Army Guide monthly

10 (157) October 2017

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Defence Industry

Remotec's unmanned ground vehicle offers affordability and versatility with extraordinary mobility

HUNTSVILLE, Ala. -- Northrop Grumman Corporation's subsidiary Remotec Inc. is unveiling the newest member of the Andros line of proven unmanned ground vehicles (UGVs), the Interoperability Profile (IOP)-compliant Nomad.

Northrop Grumman's newest UGV, the Andros Nomad, has four independent track pods that provide extreme mobility with stability climbing uneven terrain, complex obstacles and inclines as steep as 60 degrees.

IOP is a U.S. Department of Defense initiative to organize and maintain interoperability standards for UGVs. With IOP-compliant software messaging and hardware interfaces, Nomad can easily integrate the best available capabilities, sensors and payloads for multiple functions and missions.

"Building on our 30-year heritage, Nomad represents another exciting chapter of Andros innovation, performance and value in render-safe operations," said Dan Verwiel, vice president and general manager, missile defense and protective systems division, Northrop Grumman. "Future upgrades can be spiraled via IOP compliance and its next-generation track pods allow Nomad to go where others cannot.

"We continue to improve affordability. Over the past few months, working with supply chain, advanced materials and manufacturing availability, we have cut even more costs to make the Nomad available to a greater range of users," said Verwiel.

Nomad was designed using a proven concurrent engineering process to develop a superior product at an affordable price. Like other robots in the Northrop Grumman Andros fleet, Nomad incorporates the feedback from decades working with first responder and military customers to offer advanced technology, ease of use and reliability.

The mid-size Nomad weighs 164 pounds and measures 35.5 inches long, 23 inches wide and 26 inches high when its mast is horizontal or 42 inches high when the mast is fully vertical. Nomad's manipulator arm has a lift capacity of 15 pounds when fully extended and impressive dexterity through extensive shoulder pitch, shoulder rotation, elbow pitch and wrist roll abilities. Its four independent track pods provide extreme mobility with stability climbing uneven terrain, complex obstacles and inclines as steep as 60 degrees.

Northrop Grumman is the largest provider of ground robots to the first responder market in the U.S. In addition, the company's UGVs are fielded across all U.S. military services and bomb squads in 36 countries.

With more than 75 years of experience in advanced autonomy, Northrop Grumman's autonomous systems expand the boundaries of human potential to deliver end-to-end solutions that meet evolving mission requirements for a rapidly changing world.

Northrop Grumman is a leading global security company providing innovative systems, products and solutions in autonomous systems, cyber, C4ISR, strike, and logistics and modernization to customers worldwide.

Contracts

FLIR Systems Awarded $74.7 Million Contract for Land Surveillance Systems for U.S. Army

FLIR Systems, Inc. has been awarded a $74.7 million firm-fixed-price order to deliver TacFLIR® surveillance cameras in support of the U.S. Army EO/IR-Force Protection (FP) program. The U.S. Army will purchase the systems through Army Contracting Command, Redstone.

The units delivered under this contract will support the ongoing U.S. Army EO/IR-FP program, which provides enhanced perimeter security and force protection for U.S. troops stationed around the world, such as Iraq and

Afghanistan. As part of the same program, FLIR was also awarded an $8.8 million contract in the third quarter 2017 to deliver other FLIR Ranger® radars.

"We are honored to continue our long-standing support of the U.S. Army," said Jim Cannon, CEO and President of FLIR. "This program highlights our ability to rapidly deploy our technology for critical missions and underscores FLIR's commercially developed, military qualified approach."

The contract expands the use of FLIR stabilized surveillance systems for the U.S. Army's EO/IR-FP programs. FLIR has delivered over a thousand EO/IR sensors to the U.S. Army as part of this program to support the safety of U.S. forces and those of U.S. allies, including a variety of systems.

FLIR will manufacture the systems in Wilsonville, Oregon. Deliveries will begin in 2017 and be completed within one year.

Defence Industry

Rheinmetall and Paravan enter global cooperation agreement

The Rheinmetall technology group, represented by Rheinmetall Landsysteme GmbH, has joined forces with Paravan GmbH, a market leader in drive-by-wire technologies, to cooperate in the field of autonomous driving.

The partners plan to design and develop semi- and fully automatic platforms for military and dual-use applications as well as civilian emergency response vehicles for protecting, rescuing and keeping people safe in acute high-risk situations and disaster zones. This pioneering cooperation agreement lays the groundwork for the rapid development of remotely controlled, automated, and future autonomous systems. Representatives of the two companies have now signed a wide-ranging agreement covering cooperation both at home and abroad.

One of the foremost manufacturers in this forward-looking field, Paravan has been developing drive-by-wire control technologies for over 15 years. This technology is a crucial prerequisite for future autonomous driving at the highest level (level 5), where no driver is necessary. Patented, fail-safe and roadworthy, these systems feature an independent power supply.

In the last five years alone, Paravan has prepared and equipped over 200 test vehicles, pre-series vehicles and show cars for autonomous driving on behalf of renowned automobile manufacturers and auto parts makers around the world.

These modular, fail-safe systems consist of software, actuators, interface management and integrated sensors. As a result, these systems can be readily adapted to the needs of system manufacturers like Rheinmetall as well as major automotive companies and parts makers. Paravan's special expertise lies in the redundant digital control of steering, accelerating and braking as well as supplying interfaces for digitization, GPS, control computers, cameras, radar and sensors. Today Paravan drive-by-wire technology already meets the Europe-wide criteria contained in the regulations ECE-R 79, ECE-R 10 and ECE-R 13.

Besides autonomous driving, Paravan technology eliminates the need for a steering column, enabling a complete rethink when it comes to the design of vehicle interiors as well as creating scope for entirely new future vehicle concepts.

About the cooperation partners

Rheinmetall Landsysteme GmbH is a subsidiary of the Rheinmetall Defence Group, responsible in the Vehicle Systems division for the development and production of tracked armoured vehicles and turret systems. All of its development, production and service activities are geared to providing the best-possible protection for troops deployed in harm's way. Group-wide and for many years, Rheinmetall Landsysteme has been steadily investigating potential uses for new technologies for remotely controlled, automated and future autonomous systems. Already deployed, the company's remotely controlled vehicles, e.g. for detecting mines, and the development of the first-ever military tracked vehicle with a drive-by-wire capability to receive a roadworthiness certificate almost twenty years ago (the "Digital Wiesel"), bear this out.

Established in 2005, Paravan GmbH quickly emerged as the global market leader in drive-by-wire technologies for disabled and severely disabled persons. Around the world, vehicles equipped with Paravan's roadworthy drive-by-wire solutions have already logged on over 500 million kilometres. The globe-spanning Wьrth Group holds a 51% stake in the company. With around 170 employees, Paravan has customers in over thirty customers worldwide. In the civil sector, Paravan is currently expanding its operations in the automotive industry, focusing on driver assist systems, integration of sensors and automated/autonomous driving.

Defence Industry

SAIC Announces Teaming Agreement with ST Kinetics and CMI Defence to Develop Ground Combat Vehicle Prototype

RESTON, Va --Science Applications International Corp. (SAIC) announced that it will compete to rapidly develop combat vehicle prototypes to meet

the U.S. Army's need as part of the Mobile Protected Firepower (MPF) program. SAIC, together with ST Kinetics and CMI Defence, will develop and integrate a vehicle that offers the Army an innovative solution that provides infantry forces access to combat environments in 21st century operations.

"As a systems integrator, SAIC can deliver an alternative option to the Army that brings together best-of-breed, non-developmental components to field a new combat vehicle quickly that meets critical requirements," said Jim Scanlon, SAIC senior vice president and general manager of the Defense Systems Customer Group. "Rapid delivery of this MPF solution is essential to the Army and our solution is extremely well-positioned to meet these requirements and deliver a modernized vehicle to soldiers."

Based on ST Kinetics' Next Generation Armored Fighting Vehicle (NGAFV) chassis and CMI Defence's Cockerill Series 3105 turret currently in production, SAIC will compete for an Engineering and Manufacturing Development (EMD) contract to build prototypes that incorporate a lightweight combat vehicle design while still providing mobility and lethality for Army units. Such a vehicle will enable freedom of movement and action, specifically for restrictive, urban operations but tailorable for full-spectrum combat environments.

"SAIC has developed a superior solution that integrates mature, currently produced offerings from our industry partners, ST Kinetics and CMI Defence. By marrying ST Kinetics' chassis with CMI Defence's turret, SAIC can deliver a reliable vehicle that gives soldiers a new capability in combat environments," said Scanlon.

"ST Kinetics is indeed honored to team up with SAIC again to participate in another major defense program in the U.S. Our NGAFV is an advanced system that is fully digitalized, highly mobile and developed to support networked knowledge-based warfighting. A fleet of seven prototypes had been developed and robustly tested over several years. As the NGAFV will be in production soon, this platform brings minimal technical risk and a robust supply chain to the MPF program," said Dr. Lee Shiang Long, president of ST Kinetics.

President of CMI Defence Jean-Luc Maurange added, "We are extremely proud to participate in the MPF program with SAIC, especially as this is the 200th anniversary of our company's founding. Our highly innovative turret and gun solution is already qualified and in production, which translates into a high level of manufacturing readiness, low technical risk and ensures our ability to meet the compressed program schedule required by the U.S. Army."

SAIC's entry into the MPF competition builds on continued momentum in combat vehicle modernization, to include the company's recent collaboration with the Detroit Automotive Technologies Consortium (DATC) and the U.S. Army Tank Automotive Research, Development and Engineering Center (TARDEC) to assist in the development of the next-generation combat vehicle - experimental prototype (NGCV-EP). This recent success expands upon SAIC's proven experience in modernizing combat and tactical vehicles including Mine-Resistant Ambush Protected (MRAP) vehicles for the Army, and Amphibious Combat Vehicles 1.1 (ACV) and Amphibious Assault Vehicles with Survivability Upgrades (AAV-SU) for the U.S. Marine Corps.

Exhibitions

AxleTech International unveils industry-first independent suspension system at ICUEE

Troy, Michigan -- AxleTech International has worked with Altec Industries, a leading equipment and service provider for the electric utility industry, to develop and industrialize the next generation of drivetrain systems for All-Wheel-Drive (AWD) utility trucks.

Standard AWD utility trucks are equipped with a rigid front drive axle and leaf spring suspension. This offering often requires modifications to the vehicles' frame rails. Current truck configurations have many limitations with regards to vehicle handling, stability, and control.

AxleTech's new modular drivetrain system is based on its field-proven ISAS® independent suspension system, and is adapted for use on a Class 7/8 on-highway truck chassis. The system consists of an Independent Front Suspension (IFS) drive axle module, rated up to 22,000 lb, equipped with modern steering geometry and air disc brake technology, and a low-profile shift-on-the-fly transfer case. The AxleTech solution provides enhanced safety and vehicle control when operating on and off-road, compared to conventional drivetrain systems.

"Our bolt-on modular solution eliminates the need for frame rail modifications, so our system maintains the frame height of a rear-wheel-drive truck. Vehicle roll stability is improved, and cab and driver-absorbed power is significantly lowered," said James McConville, Chief Engineer at AxleTech. "Overall, the AxleTech solution provides better vehicle maneuverability, roll stability, and handling when operating in the field," he added.

In collaboration with Altec Industries, AxleTech is bringing its expertise in custom independent suspension systems to the electric utility industry. The IFS system is available now, and customers can contact Altec or AxleTech for more information. Non-drive versions of the IFS are also available for fleets wanting the safety benefits of the independent suspension on

rear-wheel-drive vehicles.

AxleTech and Altec are each displaying an AWD utility truck featuring the ISAS® independent suspension system at the ICUEE show from October 3-5 in Louisville, Kentucky.

Exhibitions

Oshkosh Defense Showcases JLTV Vehicles With Next Generation Weapon Integration Capabilities At AUSA 2017

OSHKOSH, Wis., -- Oshkosh Defense, LLC, an Oshkosh Corporation company, will showcase two variants of its Joint Light Tactical Vehicle (JLTV) with next generation lethality and networking capabilities at the AUSA Conference 2017. The vehicles will be on display at the Walter E. Washington Convention Center in Washington, D.C. from October 9 -11, 2017.

"The Oshkosh JLTV is engineered to support a wide range of mission kits and weapon systems required for the modern battlefield," said John Bryant, Senior Vice President of Oshkosh Corporation and President of Oshkosh Defense. "Our JLTV will replace existing light tactical vehicles with a platform that is flexible, scalable, and customizable for specific missions 'outside the wire'. We are proud to be demonstrating this JLTV capability."

The JLTV Family of Vehicles was designed with room for growth to provide Warfighters with next-generation protected mobility in the light vehicle class, while supporting advanced networking and increased fire power. The JLTV General Purpose vehicle on display in the Oshkosh booth is equipped with a Boeing Compact Laser Weapon System (CLWS), a Kongsberg Protector LW 30 Remote Weapon System (RWS) with a M230LF cannon, and a communications suite that includes a Thales VRC-111 and Thales VRC-121 VIPER.

The JLTV Utility vehicle on display (shown above) is equipped with the Boeing Maneuver Short Range Air Defense (SHORAD) Launcher including a M3P .50 cal machine gun, M299 launcher with four Longbow Hellfire missiles, sensor suite, and a communications suite including a Thales VRC-111.

A third Oshkosh JLTV, a General Purpose vehicle, will be on the show floor in the Rafael Advanced Defense Systems booth #1911, showcasing Rafael's Samson RWS Dual Stabilized Remote Weapon Systems (RWS) with M230 LF, and the Trophy Light Active Protection System (APS).

"The JLTV program continues to be run as a model program," said Dave Diersen, Vice President and General Manager of Joint Programs, Oshkosh Defense. "Working closely with our government customer, we have completed Reliability Qualification Testing, accumulating over 100,000 miles and exceeding reliability requirements. Production ramp up is on track and Oshkosh has delivered over 600 vehicles. We are very pleased with program progress and look forward to a successful Full Rate Production (FRP) decision in Fiscal Year 2019."

Oshkosh Defense leadership will be available to discuss the Oshkosh JLTV Family of Vehicles, and the Company's full portfolio of vehicles, technologies, integration capabilities and aftermarket solutions at the AUSA Conference 2017 in booth #6629.

Training And Simulators

Endeavor Robotics wins big military contract

Endeavor Robotics, the military and security business that broke off of iRobot Corp. in 2016, said Friday that it had won a US Army contract that could pay it up to $158 million to provide robots designed to sniff out explosives and other dangerous materials.

The contract, which includes a $100 million first phase and an option for $58 million more, calls for the Chelmsford-based company to furnish the Army with up to 1,200 of the robots.

The devices weigh about 165 pounds, use tracks to travel, and will be more capable and rugged than the military's existing fleet built for similar purposes, according Sean Bielat, Endeavor's chief executive.

"These robots literally save lives. They keep a soldier, or a sailor, or a marine from putting on an explosives suit and going downrange to a place where there could be explosives, or secondary threats like snipers," Bielat said.

Future Technologies

GM Outlines Possibilities for Flexible, Autonomous Fuel Cell Electric Platform

Washington, D.C. -- General Motors aims to solve some of the toughest transportation challenges

created by natural disasters, complex logistics environments and global conflicts. The company will display its Silent Utility Rover Universal Superstructure (SURUS), a flexible fuel cell electric platform with autonomous capabilities, at the fall meeting of the Association of the United States Army (AUSA) from Oct. 9-11, 2017. The commercially designed platform could be adapted for military use.

SURUS leverages GM's newest Hydrotec fuel cell system, autonomous capability and truck chassis components to deliver high-performance, zero-emission propulsion to minimize logistical burdens and reduce human exposure to harm. Benefits include quiet and odor-free operation, off-road mobility, field configuration, instantaneous high torque, exportable power generation, water generation and quick refueling times.

Fuel cell technology represents a key piece of General Motors' zero emission strategy. It offers a solution that can scale to larger vehicles with large payload requirements and operate over longer distances. SURUS was designed to form a foundation for a family of commercial vehicle solutions that leverages a single propulsion system integrated into a common chassis. The SURUS platform is equally well-suited for adaptation to military environments where users can take advantage of flexible energy resources, field configurability and improved logistical characteristics.

GM is evaluating multiple applications for SURUS, such as:

- Utility trucks
- Mobile and emergency backup power generation
- Flexible cargo delivery systems
- Commercial freight

Light- and medium-duty trucks, improving upon the Chevrolet Colorado ZH2 that has been evaluated by the U.S. military under guidance of the U.S. Army Tank Automotive Research, Development and Engineering Center (TARDEC) and is undergoing testing on bases

Future military-specific configurations

SURUS will deliver highly mobile autonomous capability and agility in unpredictable terrain. Operating multiple vehicles in a leader-follower configuration could reduce manpower needed. For future potential military uses, the system's inherent low heat signature and quiet operation offer benefits in environments to reduce detection and risks. TARDEC has been in discussions with GM evaluating the commercial SURUS concept as a next step of the broader collaboration to evaluate fuel cell technology for future military applications.

"SURUS redefines fuel cell electric technology for both highway and off-road environments," said Charlie Freese, executive director of GM Global Fuel Cell Business. "General Motors is committed to bringing new high-performance, zero-emission systems to solve complex challenges for a variety of customers."

The SURUS platform leverages GM's vast experience in fuel cell technology, high-voltage batteries and electric drive systems, autonomous driving and vehicle manufacturing. The platform boasts:

- Two advanced electric drive units
- Four-wheel steering
- Lithium-ion battery system
- Gen 2 fuel cell system
- Hydrogen storage system capable of more than 400 miles of range
- Advanced propulsion power electronics
- GM truck chassis components
- An advanced, industry-leading suspension

Hydrotec Technology

The SURUS commercial platform draws on GM's more than 50 years of research and development of fuel cell technology. The scalable and adaptable technology enables land, sea and air applications across commercial and military environments.

Since April 2017, the Army has been testing the commercial Chevrolet Colorado ZH2 on its U.S. bases to determine the viability of hydrogen-powered vehicles in military mission tactical environments. The vehicle has been operating in off-road conditions to evaluate its power generation, reduced odor, acoustic and thermal signatures, high wheel torque, extended operating range and the potential to use the byproduct water.

Military testing has shown the ZH2 reduced acoustic non-detection distance by 90 percent compared to current military vehicle in operation. This means the ZH2 can get 10 times closer before being detected. Leaders also observed the potential advantages for stationary power generation over diesel generators, including a significant reduction in idle noise and fuel use. Testing will continue through spring 2018.

Partnerships remain an important part of GM's electrification strategy. Last year, the U.S. Navy unveiled a GM fuel cell-powered Unmanned Undersea Vehicle (UUV) for testing purposes that leverages GM fuel cell technology common with the Colorado ZH2.

Training And Simulators

SAAB Chosen As Sub-Contractor For The Ajax Virtual Crew Turret Trainer

Defence and security company Saab is pleased to announce that it has been sub-contracted by Lockheed Martin UK to assemble 16 of the UK's new AJAX virtual Crew Turret Trainers.

The Crew Turret Trainer is a virtual simulator designed to train the vehicle crew in the use of the turret

(armaments, radios, sights etc). This opportunity represents Saab's first significant virtual simulation contract in the UK, but not its first involvement with the AJAX programme, as Saab is also on contract to design and deliver the live simulators for both the AJAX and Warrior CSP Armoured Vehicle platforms.

"I'm delighted to have secured this contract and look forward to building on the strong relationship that Saab has with Lockheed Martin," says Esa Thegstrıum, head of business unit Training and Simulation at Saab business area Dynamics.

"It's exciting to be involved with the UK MOD's leading equipment programmes and be able to contribute to highly realistic training for soldiers", says Andrew Walton, head of country unit UK at Saab market area Europe.

This latest contract award comes on the heels of recent news that Lockheed Martin, in conjunction with Saab, have been awarded the Vehicle Tactical Engagement Simulation System (VTESS) contract by the US Army.

Robots

Stratom XR-P Demonstrates Autonomous Loading, Unloading From MV-22

Colorado-based Stratom's new eXpeditionary Robotic-Platform, or XR-P, was recently demonstrated by the U.S. Marine Corps, which used it to autonomously load and unload supplies from an MV-22 Osprey vertical takeoff and landing aircraft.

Stratom has been working on the XR-P for about three years, in response to a Small Business Innovation Research proposal for resupply systems to work with the MV-22.

The main benefit of the XR-P is that it can autonomously drive in and out of the MV-22 while carrying more than 2,400 pounds of supplies, greatly reducing the manpower needed to unload supplies or ammunition from the aircraft. The XR-P can also tow up to 1,800 pounds with a full load.

Marine Corps officials "were amazed at how quickly it could be loaded and unloaded in and out of the aircraft," Stratom CEO Mark Gordon tells AUVSI.

By cutting resupply mission time, the XR-P also increases the amount of resupply sorties and cuts down on aircraft fuel consumption, according to the company.

The XR-P features tracks, which allows better weight distribution for cargo carrying but also allows the vehicle to traverse a variety of rough terrain. It also features various control modes, including teleoperation, waypoint navigation, obstacle avoidance and "follow-me mode," where it can follow an individual Marine.

The key to the system is the autonomous loading and unloading, Gordon says. "This capability has never been demonstrated before," he says.

The company plans to continue internal development of the XR-P, which could be used for a variety of purposes, from resupply to humanitarian relief to casualty evacuation.