube.com, meeting all appropriate policies
• 3 minutes or less
• Nothing inappropriate and judged by the committee (language, behavior, images, etc)

Winners Prize Money:
1st place: $5,000
2nd place: $1,500

3rd place: $500
Fans Choice (most YouTube hits): $500

Visit the Film Festival website for more information.

Researchers, Officials Chart the Way Ahead at Israel Conference

By Brett Davis
20 March, 2012

Unmanned aircraft are growing closer to routinely flying in unsegregated airspace, an issue that drew the attention of several speakers at AUVSI Israel Chapter's first international conference, held 20-22 March in Tel Aviv.

Israel itself has created new regulations for small unmanned aircraft, a relatively rapid development for a country where all UAS were under complete military control as recently as 2005.

Flights are permissible now as long as the manufacturers can demonstrate safety, says Benny Davidor of Israel's Civil Aviation Authority. Several UAS builders and operators have applied for certifications, and although they haven't yet been approved, that's coming, he says.

"Right now we are starting to see a big wave ... of people who want to buy civil equipment to do civil work," mainly for aerial photography, he says.

Israel's experience may not translate well to other countries, several speakers noted, as it has some unique circumstances. Aside from a small pocket of air around Tel Aviv, all of Israel's skies are managed by the military, which can track everything moving within them. That, coupled with Israel's small size, makes it comparatively easy to integrate UAS.

Other countries are moving forward as well. In the United States, the Federal Aviation Administration is working under a new 2015 deadline for UAS integration, with smaller vehicles slated to fly even before that.

In Europe, EUROCAE's Working Group 73, which is devoted to integration issues, has set up another committee, Working Group 93, specifically to handle small UAS, says EUROCAE Chairman Tore Kallevig. The flights would be at altitudes of less than 400 feet and within visual range of the operator.

Overall, the working groups plan to gain access to airspace incrementally, Kallevig says, not all at once.

"We need to do this step by step," he said. "We have realized that we need to take a certain scenario, make a certain set of assumptions, and create the standards based on that."

Robots Escape the Cage

Charles Thorpe, assistant director for advanced manufacturing and robotics at the White House Office of Science and Technology Policy, said unmanned aircraft aren't the only robotic systems that could be put to wider use. He said the White House backs a push to incorporate more robots into collaboration with humans instead of keeping them behind cages on factory floors.

"That's good for safety but bad for collaboration," he said.

The way to do that, he says, is by increasing their intelligence and autonomy, part of the thrust of the National Robotics initiative launched by the White House.

"One way that you build your cooperation strategies is to make your robots so smart that you can put the people next to them without worry of injury."

The NRI, through multiple federal agencies, has posted a call for research on ways to build robots that work with people instead of competing with them, he says. It drew more than 700 responses.

"If you receive a proposal from every researcher in America, who's going to review the proposals?" he asked.

The conference has drawn an audience of around 650 attendees, mostly from Israel, although there are 80 attendees from abroad representing a total of 18 countries.

HRI 2012: Graduating Robots from the Lab

By Stephanie Levy

ACM/IEEE's Human Robot Interaction (HRI) 2012 conference in Boston highlighted the need for academics to tailor their robotics research for applications in the real world.

"Lab demos that you do with robots often make non-obvious simplifying assumptions that do not hold when you get out into the real world," Rodney Brooks, MIT's Panasonic Professor of Robotics (emeritus), said in his keynote address to open the conference. "If we do our job right, we'll allow ordinary people to control and program cheap, sophisticated robots."

Attendees saw some of these "real world" applications for robotics in the conference's exhibition hall. For instance, Aldebaran Robotics introduced attendees to Nao, a humanoid robot designed to teach K-12 students STEM principles It can even be programmed to dance to Michael Jackson's "Thriller."

"Our curriculum used in conjunction with Nao allows students to develop a structured approach to finding solutions and adapting a wide range of cross-sectional educational content," the company says in a press release.

In a panel on robotic telepresence moderated by AUVSI's Senior Program Development Manager Lindsay Voss, experts from Willow Garage, VGo and the Intelligent Robotics Laboratory at Osaka University in Japan discusssed advances in telepresence technology, and what they mean for end users. For instance, VGo CEO Peter Vicars said the company's original focus was "providing telepresence for

the business world enterprise." But recently the company has seen children with a disability use their robot as a surrogate to attend school and interact with other kids in daily life.

"These are the kids who stay at home, can't go to school, miss out on everything you've had with going to school," Vicars said "[With] the robots in the school, they drive the robot from home, they attend school, they go from class to class, they go to lunch and they have a life. Moms tell us 'You changed my child's life.'"

Other papers shared at HRI demonstrated uses for robots as surgical assistants, museum guides and interactive toys for children.

FAA Starts UAS Test Site Selection Process
March 8, 2012

On 7 March, the Federal Aviation Administration (FAA) released a request for public comment on the selection process for six unmanned aircraft systems (UAS) test sites (comments due by 9 May), following Congressional language in both a defense spending bill (passed 31 Dec. 2011), and the FAA reauthorization bill (passed 14 Feb. 2012), requiring the FAA to create six UAS test sites around the United States. However, before the FAA issues a request for proposals to select the actual test sites, the FAA first needs help developing the test site requirements, designation standards, and oversight activities.

Along with creating UAS test sites, Congress also called for the full integration of UAS by 30 Sept. 2015. So, in addition to allowing for more UAS operations, including by commercial operators, the goal of the test sites is to help the FAA develop the regulatory framework to govern the widespread use of UAS in the national airspace.

"Unmanned aircraft will be the next big revolution in the aerospace industry, and the creation of these test sites will mark the beginning of what will one day be a common occurrence, manned and unmanned aircraft safely flying together in the same airspace" said AUVSI President & CEO Michael Toscano. "AUVSI applauds Congress's foresight on creating these test sites, and looks forward to working with the FAA, aviation stakeholders, and the general public, to ensure UAS operations are conducted in a safe and transparent manner."

There are currently dozens of non-military uses of unmanned systems, including the use for law enforcement, firefighting, border surveillance, disaster surveillance, aerial photography, wildlife monitoring, agriculture applications, news coverage, mapping and more. The field of unmanned systems is changing rapidly, that it is likely we have not fully comprehended all of the potential uses. However, one thing is clear unmanned systems are here to stay.

The public comment period will be open for 60 days following the official publication in the federal register on Friday, 9 March. Responses will be limited to 2.5 pages per question, with a maximum response of 20 pages (using 12pt font size).

Singapore Airshow 2012: American Companies Stand Their Ground, Asia-Pacific and Israel Stand Up New UAVs

By Danielle Lucey

This year's Singapore Airshow 2012, held in the Asia-Pacific city-state in February, featured many companies from the region touting their new and emerging aircraft, while many U.S. companies maintained a presence but had little new wares and product releases. Unmanned systems companies from Europe and Israel focused on partnering with companies in the region and improving the capabilities of their current unmanned lineup.

One of the most conspicuous unmanned systems at the show came from Elbit Systems, which showed off its Hermes 900 full-sized model debut at the show. The Hermes 900 has a larger payload bay, extended flight time and flexible payload configurations.

"Especially when budgets are being cut, you need something versatile," says Elad Aharonson, executive vice president and general manager for Elbit Systems' UAS division.

The company previously sold the Hermes 450 to Singapore and would like to follow that up with the 900.

The company also released a new hyperspectral imaging sensor, useful for conditions which electro-optical or thermal imaging is not enough, says Aharonson.

"We believe with the UAV business, it's very important to have a good aircraft, but this is only the beginning of the story," says Aharonson.

The product could be useful in both the military and the civilian sectors, in applications like searching for shallow land mines, says Aharonson.

Swedish company CybAero has experience selling to the Asia-Pacific region through a partnership the company has with local dealer Stratech Systems. The company would like to expand its sales to China's civil market, the only sector that is clear for export, says Niklas Nyroth, director of sales and marketing for CybAero.

"The Chinese market is an extremely hot market," he says.

The company's prime UAV, the Apid 60 vertical takeoff and landing system, is a multipurpose aircraft that can also be used in the maritime environment.

By far the largest booth presence at the show was Singapore's homegrown ST Engineering. Its ST Aerospace division showed the company's Skyblade IV, which will go into production in the second half of 2012, according to Milly Tay, vice president of the company's UAV Business sector. Two years prior at the Singapore air show, the product was undergoing testing with no release date in sight. The company also showed its new Skyblade 360, which is still under development. The craft will run for three hours in a battery configuration, which ST Aerospace hopes to release sometime in 2013. A second configuration of the aircraft, using a fuel cell battery, will be in the works after that, says Tay.

Unmanned systems companies from America were scarcer at the show, with many hot-selling brands conspicuously missing; however, many of the companies that did maintain a presence were the U.S.' behemoth-sized defense contractors.

Northrop Grumman's Walt Kreitler, the company's director of business development, reinforced the company's commitment to its Global Hawk, particularly the U.S. Navy's continued backing of its Broad Area Maritime Surveillance program. The maritime-rated Block 20 variant was not a part of the recent U.S. budget cuts, like the company's Block 30. The company even plans on making one more

BAMS version of the Global Hawk than the Navy is asking for, Kreitler says, for now, just so the company can have one.

Like Northrop Grumman's Global Hawk, Honeywell's T-Hawk had a high-profile role in Asia when it aided in response to the Fukushima nuclear meltdown. Jesse Ellis, director of program management for the company's Asia-Pacific aftermarket in its Defense and Space sector, said that Japan has realized from that event that the country doesn't have the capability to perform the duties T-Hawk provided with a homegrown system. Honeywell has been talking to a number of Asia-Pacific customers, and the company would like to make the T-Hawk available to them for applications like fire fighting and emergency response.

President Obama Signs FAA Bill into Law
Starting the Clock on the FAA's UAS Integration Efforts
Feburary 14, 2012
President Obama sent a Valentine's Day present to the aviation community, including the unmanned systems industry, signing the long-overdue Federal Aviation Administration (FAA) bill into law on 14 Feb., which includes important provisions on the integration of unmanned aircraft systems (UAS) into the national airspace system.

The last time Congress passed an FAA bill was in 2003, when UAS were just starting to show their value and viability in military operations in Iraq and Afghanistan. In recognition of how fast UAS technology is advancing, in addition to the huge potential civil and commercial market, Congress included language requiring the FAA to expedite the safe integration of UAS into the national airspace. Congress set a deadline of 30 Sept. 2015 for full integration. Start the clock!

"Technology is advancing to the point where we now know these systems can reliably fly. The next step is to work on the regulations that govern the rules of the sky to ensure that unmanned aircraft do no harm to other manned aircraft or to people or property on the ground," said AUVSI's President and CEO, Michael Toscano. "We applaud the foresight of Congress and look forward to working with the FAA to implement these requirements."

Some of the major UAS provisions in the FAA bill include:

- Setting a 30 Sept., 2015 deadline for full integration of UAS into the national airspace
- Requiring a comprehensive integration plan within nine months
- Requiring the FAA to create a five-year UAS roadmap (which should be updated annually)
- Requiring small UAS (under 55lbs) to be allowed to fly within 27 months
- Requiring six UAS test sites within six months (similar to the language in the already-passed defense bill)
- Requiring small UAS (under 55lbs) be allowed to fly in the U.S. Arctic, 24 hours a day, beyond line-of-sight, at an altitude of at least 2,000 feet, within one year
- Requiring expedited access for public users, such as law enforcement, firefighters, emergency responders
- Allowing first responders to fly very small UAS (4.4lbs or less) within 90 days if they meet certain requirements. *The goal is to get law enforcement and firefighters immediate access to start flying small systems to save lives and increase public safety. Although 4.4lbs doesn't sound like a lot, there are numerous platforms available that meet this requirement.*
- Requiring the FAA to study UAS human factors and causes of accidents

The bill also includes an exemption for model aircraft, as long as the aircraft weighs less than 55lbs and follows a set of community-based safety standards

NASA's FY 2013 Request Axes Robotic Martian Exploration

By Brett Davis

NASA's fiscal 2013 budget request of $17.7 billion includes a reduction of $226 million to robotic exploration of Mars, forcing the aerospace agency to scrap the planned U.S.-European ExoMars program.

That program initially called for a pair of rovers, then a single rover, but NASA Administrator Charles Bolden said Feb. 13 that it was still a "flagship" effort the agency couldn't afford.

"There's no doubt that tough decisions had to be made," he said at a budget briefing.

NASA budget documents say that a new cross-discipline team from the Science Mission Directorate, Human Exploration and Operations Mission Directorate and the Office of the Chief Technologist will meet with European partners to plan new, and smaller, missions to accomplish much the same science. The team has a deadline dictated by the heavens: Mars will be closer to Earth between 2018 and 2020, when the new missions would need to launch. The agency plans to outline the first mission under this new approach in next year's budget request.

"What we are doing with our partners is now walking away at all," Bolden said. Instead, NASA will "take the limited funds that are available and restructure a reasonable robotic Mars exploration strategy."

NASA's Opportunity rover is still plugging away on the red planet and the Curiosity rover, part of the Mars Science Laboratory mission, is on the way, and two orbiters continue to send data.

"For someone to say we're walking away from Mars with the largest rover not even there yet, I don't think that makes sense," Bolden said. However, NASA "found that we could not afford the path that we were on."

DOD Budget

As defense officials have been outlining for weeks now, the fiscal 2013 budget attempts to stem defense growth over the coming decade, which affects several specific programs, including popular unmanned ones. There are plenty of unmanned systems in the budget but not as many as had once been planned.

The U.S. Navy is going to stretch out the program to fly unmanned aircraft off of aircraft carriers, known as UCLASS, said Rear Adm. Joseph Mulloy. He said the ongoing demonstration program will continue a little longer and the initial operational capability date will slip from 2018 to 2020.

The Navy's Medium-Range Maritime Unmanned Aerial System (MRMUAS), which had barely gotten started, has been canceled and that need will be filled by the MQ-8B Fire Scout and its follow-on, the MQ-8C. The Fire Scout has been performing well enough in theater that "it was deemed a manageable risk to terminate the MRMUAS program in FY 2013," budget documents say. The budget also begins the purchases of the Small Tactical UAS (STUAS), with five systems a year planned over the next three years.

The U.S. Air Force seeks to cut the Block 30 Global Hawk in favor of the existing U-2 manned spy plane, although the budget would still buy the first three NATO Global Hawks and three Broad Area Maritime Surveillance versions, for a total cost of nearly $1.3 billion.

Aircraft acquisition in general is down. Purchases of Air Force Reaper UAS and Army Gray Eagle UAS would drop from 91 in fiscal 2012 to 43 in FY '12, or 24 Reapers and 19 Gray Eagles. The overall budget goes from $2.1 billion in FY '12 to $1.9 billion.

"The FY 2013 program sustains 65 MQ-1/9 combat air patrols with a surge capability to 85; retains the Predator longer than previously planned, protects funding for the Army's Gray Eagle, and continues the development of new capabilities. The Department has determined that 24 MQ-9 Reaper aircraft adequately support 65 combat air patrols and has reduced the procurement of the MQ-9 Reaper by 24 aircraft and reinvested the funds in ground stations," according to budget documents.

Buys of the RQ-7 Shadow and smaller RQ-11 Raven are also down. From a buy of 900 Ravens last year, the Army would acquire 234 in fiscal 2013. Many of the aircraft are still in the pipeline, however, and the overall budget drops less precipitously, from $294.5 million in FY '12 to $228 million in FY '13. The Air Force research and technology budget includes $292 million for studying an optionally manned, long-range bomber, which would ramp up to a total of $6.3 billion over the next five years.

Congress Weighs In

Lawmakers on Capitol Hill will take up the fiscal 2013 budget request beginning 14 Feb., and battle lines are already being drawn.

Some lawmakers with oversight of NASA have already decried NASA's withdrawal from ExoMars, and Rep. Howard "Buck" McKeon, chairman of the House Armed Services Committee, said at last week's AUVSI's Unmanned Systems Program Review 2012 that he wants to review the decision on the Global Hawk Block 30.

AUVSI Urges Congress to Consider Advantages of Unmanned Systems while Reviewing 2013 Defense Budget

By Melanie Hinton

As the Obama Administration prepares to release its fiscal 2013 defense budget, the Association for Unmanned Vehicle Systems International (AUVSI) applauds the commitment to maintain and increase the use of unmanned systems and urges Congress to carefully consider the advantages provided by the technology.

"As Congress begins work on the budget, we urge lawmakers to consider the unique value proposition that unmanned systems bring to the table," says AUVSI President and CEO Michael Toscano. "In many cases they can extend the warfighter's reach and provide invaluable situational awareness."

The Strategic Defense Review, as described by Secretary of Defense Leon Panetta, calls for a continued reliance on new technology, including armed and unarmed unmanned systems, as the military increasingly focuses on security in the Asia-Pacific region and strengthens and forges alliances with other nations around the world.

Unmanned systems have proven their operation value both in military and humanitarian operations in the past few years, showing that they excel in tackling dull, dirty, dangerous and difficult missions, often more effectively and inexpensively than manned systems. Secretary Panetta said recently that unmanned systems are one area of investment protected over the next five years, as they are a key element in supporting a more agile force.

Program Review Maritime Day: Greater Automation at New Depths

By Stephanie Levy

AUVSI's Unmanned Systems Program Review 2012 wrapped up with maritime day, highlighting military and civil demand for interoperable, high-payload, low-cost autonomous underwater vehicles.

Rep. Henry Cuellar, D-Texas, kicked off the morning by lauding the accomplishments of unmanned systems in disasters like the Deepwater Horizon spill and the Fukushima Dai-ichi nuclear disaster in Japan and called on industry to work with government to do more.

"As the unmanned systems garnered interest on the Hill, it's prime time to educate members of the benefits of unmanned systems," Cuellar told the crowd of more than 200 attendees from the military, government, industry and academia. Unmanned systems "provide the incentive priorities for the private sector, which is so important."

For Capt. Evin Thompson, branch head of Naval Special Warfare in the Navy's Expeditionary Warfare Division, the current benefit of unmanned systems for Navy SEAL and special operations lies in the number of lives saved and their effectiveness in theater. The next steps are monitoring the Strait of Hormuz near Iran and improving antimine warfare.

"Using those systems for underwater reconnaissance, how do we do this effectively? How do you have those communication systems?" Thompson asked, stressing that for him, the human benefit of unmanned systems outweighs the financial cost.

"I could care less if unmanned systems go down," Thompson said. "We need to really think about this: I'm going to put guys on target, and I want to give them the protection of an eye in the sky."

Capt. Duane Ashton says the Navy is currently testing an unmanned influence sweep system in the Gulf of Mexico that should be ready for full production by fiscal year 2017. The Navy is also working on the Knifefish, a 21-inch UUV that uses low-frequency capability to go after buried and crowded mines.

"We want to be able to take mine sweeping now but we want to be able to get into mine hunting as well," Ashton said.

On the civil side, the afternoon focused on the uses of unmanned vehicles and robotics in the oil and gas industry. Thomas Chance, president and CEO of C&C Technologies, said remotely operated vehicles expand the reach of oil rigs to operate in deep water, since human divers can only operate at depths up to 1,000 feet. C&C will conduct an AUV survey off the coast of Mozambique this year, with the help of armed guards from the Mozambique army.

The future of autonomy in the oil and gas industry is target recognition, or "being able to position yourself in a map of the world," said Bob Black, CEO of SeeByte. To do this, ROVs must apply "sophisticated algorithms to pick out targets of interest."

"We start off with a map of the infrastructure that we want to look at ... and we know the relative positions of the different components," Black said. "In an oil and gas context, it could be a pipeline on a seabed, it could be a riser carrying hydrocarbons to the surface, or it may be a well head."

SeeByte is collaborating with Subsea7 to deploy a new autonomous inspection vehicle, or AIV. It's the first commercial AIV on the market that will do independent autonomous inspection work. Black said he sees the practical application of the system for rapid integrity assurance of subsea facilities after natural disasters like hurricanes or cyclones. SeeByte and Subsea7 will host the first official offshore launch of the AIV technology this April in Houston.

Also, the National Oceanic and Atmospheric Administration announced it is embarking on a climate change study collaboration with NASA and the space agency of Argentina. The two-year effort will cost $10-20 million. NOAA will use unmanned gliders, along with a host of other technologies, to study the salinity of ocean water. In all, NOAA has 80 gliders as part of a nonfederal partnership.

"We want to make sure folks know where that data is," said Zdenka Willis, director of the U.S. Integrated Ocean Observing System Program office for NOAA. "We stream it into the various oceanographic models the Navy uses. We've got to educate our next generation of how important the oceans are and how it relates to our lives here."

Jeff Kline from the Consortium for Robotics and Unmanned Systems at the Naval Postgraduate School closed the day with a message of opportunity. CRUSER is crowd-sourcing ideas for the "next big thing" in unmanned systems; individuals can submit "any thesis topic you might be interested in for a student or faculty member to start the work on," Kline said. CRUSER will hold a technological symposium showcasing these proposals sometime in 2012-2013.

Program Review Air Day: Budget Concerns, Program Updates

By Brett Davis

Signaling the opening of pending arguments over future defense spending, Rep. Howard "Buck" McKeon, R-Calif., chairman of the House Armed Services Committee, said he's concerned about a pending defense drawdown, which he said would unfairly target the defense budget.

McKeon was the opening speaker at AUVSI's Unmanned Systems Program Review 2012. He said he has mixed feelings about Air Force plans to cancel Northrop Grumman's Global Hawk Block 30 program and instead soldier on with the venerable U-2 manned aircraft for spy missions.

"It's a little proprietary for me," he said, as the U-2 was developed in his district, but the Global Hawk is also built there. "It's not like I think one's better than the other because [of] what it does for my district, but I'm looking forward to a longer conversation about this subject," he said. "I want to understand how 50-year-old technology beats modern unmanned technology. It comes down to numbers and dollars and cents, I guess, but I need to have a further conversation about that to see how that works."

McKeon's presentation was briefly interrupted by Code Pink protester Medea Benjamin, who hopped on the stage to protest "killer drones." McKeon quipped that he has many grandchildren and is used to being interrupted.

Meeting Demand

Other speakers at the program's Air Systems Day highlighted the fact that unmanned aircraft are taking on new roles, such as cargo resupply, even as their existing roles are being beefed up with advanced sensors and other equipment.

Lt. Gen. Larry James, deputy chief of staff for ISR at the U.S. Air Force, said new sensor packages are resulting in "huge" amounts of data. One new sensor platform, for instance, ARGUS-IS, is capable of generating 87 years' worth of full-motion video "every single day." The demand for unmanned combat air patrols has been such that the service has backed down from last fall's surge to 65 CAPS and is on "a gradual backdown to 57 CAPs, frankly so we can reconstitute … to create more pilots," he said.

Richard Kretzschmar, the U.S. Army's new deputy project manager for unmanned aircraft, said the agency is beefing up its Shadow, moving ahead to develop a new small aircraft family and developing an unmanned helicopter in conjunction with the U.S. Navy. The service is also working to demonstrate its ground-based sense-and-avoid capability, although it has now moved that effort from El Mirage, Calif., where night flights were conducted last year, to Dugway Proving Ground, Utah, where controlled airspace can be used. The Army plans to start conducting demonstrations there this summer.

One new use for unmanned aircraft is cargo resupply, which the U.S. Marine Corps is demonstrating in Afghanistan with the Lockheed Martin-Kaman unmanned K-Max, where it's supporting three forward operating bases. The aircraft was delivered to the area in the middle of December, and "we've been flying it ever since," said Lt. Col. Brad "Myrtle" Beach, the UAS coordinator at the Marine Corps aviation headquarters. "It's doing quite well for us."

The system is not only able to replace some manned convoys, as it did on a recent delivery of some engines, but it can also operate in dusty weather conditions that make it difficult to drive. To date, it has racked up 94 sorties, flying more than 100 hours and delivering 155,000 pounds of equipment.

Integration

Several speakers noted that the new Federal Aviation Administration reathorization bill calls for unmanned aircraft to be integrated by 2015. They also noted that this represents a significant challenge.

"Can it be done? It's a significant challenge," said Joe Sciabica, executive director of the Air Force Research Laboratory. "Can it be done? I think so. I think it can but we have to collectively come together in a partnership to solve this. … You can't look at it and say, OK, the Air Force is going to solve it; the Marine Corps is going to solve it. If everybody is doing it, nobody's doing it."

Milestones

Several speakers pointed out program highlights to expect this year:
• Northrop Grumman's Fire Scout will fire a weapon for the first time
• The Navy's Broad Area Maritime Surveillance aircraft is expected to have its first flight, leading to a more capable system than the current demonstrator aircraft (both are based on the Global Hawk UAS)
• The Department of Homeland Security will launch a demonstrator program aimed at transitioning unmanned aircraft to the nation's first responders.

Program Review Ground Day: Leveraging Current Technologies and Standards

By Danielle Lucey and Stephanie Levy

Day one of AUVSI's Unmanned Systems Program Review kicked off with a special address from Rep. Silvestre Reyes, D-Texas, who talked about the steps Congress has taken to make unmanned vehicles more available to the warfighter.

"Part of the challenge today is we're looking at these deficits. We're looking at reductions for out military, but I have to think the capability for using unmanned systems will not only be a force multiplier but a way to maximize our capability to protect our homeland and protect our military in places like Afghanistan," Reyes said.

Reyes pointed to the example in Fallujah, Iraq, where soldiers once had a difficult time patrolling the city because of the risk of snipers. Ultimately, ground robotics became a theater mainstay that reduced that risk.

Reyes also addressed the growing demand for unmanned vehicles in the civil sector. The next step on the congressional level is working with federal agencies like the Federal Aviation Administration to create laws for unmanned vehicles. Reyes also said he sees potential in driverless cars to "save lives and money."

"Part of the challenge is to make sure ... that there is a focus on not just science and the STEM fields, but that you recognize that this country's greatest strength is diversity," Reyes said.

Tightening Budgets
With many speakers addressing an anticipated down year in government ground robotics spending, common themes emerged of doing more with less and what the community already has.

Chief Scientist for the U.S. Army Scott Fish said that despite unmanned ground vehicles evolving into a necessity for soldiers, fielding will likely experience a downturn, so the community needs to leverage a lot of the advances its made in the last decade.

"Although we've done all these interesting things, our current fiscal climate is probably not going to allow us to continue fielding … the way we've been doing," he said.

Rob Maline, director, for the Joint Ground Robotics Enterprise, echoed Fish's budget projections, showing a slide from the past few years that showed a downtrend in JGRE's budget.

"I will tell you that this trend line for the JGRE budget is moving in the same direction [this year]," he said.

Scott Davis, of the Program Executive Office, Ground Combat Systems for the U.S. Army discussed leveraging the requirements already defined in the manned ground platform community to help define the needs of unmanned systems and that the needs of those communities are on a path toward convergence.

"Probably initially there wasn't as great a fit, but as you look at the way we're going in the future I think you'll see larger overlaps."

Manned platforms are increasingly being outfitted with sensors and sensor management in a way that resembles how unmanned platforms are outfitted, albeit with fewer limitations.

"As we talk about autonomy it's something that's been in the fore of robotics for a while, but I think that's something we're going to see spill over into the manned systems."

He also addressed turning platforms that were rapidly fielded when the wars in Iraq and Afghanistan ramped up and turning those projects into programs of record to ensure sustainable funding dollars.

Many speakers spoke of trying to leverage the testing and evaluation community to help push technology fielding.
Scott Fish said absent of a predictive safety protocol, moving technology forward will be difficult.

"I'm not blaming that community; it's not their problem alone," he said. "It's something we have to work together, but it's a fact."

Fish said the current leadership is not confident in autonomy yet and to advance this the military community needs to move in step with the test community so there is a common strategy.

Counter-IED Challenge

Steve Cox, principle deputy to the deputy director of rapid acquisition and technology at JIEDDO, announced during his presentation a counter-IED challenge that will be held in conjuction with the Army's Robotics Rodeo, slated to occur in June at Fort Benning, Ga.

The challenge will consist of four parts: endurance; reconnaissance; detect, specifically the ability to detect trigger mechanisms; and disrupt, technologies that would disruptive IED but not blow up the robot. More information on the challenge can be found on JIEDDO's website at www.jieddo.dod.mil.

U.S. House and Senate Pass FAA Bill, Setting Requirements for UAS to Fly in the National Airspace
The bill awaits President Obama's signature
By Ben Gielow 2/6/2012

AUVSI applauds the U.S. Senate for passing the FAA bill conference agreement, following the House's passage on 3 Feb. The bill now awaits President Obama's signature before it becomes law. Once enacted, the bill starts the clock on a number of deadlines the FAA must meet to safely integrate unmanned aircraft systems (UAS) into the national airspace system. Chief among them is a deadline for full integration by 30 Sept. 2015.

The UAS industry has made tremendous technological advancements since Congress last passed an FAA bill in 2003, and this legislation recognizes the important role UAS will play in the future air transportation system. Rep. Tom Petri (R-Wis.), chairman of the House Transportation and Infrastructure Aviation Subcommittee, said, "by setting requirements and deadlines for FAA rules for the safe integration of unmanned aircraft systems, the conference report also unlocks the potential for private sector job creation here at home that has so far been stalled by government inaction."

In praising Congress's passage of the bill, AUVSI's President & CEO Michael Toscano said, "UAS are truly a revolutionary-type technology, and I'm confident that once people can fly UAS in the national airspace for civil and commercial purposes, such as oil and pipeline monitoring, crop dusting, and search and rescue, a whole new industry will emerge, inventing products and accomplishing tasks we haven't even thought of yet."

Some of the major UAS provisions AUVSI helped draft and advocate for inclusion in the bill include:

•Setting a 30 Sept. 2015 deadline for full integration of UAS into the national airspace;
•Requiring a comprehensive integration plan within nine months;
•Requiring the FAA to create a five-year UAS roadmap (which should be updated annually);
•Requiring small UAS (under 55lbs) to be allowed to fly within 27 months;
•Requiring six UAS test sites within six months (similar to the language in the already-passed Defense Authorization bill);
•Requiring small UAS (under 55lbs) be allowed to fly in the U.S. Arctic, 24-hours-a-day, beyond line-of-sight, at an altitude of at least 2,000 ft, within one year;
•Requiring expedited access for public users, such as law enforcement, firefighters, emergency responders, etc.;
•Allowing first responders to fly very small UAS (4.4lbs or less) within 90 days if they meet certain requirements;
◦The goal is to get law enforcement and firefighters immediate access to start flying small systems to save lives and increase public safety.
•Requiring the FAA to study UAS human factors and causes of accidents; and
•Exempting model aircraft, so long as the aircraft weighs less than 55lbs and follows a set of community-based safety standards.

For more information about the FAA bill or the UAS test sites, contact our Advocacy Team at advocacy@auvsi.org.

Congress Sets 2015 Deadline for Unmanned Aircraft Systems to Fly in the National Airspace
The U.S. House of Representatives passed a compromise FAA bill including UAS provisions
By Ben Gielow 2/2/2012

After five years, and 23 extensions, Congress is finally poised to put an FAA bill on the President's desk for his signature. For the first-time ever, Congress tasked the Federal Aviation Administration (FAA) with coming up with a plan to safely expedite the integration of unmanned aircraft systems (UAS) into the national airspace system. AUVSI, the world's largest non-profit trade association representing the unmanned systems industry, played an instrumental role in drafting and advocating for the UAS language in the bill.

"Although unmanned aircraft have been around for decades, the rapid technological advancements made by the military in the past decade has matured the technology to the point where we now know we can safely fly UAS to accomplish those tasks that are too dangerous, difficult, dull, or expensive, for manned aircraft," said AUVSI's President & CEO Michael Toscano. "UAS are a revolutionary-type technology that will completely alter the way we think about aviation in the future, and this legislation marks the beginning for how the FAA will regulate this fast-evolving industry."

Some of the major UAS provisions in the FAA bill include:

- Setting a 30 Sept. 2015 deadline for full integration of UAS into the national airspace;
- Requiring a comprehensive integration plan within nine months;
- Requiring the FAA to create a five-year UAS roadmap (which should be updated annually);
- Requiring small UAS (under 55lbs) to be allowed to fly within 27 months;
- Requiring six UAS test sites within six months (similar to the language in the already-passed Defense Authorization bill);
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- Requiring expedited access for public users, such as law enforcement, firefighters, emergency responders, etc.;
- Allowing first responders to fly very small UAS (4.4lbs or less) within 90 days if they meet certain requirements;
    - The goal is to get law enforcement and firefighters immediate access to start flying small systems to save lives and increase public safety.
- Requiring the FAA to study UAS human factors and causes of accidents; and
- Exempting model aircraft, so long as the aircraft weighs less than 55lbs and follows a set of community-based safety standards.

The Senate is expected to pass its version of the FAA Bill early next week.

Panetta: Defense Budget Plans Will Support Agile, Capable Force

Defense officials gave another forecast of future defense spending changes on 26 Jan., including saying the Air Force Block 30 variant of Northrop Grumman's high-flying Global Hawk will be canceled.

"It's an example of the way that we need to pay attention to cost performance with a budget like the one we have," Deputy Secretary of Defense Ashton Carter said in a Pentagon briefing. "Block 30 was supposed to replace the U-2 for taking pictures from the air, and that was the idea, to do it with the UAV."

However, he said, "The Block 30 priced itself out of the niche for taking pictures from the air. The Global Hawk became expensive, and that's the fate of things that become too expensive in a resource-constrained environment."

Carter noted that the Block 40, Broad Area Maritime Surveillance (BAMS) and NATO versions of the Global Hawk are unaffected by the change.

Northrop Grumman released a statement saying that while it's pleased about the fate of those variants, it's disappointed in the Block 30 move and plans to work with the Pentagon to "assess alternatives to program termination."

It said the U-2 program is aging and "places pilots in danger, has limited flight duration and provides limited sensor capacity. Extending the U-2's service life also represents additional investment requirements for that program."

Other Systems

Secretary of Defense Leon Panetta, speaking at an earlier briefing, said unmanned systems in general are one area of investment protected over the next five years, as they are one element needed to support a more agile force.

"What we're looking at is multimission weaponry and technology that can support that agile force," Panetta said.

The pending five-year budget plan, to be revealed in February, calls for increasing defense spending to $567 billion by fiscal year 2017, rather than growing to the previously projected $622 billion, a reduction of $259 billion over five years.

"We have to retain a decisive technological edge," Panetta said. "We have to retain the kind of leverage the lessons of recent conflict have given us."

To that end, the budget protects "key components of the force that are adept in executing" the mission of counterterrorism, say budget documents released at the briefing. The budget maintains the people and platforms needed to sustain 65 Air Force combat air patrols using unmanned aircraft, with the ability to surge to 85 CAPs when needed. The budget also contains funding for sea-based systems such as Northrop Grumman's Fire Scout helicopter and "new unmanned systems with increased capabilities" for advanced intelligence, surveillance and reconnaissance.

However, it notes that Predator aircraft are being used longer than previously planned, which allows the DOD to slow the buy of larger, more advanced Reaper aircraft, although funding is retained for the U.S. Army's Gray Eagle UAS. All are built by General Atomics Aeronautical Systems.

House Homeland Security Committee member Rep. Henry Cuellar to Address AUVSI's Unmanned Systems Program Review
By: Mario D. Mairena 1/17/12

AUVSI confirms that Rep. Henry Cuellar (D-Texas), ranking member of the House Homeland Security Subcommittee on Border and Maritime Security and co-chair of the House Unmanned Systems Caucus will be the luminary speaker for Maritime Systems Day on 9 Feb. at AUVSI's Unmanned Systems Program Review 2012.

"I am thrilled to attend AUVSI's unmanned systems conference. We have seen the tremendous asset that unmanned vehicle systems have been for our homeland security agencies, especially along our Southwest border, and it is imperative that we continue exploring and expanding the many possibilities that this cutting-edge technology has to offer," commented Rep. Cuellar upon confirming for USPR 2012.

"AUVSI is honored to have Congressman Cuellar as the luminary speaker on Maritime Day for AUVSI's Unmanned Systems Program Review 2012. As co-chair of the House Unmanned Systems Caucus, Congressman Cuellar has been a friend and great supporter to the unmanned systems community," said AUVSI President & CEO Michael Toscano.

AUVSI applauds DOD for continued funding of unmanned systems in strategic defense review
By: Melanie Hinton 1/5/12

The Association for Unmanned Vehicle Systems International (AUVSI) applauds Defense Secretary Leon Panetta for ensuring the U.S. Department of Defense will continue funding for unmanned systems in the Strategic Defense Review.

The language in the review calls for a continued reliance on new technology, including armed and unarmed unmanned systems, as the military increasingly focuses on security in the Asia-Pacific region and forges "small footprint" alliances with other nations around the world.

"In light of the budget cuts the Department of Defense must make, we are heartened to see that Secretary of Defense Panetta will continue to invest in utilizing unmanned systems to protect and work with troops in theater," said AUVSI President & CEO Michael Toscano.

US-Canada sign agreement on regulatory cooperation, includes UAS

On 7 Dec. President Barack Obama and Canada Prime Minister Harper signed an agreement that deals primarily with impediments to

cross border traffic, but it also includes a small section dealing with small unmanned aircraft systems (sUAS). The agreement is based on a Regulatory Cooperation Council Joint Action Plan and contains in part:

"... for unmanned aircraft systems—aircraft weighing less than 35 kg used for flight testing, aerial photography, filming for television documentaries, or offshore geophysical surveys. Canada and the U.S. can jointly undertake to develop and adopt common standards for unmanned aircraft systems and establish a mechanism to share regulatory experiences, with a view to aligning regulatory approaches."

AUVSI members are currently heavily involved with a Transport Canada working group developing regulations for operation of UAS in Canadian air space – Phase 1 of that exercise is nearing completion.

AUVSI remembers those who served in Iraq

As the war in Iraq comes to an end, AUVSI would like to thank and honor the brave men and women of the U.S. armed forces and allied troops for the past nine years of their tireless service in the conflict in Iraq.

This war saw the proliferation of the unmanned systems technology that AUVSI and our members are so passionate about. We extend our sincerest gratitude to all the companies that, through their technology, kept soldiers safe, be it unmanned aircraft monitoring from above or ground vehicles taking soldiers out of harm's way of dangerous improvised explosives.

U.S. Secretary of Defense Leon Panetta has said, "The cost was high — in blood and treasure of the United States, and also for the Iraqi people. But those lives have not been lost in vain — they gave birth to an independent, free and sovereign Iraq."

We would like to echo Panetta's sentiments and recognize the sacrifice of the Iraqi citizens, who have struggled to live in a free country.

The continued growth of the unmanned systems industry has helped maintain the security of the United States' borders, and will continue to watch over our soldiers in Afghanistan. During this holiday season, we at AUVSI ask that you take some time to think of the sacrifices made abroad for there to be peace at home in the United States and our allied nations.

AUVSI announces new date for AUVSI's Unmanned Systems North America 2012
By: Melanie Hinton

Mark your calendars with the new dates for AUVSI's Unmanned Systems North America 2012. This year's annual conference will be held 6-9 Aug. at Mandalay Bay in Las Vegas.

The date change reflects new formatting for this year's conference, which will kick off on Monday, 6 Aug. with educational programming in the afternoon. The tradeshow portion of the week will run 7-9 Aug. New this year — all attendees will have access to the daily General Sessions.

According to AUVSI President & CEO Michael Toscano, "We made the format change this year to promote more dedicated time in the exhibit hall and continue offering our high-quality educational programming with fewer conflicts. We will still have the fantastic networking opportunities for attendees that AUVSI's Unmanned Systems North America has become known for providing."

For more information, visit www.auvsishow.org

HASC Chair Rep. McKeon will Address AUVSI Program Review Attendees

AUVSI is pleased to confirm that Rep. Howard "Buck" McKeon (R-Calif.), chair of the House Armed Services Committee and co-chair of the House Unmanned Systems Caucus, will be the keynote speaker on Air Day, Wednesday, 8 February, for AUVSI's Unmanned Systems Program Review 2012.

"I'm honored to accept AUVSI's invitation. Unmanned systems give our forces a definitive edge in combat, and AUVSI has been at the forefront of innovation and advocacy for this critical field. I look forward to engaging with the men and women who have made this indispensable technology possible," commented Rep. McKeon upon confirming for the event.

"AUVSI is honored to have Congressman McKeon speaking on Air Day for AUVSI's Unmanned Systems Program Review 2012. Congressman McKeon has been, and continues to be, one of the biggest supporters for the unmanned systems community," said AUVSI President & CEO Michael Toscano.

For more information about AUVSI's Unmanned Systems Program Review 2012, visit www.auvsi.org/uspr.

ADEX 2011: Korea Wants Robots

By: Danielle Lucey, October 24, 2011

While no unmanned systems could be seen flying over the Seoul International Aerospace and Defense Exhibition, the swell of their numbers on the show floor was indicative of the Asian peninsula country's desire for increased security and surveillance capability.

Many of the show's Korean-based companies and UAS projects detailed by the country's Defense Acquisition Program Administration seemed in their infancy, many still in production or testing, some even after 10 years of work.

Korean Air, known more for their commercial airliners, displayed around five UAS display models in its booth, ranging from medium to large in size, all in different stages of development.

The company's KUS-9 — with its distinctive twin booms and helicopter-style skids — is currently in production, according to Ho Jip Keum, deputy general manager of Korean Air's aerospace business division. Its KUS-X is appears very similar to Northrop Grumman's X-47B combat air vehicle, and the KUS-15 looks like Korea's answer to the MQ-9 Reaper minus the bulbous nose. Keum was hesitant to give any details on the aircraft's operational capabilities, though he said the KUS-15 is up for DAPA project consideration.

The company also showed the Smart UAV, a tiltrotor aircraft that is also currently going through flight tests at the Korea Aerospace Research Institute.

Speaking through a translator at the show's AUVSI-sponsored Unmanned Systems East seminar, KARI's Sam Ok Koo talked about the project, which has been ongoing for nearly 10 years.

"The Smart UAV program started in 2002, and this program is designed ... with our local technologies to develop unmanned aircraft. ... Many experts have gathered together at KARI, but industry, university students and overseas organizations are also participating in our program so there are more than 100 people participating."

While the aircraft has successfully demonstrated its helicopter-style flight tests, the project has yet to test-fly its fixed-wing capability. The company also has yet to test the aircraft's autonomous conversion between the two flight styles.

"This is a very careful and sensitive process," he says.

Another large homegrown player, Hanwha, one of the busiest booths at the show, displayed its air, ground and maritime unmanned systems, including small UAS and a ground robot that also acts as a smart grenade. Some of these projects were also in evidence at AUVSI's Unmanned Systems North America 2011, where the company also exhibited.

Hanwha's Crow UAV comes in two sizes, the larger for battalions and the smaller a hand-launchable for squad troops. The company plans on supplying the smaller unit starting in 2012, while the larger Crow is still in development.

Through work with the U.S. military, Hanwha has also developed a flapping wing unmanned system, the Flapping MAV, which the company will be done developing in three or four years, says Fatin Yoon, international business development and marketing manager for Hanwha.

The SG Robot, while a little out of place at an air show, is a throwable robot that can be tossed by grenade launchers up to 100 meters and relays back video of its surroundings. If a threat is presented to the SG Robot, it turns into a "smart grenade" and detonates.

All AUVSI photos. Please ask for permission before use.

AUVSI Cautions FAA to Stay the Course on UAS Integration into the National Airspace System
September 30, 2011

In light of this week's failed plot againt the Pentagon and the U.S. Capitol with remote-controlled model planes packed with explosives, the Association for Unmanned Vehicle Systems International (AUVSI) cautions the Federal Aviation Administration (FAA) against implementing burdensome regulations that could potentially set back the safe integration of unmanned aerial systems (UAS) by 2015 as currently written in the pending FAA Reauthorization Bills (H.R. 658, S. 223).

The FAA also is devising new rules, via a federal aviation rulemaking process, for the safe integration of small UAS in the National Airspace System (NAS) with an anticipated integration deadline of 2013. AUVSI continues to support this effort and hopes this incident does not affect the FAA's current timeline.

AUVSI feels we need more intelligence not more regulation and concur with Rep. John Mica (R., Fla.), chairman of the House Transportation and Infrastructure Committee, when he stated that although model aircraft could be attractive to terrorists, the way to combat that problem is through better intelligence.

Michael Toscano, president and CEO of AUVSI, stated, "we remain committed to assisting the FAA in developing solutions to this complex issue and we look forward to our continued work with the FAA on ensuring safe integration of UAS into the National Airspace System."

About AUVSI:
The Association for Unmanned Vehicle Systems International (AUVSI) represents 7,000 members worldwide from more than 2,100 organizations from industry, government and academia and is the leading global organization

representing the views of the unmanned systems community to lawmakers and regulators. AUVSI is involved with efforts to increase access and safely integrate unmanned aircraft into the national airspace system; create standards for all types of unmanned systems; address restrictive export control policies, and expedite license approvals for unmanned systems technologies. www.auvsi.org

AUVSI's Unmanned Systems North America 2011 DVDs, proceedings now available
September 27, 2011

Couldn't make it to AUVSI's Unmanned Systems North America 2011? Want to see the General Sessions and Panel Sessions again because they were THAT good? We have the DVDs you need.

The DVD includes audio and powerpoint presentations of all General Sessions and Panel Sessions (where the speaker approved content). Orders can be placed at: http://www.associationarchives.com/auvsi. The DVD pricing is $249/members and $349/nonmembers.

Event proceedings (technical papers and PDF presentations with NO audio) are available at www.auvsi.org/2011proceedings. Full registrants can access them at no charge, others can purchase them by emailing info@auvsi.org.

Conference Proceedings Sponsored By: Honeywell

Army Makes MUSIC with Manned, Unmanned Aircraft
By: Brett Davis, September 16, 2011

One after another, the unmanned aircraft took to the clear blue skies over Dugway Proving Ground, Utah: an MQ-1C Gray Eagle; an MQ-5B Hunter; an RQ-7B Shadow; a Puma hand-launched UAS; and the even smaller hand-launched RQ-11B Raven. Two manned helicopters took off as well, an Apache and a Kiowa.

Within minutes, the U.S. Army demonstrated how these systems could work together, relaying information and video and swapping control of the various sensors on the aircraft.

The demonstration was Manned Unmanned System Integration Capability (MUSIC), the first of many planned exercises intended to show how increasing levels of interoperability can benefit the warfighter.

It highlighted a series of recent developments: The first time a Universal Ground Control Station operated three types of unmanned aircraft (Gray Eagle, Hunter and Shadow); the first time a One System Remote Video Terminal (OSRVT) controlled the sensor ball on an unmanned aircraft; and the debut of the Triclops sensor suite, three sensor payloads carried by a single Gray Eagle.

Pulling off MUSIC took an unprecedented level of cooperation among Army offices and a variety of defense contractors, said Col. Timothy Baxter, the new project manager for unmanned aircraft systems at Redstone Arsenal, Ala., which headed up the effort.

"It's something that ... I haven't seen on any other program," Baxter said on 15 Sept. at a media day preview of the event.

Baxter's deputy, Tim Owings, said "What we're going to see today is going to change the future of the Army for a long while."

The MUSIC demo went off without a hitch, as the eyes in the sky tracked the movements of pretend enemies on the base in real-time. Control of the various sensor feeds in the air was handed back and forth with little delay, including the new ability of the hand-held OSRVT to take command of a sensor ball. The Hunter was also able to send its video feed into the cockpit of the Apache, a capability that has already been fielded in limited amounts.

At the end of the demo, the Kiowa, cued with data from the unmanned aircraft, mock-destroyed a friendly tank to keep it from falling into the wrong hands.

Army officials said at a question-and-answer session later that MUSIC is the first of a planned series of demonstrations, one that will include more capabilities — data from signals intelligence sensors, wide-area surveillance systems, etc. — and even inter-service cooperation.

Unmanned Systems Make a Bang at DSEi 2011
By: Danielle Lucey, September 13, 2011

Unmanned systems companies are abound at this year's Defence and Security Equipment International, a soup-nuts defense conference taking place this week in London.

About 100 unmanned systems companies are represented at the event, some of which are located in a special unmanned pavilion area at the show.

Inside the unmanned area is the Unmanned Theatre, allowing companies the opportunity to show their latest wares.

Some of the companies that have taken up the challenge today are Cranfield Aerospace, a U.K. company tasked with commercializing the concepts borne at Cranfield University.

With work on the Boeing Phantom Works X-48B and QinetiQ's Observer under its belt, the company discussed how simplification of unmanned platforms and their operation could enhance the capabilities of smaller-sized unmanned systems.

The company has developed an essentially half-sized platform of the Observer, the MinO, and is currently developing and hoping to commercialize a vertical takeoff and landing system, unique in its four-wing design. Shaped similarly to the feathers of a dart, the new single-motor, single-propeller system is aimed at reconnaissance and surveillance needs. Cranfield is currently working on simplifying its takeoff and landing process, which currently uses a parachute.

Another UAV company, the United States' Insitu discussed its foray into the VTOL market with Inceptor. Designed for the law enforcement market, the lithium battery-powered mini helicopter costs as little as a squad car, said Steve Tanner, director of business development for the company.

Sponsored by AUVSI, a Robotics and Unmanned Systems Showcase area sits next to the Unmanned Theatre and is not only showing attendees the capabilities of air and ground robotics, but it's also making for a loud and lively event.

Robots from Selex Galileo, ReconRobotics, Northrop Grumman and QinetiQ, to name a few, are playing out an anti-IED scenario twice a day, with live fire fighting scenarios sending artificial gunfire whizzing past the systems. Through the smoke and explosions, the robots aerially survey the enemy while troops on the ground use a variety of sized ground robotics to open a car trunk and examine a possible IED threat, scope out the area so the troops can advance, pull a casualty from the battlefield and fly into a building to get up-close information. The demos will continue daily in the mornings at 10:30 and every afternoon through Thursday at 3:30.

MTSU, Army team to start UAS center
By: Danielle Lucey, August 22, 2011

Middle Tennessee State University and the Army Program Executive Office for Unmanned Aircraft Systems announced Thursday they have joined in a memorandum of understanding to establish the Center for Unmanned Systems Operational Advancement and Research at the university.

Located in Murfreesboro, Tenn., about two hours from the PM UAS office, MTSU will begin a dedicated curriculum centered on unmanned systems inside its airspace sciences major.

said Kyle Snyder, UAS program director for MTSU.

The school also has multiple certificates of authorization from the FAA that allow them to fly Insitu's ScanEagle, AAI Corp.'s Aerosonde and an L-3 Viking 400. Next they will work on securing smaller UAS, starting when the Army supplies the school with Ravens this fall. The COAs allow the school to fly at less than 10,000 feet in Savannah, Tenn., at ISR Group's facility, the school's industry partner. MTSU's flying data will be available for use by the PM UAS.

Currently 16 students are enrolled in the first unmanned systems course, starting this fall.

AUVSI Announces Newly Elected Board of Directors
August 18, 2011

The Association for Unmanned Vehicle Systems International (AUVSI) announced during its annual AUVSI's Unmanned Systems North America 2011 its newly elected leaders on its Board of Directors.

The Executive Committee will be led by incoming Chairman of the Board Peter Bale, Executive Vice Chair John Lademan, First Vice Chairman Ralph Alderson, Treasurer Joe Brannan; and Immediate Past Chairman John Lambert.

Newly elected AUVSI Board of Directors:
COL (Ret) John Burke
Tom Faller
RADM (ret) Timothy Heely
Neil Hunter
Dr. Mark Patterson
Dr. Virginia (Suzy) Young

Continuing Board of Directors Members:
Michele Kalphat
Chris Mailey
Chad Partridge
Dave Seagle
Grant Begley
Matt England
Gene Fraser
Stephen Newton
David Place
Peter Smith

"We are grateful to the continuing dedication of our members to help take AUVSI to the next level and meet the needs of this growing, ever changing industry," said AUVSI President and CEO Michael Toscano. "The AUVSI staff and I look forward to working with Peter and the rest of the board to meet the challenges and opportunities available to the unmanned systems and robotics industry."

Lynch: Some robots are good, more would be better
By: Brett Davis, August 16, 2011

Lt. Gen. Rick Lynch said he has seen progress in the development of military robotics and unmanned systems, but he'd like to see more, including a renewed push for more autonomous systems.

The United States is worrying about deficits and jobs, but is still fighting two wars. A greater use of unmanned systems is one way to cut budgets while still winning conflicts in Iraq and Afghanistan and elsewhere, he said at the opening session of AUVSI's Unmanned Systems North America 2011.

Unmanned systems can help achieve three goals, said Lynch, the commanding general of U.S. Army Installation Management Command and the assistant chief of staff for installation management. They are: improve surveillance; reduce the soldiers' workload; and increase the survivability of service members.

Using small unmanned aircraft can provide an overview but don't have enough loiter time to provide "persistent stare," he said, and that's something soldiers need to be able to spot enemy fighters who are placing improvised explosive devices.

Greater autonomy can help ease the burden on unmanned systems operators, Lynch said, but too often the military is satisfied with the remotely operated systems of today.

"I used those tele-operated systems, my soldiers did as well, and I thank God for those systems," Lynch said. However, "I believe candidly that we could accelerate the development of autonomous technology" if it's deemed important enough.

"If you want to reduce the workload, and we do, you've got to keep the warfighter in the loop but he doesn't have to be dedicated to that particular mission," Lynch said. He also said he doesn't see a problem with armed robots, which already exist in theater in the form of armed unmanned aircraft and remote-controlled gun stations.

Increasing the survivability of soldiers is the best thing unmanned systems can help achieve, Lynch said, which can partly be achieved by getting more of the technology into the field.

Many soldiers die clearing routes of IEDS in vehicles and "the majority of those vehicles, unfortunately, are manned vehicles, and they don't need to be."

Others die in convoys delivering needed weapons and supplies. "We could have done [robotic] convoy technology a long time ago, we have the technology," Lynch said.

DOD Throws Support to National Robotics Initiative through Defense University Research Instrumentation Program
By: Melanie Hinton, August 5, 2011

On 3 August the Office of Science & Technology Policy announced that the Department of Defense is also supporting the National Robotics Initiative through the Defense University Research Instrumentation Program. This $40 million program, supported by the Army Research Office, the Office of Naval Research, the Air Force Office of Scientific Research, and the Office of the Secretary of Defense, strengthens the capability of universities to conduct research and educate scientists and engineers in areas that are important to national defense.

The FY12 solicitation specifically encourages proposals for purchases of equipment that can support research in robotics, "given the continuing priority of that research area to a wide range of defense technologies and applications, including unmanned ground, air, sea and undersea vehicles and autonomous systems."

This announcement is critical to the success of the National Robotics Initiative, given the role that equipment can play in enabling researchers to develop next-generation applications. It is hoped that DURIP's participation in the NRI will serve as a catalyst for additional partnerships between the robotic industry and the academic research community.

About the NRI
At a speech at Carnegie Mellon University on 24 June, President Obama launched the National Robotics Initiative as part of a broader effort to promote a renaissance of American manufacturing through the Advanced Manufacturing Partnership. Four agencies (the National Science Foundation, the National Institutes of Health, NASA, and the Department of Agriculture) have issued a joint solicitation that will provide research funding for next-generation robotics.

This initiative focuses on developing robots that work with or beside people to extend or augment human capabilities, taking advantage of the different strengths of humans and robots. In addition to investing in the core technology needed for next-generation robotics, the initiative will support applications such as robots that can:

- **Increase the productivity of workers in the manufacturing sector;**
- **Assist astronauts in dangerous and expensive missions;**
- **Help scientists accelerate the discovery of new, life-saving drugs; and**
- **Improve food safety by rapidly sensing microbial contamination.**

Partial FAA Shutdown Continues – Dramatically Impacting the UAS Offices

By Ben Gielow
August 1, 2011

Update: The House adjourned for its August recess on Monday, 1 Aug., and the Senate is expected to adjourn by the

end of the week. If the Senate does not take up and pass H.R. 2553, the FAA will remain partially shutdown until sometime in the fall. To read the bill, click here.

On 22 July the Federal Aviation Administration's authority to collect and spend taxes that fund much of the aviation system expired. Since the last multi-year FAA bill expired in 2007, the FAA had been operating under 20 short-term extensions. Although Congress usually passes "clean" extensions, which do not include policy changes, the House attached a controversial provision on its 21st extension bill, which the Senate refuses to take up. The current fight is over subsidies to the Essential Air Service program, which provides airlines incentives to provide service to small airports. The House bill would prevent EAS subsidies from going to airports that are closer than 90 miles from a major airport and prevent subsidies over $1,000 per passenger per flight (which currently affects three airports in the United States).

The result of this partial shutdown means that 200 capital projects at airports have been stopped or cut back and that 3,500 FAA employees have been furloughed. The FAA's Unmanned Aircraft Program Office has about half of its employees furloughed, while the Unmanned Aircraft Systems Group staff has been decreased by 80 percent. Because of the reduced staff, the FAA is currently only reviewing UAS emergency and disaster relief certificates of authorization. In addition, the shutdown means that the federal treasury is losing $25 million to $30 million in tax revenue each day.

Because the FAA shutdown largely has been overshadowed by the negotiations surrounding the federal debt ceiling, some are concerned that the FAA may not get an extension until after the Congressional August recess. AUVSI members are encouraged to contact their members of Congress and tell them to take up and pass the multi-year FAA authorization bill, which includes important provisions in integrating unmanned aircraft into the national airspace. If you're an AUVSI member, you can send a pre-written letter to your representatives by clicking here.

Team SONIA Lands Elusive RoboSub Win

By Danielle Lucey
July 19, 2011

It's been 11 years in the making, including four third-place and two second-place results, but team SONIA from the École de technologie superieure has finally achieved what has escaped it for so long — a first-place win at the AUVSI Foundation's RoboSub contest.

With the win, SONIA not only trumped history but also a very strong team from Cornell University, winners of the last two years of the competition, held once again this year at SPAWAR San Diego's TRANSDEC facility.

Competing with an all-new sub design, new mechanical and electrical configurations, and mostly new software didn't phase the team much, according to team leader Kevin Larose, especially since the 26-person team logged around 250 hours in the pool before coming to the competition.

"Last year we wanted to achieve all the obstacles, and we've worked on them individually," says Larose. "When we arrived here, to try to do them one after the other was our main challenge, so this year what we did is we started to work on chaining each obstacle right in the beginning of the year. .... So this year the vehicle is a lot more reliable and a lot more stable, so we know what it's going to do because we've been chaining obstacles since a very long time now."

Unlike many of the teams at RoboSub that had to battle San Diego's constantly changing cloud coverage, SONIA perfected the art by archiving imagery and readjusting their sensors accordingly for their practice and final runs.

"The first thing we did was record images with clouds, with sun and different lighting conditions, and as long as we know what it is beforehand, we will be able to adjust our camera even though it's very bright or cloudy," says Larose.

SONIA, which is a French acronym for an intelligent and autonomous underwater system, is now looking to become repeat winners of the competition for 2012, with none of the undergraduate students set to leave next year.

Not only the most capable team at RoboSub, SONIA also focused on befriending other teams and helping them become more robust where they could.

"You don't have a lot of pool time, and if your stuff doesn't work here, they won't start magically working during the week," says Larose. "So we feel that it would be a shame that people come from so far, and arrive here and they don't get the parts that we need, so we try to help them as much as we can, lend them stuff and make sure everyone is capable of proving what they can do."

One of those teams turned a normally game-ending disaster into a fourth place win. Reykjavik University's sub flooded on the first qualifying run, but the team rallied to rebuild it overnight to qualify for the finals.

Only the second year the team has participated in the competition, Reykjavik used its creativity to get its sub up and running again in time to qualify after the initial tragedy.

"We had some spare parts, we got extremely lucky," says team leader Gudmundur Viktorsson. "It seems most of the electronics shorted out before being destroyed, so we used about half of the components back again. And just we rinsed everything out [and] did some damage assessment. The electrical team stayed up all night just fixing our makeshift rack. We used our file server we had onsite as the boat's computer so we had to make do with that."

Their sub, Freyja, named after the Norse goddess of love and fertility, fit the 14th annual competition's theme, Robo Love.

The following teams rounded out the list of this year's winners and awardees:

1st Place: ETS Team SONIA (awarded $7,000)
2nd Place : Cornell University (awarded $4000)
3rd Place: University of Florida (awarded $3,000)
4th Place : Reykjavik University (awarded $2,000)

5th Place: University of Maryland (awarded $500)
6th Place: University of Rhode Island (awarded $500)
7th Place: United States Naval Academy
8th Place: North Carolina State University

Mayor's Cup for Community Outreach: Carl Hayden High School (awarded $1,000)
Second Chance Award: University of Central Florida (awarded $1,000)
Outstanding Technical Mentorship: University of Maryland ($500)
Hardware is Hard Award: Utah State University (awarded $500)
Innovation on a Budget Award: Mesa College (awarded $500)
Best Paper Award: Kyushu University (awarded $500)

RoboSub 2011 on YouTube

RoboSub 2011 on Flickr

University of Alaska Fairbanks Researcher Tests Unmanned Aircraft to Study Wildlife
July 9, 2011

Researchers at the University of Alaska Fairbanks Geophysical Institute in conjunction with the North Pacific Fisheries Foundation have begun evaluation flights of small-unmanned aircraft (UAS) to assist in research and monitoring of the current Steller sea lion population.

Since the 1970s the population of Steller sea lions has declined dramatically and the Western Aleutian Islands stock is currently listed as an endangered species. Fisheries practices are often implicated in the decline, but so far research has not found a definitive link between fishing and the decline of this magnificent animal. In spite of this, the National Marine Fisheries Service
finalized a biological opinion last year that includes as mitigation measures a drastic reduction in the commercial fishery in the central Aleutians, and eliminated the fishery entirely in the western Aleutians.

The National Marine Mammal Laboratory conducts annual, manned aerial surveys of the Steller sea lion population throughout their Alaska range. During June and July, these surveys are flown from southeast Alaska to Attu in the western Aleutian Islands. These flights carry two pilots and up to three biologists, along with high-resolution digital photographic equipment. However, in the central and western Aleutians adverse weather and distantly spaced airfields (Dutch Harbor, Atka, Adak, and Shemya) make it difficult and potentially dangerous to consistently perform extensive annual surveys.

This effort's goal is to determine if UAS launched locally from boats could provide a cost-effective and safe means to survey these hard to reach locations with their unpredictable weather conditions.

This week, with sponsorship from the North Pacific Fisheries Foundation and the US Navy, staff from the Geophysical Institute conducted several successful flights of UAS, the AeroVironment Puma AE, off a commercial fishing boat, the Arctic Explorer, outside Dutch Harbor.

"These experiments will help us determine the suitability of working with this aircraft in these conditions and prepare ourselves for further testing and evaluation" says Greg Walker, the project's leader. "These first tests have given us quite a lot of information about both the aircraft and the camera's payload".

The Puma AE aircraft is hand launched and lands in the water where an inflatable boat can easily go pick it up to return to the fishing boat. Researchers at the university will be working on processing the low-altitude, high-resolution imagery they collected of the varying coastline to generate 3-dimensional aerial images of the beach using image processing tools originally developed for the film industry to animate objects in 3-D.

In addition to collecting coastline imagery, they conducted acoustic testing at both the Poker Flat Research Range north of Fairbanks and aboard the Arctic Explorer fishing boat to ensure that the flights would not disturb any of the marine mammals that they may observe. In these tests at 70 feet altitude, much lower than would be flown over the animals, the aircraft "sounded like a room fan in the next room over" said Todd Loomis, onboard as a representative of the North Pacific Fisheries Foundation of Seattle.

During the flight operations the university's developed Portable Airspace Surveillance System, the iPASS, which monitors air traffic out to 12 miles, was deployed to ensure that the unmanned aircraft would always stay well clear of any manned planes that may venture into the area. This was the first time this NASA Certified system was deployed aboard a ship. This week's successful testing of recent upgrades to account for the ship's motion will be the basis for further additions to the integral RADAR system.

"Because safety is of the utmost importance, we employed this proven system to help our airspace observers know early of any approaching aircraft to give more time to react if needed" said Walker. "The iPASS saw other aircraft as expected during the transit time to the flight area but no planes were detected within 12 miles of the operation during our flights."

Mr. Walker believes that "as this project progress we may discover uses for the technology that can go beyond simply counting animals to help scientists improve their understanding of the animals use of their habitat."

National Robotics Initiative (NRI) Opens BAA Solicitation
July 5, 2011

The goal of the National Robotics Initiative is to accelerate the development and use of robots in the United States that work beside or cooperate with people. Innovative robotics research and applications emphasizing the realization of such co-robots acting in direct support of and in a symbiotic relationship with human partners is supported by multiple agencies of the federal government including the National Science Foundation (NSF), the National Aeronautics and Space Administration (NASA), the National Institutes of Health (NIH), and the U.S. Department of Agriculture (USDA).

The purpose of this program is to develop the next generation of robotics, to advance the capability and usability of such systems and artifacts, and to encourage existing and new communities to focus on innovative application areas. It will address the entire life cycle from fundamental research and development to industry manufacturing and deployment. Methods for the establishment and infusion of robotics in educational curricula and research to gain a better understanding of the long-term social, behavioral and economic implications of co-robots across all areas of human activity are important parts of this initiative. Collaboration between academic, industry, non-profit and other organizations is strongly encouraged to establish better linkages between fundamental science and technology development, deployment and use.

Two classes of proposals will be considered in response to this solicitation:

1.Small projects: One or more investigators spanning 1 to 5 years.
2.Large projects: Multi-disciplinary teams spanning 1 to 5 years.

As detailed in the solicitation, appropriate scientific areas of investigations may be related to any of the participating funding organizations.

Deadlines:
Small Proposals

Letter of Intent Deadline Date: 1 October 2011
1 October, Annually Thereafter

Full Proposal Deadline Date: 3 November 2011
3 November, Annually Thereafter

Group Large Proposals

Letter of Intent Deadline Date: 15 December 2011
15 December, Annually Thereafter

Full Proposal Deadline Date: 18 January 2012
18 January, Annually Thereafter

Public Briefings: One or more collaborative webinar briefings with question and answer functionality will be held beginning in September 2011 prior to the first submission deadline date. Schedules will be posted on the sponsor announcement websites.

For more information, visit the National Science Foundation website.

GPS Concerns Delay Proposed National Broadband
By: Stephanie Levy, June 28, 2011

A Congressional committee concluded 23 June that lawmakers could order the company LightSquared to conduct additional testing of its proposed nationwide wireless broadband system. LightSquared delayed the release of a report that would outline the effects its proposed network would have on current GPS technologies, but independent studies and the unmanned systems community have already expressed concern that the proposed network would compromise safety, technology and job growth.

"This is a threat to NexGen and to the further development of the unmanned [systems] community because there are obvious interference issues," says Bobby Sturgell, senior vice president of Washington Operations at Rockwell Collins.

AUVSI also has expressed opposition to LightSquared's proposed wireless broadband system.

"All around the world, unmanned systems (air, ground and maritime) rely on accurate, dependable GPS signals," AUVSI President and CEO Michael Toscano said in a letter to FCC Chairman Julius Genachowski on 12 April. "The lack of a reliable GPS signal poses a serious threat to our public safety and national defense, and the potential cost of retrofitting or replacing affected GPS receivers would be an undue burden."

Current GPS satellites operating in space carry a very weak signal by the time that signal reaches Earth. LightSquared's proposed 40,000 ground antennae send a signal more than 1 billion times stronger than current GPS, making GPS receivers useless from the resulting interference. Specifically, the Federal Communications Commission (FCC) authorized a 1626.5-1660.5 MHz uplink band range for LightSquared to use in its endeavor, but the GPS spectrum, 1560-1610 MHz, is only 16 points away.

"There's substantial interference and in some cases complete blockage, which I think speaks a lot to the rushed nature of this process," Sturgell says. "No waiver should have been granted. It should have been handled from a regulatory perspective, much differently and much more formally."

A report conducted by RTCA Inc. found that LightSquared's terrestrial receivers would negatively affect GPS reception on aviation receivers. According to the study, the proposed use of LightSquared's uplink band could result in "complete loss of GPS receiver function." Sturgell says there's "absolutely no reason to believe that the report the working group puts together is going to be any different."

After its latest Congressional hearing, LightSquared's working group must now release its findings no later than 1 July. The original deadline for that report was 25 June. However, even when LightSquared does release its findings, Sturgell says the results won't include testing in the unmanned systems industry.

"What was missing in the conversation was, 'What about the unmanned? What about the semi-autonomous vehicles; what about the unmanned ground stations?' All that stuff depends on GPS, so more than likely all of that stuff is going to be equally affected as the aviation receivers were."

According to a 20 June Congressional memo on the LightSquared hearing, LightSquared is poised to move ahead with its plan regardless of the final results of its report or the FCC's final decision on its waiver application. The FCC is soliciting public opinion on the matter before making a final decision on LightSquared's waiver.

"Without the waiver, consumers would have to subscribe to integrated satellite and terrestrial wireless services, but the interference with GPS receivers would occur regardless of whether end users subscribe to ground-only or to integrated satellite and ground components," the memo said.

Sturgell says there is still time for opponents in the unmanned systems community to have their voices heard.

"The unmanned community can say they're going to be interfered with just like the aviation receivers that were tested," Sturgell says. "Some of them are on UAS vehicles. You cannot just approve something like this based on a plan. That plan has to be verified through comprehensive testing to ensure it doesn't interfere with GPS receivers in unmanned aviation, in agriculture, in ground unmanned, all of these different GPS activities that are embedded in the nation."

Sturgell says that for proponents of a nationwide wireless broadband system, there are still ways to make that goal a reality without compromising GPS reception.

"Broadband is a good thing for the country," Sturgell says. "Certainly when it's done in the right way it can be compatible with GPS. The problem in this case is it's not. It's very clearly not."

Read more about AUVSI's stance on the LightSquared GPS issue on the advocacy documents page.

Obama Announces Manufacturing Plan that Includes Unmanned Systems
By: Stephanie Levy, June 24, 2011

President Barack Obama launched the Advanced Manufacturing Partnership (AMP) Friday at Carnegie Mellon University in Pittsburgh. The national effort invests more than $500 million in manufacturing and emerging technologies, with $70 million going specifically to development in the robotics and unmanned systems industries.

"These investments will help create the next generation of robots that will work closely with human operators - allowing new ability for factory workers, healthcare providers, soldiers, surgeons and astronauts to carry out key hard-to-do tasks," the White House said in a press release about the initiative.

The National Robotics Roundtable commended the president's focus on the role that unmanned systems and robotics will play in "creating jobs, strengthening the economy and ensuring American competitiveness in the global marketplace."

"Among the many strengths of robotics and unmanned systems, one of the most important is that they are a revolutionary technology that will extend the functionality of a human being's hands, eyes and ears to allow them to perform dirty, dangerous, difficult and dull operations from a safe distance," Michael Toscano President and CEO of AUVSI, said in the National Robotics Roundtable press release. "As men and women look for better ways to accomplish their jobs, robotics and unmanned systems will be at the forefront as applications to use them continue to increase."

While visiting Carnegie Mellon, President Obama got to see examples of research and development in the unmanned systems industry firsthand. When meeting with technicians before his address, Obama saw a pipe inspection robot demonstration from RedZone Robotics. The company's unmanned underwater vehicles navigate wastewater pipes to collect data to help with waste water management and infrastructure controls. President Obama joked that as Commander in Chief, he has a vested interest in keeping an eye on these types of unmanned systems and robots.

"The robots you make here seem peaceful enough for now," Obama said in his speech.

Utah State Wins 2011 SUAS Competition
By: Stephanie Levy, June 21, 2011

Students at Utah State University took home first place with their fixed-wing vehicle at AUVSI's 9th annual Student Unmanned Air Systems Competition at Webster Field in Patuxent River, Md. Utah State won all three phases of the competition: journal, oral brief and mission performance. They are the first repeat winner of SUAS, having won the competition for the first time in 2009.

"We've all been overjoyed," Cal Coopmans, the team's graduate advisor, says. "I've been especially proud. As the graduate advisor I try to hang back and direct without pushing them too hard. We pulled a lot of late nights and it payed off."

Coopmans says the team, comprised exclusively of students, designed, built and tested the UAV. The team made some modifications to get the vehicle competition ready, adding a real-time imagery downlink and larger camera than had been used in previous research.

"The reason we have operable UAVs at all is because we do natural resource management," Coopmans says. "We build UAVs for research, for water management, tracking riverbeds, looking at avian habitats, that kind of stuff. We do the same testing protocol in the competition stuff that we do in the research stuff."

North Carolina State University, last year's winner, slipped to second place in the competition with their UAV. The team is already making plans for how to improve their vehicle for next year's competition.

"We've been flying gas for years," senior Alex Kesling says. "One thing we've really wanted to do is switch to electric because it simplifies a lot of pieces in the system, but we have to build a new airframe for that."

Kesling says the team, named Wolfpack after their alma mater's mascot, also wants to upgrade the camera on its vehicle.

"The problem is it's really heavy, really big, and the amount of drag for the camera is scary," Kesling says.

Some of the teams who participated were not so lucky. When the team from Mississippi State University tried to fly their UAV, a control on the engine malfunctioned and the engine wouldn't start.

"We opted to take a time out in place because we didn't think it would be that serious of an issue," student Eric Hill says. "It turned out to be a little more involved than we thought, so we didn't have the opportunity to come back and do a full time out."

In all, 24 teams participated in the five-day competition. The total purse for the competition was more than $70,000; Utah State received $13,400 of that total.

Paris Air Show Roundup: Camcopter Flies, Thales Deploys, Rockwell Sees the Future
By: Brett Davis, June 21, 2011

For the second Paris Air Show in a row, Schiebel's Camcopter S-100 was the only unmanned aircraft flying.

The company had hoped to fly it closer to the crowd, said Neil Hunter, the managing director for sales, marketing and strategy, but it was again kept away from the main viewing area. To make the small helicopter more visible this time, Schiebel covered most of the fuselage in red foil.

"For us, this is much more than just a marketing event," Hunter said. "I think it's visible proof that we have a proven product that's accepted in the world today."

The company flew a variety of sensors on the aircraft during the show, relaying video back to its booth in an exhibit hall. One was Wescam L-3 Communications' Wescam MX-10 electro-optical/infrared payload, which had been integrated on the systems only in January. The company has demonstrated its use in inspecting power lines in Austria, the first time such work has been undertaken by an unmanned aircraft in Europe, Schiebel announced at the show.

Ready for Deployment

Amid competing efforts to develop new European unmanned aircraft--BAE Systems and Dassult with the Telemos, Cassidian with the Talarion--one UAS is preparing to enter service and has already had a large impact on the airspace picture in the United Kingdom.

That's Thales UK's Watchkeeper, based on the Elbit Systems Hermes 450 but built and upgraded in the United Kingdom. Watchkeeper is expected to be fielded in Afghanistan by the end of the year, but in the meantime it has already changed the airspace picture in its home country, the company said in a briefing at the Paris Air Show.

Watchkeeper has been flying out of ParAberporth in Wales and as a result of its experience the U.K. Civil Aviation Authority (CAA) recently announced a new swath of airspace that will be available to unmanned systems. That airspace extends 40 nautical miles inland to the east from Aberporth, making up an area of 499 miles; the area where Watchkeeper has been flying since 2010.

"CAA has now granted that on the back of the Watchkeeper trials," said Nick Miller, Thales' business director for UAV systems. "We have been proving the airspace for the U.K. and CAA said, yeah, no problem, you can fly over people, it's safe, it meets the safety standards. This is a major step change."

In military airspace, too, at Boscombe Down over the Salisbury Plain, Watchkeeper has been approved to fly "over some pretty serious cities," Miller said. "Everybody said that's not a problem, watchkeeper's fine to do that."

Thales is currently providing military ISTAR (intelligence, surveillance, target acquisition and reconnaissance) for the U.K. using Hermes 450s, which will be pulled out as Watchkeeper enters service. Ultimately, the program calls for 54 air vehicles and 15 ground control stations.

Ultimately the system could carry weapons as well, although there is no current requirement for that, and the company is eyeing export opportunities.

The Future

Rockwell Collins' David Vos sees a strong future for small personal aircraft in the world, one where taking a flight could be as simple as hopping in a car and going for a drive.

A lot of technology would have to come together to make that happen, but most of it has been demonstrated already and it's more of a regulatory issue now, the senior director for UAS and Control Technologies said at a briefing at the 2011 Paris Air Show.

The adoption of next-generation air control, which relies more on data exchange than voice exchange, is one of the keys to this, Vos said. Such data exchange is a component of both NextGen in the United States and Single European Sky ATM Research (SESAR) in Europe.

Rockwell Collins' own damage tolerance software could be component of this as well, and some aspects of the software will soon be making their way into both military and commercial aircraft.

That software, demonstrated several times on a hapless F/A-18 scale model unmanned aircraft as part of a DARPA-backed program, allows the aircraft to keep flying even if significant portions of a wing or other control surface is damaged.

Vos told AUVSI that the U.S. Army is deciding what parts of the system to incorporate into its Shadow unmanned aircraft program, and control software for general aviation systems is also expected to benefit.

The company conducted various demonstrations, including losing the engine, losing part of the wing, and finding the nearest landing site for an emergency landing.

"Those are all very real pieces that they want," he said. The overall damage tolerant effort looks at the whole plate of what can be done, and the Army "is in the process of defining what pieces they want and then we'll get that on Shadow."

Civil Aviation Authority Segregates Airspace for UAS
By: Danielle Lucey, June 15, 2011

Today the U.K. Civil Aviation Authority announced that it has created a dedicated airspace to fly unmanned systems in an area east of the West Wales airport after an appeal from the Welsh government to allow flights.

The airspace, which will be open to manned aircraft when not in use, will be designated as "Danger Areas" by the CAA, a term already in use by the agency that it defines as "airspace which has been notified as such within which activities dangerous to the flight of aircraft may take place or exist at such times as may be notified."

A prior statement by the CAA on Danger Areas states, "There are certain activities, such as unmanned aircraft system operations which need to be conducted in segregated airspace. While the activity might not in itself be considered inherently dangerous, it currently demands an enhanced level of protection from other airspace users."

The parameters of the airspace, designated as EG D202 and EG D202A/B/C can be seen on the map below.

The airspace covers about 499 square miles of land below it.

"The CAA announcement to allow this specialized airspace is now the strongest recognition that West Wales is the focal point for UAS development in the U.K.," says Ray Mann, West Wales Airport's managing director. "The airspace adds significantly to the many specialized assets that already exist at the airport and gives Britain further opportunity to benefit from a market that is forecast to be worth 60 billion pounds annually by 2020."

The airspace is the result of four years of lobbying by the Welsh government, QinetiQ and the West Wales Airport, according to a Welsh government release.

"The ability to have dedicated airspace and facilities available in the U.K. is seen as key to ensuring that Wales and the U.K. are at the forefront of this new and growing sector," said Edwina Hart, the Welsh government's business minister. "It provides Wales with a unique proposition to attract companies working in this sector and also has the potential to raise the profile of Wales in international markets. Our ultimate aim is to create sustainable employment opportunities in the region."

"By working closely with the Welsh government and other key stakeholders, the Wales UAS environment is unique in Europe and represents a world-class facility for the development of unmanned aircraft systems and the critical sensors and technology they carry," said QinetiQ's Carl Davies. "UAS can be used where manned flight is too dangerous or expensive and could be used to make sure humanitarian aid gets to the right places, to detect storms, observe forest fires or inspect pipelines and electric power lines."

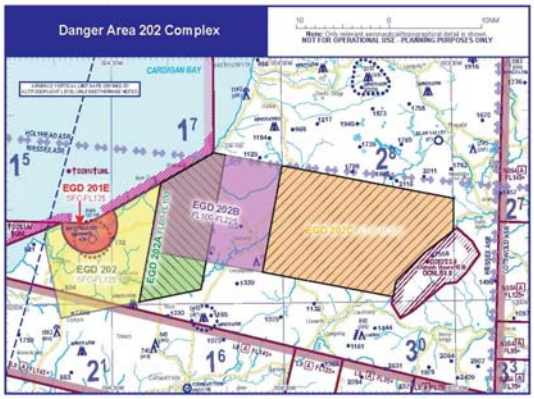
"An unmanned aircraft has many useful applications, for instance it would be perfect in situations such as monitoring and reporting the recent ash clouds," continued Mann.

West Wales Airport will operate the flights out of a 1,200-meter runway where it will allows for systems approval, training, payload integration and demonstration flights.

The Thales Watchkeeper UAV, tested by QinetiQ, had its first flight out of the ParcAberporth facility in April 2010 in a demonstration of segregated unmanned flights.

The West Wales/ParcAberporth facility will only allow flights under certain operational and environmental conditions and will go into effect 28 July. Details on the airspace will be published in a revised AIC: Y 052/2011 document that will be available at www.ais.org.uk beginning 16 June.

"AUVSI applauds the U.K. CAA for this bold step in opening the skies for advancement and fielding of unmanned aircraft systems," says Gretchen West, vice president of government relations and executive vice president of AUVSI. "This vast and newly segregated airspace is the first area in the U.K. designated for sole UAS flight allowing for manufacturers and operators to train, demonstrate technologies and further the capabilities of UAS."



RoboBoat 2011 Results to be Replayed 14 June

The University of Rhode Island took the top prize at RoboBoat 2011, an unmanned surface vehicle competition sponsored by the AUVSI Foundation and the Office of Naval Research.

You can see a repeat of the webcast of the finals tomorrow, 14 June, from 12-4 p.m. here: http://www.todocast.tv/500films/roboboat2011.

The team had several good practice and qualifying runs but ran into some trouble during the finals, held 1-5 p.m. on Sunday, 12 June. However, it was the only team to attempt some of the extra missions on the course, which included putting out a mock boat fire and turning off a small "waterfall."

The team members were disappointed by their final run, when their vehicle mistook a bucket for the switch that turned off the waterfall, but it was enough to boost them to first place. The scores included judging of each team's vehicle presentation.

The final standings are:

1: University of Rhode Island
2: University of Central Florida
3: Georgia Tech Aerospace Systems Lab
4: Virginia Tech
5: Stevens Institute of Technology
6: Diponegro University
7: Georgia Tech Savannah

Teams Vie for Final Slots at RoboBoat 2011

The team from the University of Rhode Island had the best showing at the first day of qualifying competition at RoboBoat 2011, sponsored by the AUVSI Foundation and the Office of Naval Research.

The team expressed some surprise at their good showing, as "the boat did not work five minutes before going into the water," says team captain Kevin Hopkins, a graduate student. "This is great. I'm thrilled."

The nine-person team has three returning members from last year's competition (where Rhode Island took third place), five new members and one member, graduate student Rick Kollanda, who is on his third competition.

"Our robots have gotten better," Kollanda said. "Every year is the best."

That doesn't mean the team can rest easy entering into Sunday's final day of competition. The boat's robot arm, needed to complete one of the competition's task, blew a controller motor and the water cannon, needed for another, failed to operate.

"We've got to tweak everything," Hopkins said.

Other teams were nipping at Rhode Island's heels by the end of Saturday, including Stevens Institute of Technology and the University of Central Florida (which finished second in 2010).

Last year's winner, the University of Michigan, suffered software problems and had a bad day, failing to even get through the starting gate. The team's programmers planned to work on their algorithms late into the night.

To see recaps of the first two days of the competition, Friday, 10 June, and Saturday, 11 June, go to the AUVSI Foundation website, www.auvsifoundation.org.

To see a webcast of the final day, Sunday, 12 June, from 1:00-5:00 EST, go to www.roboboat.org. To find out the final results immediately during the awards dinner on Sunday night, follow the AUVSI Foundation at @AUVSIFoundation on Twitter.

California State Northridge Takes Top Honors at IGVC
By: Danielle Lucey, June 7, 2011

California State Northridge and its robot Red Raven placed first in the 19th annual Intelligent Ground Vehicle Competition, held on the campus of Oakland University this week.

The team placed in three of the competition's four categories, the autonomous, navigation and design challenges, leaving only the JAUS challenge untouched.

The team relied on LabView 2009 to control its algorithms and had a dynamic frame inspired by the Mars Rovers, which allows it to maintain stability by keeping its center of gravity very low.

The Red Raven, also called the Red Robotic Autonomous Vehicle, had all electronics centralized to one circuit board. A major obstacle the team had to overcome was the distortion provided by their wide angle lens, which was distorting how their mapping seemed to the robot. The robot this year was brand new, but student team leader Nicholas Keyawa says they'll likely built upon the same robot next year.

The autonomous competition this year required a 1 mph minimum speed for robots, which proved to not be a problem for the 4.5 mph top speed on grass for Red Raven.

The large team consisted of 18 people, mostly seniors. About 15 were electrical and mechanical engineering students, and three student volunteers that traveled with the team.

"I love my team, I love my college," said Keyawa after the win. "This has been the greatest experience of my life."

T3I Connects Autonomous Car Tech Decision Makers
By: Danielle Lucey, May 25, 2011

This week, the Transportation Technology Transfer Initiative, or T3I, kicked off a series of efforts by AUVSI to further the state of ground robotics relating to autonomous driving and vehicle connectivity.

Co-sponsored by NDIA, the two-day conference, held in Arlington, Va., brought together leaders from government, associations, military and car companies for an idea exchange on how the separate areas could come together to create an eventually driverless future.

That vision's initial steps are currently in the works, according to many speakers. Representatives from Toyota Motor North America, Volkswagen's Electronics Research Lab and General Motors discussed their companies' many autonomous and vehicle-to-vehicle communication concepts, like using wireless media to allow communication between cars or infrastructure, an autonomous parking valet that drives your car through a smart phone app or Segway-style urban electric vehicle concepts.

The Department of Transportation said it is working on enabling vehicle-to-vehicle communication, with a test study it said will be complete in 2013. President of the Connected Vehicle Trade Association Scott McCormick echoed those numbers, adding that the 2013 data should enable rulemaking by 2015-2016, with the added possibility of automakers using driver correction technology to make unintentional crashes or off-road driving an impossibility by 2040.

Chris Urmson, the technology lead for Internet giant Google's self-driving car initiative, showed how much advancement could be achieved in a two and a half-year cycle given the dedicated money and staff, sharing lessons learned on driving seven modified Toyota Priuses more than 100,000 miles along West Coast roadways — with a man behind the wheel as a safety measure. Urmson, one of the participants in Carnegie Mellon's entries in the DARPA Urban and Grand challenges, admitted that when Google initially approached him, he was skeptical why an Internet company would want to dip its toe into driverless cars.

"They really honestly are about solving big, important problems," he said.

Big important problems were also drivers for many other speakers at the event: TARDEC and NASA discussed how they leveraged ground vehicle technology to overcome massive challenges, namely anti-ordnance measures in Afghanistan and far-away data collection on the surface of Mars.

Though all these areas are disparate, an overarching theme of cultural acceptance was a battle for nearly every area involved.

Jose Gonzalez, deputy director for land warfare and munitions under the Office of the Secretary of Defense, said that the cultural shift necessary inside the Department of Defense to use autonomous systems is likely even larger than the chasm of public acceptance, with the exception of anti-IED work.

"The stand off it provides the human to do that function is tremendous," he said. "This is an area where no one will dispute you."

Technical challenges, he said, like perceiving and understanding the situation under all conditions, power issues, communications and predicting behavior, are prime for the T3I conference and future T3I work to overcome.

"This is the area where we have an opportunity as a new T3I community to work with you all and find ways to share information, share challenges."

To push the technology further and also drive up the social awareness of driverless cars, Christopher Frangione from the X-PRIZE Foundation said a $10 million autonomous car challenge is in the works.

"We want to make this the most worthwhile to this community but also the general public," he said.

Though X-PRIZE has this concept, Frangione said that the organization prefers to define the problems related to a technology versus create a singular idea of what the solution is. For their prize competitions, they're "really pulling guys out of the garage that are not tied to the community," he said.

Though this year's conference is over, AUVSI is committed to continuing its work with driverless cars, leveraging the knowledge from these different communities and allowing them a forum to work together to solve common problems.

"I have seen nothing but tremendous professional acts and endeavors to make sure we advance this technology," said Michael Toscano, president and CEO of AUVSI. "This is a revolutionary technology with an evolutionary approach and that's what we're trying to put in place."

AUVSI plans on having more sessions on driverless car technology at this year's Unmanned Systems North America Conference, held in Washington, D.C., 16-19 Aug.

For more information on driverless car technology, click on the issue of Mission Critical magazine located on the top left side of AUVSI's homepage, www.auvsi.org.

Gray Eagle Flies at Night Under First Sense and Avoid COA
By: Brett Davis, May 23, 2011

The U.S. Army has begun night flights of its Gray Eagle unmanned aircraft using a ground-based sense and avoid system, says Viva Austin, product director, U.S. Army Unmanned Systems Airspace Integration Concepts.

Flights began on 25 April at General Atomics Aeronautical Systems' El Mirage, Calif., location, under a year-long certificate of authorization from the U.S. Federal Aviation Administration, which is working with the Army and the company to collect data from the flights. The flights involve coordination between the FAA, the Army Airthworthiness Authority and General Atomics, builder of the Gray Eagle.

It's the first COA granted for a sense and avoid system and allows for night flights without a chase plane, something that Austin says hasn't been done in years. Flying at night helps ease the time burden for testing and training, which previously all had to occur in the daytime.

"What we wanted to do was give them [the Army] the ability to do some of that testing and training at night time," she tells Unmanned Systems. "We proposed this ground-based sense and avoid system, a series of ground based sensors that feed information back into a computer that does the math for detecting [aircraft] tracks and tells the operator when it's safe to fly in that airspace."

The COA allows for dusk-to-dawn flights of Block 0 or Block I Gray Eagle aircraft, although so far the flights have started at midnight and gone until 5 a.m. The skies above El Mirage are generally clear at night, so the first night of flying the Army had 67 percent "green light time," she says, which climbed to 95 percent the second night.

FAA officials are closely monitoring the flights for the first 40 hours, after which the Army will be responsible for most of the monitoring.

"We've had an average of over 80 percent operational time," she says. "On the safety side of things, the system performed as it was designed."

So far, the only glitch was in a self-test system which didn't affect safety, she says. As part of the shutdown procedures, the operators introduce fake aircraft tracks to verify that the alarm would go off if a real aircraft were detected. On the second night of the flights, that system double-checked with the radar, saw the tracks weren't real and wouldn't sound the alarm.

The Army is currently not flying as it works to address that issue, Austin says, but the COA is still in place.

Austin says plans are underway to expand the operations there, including creating a "tunnel" of airspace where a Gray Eagle could fly from El Mirage to protected airspace at nearby Edwards Air Force Base, expanding the testing and training envelope even further.

U.S. Helps Capture Bin Laden

By: Danielle Lucey, May 18, 2011 10:37 AM
Anonymous U.S. officials have confirmed the use of stealth unmanned aerial systems in the raid that killed Osama bin Laden earlier this month.

The UAS were used "because they needed to see more about what was going on" a former U.S. official told The Washington Post.

The aircraft used was the Lockheed Martin-made RQ-170, also known as the Beast of Kandahar, according to the Post's sources. Initially, the National Journal reported the use of the Sentinel on its Twitter page.

The imagery from the Sentinel was used by President Barack Obama and his national security team to watch the U.S. Navy SEALS raid the Abbottabad, Pakistan, compound. The now famous photograph of Obama, Vice President Joe Biden, Secretary of State Hillary Clinton and a slew of other high powered national security officials in the Situation Room depicts them looking at imagery from the Sentinel, says the Post.

The Sentinel, unlike the high-profile Predator and Reaper UAS used to monitor Pakistan, is incapable of being detected by radar.

"It's not like you can just park a Predator overhead — the Pakistanis would know," said a second official, who spoke to the Post anonymously.

The Washington Post article

UAE Unmanned Systems Rodeo Winning Team Heading to AUVSI Symposium
By: Brett Davis, May 10, 2011

Eleven teams faced off in the first Unmanned Systems Rodeo in the United Arab Emirates in early May, with Team Robotics from Dubai Men's College taking the top prize, an all-expense paid trip to AUVSI's Unmanned Systems North America 2011 in Washington, D.C., courtesy lead sponsor Northrop Grumman.

The AUVSI Foundation will host the students at AUVSI's Unmanned Systems North America 2011, where the team will

discuss its system design.

Northrop Grumman aerospace engineers traveled to UAE and served as mentors to the teams from the Higher Colleges of Technology, which included two teams from the Abu Dhabi Women's Campus. AUVSI Foundation Executive Director Daryl Davidson served as a judge for the competition, along with representatives from Higher Colleges of Technology, Northrop Grumman and Abu Dhabi Autonomous Systems Investment.

"Northrop Grumman is honored to sponsor this competition that fosters new types of innovation in the UAE," Wes Bush, CEO and president of Northrop Grumman, said in presenting the award. "The rodeo provides an opportunity to transfer knowledge and technology to the younger generation, which is an important element of the strategic vision established by UAE leadership. I'm confident that the enthusiasm we saw at this year's rodeo competition will inspire its expansion and will further encourage tomorrow's generation of Emirati scientists and engineers to develop similar ground-breaking technologies for the future."

The competition, scheduled to become an annual event, was organized by the Institute for Near East & Gulf Military Analysis and hosted by Higher Colleges of Technology.

Arlington, Texas Police Department Set to Utilize Unmanned Aerial Vehicle
By: Melanie Hinton, May 5, 2011

The Arlington police department will soon be utilizing an unmanned aerial vehicle (UAV) to provide an extra level of security to the city. The UAV was acquired with grant money from the U.S. Department of Homeland Security for Super Bowl XLV.

Arlington is the first U.S. city to receive a certificate of authorization (COA) from the FAA to fly over an urban area.

According to City Councilman Robert Rivera, the hope of the UAV is to provide an extra level of public safety and to help traffic-crash investigations and search-and-rescue-missions.

"Anytime that we can utilize progressive methods to increase our level of public safety, that's what we're doing and that's what we're looking at," said Rivera.

But the use of unmanned systems has raised questions about privacy across the country. Arlington Mayor Robert Cluck said, ""The police chief thinks they will be a huge advancement in public safety that will allow officers to view the entire city through aerial surveillance."

"With terrorist attacks and everything else going on, I don't think it's a bad idea," said Arlington resident Eric Vandervoort, who lives near Cowboys Stadium.

According to Mayor Cluck, the city is currently looking into finding funding to operate the drone.

Click here to read more.

Sentinel UAV spied on bin Laden prior to successful mission
By: Brett Davis, May 2, 2011

A Lockheed Martin RQ-170 Sentinel stealth unmanned aerial system spied on Osama bin Laden the night before the special operations unit raid that successfully killed bin Laden at his mansion compound in Abbottabad, Pakistan, according to an initial report by the National Journal.

The U.S. Air Force has never released a photograph of the Sentinel, developed by Lockheed Martin's Skunk Works, but it does acknowledge its existence, earning it the nickname the "Beast of Kandahar," after the airfield it operates out of in Afghanistan.

The fatal attack was made by U.S. soldiers operating through Joint Special Operations Command, which is comprised of special forces from multiple U.S. military organizations. The Sentinel's stealth nighttime spy mission was in conjunction with JSOC ground spotters, according to the National Journal.

A senior intelligence official, speaking 2 May at the Pentagon, said there were "multiple sources of intelligence, you know, that led us to where we are today with respect to this compound." Aside from information from detainees, "we had other sources — I can't describe those — that helped with the final intelligence picture," he said.

Though its capabilities have never been formally outlined, the mission suggests the Sentinel is an intelligence, surveillance and reconnaissance aircraft, whose multiple secretive missions might have consistently been related to bin Laden. The RQ UAV designation indicates that the system did not carry any weapons. The stealth body of the aircraft lead experts to speculate that the system was being used either over Iran or Pakistan, since the Afghanistan Taliban, according to a 2009 AFP news agency report, does not use radar systems.

Initial reports of bin Laden's death speculated that bin Laden might have been killed through an armed Predator UAS strike. Though the aircraft didn't ultimately take part in Sunday's mission, Predator was initially sent to Afghanistan during a 60-day trial mission in 2000 dubbed "Afghan Eyes," in anticipation that the unmanned system had the potential to target bin Laden with cruise missiles.

UAS attacks more than tripled under the Obama administration and the leadership of Leon Panetta in the CIA, particularly along the Afghanistan-Pakistan border, since experts initially theorized bin Laden's hideout was in that mountainous region.

Obama recently nominated Panetta to become the next Secretary of Defense. Gen. David Petraeus, current commander of U.S. Afghanistan forces, has been nominated to replace Panetta.

AUVSI Congratulates Military Forces on Bin Laden Operation
By: Melanie Hinton, May 2, 2011

AUVSI congratulates the U.S. military forces who pursued and killed the number one target in the war on terror, Osama Bin Laden. The killing of Osama bin Laden is an enormously significant moment in the global fight against al Qaeda terrorism.

AUVSI is proud of the role that unmanned systems continue to play in the fight against al Qaeda and other terrorist groups in the global war on terrorism.

"AUVSI will continue to support and work with the unmanned systems community to develop the technologies to help our armed forces pursue and win the global war on terrorism," said AUVSI President/CEO Michael Toscano.

Oregon House Urges Congress to Allow for UAS Test Flights over Rural Areas
By: Melanie Hinton, April 28, 2011

In an effort to kick-start a flagging aviation economy by setting aside airspace above the high desert to flight-test unmanned aerial systems (UAS), on 27 April the Oregon House passed Joint Memorial 20, which urges the U.S. Congress to enact legislation requiring the FAA to expedite the approval process for unmanned aircraft testing in rural areas.

The goal of bill is to attract developers and manufacturers to the region by creating a remote testing area by carving out some of the military airspace where the Oregon Air National Guard and other combat pilots currently train.

"It's about drones and jobs. ... The important part for us is jobs," said Rep. Jason Conger, a Bend Republican who presented the memorial for a floor vote.

But there are hurdles in the way. UAS designed for commercial applications are prohibited in general aviation airspace, and testing can be done only in restricted military airspace or via special certificates issued by the FAA.

Though private pilots and hang gliders have questioned the idea, the memorial passed unanimously without debate. It now moves to the Oregon Senate.

AUVSI Joins Coalition to Protest Threat to GPS
By: Melanie Hinton, April 14, 2011

AUVSI recently joined the Coalition to Save Our GPS to resolve a serious threat to the global positioning system. Lightsquared has been granted a conditional waiver by the FCC to build 40,000 ground stations in the U.S. that could cause widespread interference to GPS signals — endangering a national utility which millions of Americans rely on every day.

AUVSI President Michael Toscano sent a letter to FCC Chairman Hon. Julius Genachowski expressing the industry's concern about the decision to grant Lightsquared a conditional waiver to build its high-powered terestrial transmitters and use a radio frequency adjacent to the lower-powered Global Positioning System (GPS) satellite frequency.

"Because these frequencies are in the same radio spectrum range, the high-powered, terrestrial-based transmitters will drown out or significantly interfere with the weaker GPS signals, rendering GPS receivers unusable.

"All around the world, unmanned systems (air, ground, and maritime) rely on accurate, dependable GPS signals. The lack of a reliable GPS signal poses a serious threat to our public safety and national defense, and the potential cost of retrofitting or replacing affected GPS receivers would be an undue burden. For this reason, AUVSI has joined the Coalition to Save Our GPS in order to emphasize the importance of protecting our GPS."

AUVSI is encouraged that the Federal Communications Commission has decided to establish a working group with industry and federal agencies to study the potential interference concerns. Such a significant change to the frequency spectrum should always be open for a full public comment period. It is our hope that any potentially harmful interference issues will be fully resolved before LightSquared, or any other similar applicant, is allowed to move forward with building terrestrial transmitters and operating on a frequency that could render GPS useless.

For more information on the Save Our GPS Coalition, visit http://www.saveourgps.org.

Homegrown Unmanned Systems Increasing at LAAD 2011
By: Brett Davis, April 13, 2011

RIO DE JANEIRO — An increasing number of indigenous Brazilian unmanned aircraft designs are popping up at this year's Latin American Aerospace and Defense (LAAD) show here, as manufacturers move to boost their hold on the Brazilian market and begin to eye export possibilities.

Flight Technologies, based in Sao Jose dos Campos, introduced its new Horus 100, a smaller member of the Horus family of vehicles. The hand-launched Horus has a flight time of one hour and a "fly-by-payload" capability.

The company's co-founder and executive director, Nei Brasil, says the Flight Technologies has increased its presence in the unmanned systems market in the last few years and is thinking about exporting into other Latin American markets, as well as forming partnerships with larger companies in Europe and North America.

The company also manufactures the Horus 200, a larger UAS with a duration of three hours and a typical operational altitude of up to 1,500 meters.

Brasil says the company is also active in the Avibras Falcao program, which is developing a still larger UAS, one closer in size to a Predator. Brasil says Flight Technologies developed the software for that system and it's "ready to go."

Renato Bastos Tovar, general manager of international business development for Avibras, says the Falcao is in the second stage of its development and should be ready for flight testing this summer.

"The main point here is that we have a tactical UAV" that can carry electro-optical and infrared payloads, as well as synthetic aperture radar, and which has a long range and 15-hour endurance.

Falcao has been developed in cooperation with the Brazilian armed services and the science and technology ministry, but moving to the third stage of development, which would lead to a production aircraft, will require a contract, Tovar says.

Falcao has a range of 2,500 kilometers when operated via satellite, an endurance of 15 hours and has automated takeoff and landing capability.

New smaller systems are represented at the show as well. Gyrofly Innovations is showing a small quadrotor, the Gyro 500, which has carbon fiber arms and propellers and silent brushless motors. It can fly up to 500 meters in altitude and has an endurance of up to 25 minutes.

There is a lot of choice and competition in the quadrotor UAS market and Gyrofly isn't the only one at the show. There are also international competitors, including from California-based Datron, which has demonstrated its Datron Scout extensively overseas and is exhibiting at LAAD 2011.

Flight Technologies' Brasil says that while interest in unmanned systems is increasing in Brazil, he'd still like to see more energy in the market.

"There is a lot of energy, there are a lot of players, but it's not enough energy," he says. "I'd like to see more."

Robots/AUVSI take over Capitol Hill
By: Melanie Hinton, April 12, 2011

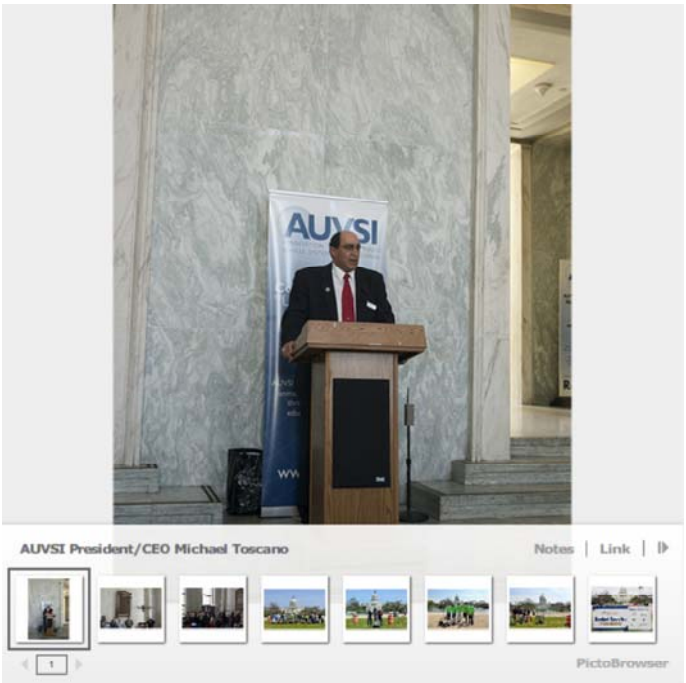
As part of National Robotics Week, AUVSI and AUVSI Foundation took over Capitol Hill. While university students demonstrated their team-built unmanned ground vehicle systems (UGVs) in front of the Capitol from 9-11 April, AUVSI members visited Congressional offices and exhibited their wares in the Rayburn House Office Building Foyer on 11 April.

AUVSI members and exhibitors met with more than 100 Congressional staffers to discuss issues of national and international importance while raising awareness of unmanned systems.

In front of the Reflecting Pool outside the hallowed halls on Congress, teams from Bob Jones University, City College of New York, Fordham University, University of Central Florida (UCF), University of Delaware, University of Massachusetts Lowell — Mass., and U.S. Naval Academy showed off their UGVs, many of which will be in competing this June at the annual Intelligent Ground Vehicles Competition in Michigan.

Reflecting on the day, AUVSI President/CEO Michael Toscano said, "This was an outstanding event where we were able to raise awareness of unmanned systems and their potential among Congressional staffers. We also were able to show our support for National Robotics Week, which has strong support on the Hill.

"Events like our Hill Day with the exhibit hall and the student demonstrations in front of the Capitol give our members and students a great opportunity to expose their products and capabilities to a wide influential community in Congress."



Rep. McKeon: "2015 for NAS integration may be too slow"
By: Melanie Hinton, April 8, 2011

The Federal Aviation Administration reauthorization bill, approved last week by the House of Representatives, calls for the FAA to come up with a plan to fly unmanned aicraft in the National Airspace System by 2015, among other unmanned systems-related provisions.

Rep. Howard "Buck" McKeon (R-Calif.), who chairs the House Armed Services Committee and co-chairs the Congressional Unmanned Systems Caucus, says "that was a good effort" but more needs to be done. "Passing it here doesn't make it law," he tells AUVSI in an exclusive interview. "We need to focus and get it done in the Senate." The 2015 date should be an "outside" date, he says, adding, "I would like to see it done as soon as possible. The whole industry is moving so rapidly that we shouldn't get in their way."

The caucus hosted a briefing in 2010 that included government and business leaders as well as AUVSI and other stakeholders. Rep. McKeon says it may be time for another.

"I felt that was productive, but I've had some feedback since then that indicates everytrhing we heard at the meeting hasn't been forthcoming. That would probably be a good one, to line up another one of those as a follow-up. And then maybe we might have to do some oversight hearings ... FAA doesn't come under our jurisdiction but we're all interested in the same thing, and that's progress. ... And if you've got airspace tied up it ends up costing more for testing. We don't want to do that. I think that would be another good follow up meeting."

See the complete interview with Rep. McKeon, and an update on AUVSI's advocacy efforts, in the May issue of Unmanned Systems magazine.

FAA to Continue Processing Emergency COAs in Event of Government Shutdown
By: Danielle Lucey, April 8, 2011

The Federal Aviation Administration will continue processing unmanned aircraft certificates of authorization with a limited staff in the event of a federal government shutdown.

However, all normal COA and special airworthiness certificates will be put on hold.

The FAA has outlined the following necessities for obtaining an emergency disaster UAS COA request:

1. A situation exists that is defined as a condition of distress or urgency where there is, or has the extreme possibility of loss of life
2. Manned flight is not possible due to a hazard, or the operation cannot be conducted safely with manned flight
3. The proposed UAS is operating under a current approved COA.

The governor of a state or the president must also declare a disaster request.

Federal Aviation Administration Re-Authorization Bill
By: Melanie Hinton, April 4, 2011

Congressman Howard P. "Buck" McKeon (R-CA), Chairman of the Congressional Unmanned Systems Caucus (CUSC) is pleased with the advancement of unmanned systems in H.R. 658, The Federal Aviation Administration Re-Authorization Bill.

"The language contained within this bill promotes the safe integration of unmanned systems into the national airspace. Carefully integrating these systems by 2015 will improve our border defenses, public safety, and emergency response systems," stated McKeon.

H.R. 658 requires the FAA to develop a safe, detailed plan to integrate Unmanned Systems in the national within 270 days from its date of enactment. The bill further advances unmanned systems integration by requiring the FAA to define both equipment airworthiness and pilot requirements.

"Although this bill is a step in the right direction, I have concerns with the FAA's languid Certificate of Authorization requirement for public unmanned systems. Our state and local law enforcement agencies need a faster, more responsive process. Our neighborhoods deserve safer streets, and these systems can help provide that."

McKeon added, "I am confident we can continue to work with John Mica, Chairman of the Transportation and Infrastructure Committee, and the Federal Aviation Administration as they develop a safe, thorough and detailed plan to assist our state and local public safety organizations."

"I'm pleased that the UAV language in the FAA reauthorization would help unmanned systems provide the information needed to protect our borders and our communities. I will continue to work to provide resources, equipment and technology to protect and secure the United States of America," said Congressman Henry Cuellar, co-chairman of the Congressional Unmanned Systems Caucus.

The goal of the Congressional Unmanned Systems Caucus is to educate members of Congress, stakeholders, and the public on the strategic, tactical, law enforcement and scientific value of unmanned systems.

The Congressional Unmanned Systems Caucus recognizes the overwhelming value of unmanned systems in the scientific, intelligence, law enforcement, and homeland security communities. The members of the bipartisan caucus are committed to the growth and expansion of these systems in all sectors. More information is available at http://uavc.mckeon.house.gov/.

Congressional Unmanned Systems Caucus

AUVSI Applauds Passage of House FAA Reauthorization and Reform Act
By: Danielle Lucey, April 1, 2011

The Association for Unmanned Vehicle Systems International (AUVSI) applauds the House of Representatives for passing Federal Aviation Administration Reauthorization and Reform Act of 2011 (H.R. 658), by a vote of 223 to 196.

The bill includes important language on integrating unmanned aerial systems (UAS) into the national airspace system (NAS).

Working with House leaders, AUVSI was successful in making a number of changes to the UAS provisions in the bill. Specifically, the bill would:

1) Set a deadline of 30 Sept. 2015 for integration of commercial UAS into the NAS;

2) Require a comprehensive plan for integration into the NAS within nine months, after consulting with the unmanned aircraft systems industry;

3) Require the FAA to simplify its application process for law enforcement and public safety agencies within three months;
a. Once the application process is simplified, law enforcement and public safety agencies will be able to operate UAS weighing less than 4.4 pounds, within the line-of- sight of the operator, less than 400 feet in the air, during daylight hours, within Class G airspace, and outside five miles from any airport.

4) Create four UAS test sites;

5) Define small unmanned aircraft as weighing less than 55 pounds;

6) Require annual reports to Congress on UAS activities; and

7) Start the official rulemaking process within two and a half years.

AUVSI President/CEO Michael Toscano praised the UAS sections of the bill saying, "UAS have the potential to revolutionize the aviation and aerospace industry globally. These systems play a vital role in our nation's security and defense; however, recently, the potential benefits of civilian use of UAS in the United States have been hampered due to a lack of standards and consistent regulation. "On behalf of our community, AUVSI applauds Congress for passing this Bill and providing a timeline to more expeditiously and safely integrate UAS into the National Airspace System thus allowing for the increased use of UAS for beneficial civilian uses such as border surveillance, law enforcement surveillance, search and rescue, disaster response, weather research, wildlife monitoring, agricultural applications, power line surveillance, and wildfire monitoring, among others."

The Senate passed its FAA bill (S. 223) earlier this year.

In the coming weeks, AUVSI will be working with House and Senate leaders to come up with a compromise bill that expedites the safe integration of UAS into the NAS.