Fiscal Year:	FY 2010	**Task Last Updated:**	FY 11/25/2009
PI Name:	Schreckenghost, Debra M.E.E.		
Project Title:	Semantic Language and Tools for Reporting Human Factors Incidents		
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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PI Organization Type:	INDUSTRY	**Phone:**	281-461-7886
Organization Name:	TRACLabs, Inc.		
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PI Web Page:			
City:	Webster	**State:**	TX
Zip Code:	77058	**Congressional District:**	22
Comments:			
Project Type:	GROUND	**Solicitation / Funding Source:**	SBIR Phase II
Start Date:	06/28/2010	**End Date:**	12/31/2012
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
Contact Monitor:	Sullivan, Thomas	**Contact Phone:**	
Contact Email:	thomas.a.sullivan@nasa.gov		
Flight Program:			
Flight Assignment:	NOTE: End date change to 12/31/2012 (from 6/27/2012) per HRP Master Task List dated 12/28/12 (Ed., 3/14/2013) NOTE: originally set up as Phase I in 11/2009; received information on Phase II award and changed record to that, as Phase I not to be recorded in Task Book (Ed., per J. Marsack/M. Arya, JSC, 2/3/2011)		
Key Personnel Changes/Previous PI:			
COI Name (Institution):			
Grant/Contract No.:	NNX10CB03C		
Performance Goal No.:			
Performance Goal Text:			

Task Description:	Incidents related to impaired human performance in space operations can be caused by environmental conditions, situational challenges, and operational deficiencies. Detecting, reporting, and correlating related incidents are key to preventing future incidents. NASA has made significant progress in standardizing the reporting of space incidents by developing electronic data entry and storage of information. While such information technology improves report consistency, incident data are not represented in a way that enables advanced computer-based reasoning about incidents. TRACLabs proposes to develop a human factors incident-reporting tool for authoring and utilizing human factors incident data. This project is innovative in combining semantic web technologies with automated assistive technologies to aid users in finding relationships among incidents. The semantic indexing provided by the use of incident reporting language permits more sophisticated search of archives. During Phase I we defined a semantic language for incident reporting in XML and designed a technology approach for authoring and utilizing incident reports represented in this language. In Phase II we will implement this software and evaluate its effectiveness for the space human factors community at JSC. At the end of Phase II, software for reporting space human factors incidents will be delivered to NASA. POTENTIAL NASA COMMERCIAL APPLICATIONS: Incident reporting is an important part of handling issues that arise during space operations. NASA missions currently report flight incidents using approaches such as the Problem Reporting and Corrective Action (PRACA) process for Shuttle and Station, Shuttle In-Flight Anomaly (IFA) reports, and Station Items for Investigation (IFI). The semantic language and tools for incident reporting TRACLabs is developing are complementary but not duplicative with these approaches. They are intended to support user groups that have information needs not well addressed by programmatic incident reporting systems. For example, the space human factors organization needs to track incidents related to human factors and habitability issues not captured in current incident archives. We use semantic web technologies to embed domain semantics in incident data and utilize these semantics to improve database search and reporting. The software is customized by defining new domain semantics or adding XML tags for special domain needs.
Rationale for HRP Directed Research:	
Research Impact/Earth Benefits:	Commercial tools for incident reporting are available in a diverse range of domains from crime incidents to corporate security incidents to customer complaints. Like the proposed software, most of these products support electronic submission and reporting of incident data, and archival of incident reports. The proposed approach differs from these commercial tools in providing a semantic basis for customization and improved search, and in representing incidents in an XML-based language. Such capabilities permit applying much of the incident reporting software developed for NASA in non-NASA applications. Promising applications include reporting incidents arising in chemical and nuclear plants, such as incidents arising from human error during plant operations, and reporting medical incidents, such as incidents that arise when monitoring the aged or impaired in performing the activities of daily living.
Task Progress:	New project for FY2010. Reporting not required for this SBIR Phase 2 project.
Bibliography Type:	Description: (Last Updated: 04/10/2024)