

Fiscal Year:	FY 2011	Task Last Updated:	FY 08/31/2011
PI Name:	Andre, Terence Ph.D.		
Project Title:	Human Factors Analysis Support Tool (H-FAST)		
Division Name:	Human Research		
Program/Discipline:	HUMAN RESEARCH		
Program/Discipline--Element/Subdiscipline:	HUMAN RESEARCH--Space Human Factors Engineering		
Joint Agency Name:	TechPort:	No	
Human Research Program Elements:	(1) SHFH :Space Human Factors & Habitability (archival in 2017)		
Human Research Program Risks:	(1) HSIA :Risk of Adverse Outcomes Due to Inadequate Human Systems Integration Architecture		
Space Biology Element:	None		
Space Biology Cross-Element Discipline:	None		
Space Biology Special Category:	None		
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Zip Code:	41011-1512	Congressional District:	4
Comments:			
Project Type:	GROUND	Solicitation / Funding Source:	SBIR Phase II
Start Date:	06/02/2011	End Date:	05/30/2013
No. of Post Docs:	No. of PhD Degrees:		
No. of PhD Candidates:	No. of Master' Degrees:		
No. of Master's Candidates:	No. of Bachelor's Degrees:		
No. of Bachelor's Candidates:	Monitoring Center: NASA JSC		
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Flight Program:			
Flight Assignment:			
Key Personnel Changes/Previous PI:			
COI Name (Institution):			
Grant/Contract No.:			
Performance Goal No.:			
Performance Goal Text:	<p>Designing complex systems, such as those used by NASA, requires a coordinated effort among a variety of engineering teams. In order to be successful, the human-computer interactions in these systems need to follow a principle-based design process. In Phase II, TiER1 and Alion propose to continue development on HFE-AT, renaming it and creating a Human Factors Analysis Support Tool (H-FAST), which will provide human factors guidance and support to engineering design teams. This tool will be used throughout the design lifecycle, and will provide inputs to engineers and program managers to help them identify and avoid potential human factors problems early in the design process. It also will provide detailed guidance regarding human factors evaluations, and it will store data and provide feedback on the results of these evaluations. H-FAST will improve the engineering design process by providing engineers with easy access to detailed human factors methods, relevant research, and subject matter expert contact information. This will empower engineers to create more usable systems, thus reducing the number of design iterations and resulting in</p>		

Task Description:	<p>higher-quality products.</p> <p>POTENTIAL NASA COMMERCIAL APPLICATIONS: H-FAST will provide a tool to support the engineering design process at NASA JSC. As such, it will be populated with human factors requirements and guidelines related to the design of systems for space exploration. The design patterns and methods will be chosen to support particular design issues related to NASA JSC missions. H-FAST will also provide a modular framework that can be customized to a variety of NASA engineering projects. By including relevant requirements, guidelines, methods, and design patterns, NASA project managers will be able to customize H-FAST for their particular application. We expect that H-FAST can be used to support space vehicle design projects; ground systems, such as mission control center designs; and flight deck design projects at NASA Ames and Langley.</p> <p>Human-in-the-loop research conducted at any NASA facility will provide relevant input to H-FAST. The technical reports and white papers will populate the library of H-FAST, and provide all NASA engineering H-FAST users with access to relevant human factors research results. H-FAST will provide a customizable tool to support a diverse range of engineering design projects with human performance implications. Examples include ergonomic design of large complex systems, human-computer interface design, control design, display layout.</p>
Rationale for HRP Directed Research:	
Research Impact/Earth Benefits:	<p>We anticipate that H-FAST will provide a useful, nearly directly-usable tool for other agencies involved in large scale system acquisition. A key example is the Department of Defense (DoD). They, like NASA, are concerned with identifying and verifying human performance requirements in complex systems. They too would benefit from a tool that improves the design process by giving engineers tools and guidance to perform preliminary human factors assessments. For DoD customers, it would be necessary to include more Military Standard (MIL-STD) guidelines, project-specific requirements, and verification methods, to identify relevant design patterns for military applications, and to link to military-relevant research sources (e.g., Army Research Laboratory, Office of Naval Research). However, the basic framework provided by H-FAST would be readily usable by DoD customers.</p>
Task Progress:	New project for FY2011. Reporting not required for this SBIR Phase 2 project.
Bibliography Type:	Description: (Last Updated:)