

<b>SBIR 06.2 PHASE I - AWARD DETAILS</b>	
<b>ORGANIZATION</b>	ARDEC
<b>TOPIC NUMBER</b>	A06-053
<b>CONTRACT NUMBER</b>	
<b>YEAR OF AWARD</b>	
<b>AWARD START DATE</b>	
<b>AWARD COMPLETION DATE</b>	
<b>PROPOSAL NUMBER</b>	A062-053-2094
<b>TITLE</b>	A Fuzzy Integrated Navigation System (FINS)
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<b>COMPANY</b>	Archangel Systems, Inc. 1635 Pumphrey Ave. Auburn AL 36832-4302  Minority Owned: No Veteran Owned: No Number of Employees: 27
<b>KEYWORDS</b>	INS, IMU, MSU, FLASP, Inertial Navigation, Fuzzy Logic
<b>ABSTRACT</b>	A Fuzzy Integrated Navigation System (FINS) is proposed consisting of a GPS, Inertial Measurement Unit (IMU) and Magnetic Sensing Unit (MSU). In addition to the traditional Inertial Navigation System composed of a tightly coupled GPS-IMU, a tightly coupled MSU-IMU is added along with Fuzzy Logic Adaptive Signal Processing (FLASP™) to process and blend all information. This creates a system which can sustain accuracies even in the face of GPS outages.
<b>BENEFITS</b>	The purpose of Fuzzy Integrated Navigation System (FINS) is to develop a more robust method for inertial navigation than the typical tightly coupled GPS – IMU. Because of advances in magnetic sensing technologies, high fidelity magnetic aiding can be employed. Archangel Systems proposes a tightly coupled GPS- IMU along with a tightly coupled MSU (Magnetic Sensing Unit) – IMU with blending based upon its proprietary FLASP™ algorithm. The benefit of such a system is the ability to maintain high positional accuracy even in the face of GPS outages or spoofing. Existing technologies for guided munitions such as DI-GNU can be augmented for a more robust solution with increased accuracy. Commercial applications where Inertial Navigation Systems are used can also benefit from the application of this technology.