Warsaw University Of Technology Reaches "New Heights" In Unmanned Aerial Systems Optimization Research Partnership With Lockheed Martin

WARSAW, Poland, Sept. 2, 2016 /PRNewswire/ -- The Warsaw University of Technology (WUT) and Lockheed Martin (NYSE: LMT) successfully demonstrated their UAV optimization technologies using aerial command and control (C2) of multiple unmanned aerial vehicles (UAVs).

The demonstration marks another successful milestone in the joint WUT-Lockheed Martin advanced applied research program on optimization of diverse fleets of aircraft, and concepts associated with manned-unmanned command and control of airborne platform systems.

"These technologies have tremendous commercial and military potential as the world moves toward greater and greater use of unmanned aerial systems," said Prof. Janusz Narkiewicz, head of WUT's Department of Automation and Aeronautical Systems. "Understanding how different assets can interoperate, communicate, and serve common objectives with maximum efficiency is a challenging task in the growing field of UAV technologies."

Through the use of advanced mathematic calculations, and a systems-of-systems approach, the technology bolsters mission efficiency by adapting the fleet's commanded flight paths, speeds, division of duties, and sensor performance. Modeling all the constraints of the task at hand, the students calculate the "best answer," usually beating either the human best guess or simpler approaches by 10 to 20 percent.

The goal of the team's latest project was to advance previous optimization work by incorporating airborne C2, improving user interfaces, and testing new methods for related subroutines. With a vision of ultimately developing fast dynamically adaptive approaches to live management of a UAV fleet, this work is an important contribution to the concept of manned-unmanned teaming, where manned assets operate seamlessly with surrogate UAVs, often controlling many at a time against specific tasks. This technology demonstrates that, with the right tools, an operator may adapt to changing scenarios, calculate new solutions, and deploy those new, optimized solutions to the fleet of commanded aircraft, whether for civil or military purposes.

The recent demonstration can be equated to a search and rescue task, where every minute shaved off of a search pattern could be the difference between life and death. In another example, if UAVs were to be used to deliver small packages to consumers, the 10 to 20 percent performance improvement could be the competitive edge that keeps an operation in business ahead of the competition.

The program builds on the strong industrial and academic partnership between Poland and Lockheed Martin aimed at motivating young Polish engineers to address tomorrow's defense and industrial needs. WUT and Lockheed Martin are seeking new Polish partners to further advance Polish research and development capabilities on manned-unmanned airborne platform system integration.

For additional information, please visit WUT's website: https://www.pw.edu.pl/engpw

About Warsaw University of Technology
Warsaw University of Technology is one of the leading institutes of technology in Poland and one of the largest in Central Europe. WUT continues the tradition of the Preparatory School for the Institute of Technology set up in Warsaw in 1826. The many generations of engineers it turned out and its significant contributions to the development of technical sciences earned the Warsaw University of Technology an acclaimed position in the country as well as international renown.

About Lockheed Martin
Headquartered in Bethesda, Maryland, Lockheed Martin is a global security and aerospace company that employs approximately 98,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services.

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