

ACITS-3 FORM

PART I – TASK ORDER INFORMATION

Contract No: NNA13AB88C		Contract Title: ACITS 3 NASA AMES		
Date: 9/25/2015		Task Title: Human Systems Integration Division Research and Laboratory Support		
Task Order No.: T24	Task Mod No.: Original	Service Request No.:	Customer Code: NASA/Ames	SOW Reference: C.3.1.5
Task Requester Email:		Name:		Phone:
Financial Manager Email: (b) (6)		Name: Edith Peters		Phone: (b) (6)
Computer Security Officer Email: (b) (6)		Name: Jeffrey McCandless		Phone: (b) (6)
		Name:		Phone:
		Name:		Phone:
		Name:		Phone:
Task previously covered by another contract other than predecessor to incumbent? (If YES, provide in SOW)				YES
Does the task require access to government databases? (If YES, indicate in SOW)				NO
SECTION 508, ELECTRONIC AND INFORMATION TECHNOLOGY ACCESSIBILITY COMPLIANCE (EITAC)				
Does the task include EIT items? (Please review the EITAC documentation)				NO
<p>Upon receipt of this task order request, the contractor shall review the task requirement(s) and inform the Government, as part of its task order/modification response, any discrepancies between standards initially cited and those the contractor proposes to deliver to the Government. Examples of discrepancies include ODCs for which some other standard might be or become applicable and, as a result, require citation in the task order, as well as any cited standards that the contractor believes is not applicable (provide rationale). Note: If, by mistake, the task, including and ODC of the task, should not meet an applicable standard not cited by the requester, it is the requester, not the contractor who is a fault; and the requester must find a way (e.g., by modifying the task request) to bring the task into compliance. In such cases the requester shall complete the required agency forms (or equivalent) before the task order/modification is approved.</p>				
GOVERNMENT FURNISHED EQUIPMENT (GFE)				
<p>Government will provide all appropriate equipment and software necessary for the performance of this task unless otherwise noted in this task order. The contractor, in accordance with the contract can acquire equipment not presently available as GFE. Equipment identified as task unique will be expensed to the task in accordance with ASRC Federal Accounting policy, and will be defined as GFE in the Government inventory. All other equipment purchases will be depreciated and become contractor property. The contractor shall follow agency rules regarding assignment of government owned equipment and other government supplied equipment. The contractor shall provide information, such as, Property Assignments, Property Location and Unused Equipment, upon request.</p>				
AFFIRMATIVE PROCUREMENT (See http://www.epa.gov/cpg/products.htm)				
<p>The item(s) being purchased are NOT on any of the EPA's Comprehensive Procurement Guideline lists. - AND -</p> <p>They meet the minimum recycled/recovered content.</p>				
COTR SIGNATURE:		CO SIGNATURE:		

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PART 2 - TASK ORDER PLAN PROPOSAL				
Contract No: NNA13AB88C	Contract Title: ACITS 3 NASA AMES			
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Categories	Current Request	Prior Cumulative Estimate Without Current Request	Total Cumulative Task Estimate	
Onsite Hours	(b) (4)			
Offsite Hours				
Total Hours				
Onsite Labor				
Offsite Labor				
Subtotal ARTS Labor				
Teammate/Subcontractor Labor				
Subtotal Teammate/Sub Labor				
Total Labor				
Materials				
Equipment				
Travel				
Training				
Miscellaneous				
Other Direct Costs Subtotal				
Total Cost				
PMO				
Fee				
Total Price				

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PART 3 - APPROVAL SUMMARY				
Contract No: NNA13AB88C		Contract Title: ACITS 3 NASA AMES		
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Task Order No.: T24		Task Mod No.: 0	Service Request No.:	Customer Code: NASA/Ames
				SOW Reference: C.3.1.5
Approved By	Name	Date	Email	Phone
1. COTR Thrush	Kirsten Nagel	9/25/2015	(b) (6)	(b) (6)
2. CO Thrush	Anjennette Contreras-Rodriguez	9/25/2015		

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#0100 (P) Cost Plus		Funding Level: Subtask Level Funding		
Task Background: <p>This task will provide support to the Human Systems Integration Division consisting of:</p> <ul style="list-style-type: none"> * Software Support includes all phases of software development, maintenance of existing baseline (legacy or extant) software, integration of developed/modified software, user support, and documentation. * Hardware support includes design, installation and integration of audio and video equipment, simulation systems, custom fabrication of research hardware, and support for any other hardware associated within research laboratories. Hardware engineering support includes design, integration and testing for the any upgrades of existing or new equipment. * Experiment support includes assistance with pre-experiment specification, study development, domain expertise (pilot) for evaluation, and support during actual experimental runs (as required by experimental schedule). * Data Analysis support includes pre-experiment consultation, evaluation of data collection methods, verification of data collection methodology by means of pre-experiment sampling, data reduction, data analysis, and assistance with technical problems (as required by experimental schedule). <p>The following research projects/laboratories will be supported under this task:</p> <ol style="list-style-type: none"> 1. Spatial Auditory Displays Laboratory (Wenzel/Adelstein) 2. Human Manual and Operational Control Performance Laboratory (Beutter) 3. Planning Systems Support (Tollinger) 4. Training, Automation, and Operational Decision Making Research (Barshi) 5. Vision Research Laboratory Support (Watson) 6. Automation Integration Design and Evaluation (AIDE) Laboratory Support (Feary) 7. Project Engineering Integration (Thrush) 8. Fatigue Project (Flynn-Evans) <p>SPECIFIC REQUIREMENTS:</p> <ol style="list-style-type: none"> 1. Spatial Auditory Displays Laboratory (Wenzel/Adelstein) This project supports the NASA Ames Spatial Auditory Displays Laboratory. This lab provides facilities for psychoacoustic research in spatialized audio. Since the lab and the experiments run therein are very technical in nature, technical support is required for almost all lab activities. Tasks include writing experiment software, lab utilities, and demos, maintaining the audio lab environment, updating systems, and configuring equipment. Specific support requirements include: 				

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Task Background (Continued):

- Support for the Space Human Factors Engineering sponsored “Advanced Multimodal Displays for EVA and Remote Exploration” project. Support requirements include: software development, software and hardware integration, and support for research simulations/studies.
- Support for the Space Human Factors Engineering sponsored “Just-in-Time Training for Teleoperation” project. Support requirements include: software development, software and hardware integration, and support for research simulations/studies.
- Support for the Space Human Factors Engineering sponsored “Teleoperation Task Difficulty” project. Support requirements include: software development, software and hardware integration, and support for research simulations/studies.
- Support for Space Human Factors Engineering sponsored “Human Performance Under Lateral and Axial Vibration” project. Support requirements include: software development, software and hardware integration, and support for research simulations/studies.
- Develop experiment control software integrating audio-visual displays and various user interface controllers for Technologies for Airplane State Awareness (TASA) and UAS research projects – to include audio/visual/controller apps for experiments, and other prototypes/deos/proof-of-concept development.
- The lab equipment should be maintained in a functional state. New equipment should be installed, configured, and tested quickly and efficiently. The contractor should demonstrate technical prowess in maintaining equipment and answering questions. Any required documentation should be clear and concise.
- On an as-needed basis, user-interface prototypes employing lab technology (e.g., communications systems) need to be developed and maintained. These need to be robust and professional in quality as they are frequently demonstrated to and used by outside parties.

2. Human Manual and Operational Control Performance (Beutter)
 The general scope for this project includes i) real-time 3D graphics for simulation, ii) man-machine interface designs, and iii) real-time simulation support for man-in-the-loop and other simulation related tasks.
 The specific requirements of these tasks are provide support to include"

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Task Order Description:

2.a. Future Flight Central (FFC) Upgrade: Provide design expertise, software and systems engineering support to the NASA Ames SIMLABS group for simulators such as VMS and FFC including image generator development and integration support. Update the Future Flight Central (FFC) facility to replace the existing image generators and distortion correction hardware with the NASA developed Reconfigurable Image Generator (RiG) to support the NASA SARDA program as well as the Mars Curiosity program. This update will include driving all 12 (existing) projectors and assisting NASA in the setup and re-hosting of existing visual environments as well as assistance in the development of new visual environments as required. Distortion correction setup will be performed in software and will not require any existing distortion correction hardware.

2.b. Provide 2D and 3D model development for terrain databases, moving models, culture and other graphics modeling assignments for NASA and USAF tasks

2.c. Terrain & Obstacle Avoidance and Detection: Provide simulator and graphics engineering support to the U.S. Army here at Ames for the Terrain & Obstacle Avoidance and Detection (TOAD) simulator program. The personnel involved in this task will support software development of various man-machine interfaces that are best suited to helicopter nap-of-the-earth flight in poor weather conditions.

3. Planning Systems Support (Tollinger)
The project provides support services to the Human-Computer Interaction (HCI) Group in the Human Systems Integration Division.

The Human-Computer Interaction (HCI) Group within the Human-Systems Integration Division (Code TH) design and develops usable technology for operating space vehicles and aircraft in support of NASA mission objectives. This technology includes the Scheduling and Planning Interface for Exploration (SPIFe) and the Ensemble project (with collaborators at Ames, JSC and JPL). The task provides support to production efforts for specific NASA end-user applications projects including:

1. Score, the crew and operations planning tool, part of the Next Generation Planning System (NGPS) tools for the International Space Station, sponsored by NASA Johnson Space Center's Operations Planning Division (DO).
2. Power Planning and Analysis Tool (PLATO) for the International Space Station, sponsored by NASA Johnson Space Center's Expedition Systems Division (DI).
3. Mars Science Laboratory Interface (MSLICE), the Mars Science Laboratory science and operations planning tool, sponsored and in collaboration with the Jet Propulsion Laboratory.
4. LASS, the operations planning tool for LADEE (Lunar Atmosphere and Dust Environment Explorer), sponsored by NASA Ames Research Center.

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Task Order Description (Continued):

5. APEX, the attitude planning tool for the International Space Station, sponsored by NASA Johnson Space Center.

6. Playbook, the mobile schedule and procedure viewer used to simulate longer duration, more autonomous missions using NASA Analog environments such as NEEMO (NASA Extreme Environments Mission Operations and others.

7. Snapshot, the web-based (HTML5) interface which offers a light weight access to plans and certain functions of the underlying SPIFe software.

Marshall-based Support:
 The Ames-based development team within the HCI Group provides leadership to the 3 new programs (b) (7)(E). This includes data integration between Level 1 data and the programs as well support for operating the S&MA databases (b) (7)(E). Required will be systems support at NASA's Marshall Space Flight Center.

The project will perform development work including: 1) extend the capabilities/features of Mission Assurance Systems (MAS) to store and access engineering risk data (PERL), 2) integrate with existing/legacy systems to provide real time server-to-server connections (using web services) to view and link related data (JAVA), 3) import data from existing/legacy systems (including analyzing delivered data, developing data mappings, and performing the import into new systems) (XML, various technologies), research and prototype new technologies for demonstration purposes (various technologies).

SOFIA MCCS Software Code Support:

The SOFIA Mission Control & Communication System (MCCS) is an enterprise-level system linking a number of integrated sub-systems with varying degrees of internal monitoring/control/archive capabilities as well as a number of dedicated man-machine-interfaces for operation of the observatory. The MCCS as an IT system has been under development via a separate contract with L-3. Recent observatory verification and validation testing has shown a number of performance problems with the MCCS in terms of reliability and the system's ability to successfully perform integration functions.

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General Scope of Work:

Requirements are to provide, as part of a system level review team, subject matter expertise (SME) to review and comment on the software code that has been developed for the MCCS. Reviews will take the form of formal, in-person reviews with others from the SOFIA program team including L-3 as well as the effort required to review documentation, or to interact with other SOFIA engineers and/or managers for questions/answers, status updates, etc. In order to successfully participate in the effort, some travel to Palmdale, CA may be required.

Depending on the extent of the review and make-up of the SMEs who serve on the MCCS review team, task staff will assist the team in developing content for a report that contains findings and recommendations as a result of the investigative review. This content may include: written documentation in the form of: Request(s) for Action to the Software Developer, Specific sections of the report, and presentation materials.

Exploration Development Group:

Provide Systems Engineering support to the Johnson Space Center Exploration Development Integration (EDI) group under the Exploration Systems Directorate (ESD) organization within Human Spaceflight and data integration support to the Human-Computer Interaction (HCI) group at Ames. The work covers systems modeling, requirements development and review, architecture analysis, and data integration analysis needed to identify and define required integrations from a systems engineering perspective.

4. Training, Automation, and Operational Decision Making (Barshi)
 The goal of the project is to develop and evaluate new approaches to training focused on Operational Decision Making (ODM) in increasingly automated aerospace environments. This task will involve developing computer simulation capabilities, designing and developing training concepts and experimental protocols, general laboratory management, data analysis and report preparation. The simulation capability element will include low-fidelity tools development, experimental control programs, and data acquisition and preliminary analysis programs.

Support is also required in analyzing ODM and automation training requirements. Research into these human systems issues, design and conduct of a study of aerospace ODM leading to training requirements, collection and analyses of data, and input and participation in generation of a "white paper" that summarizes these analyses is required.

5. Vision Research (Watson)
 The purpose of the Vision Research project is to support ongoing research in the Vision Science and Technology (VST) Group. The requirements for this support are broad, reflecting the diverse set of research projects conducted by the Principal Investigators in the VST Group, but they fall into two broad categories:

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General Scope of Work (Continued):

Application Programming and Research Support component:
 This involves applications programming in the Apple Macintosh environment to support vision research, integration of low-level display software libraries with Mathematica via MathLink protocols, and assistance in the conduct of vision research.

Systems, web and database component:
 This includes design and management of SQL Server databases hosted on Windows computers, design, troubleshooting and maintenance of web applications software, and maintenance lab computer systems and of user accounts, etc. This activity will be supplemental to the systems support provided by the Division.

6. Automation Integration Design and Evaluation (AIDE) Laboratory Support (Feary)
 Support requirements for this project are to provide software development / integration / enhancement / testing, hardware integration, data collection and database management for the development of the Automation Integration Design and Evaluation (AIDE) Lab.
 Included is support for:

- Development and Enhancements to the Rapid Automation Prototyping and Integration Development Environment (RAPIDE)
- Development of experiment control and data collection software
- Systems engineering (support of servers, software developer tools, libraries, applications, systems builds and configurations)
- Development of plug-ins for additional displays and interfaces for RAPIDE
- Flight Management System (FMS) Development in RAPIDE
- Provide general support for RAPIDE experiments as needed

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Specific Deliverables and Deliverable Dates				
No.	Type of Deliverable	Description of Deliverable		Date Required
1.	Performance	Provide ongoing support to maintain the research laboratories – laboratories will be available and equipped for 90% of the time that research studies are scheduled		
2.	Performance	Provide laboratory computers, network and peripherals equipment installation, configuration, and testing to meet all schedules and requirements. Document changes		
3.	Performance	Design, develop and deliver software and enhancements to meet quarterly goals as set by the individual Principle Investigators for each project.		

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Travel, Training, and Materials Requirements				
No.	Type of Requirement	Description		Date Required
1.	Material	Laboratory equipment to include visual system, data collection unit, data storage units, simulation monitors		
2.	Material	Laboratory Computers		
3.	Material	Laboratory research equipment as required		

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Work Breakdown Structure (WBS) Charge Points				
Charge Point	Title			
021	Spatial Auditory Displays Laboratory (Wenzel)			
022	Teleoperation Training (Adelstein)			
031	Future Flight Upgrade (Beutter)			
033	TOAD (Beutter)			
041	Planning Systems Support (Tollinger/Hillenius)			
042	SOFIA Support (Tollinger)			
043	Exploration Development Group Support (Tollinger)			
050	Training, Automation and Operational Decision Making (Barshi)			
060	Vision Research (Watson)			
090	AIDE Lab (Feary)			
100	Project Engineering Integration (Thrush)			
110	Fatigue Project (Flynn-Evans)			

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IT Security Requirements:

- a. Are this task's activities covered under an organizational IT Security Plan?: NO
- b. Does this task support applications that have been designated as a "Special Management Attention" application?: YES
If yes, please describe:

- c. Is specialized security training required?: NO
If yes, specialized training requirements are described as follows:

- d. Is a security clearance needed for any personnel on this task?: YES
If yes, what level of clearance is required?:
For specific projects, secret clearance may be required.

- e. IT Security Deliverables associated with this task:
- IT Risk Assessment: NO
 - IT Security Plan: NO
 - IT Contingency Plan: NO
 - IT Security Vulnerability Test Results: NO
 - Results of Periodic IT Security Reviews: NO
 - Other Documentation as Follows: Report of Status of IT Security Plan, Contingency Plan, and Risk Assessment of Critical Services: NO
 - Other Documentation:

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IT Security Requirements (Continued):

- f. Periodic reviews of IT Security measures are necessary. What is the role of the contractor under this task in areas such as review of user accounts, account management, data backup and restoration, use of warning banner, use of encryption, vulnerability scanning, and security tools?**

All IT security measures for this task are provided by the TH Division Systems Group Task.

- g. In the event of an IT Security incident associated with systems and data under this Task, the Chief Information Security Official, the Security Operations Center (SOC), and the Task Requester are to be notified immediately by the contractor. In order to ensure full coordination, the following individuals also are to be notified:**

Title	Name	Phone
System Owner (Responsible for the applicable IT Security Plan)	Trent Thrush	(b) (6)
Organization's Computer Security Official	Jeffrey McCandless	(b) (6)
Alternate System Owner		