Fiscal Year:	FY 2008	**Task Last Updated:**	FY 06/19/2009
PI Name:	Bell, John		
Project Title:	Wearable Health Monitoring Systems		
Division Name:	Human Research		
Program/Discipline:	HUMAN RESEARCH		
Program/Discipline--Element/Subdiscipline:	HUMAN RESEARCH--Operational and clinical research		
Joint Agency Name:		**TechPort:**	No
Human Research Program Elements:	(1) **ExMC**:Exploration Medical Capabilities		
Human Research Program Risks:	(1) **Medical Conditions**:Risk of Adverse Health Outcomes and Decrements in Performance Due to Medical Conditions that occur in Mission, as well as Long Term Health Outcomes Due to Mission Exposures		
Space Biology Element:	None		
Space Biology Cross-Element Discipline:	None		
Space Biology Special Category:	None		
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City:	Culver City	**State:**	CA
Zip Code:	90230-6060	**Congressional District:**	33
Comments:			
Project Type:	Ground	**Solicitation / Funding Source:**	SBIR Phase II
Start Date:	02/06/2008	**End Date:**	02/05/2010
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.:	NNJ07JB20C		
Performance Goal No.:			
Performance Goal Text:			
	The objective of this proposal is to demonstrate the feasibility of producing a wearable health monitoring system for the human body that is functional, comfortable, bendable in 3 dimensions, durable, water-proof, washable, and light-weight. This new technology area of wearable health systems, sometimes referred to as smart-clothing, promises to allow for a secondary human nervous system that connects various different electronic devices positioned on or around the human body. As the shrinking in size and weight of electronic circuits has progressed, it is now possible for the modern human astronaut to carry increasing numbers of different electronic devices and sensors such as thermometers, gas monitors, microphones, altimeters, digital processors, digital memory, and push-button controls. These devices allow the astronaut to access data about their current environment and health status, and communicate with other astronauts and/or databases to send and receive information of value. As the variation in the number of devices and sensors that can be deployed increases greatly, a new technology is required to allow the seamless integration of these devices with the human		

Task Description:	astronaut so that the devices can be electrically powered, operated, re-charged, and communicate with each other over a digital pathway. POTENTIAL NASA COMMERCIAL APPLICATIONS: The use of wearable health monitoring systems for human beings promises wide potential use in various different sectors of the health industry. It allows medical researchers to monitor the daily vital signs of one or many patients participating in medical trials in a non-invasive manner. For example, it seems likely that a wearable monitor system could be linked to a central medical database through telephony or internet access such that patients may go about their daily routine without having to remain under strict supervision at a hospital or clinic. It also allows personal physicians to monitor the health status of individual patients during normal lifetime pursuits, or before and after surgical procedures. Individuals themselves will have access to greater personal health knowledge and in certain cases alarm triggers may be set to warn of excessive risk activities, e.g., core temperature critical status prior to onset of heat stroke. Wristband and armband health monitors are now commercially available along with hand-held blood sugar monitors. Wearable health monitoring systems appear to be a continuation of this trend.
Rationale for HRP Directed Research:	
Research Impact/Earth Benefits:	The proposed invention for monitoring human vital signs in-situ will allow the health of an astronaut to be monitored at all times by the individual themselves and if desired, stored in digital memory for later use in a medical database. With additional wireless communication technology it will be possible for these vital signs to be monitored by other personnel in real-time, during flight preparation, take-off, travel, landing, eating, sleeping, exercising, working, and during any other general activity. In mission critical situations, wireless health monitoring allows remote personnel to assess the health of an unconscious individual even if they are unable to verbally communicate directly.
Task Progress:	New project for FY2008. Reporting not required for this SBIR Phase 2 project.
Bibliography Type:	Description: (Last Updated:)