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Title: DARPA SCORPION Program Transition to Army Advanced Technology Objective Program: A Success Story

Abstract Text: This paper describes the successful transition of DARPA SCORPION program developed technology to the Army's Advanced Lethality Technology for Small Arms program. The Georgia Tech Research Institute and the Army Research Laboratory collaborated in the DARPA sponsored SCORPION program to explore the application of micro-adaptive flow control techniques (MAFC) to small caliber munitions. Concluded in 2007, the SCORPION program successfully demonstrated the efficacy of micro-adaptive flow control to maneuver a 40 mm rifle launched grenade. The program developed technologies included the use of g-hardened sensors, on-board processing and actuator control electronics in 25 mm and 40 mm munitions. The system used commercial off-the-shelf (COTS) sensors including micro-electromechanical (MEMS) accelerometers, magnetometers and rate sensors to form an inertial sensor suite (ISS). The current program seeks to extend the functionality of the on-board sensors and processing with the objective of enhancing the munitions' accuracy and effectiveness. Current efforts are using modeling and simulation to refine the system requirements and identify the component technologies that will yield the greatest improvement in system performance.