



MISSION SECURE
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Media Contact:

Colleen Hahn
(703) 851-6944
cmhahn@gryphonmediastrategies.com

FOR GENERAL RELEASE

Mission Secure Inc., Perrone Robotics and University of Virginia Demonstrate Cyber Attacks and Protections on Autonomous Ground Vehicles

Project Has Implications Across a Variety of Control Systems in today's Cars and tomorrow's Autonomous Vehicles

Charlottesville, VA – January 13, 2015 – Mission Secure Inc. (MSi), a next generation cyber defense technology and solutions provider focused on delivering advanced protections for physical systems and autonomous vehicles to the defense, energy and transportation sectors, and Perrone Robotics Inc. (PRI), a leading-edge provider of robotic and autonomous ground vehicle solutions for commercial and military applications, today announced a pilot project to demonstrate cyber attacks and protections targeted at ground vehicles. The University of Virginia Department of Systems and Information Engineering is sponsoring the pilot project.

As vehicles increasingly rely on automation, software and technology enhancements to run basic functionality, those systems serve as a potential safety risk when under cyber attack. Mission Secure uses a proprietary methodology developed by the University of Virginia with the Department of Defense for identifying the most consequential and easy to carry out cyber attacks on any system that a defense capability must address. Proprietary software and hardware tools and best practices have been developed to support the methodology and to facilitate test and evaluation of the defense capability provided by MSi's Secure Sentinel solution.

The pilot project will use MSi's methodology and tools to develop and simulate realistic cyber attack scenarios against onboard control systems using a robust autonomous ground vehicle platform from PRI originally fielded for the 2007 DARPA Urban Challenge ("Tommy Jr."), ideal for rapid prototyping and testing of this nature. The goal of the pilot is to demonstrate how to identify vehicle safety threats malicious cyber attackers could use to easily compromise the vehicle's key control systems and how these attacks could be detected and protected using MSi's Secure Sentinel. Attack and protection scenarios are designed around several of the leading safety requirements of vehicles used on the road today.

"We are all excited about rapid innovation and automation for better efficiency and convenience as the world rapidly automates, but industry has not fully accounted for cyber security required for safety," stated David Drescher, CEO of MSi. "The cyber assessment methodology, accompanying attack scenarios and protections being demonstrated in this ground vehicle pilot project follow results of a similar project

involving autonomous air vehicles recently demonstrated by our team. Modern, advanced cyber attacks pose real risks to the important machines and systems used in daily life and ultimately our safety as evidenced in recent stories about a steel factory being blown up in Germany last month from a cyber attack and pipelines in Turkey, let alone all the coverage about the recent attacks on Sony and responses. We are fortunate to partner with the team at PRI who have been developing highly complex robotics applications for years. Their expertise in robotics and autonomous ground vehicles, along with their unique rapid testing platforms, are extremely important in quickly and effectively designing and carrying out a pilot of this nature.”

PRI has been involved with a variety of pilot programs with the Insurance Institute for Highway Safety (IIHS) and Vehicle Research Center (VRC) in Ruckersville, VA. The team provides a unique understanding in test protocols and data collection.

PRI has a long history in development of fully autonomous ground vehicle solutions using their general-purpose mobile autonomous robotics software platform “MAX”. PRI has fielded automated vehicle projects for the DARPA Grand Challenges, various commercial applications, and is leading the development of an automated robotic vehicle test system for the Insurance Institute for Highway Safety (IIHS) in Ruckersville, Virginia.

Throughout the pilot project MSi’s Secure Sentinel with System-Aware Cybersecurity technology will be used to monitor, detect, inform and correct against various cyber attacks available to an adversary. System-Aware Cybersecurity and Secure Sentinels recently made [news](#) in December for the ability to monitor, detect, inform and correct against cyber attacks in an Unmanned Aerial Vehicle demonstration completed by the University of Virginia in collaboration with the Georgia Tech Research Institute.

“This type of collaboration with cyber defense technology providers will continue to be extremely important in validating the serious nature of potential cyber attacks on both autonomous and human operated vehicles,” stated Paul Perrone, President and CEO of PRI. “MSi’s Secure Sentinel technology along with PRI’s fully autonomous vehicle and automated vehicle testing technology continue to push the forefront of the next wave of autonomous vehicle technology and safety considerations for ground vehicles. Our technology has been automating vehicles since 2004 and we were happy to bring our expertise to these test scenarios.”

PRI’s “Tommy” line of vehicles were fielded for the 2005 DARPA Grand Challenge and the 2007 DARPA Urban Challenge. The company’s [MAX software platform](#) technology has been automating vehicles since 2004 including passenger cars, Polaris ATVs and drop in actuator kits for vehicle safety testing. The project has implications across both autonomous and manned vehicles and in a variety of industries including the automotive industry.

About Mission Secure Inc.:

Mission Secure™, Inc. (MSi) is a cyber defense software company providing next generation cyber defense solutions to protect critical physical systems from cyber attacks. MSi is headquartered in Charlottesville, VA and focuses on assisting defense, energy and transportation organizations with improving cyber defenses for their important physical systems.

For more information: <http://www.missionsecure.net>

About Perrone Robotics Inc.:

"Perrone Robotics delivers Robotics & Automation solutions for autonomous vehicles, automotive safety testing and laser-based measurements. We use our patent-pending MAX software platform to rapidly develop and deploy software and complete systems. For more information, please visit our website at <http://www.perronerobotics.com>."

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