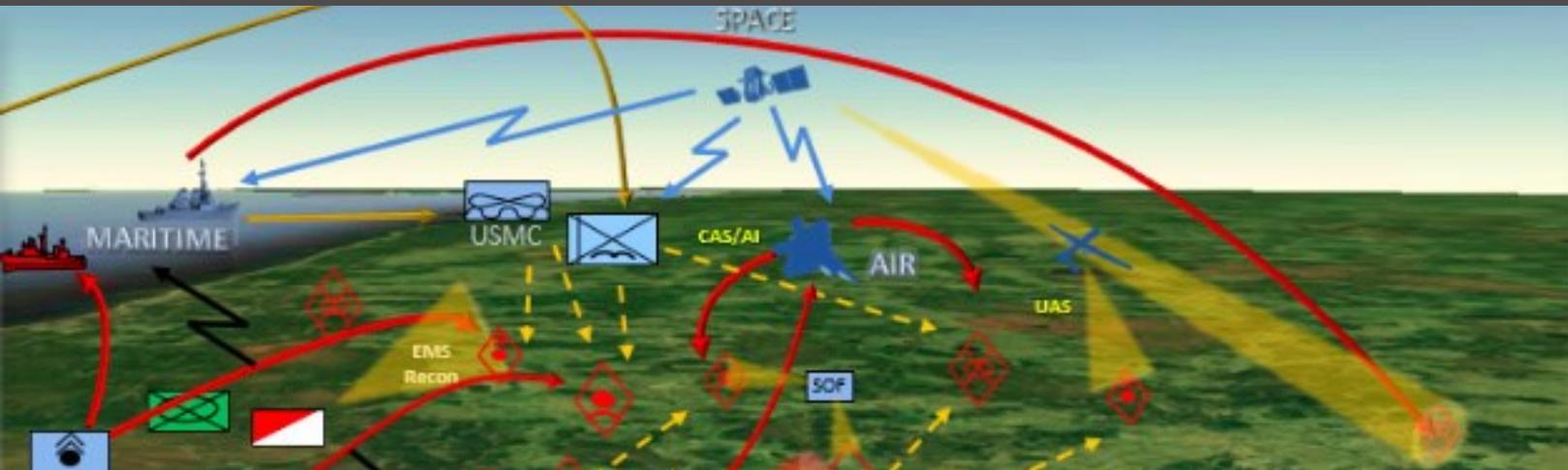


Defense Systems

NEWS DIGEST

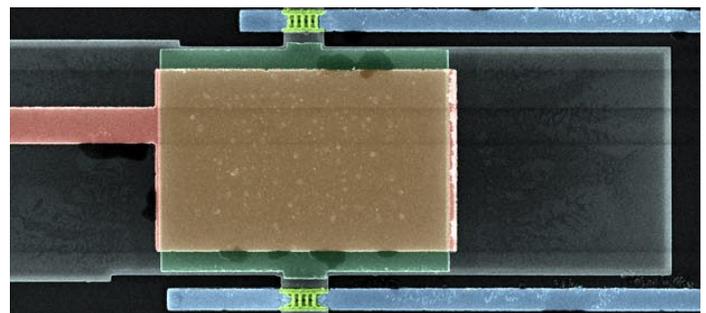
17 JANUARY 2017 - THE LATEST IN DEFENSE SYSTEM NEWS



Multi-Domain Battle: A Lethal War of Fleeting Advantages

The US Army isn't counting on airpower in the next war. Without that cover, there won't be supply drops, recon drones or medevac helicopters picking up your casualties — and you will have casualties. "Land-based forces now are going to have to penetrate denied areas to facilitate air and naval forces. This is the exact opposite of what we have done for the last 70 years, where air and naval ...

Advanced Materials



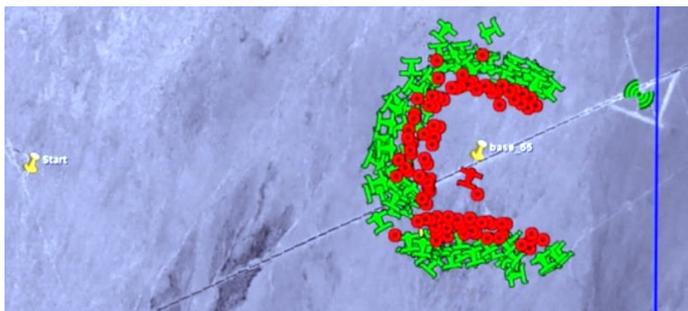
Defense AT&L Magazine - Additive Manufacturing Special Issue

Additive manufacturing (AM)—known also as "3D printing"—has exploded into public consciousness over the past several years. Stories and perspectives seem to appear in the popular press and technology blogs on a near daily basis. Enthusiasts tout the prospect for AM to revolutionize manufacturing industries and the markets...

Germanium Can Take Transistors Where Silicon Can't

Nearly 70 years ago, two physicists at Bell Telephone Laboratories—John Bardeen and Walter Brattain—pressed two thin gold contacts into a slab of germanium and made a third contact on the bottom of the slab. The flow of current through this configuration could be used to turn a small signal into a larger one. The result was the...

Autonomous Systems



Next Generation Autonomous Drones Set to Revolutionize Warfare

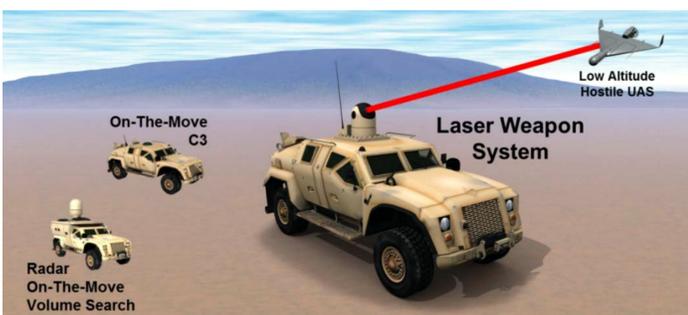
One of the biggest revolutions over the past 15 years of war has been the rise of the drones -- remotely piloted vehicles that do everything from conduct air strikes to dismantle roadside bombs. Now, a new generation of drones is coming. Only this time they are autonomous -- able to operate on their own without humans controlling them from somewhere with a joy stick. Some...



Comparing the New GoPro Karma and DJI Mavic Pro Drones

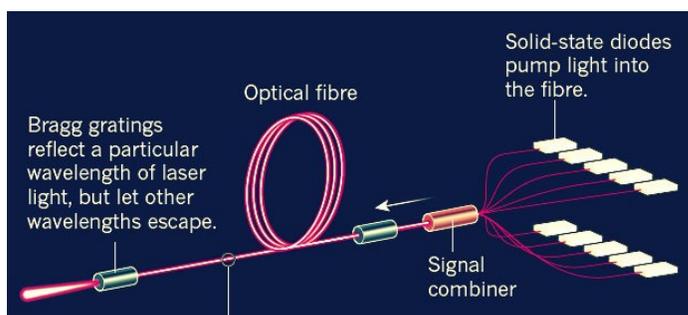
DSIAC staff recently took a look at the capabilities of two newly released advanced consumer drones, the Karma, developed by GoPro, Inc., and the Mavic Pro, developed by SZ Dà-Jiāng Innovations Science and Technology Co., Ltd. (DJI). Both systems are very portable, easily fitting into a small backpack; can record 4K video; and include a plethora of ease of use guidance, control and...

Directed Energy



Marines To Pair Laser Weapon With Stinger Missile For Mobile Ground Unit Protection

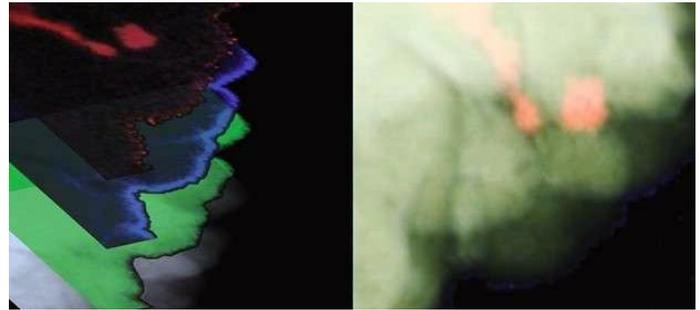
The Marine Corps is moving towards a future in which small dispersed units can protect themselves from incoming enemy drones with laser weapons and from missiles and aircraft with Stinger missiles, with both weapons netted into a detection system and mounted atop Humvees, Joint Light Tactical Vehicles and other combat vehicles. Lt. Gen. Robert Walsh, deputy commandant of the...



Optical Fiber Edging Laser Weapons Closer to the Battlefield

Silently, the drone aircraft glides above the arid terrain of New Mexico — until it suddenly pivots out of control and plummets to the ground. Then a mortar round rises from its launcher, arcs high and begins to descend towards its target — only to flare and explode in mid-flight. On the desert floor, on top of a big, sand-coloured truck, a cubic mechanism pivots and fires an invisible infrared beam...

Energetics



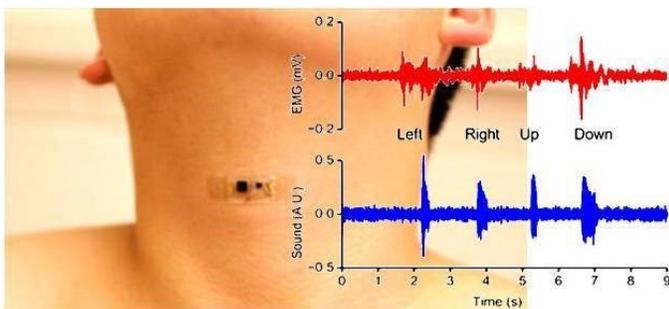
Engineered “Sand” May Help Cool Electronic Devices

Baratunde Cola would like to put sand into your computer. Not beach sand, but silicon dioxide nanoparticles coated with a high dielectric constant polymer to inexpensively provide improved cooling for increasingly power-hungry electronic devices. The silicon dioxide doesn't do the cooling itself. Instead, the unique surface properties of the coated nanoscale material conduct the heat at...

Devices That Convert Heat Into Electricity One Step Closer to Reality

The same researchers who pioneered the use of a quantum mechanical effect to convert heat into electricity have figured out how to make their technique work in a form more suitable to industry. In *Nature Communications*, engineers from The Ohio State University describe how they used magnetism on a composite of nickel and platinum to amplify the voltage output 10 times or more...

Military Sensing



Epidermal Mechano-Acoustic Sensing Electronics for Human-Machine Interfaces

Physiological mechano-acoustic signals, often with frequencies and intensities that are beyond those associated with the audible range, provide information of great clinical utility. Stethoscopes and digital accelerometers in conventional packages can capture some relevant data, but neither is suitable for use in a continuous, wearable mode, and both have shortcomings associated with...

CONTROP Unveils TWISTER Wide-Area Automatic Intruder Detection System

CONTROP Precision Technologies Ltd displayed its new, wide-area automatic intruder detection system at Defense Expo Korea 2016. The TWISTER is a passive IR system providing a panoramic 360-degree image and automatic moving target detection at a high rate (1Hz), according to a recent press release. Using very advanced algorithms, the TWISTER detects moving...

Non-Lethal Weapons



Developing Non-Lethal Weapons: The Human Effects Characterization Process

Armed only with lethal force, and facing vehicles that didn't stop, U.S. warfighters manning a checkpoint in Iraq were left with a difficult choice—engagement with lethal force against an unknown entity or risk being attacked. Tragically, some drivers didn't comprehend warnings. To help resolve this dilemma, warfighters were equipped with non-lethal weapons, including a dazzling laser that got ...

Solid State Active Denial Technology for Non-Lethal Crowd Control

Engineers at Picatinny Arsenal are developing technology for non-lethal crowd control designed to help protect Soldiers while minimizing collateral damage and preventing any permanent physical harm. Engineers believe that the Solid State Active Denial Technology or SS-ADT, is highly promising for crowd dispersal, checkpoint security, perimeter security, and port protection from both...

RMQSI



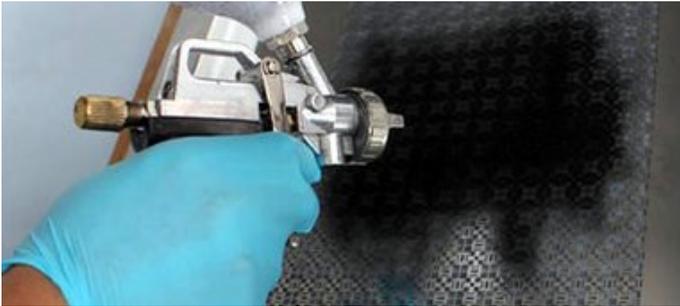
SmartDeviceLink Open Source Platform for Smartphone Apps and In-Vehicle Systems

Ford Motor Company and Toyota Motor Company are forming SmartDeviceLink Consortium, a nonprofit organization working to manage an open source software platform with the goal of giving consumers more choice in how they connect and control their smartphone apps on the road. SmartDeviceLink provides consumers easy access to smartphone apps using voice commands and...

New Details Emerge on Littoral Combat Ship Breakdowns

In a pair of congressional hearings about the Navy's embattled littoral combat ship program this month, service program managers and oversight officials fielded tough questions about unexpected increases from ship unit costs -- from \$220 million to \$470 million over the course of the program -- and concerns about a planned block buy of upgraded frigates based on the same design.,

Survivability & Vulnerability



Printed Graphene Nano-flakes for Flexible, Conformable Wideband Radar Absorbers

In this work, we have designed, fabricated and experimentally characterized a printed graphene nano-flakes enabled flexible and conformable wideband radar absorber. The absorber covers both X (8–12 GHz) and Ku (12–18 GHz) bands and is printed on flexible substrate using graphene nano-flakes conductive ink through stencil printing method. The measured results show that an...



Air Force Explores Commercial Satellite Use for Communications Resiliency

In a case where more may equal less, the Air Force is evaluating ways that increased integration of commercial technology with military satellite systems may help protect communications and reduce vulnerabilities for hacking or jamming.

“There is no one node that is invulnerable to attack,” Winston Beauchamp, Deputy Under Secretary of the Air Force for Space, told Defense Systems in an interview...

Weapon Systems



Maritime Hybrid Warfare Is Coming

On a summer's evening in the sweltering South China Sea, a coastal steamer of nearly 2,000 tons approaches a Vietnamese fishing fleet in the exclusive economic zone of Vietnam, some 150 miles off that nation's coast. The steamer loiters in the area for an hour or two as night falls. Suddenly from the side of the ship three fast speedboats are deployed, each armed with .50 caliber guns and hand-held rocket launchers. For the next hour, the speedboats attack dozens of fishing craft, spraying...



BAE Systems Debuts Next Generation Bradley Prototype

BAE Systems' Next Generation Bradley Fighting Vehicle demonstrator is debuting today at the Association of the United States Army (AUSA) annual meeting in Washington, D.C. The concept vehicle features an upgraded chassis that allows for significantly increased underbelly protection, improved force protection for mounted troops, compartmentation of fuel and ordnance, and more...

Announcements & Events



Doolittle Institute SOFWERX—SOCOM PEO/SW Industry Capability Collaboration Event

SOCOM is seeking information concerning hybrid, fuel cell, and electric powertrain systems for a four passenger Light Tactical All-Terrain Vehicle (LTATV). PEO-SW is sponsoring a collaboration event with industry experts to determine the availability of the subsystems in the LTATV market place.
DATE: February 28—March 1, 2017



XPONENTIAL 2017—Shape Tomorrow

The largest global community of leaders in drones, intelligent robotics and unmanned systems will come together to shape the future of our industry. XPONENTIAL features exclusive speakers, innovative programs and dynamic educational opportunities that inspire and strengthen the people who are shaping the future of our industry.
DATE: May 8-11, 2017



60TH ANNUAL FUZE CONFERENCE



60th Annual Fuze Conference

NDIA welcomes domestic and allied fuze designers, manufacturers, component suppliers, and research organizations along with government representatives. This year's theme is "Celebrating 60 Years of Fuzing Excellence", and provides an opportunity to discuss and share ideas to help advance the state-of-the-art for the next generation of fuzing.
Date: May 9-11, 2017

ABOUT THIS PUBLICATION: The inclusion of hyperlinks does not constitute an endorsement by the DSIAC or United States Department of Defense (DoD) of the respective sites, nor the information, products, or services contained therein. The DSIAC is a DoD sponsored Information Analysis Center with policy oversight provided by the Assistant Secretary of Defense for Research and Engineering (ASD(R&E)) and is administratively managed by the Defense Technical Information Center (DTIC). Reference herein to any specific commercial products, process, or services by trade name, trademark, manufacturer, or other-wise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or the DSIAC.

Defense Systems Information Analysis Center

4695 Millennium Drive, Belcamp, MD 21017

Phone: 443-360-4600

[Unsubscribe](#) | [DSIAC Journal](#) | [dsiac.org](#)

