Broad Agency Announcement 04-02 - Human and Robotic Technology - Awards List

Control Number	Project Title	Project Lead Organization	Address	Phase 1 Cost ($M)	Phase 2 Cost ($M)	Total Cost ($M)	Project Team Members
1815	600-kW High Thrust Hall Thruster System	Aerojet General Corp.	Redmond, WA 98073-9709	3.31	29.35	32.66	NASA-GRC, Colorado Power Electronics, Mide Tech. Corp., Lockheed Martin Corp., Rober M. Hadley Company, Aegis Tech. Group, Lucas Machining, ProCam, Delta Hi-Tech Inc., Olypic Tool & Engineering, Advanced Tech. Co., Tayco, Idaho Labs, Falcon, President Titanium, Rhenium Alloys, Eagle Alloys
2573	Solar Electric Propulsion Direct Drive Demonstrator	Aerojet General Corp.	Redmond, WA 98073-9709	2.37	13.71	16.08	NASA-MSFC, NASA-GRC, Lockheed Martin Corp., SAIC, VACCO
1450	SmallTug: Miniature Flight Experiment Demonstrating Cislunar Cargo Tug Technologies	Andrews Space, Inc.	Seattle, WA 98104	2.67	15.89	18.56	NASA-JPL, SpaceDev Inc, Auburn Univ., INTECH Inc
2582	Next Generation Wiring Materials	ASRC Aerospace Corporation	Greenbelt, MD 20770-6302	1.51	9.87	11.39	NASA-KSC, NASA-ARC, NASA-JSC, Thermax Inc., Dept. of the Air Force (Wright-Patterson AFB), U.S. Dept. of Trans. - Fed. Aviation Admin., Crosslink Polymer Research, ELORET Corp., Florida Institute of Tech.
1377	Adaptive Point-of-Load DC-to-DC Converter (APOL)	BAE Systems	Manassas, VA 20110-4122	1.66	8.33	9.99	NASA-GSFC, NASA-JPL, Univ. of Tenn., Smart Data Solutions, RTI
1461	RAD6000 System-on-a-Chip Microcontroller	BAE Systems	Manassas, VA 20110-4122	2.79	10.16	12.95	NASA-GSFC, NASA-JPL, Univ. of Tenn., Smart Data Solutions
1660	150nm Extreme Temp Technology and Structured ASIC	BAE Systems	Manassas, VA 20110-4122	2.60	11.90	14.50	NASA-JPL, NASA-GSFC, Vaderbilt Univ., Univ. of Tenn., Smart Data Solutions, RTI
3654	Inflatable Thin Film Ballutes for Return from the Moon	Ball Aerospace & Technologies Corp	Boulder, CO 80301-1062	2.08	12.03	14.12	NASA-LaRC, NASA-JPL, NASA-MSFC, Georgia Tech. Univ., ILC Dover LP, AMA Inc, Craft Tech
3905	Microchannel In Situ Propellant Production System	Battelle Memorial Institute	Richland, WA 99352	1.76	11.97	13.72	NASA-JSC, NASA-GRC, The National Center for Microgravity Research, Oregon St. Univ., Colorado School of Mines
631	Fully Integrated Scaleable, Modular Two Fluid Propulsion and Power Module for Sustainable Architecture	Boeing	Canoga Park, CA 91309-7922	2.02	1.97	3.99	NASA-JSC, SpaceWorks Engineering Inc, Arde Inc, Airtech CO, Triad CO

922	High Voltage/Temperature Electronics for Space Exploration	Boeing	Canoga Park, CA 91309-7922	2.17	12.36	14.54	NASA-JPL, NASA-GRC, HRL Labs LLC, Cree Research, Solid State Devices Inc, Auburn Univ., Eclipse,
1102	High Orbit Spacecraft Testbed Technology Demonstrator	Boeing	Seattle, WA 98108-4000	3.80	22.06	25.86	NASA-JPL, NASA-GSFC, NASA-MSFC, Paragon SDC, AZ Tech., Naval Research Lab., Composite Tech. Development Inc
1143	Critical Thrust Chamber Demonstration for a Revolutionary Ultra-High Thrust Range Cryogenic Space Engine	Boeing	Canoga Park, CA 91309-7922	2.75	3.00	5.75	NASA-MSFC, Polaris, GG Industries
1702	Precision Landing and Hazard Avoidance Technology Demonstration	Boeing	Huntington Beach, CA 92647-2099	3.10	31.03	34.13	NASA-LaRC, NASA-JPL, Universal Spacelines LLC, MacDonnald Dettwiler & Optech Inc, Irvin Aerospace, Ohio Univ., California St. Polytechnic Univ., Alabama A&M Univ., Dept. of the Air Force-Arnold AFB, Bryant's Machining
2708	MW-Class MPD Electric Propulsion System Demonstration (Phase I only)	Boeing	Canoga Park, CA 91309-7922	2.50	3.00	5.50	NASA-JPL, AFRL, Creative Engineers, WEP Construction Inc, Quality Vessel Engineering, Frontier Electronic Systems, Irvine Electronics, Polaris, Princeton Univ.
1569	Ultra-High Specific Power Density Solar Blanket	Boeing Spectrolab, Inc.	Sylmar, CA 91342-5373	1.55	8.31	9.85	NASA-JPL, NASA-GRC, AFRL, National Renewal Energy Lab (NREL), Sharp Inc, BSS, Lockheed Martin Corp., Able Engineering,
2123	ILMENOX Project	British Titanium	London, UK SW1H 9HP	1.98	12.34	14.32	NASA-KSC, Florida Institue of Tech.
2413	Dependable, Real-Time and Embedded Space Software	Carnegie Mellon University	Pittsburgh, PA 15213-3890	1.90	12.57	14.47	NASA-JPL, NASA-ARC, The Boeing Company, United Space Alliance
4120	Wide Area Prospecting Using Supervised Autonomous Robots	Carnegie Mellon University	Pittsburgh, PA 15213-3890	2.27	13.05	15.33	NASA-JPL, NASA-ARC
4113	Reconfigurable Intelligent Internet Protocols for Space Communication Networks	Case Western Reserve University	Cleveland, OH 44106-7071	0.62	3.74	4.36	NASA-GRC, AT&T Corp., ABB Inc, Computer Science Corp.
2048	Lunar Regolith-Handling Construction Equipment	Caterpillar, Inc.	Peoria, IL 61656-1875	1.89	1.83	3.71	NASA-KSC, NASA-JSC, Honeybee Robotics, U.S. Army Eng. Research & Dev. Center - Cold Regions Research & Eng. Lab.

1106	Intelligent On-Board Space Operations to Enable Lunar Access	Charles Stark Draper Laboratory	Cambridge, MA 02139-3563	4.66	27.98	32.64	NASA-JPL, MIT, Honeywell International, ARES Corp., Payload Systems Inc, Doreen Evans Assoc. Inc, Mill City Inc, Simple Tech., Hartman Assoc., ADLINK, Mathworks, Starcraft Boosters Inc
2597	Mitigation of Dust and Electrostatic Accumulation for Human and Robotic Systems for Lunar and Mars Missions	Colorado School of Mines	Golden, CO 80401-1842	2.03	11.76	13.80	NASA-KSC, Cleveland St. Univ., Univ. of Tenn. NASA-GRC, sysRAND Corp., Hamilton-Sundstrand, Space Infrastruce Inc, Nicole McGee Aerospace Exchange Inc, Starsys, State Univ. of New York, GrainFlow Dynamics, Univ. of Colorado, Productive Data Solutions Inc.
3505	Thermoelectric Nanowire Composites for Energy Efficient Refrigeration and Power Generation in Space Applications	ELORET Corporation	Sunnyvale, CA 94087-4202	1.87	2.11	3.98	NASA-ARC, Univ. of Texas (Austin), Univ. of California (Santa Cruz)
2852	Stretched Lens Array SquareRigger Tech. Maturation	ENTECH, Inc.	Keller, TX 76248-7000	2.18	14.32	16.50	NASA-MSFC, NASA-GRC, Able Engineering, EMCORE, Auburn Univ., Texas A&M Univ., Ion Beam Optics
2769	Silicon-Germanium Integrated Electronics for Extreme Environments	Georgia Institute of Technology	Atlanta, GA 30332-0420	2.14	12.19	14.33	NASA-JPL, Auburn Univ., IBM Corp., BAE Systems, Univ. of Maryland, Lynguent Inc, The Boeing Company, Janis Research Corp., Accent Optical Tech.
1527	Automated Technology Assessment and Data Intelligence Gathering	IBM	Bethesda, MD 20817-1826	2.16	1.82	3.97	NASA-ARC, TopQuadrant Inc, Bartz Assoc.
2472	Low-Power and Low-Complexity Video Compression for Deep Space and Sensing Applications	IBM	Yorktown Heights, NY 10598	0.82	5.29	6.11	N/A
4810	Intelligent Flexible Materials for Inflatable Structure	ILC Dover LP	Frederica, DE 19946-2080	2.60	12.40	15.00	NASA-JSC, TAIX LLC
4092	Flexible CIGS-based Photovoltaic Modules for Space	ITN Energy Systems, Inc.	Littleton, CO 80127-4107	1.42	8.47	9.89	NASA-GRC, Univ. of Delaware, Colorado School of Mines
4779	Model-Centric Safety Critical JAVA for Exploration	Kestrel Institute	Palo Alto, CA 94304-1216	2.44	11.21	13.65	NASA-ARC, SUN Microsystems, The Open Group, JPL,
672	Friction Stir Welding of Thin Sheet Metallic Alloys to Create Affordable, Ultra Lightweight Cryogenic Tanks	Lockheed Martin Corporation	Littleton, CO 80125-8503	2.27	12.38	14.65	NASA-MSFC, Hi-Temp Insulation Inc, Innovative Engineering Solutions, Martinex & Turek, High Energy Metals Inc, AMRO, Process Fabricators Inc

824	Team-Centered Virtual Interactive Presence for Adaptive Autonomy	Lockheed Martin Corporation	Palo Alto, CA 94304-1191	1.52	8.58	10.10	NASA-ARC, Univ. of Washington, Institute for Human & Machine Cognition, Omnitech Robotics, HolAgent Corp.
860	Alignment, Capture, and Mate (ACM) Docking System for In-Space Assembly	Lockheed Martin Corporation	Littleton, CO 80125-8503	1.88	11.58	13.46	NASA-MSFC, Starsys Research Corp., Honeybee Robotics, Muniz Engineering, Barrios Technology, Rothe Enterprises
909	Integrated In-Situ Resource Utilization for Human Exploration - Propellant Production for the Moon and Beyond	Lockheed Martin Corporation	Littleton, CO 80125-8503	5.18	33.03	38.21	NASA-GRC, NASA-JSC, NASA-KSC, Technology Applications Inc, Lynntech Inc, Orbital Tech. Inc, Florida Institute of Tech., Hamilton Sundstrand, Univ. of Tenn., Rimkus Group, Colorado School of Mines, Muniz Engineering, Cimarron, Acme Machining
916	High Energy Density Regenerative Power Systems for Human Exploration	Lockheed Martin Corporation	Littleton, CO 80125-8503	1.99	11.75	13.74	NASA-JSC, Lynntech Inc, Hamilton Sundstrand, Quantum Technologies
1578	Automated Assembly and Reconfiguration of Future Large-Scale Space Systems	Lockheed Martin Corporation	Palo Alto, CA 94304-1191	4.25	28.95	33.20	NASA-MSFC, NASA-JPL, Palo Alto Research Center, Honeywell, MIT, Gizmonics Inc., Intellization, AG Precision, Bay Advanced Tech., Dynetic Systems, Electronic Interface Inc, Applied Engineering, HDB Electroinics, Industiral Glass, KHV Industries, Magnetic Component Engineering, Martex Circuits, Paint Ball
2132	Autonomous Manipulation Capabilities	Massachusetts Institute of Technology	Cambridge, MA 02139-4307	2.00	12.00	14.00	NASA-JSC, Univ. of Mass., Australian Commonwealth Scientific & Industrial Research Org.
3836	Interplanetary Supply Chain Management and Logistics Architectures	Massachusetts Institute of Technology	Cambridge, MA 02139-4307	1.94	1.92	3.86	NASA-JPL, United Space Alliance, LLC, Payload Systems Inc
681	Low Cost Electrically Scanning Array (LCESA)	Northrop Grumman Corporation	Redondo Beach, CA 90278-1078	2.10	12.85	14.95	NASA-GRC
718	Variable Thrust Pintle Descent/Ascent Engine	Northrop Grumman Corporation	Redondo Beach, CA 90278-1078	2.15	12.80	14.95	NASA-MSFC, Erica Lane Ent., D&E Prop & Power, Sierra Engineering Inc
1204	Autonomous Walking Inspection and Maintenance Robot	Northrop Grumman Corporation	Redondo Beach, CA 90278-1078	4.10	18.40	22.50	NASA-JPL, NASA-JSC, Carnegie Mellion Univ., Payload systems Inc, ZIN Tech. Inc, Creative Pathways
1422	Self-Cleaning Anti-Contamination Coatings for NASA Applications	Northrop Grumman Systems Corporation	Linthicum, MD 21090	1.33	6.07	7.40	NASA-GSFC, nGimat, Georgia Tech. Univ.

1602	Deployable Skirt System (DSS) for Aero-assist Systems	Northrop Grumman Systems Corporation	El Segundo, CA 90245-4691	5.50	34.40	39.90	NASA-LaRC, NASA-GRC, NASA-JSC, NASA-MSFC, Integrated Technologies Inc, Southern Research Institute, Plasma Processes Inc., Next Gen Aeronatucis, MR&D Inc
1795	Integrated System Health Management for Modular Systems	Northrop Grumman Systems Corporation	El Segundo, CA 90245-4691	5.61	32.51	38.11	NASA-JPL, NASA-JSC, NASA-ARC, Universities Space Research Assoc., Acellent Tech., Innovative Dynamics, Luna Innovations, NextGen Aeronautics, Xybernaut,
2397	Intelligent Self-Situational Awareness for Exploration	Pennsylvania State University	State College, PA 16804-0030	1.38	8.23	9.61	NASA-SSC, NASA-ARC, Applied Perception Inc, Gormley & Assoc., Vector Tech. Inc
1030	Deep Throttling Common Extensible Cryogenic Engine	Pratt & Whitney	West Palm Beach, FL 33478-9600	6.12	33.85	39.98	NASA-MSFC, NASA-GRC, Aerojet, Florida Turbine Tech., ARES Corp.
2304	Planetary Geospatial Exploitation Toolkit	Radiance Technologies, Inc.	Huntsville, AL 35805	0.82	5.26	6.08	NASA-JSC, NASA- KSC, U.S. Department of Interior - Geological Survey, Univ. of Southern Mississippi
2758	Quantum Conductors for Power & Propulsion	Rice University	Houston, TX 77251-1892	1.58	9.38	10.96	NASA-GRC, NASA-JSC, Carbon Nanotechnologies Inc, GHG Corp., Duke Univ., Univ. of Penn.,
3380	SEE-Immune Reconfigurable Field-Programmable Gate Array	Sandia National Laboratories	Albuquerque, NM 87185-1083	2.40	12.60	15.00	NASA-LRC, Xilinx Inc., Univ. of Idaho, Air Force Research Lab.
4890	Thermal Protection System & Heat Resistant Structures	Snecma Propulsion Solide	Le Haillan Cedex France 33187	7.91	32.05	39.96	NASA-LaRC, NASA-ARC, NASA-DFRC, Materials Research & Design, MAN Technologies, CIRA
2773	Technology Assessment and Portfolio Management for Support of H&RT	SpaceWorks Engineering, Inc. (SEI)	Atlanta, GA 30338-4747	1.14	3.80	4.93	NASA-ARC, NASA- MSFC, NASA- JPL, NASA-GRC, NASA-LaRC
2881	Economic Development of Space: Examination & Simulation	SpaceWorks Engineering, Inc. (SEI)	Atlanta, GA 30338-4747	1.04	1.13	2.17	NASA-JSC, Kejo Univ., X-Prize Foundation, Shimizu Corp., Spaceport Assoc., Teal Group Corp., The Tauri Group
858	Advanced Batteries for Space	T/J Technologies Inc.	Ann Arbor, MI 48108-2240	2.14	12.80	14.94	NASA-JPL, NASA-GRC, Case Western Reserve Univ., Michigan St. Univ., Tennessee Tech, Univ. of Michigan, Lithium Technology Corp.

4847	Technology Investment Portfolio Database	Tauri Group, LLC	Alexandria, VA 22314	0.88	5.08	5.96	NASA-MSFC, Booz Allen Hamilton Inc, SAIC, Hawkey Systems
4703	Campaign Methodology: Exploration-Driven Architectures	The Aerospace Corporation	El Segundo, CA 90245-4691	1.96	1.84	3.80	NASA-JPL, NASA-JSC, Univ. of Michigan, Axiomatic Design Soluctions, Inc.
3871	Modular Regolith Characterization Instrument Suite for Construction and In Situ Resource Utilization Surveys	U.S. Army Engineer Research & Development Center	Hanover, NH 03755-1290	6.00	33.96	39.96	NASA-JPL, NASA-KSC, Honeybee Robotics, Los Alamos Nat. Lab., Univ. of Arizona
1971	End-to-End Mission Modeling and Simulation Environment	Universities Space Research Association (USRA)	Columbia, MD 21044-3432	2.16	12.78	14.94	NASA-ARC, NASA-JPL, DigitalSpace, SAIC
4004	Verification and Validation of Autonomy Software	Universities Space Research Association (USRA)	Columbia, MD 21044-3432	1.87	11.78	13.65	NASA-ARC, NASA-JPL, Kestreltech, Adventium Enterprises, Sandia National Lab.
4481	A Model of Options and Costs for Reliable Autonomy	Universities Space Research Association (USRA)	Columbia, MD 21044-3432	1.75	1.78	3.53	NASA-ARC, Univ. of Oregon, Univ. of Hawaii, Portland St. Univ., Univ. of Southern California
876	Continuous Ultrasonic Process for Dispersion of Nanofibers and Nanotubes in Polymer Melts and Manufacture of Products from Prepared Nanocomposites	University of Akron	Akron, OH 44325-2102	0.99	1.34	2.33	NASA-LaRC, A. Schulman Inc
3393	Small Aperture Multiband Microwave Array Receiver	University of Colorado	Boulder, CO 80309-0572	1.95	10.32	12.27	NASA-GRC, Northrop Grumman Corp., Aerospace Corp.
4392	Regenerative H2O2 Fuel Cells for H&R Exploration	University of Illinois, Urbana-Champlain	Urbana, IL 61801-6242	2.17	1.73	3.90	NASA-GRC, NASA-JPL, Orbitec, CU Aerospace, NPL Assoc., Swift Enterprises, Arizona St. Univ.
896	Modular, Multifunctional, Reconfigurable SuperBot	University of Southern California	Los Angeles, CA 90089-1147	4.93	22.73	27.66	NASA-ARC, NASA-JPL, Raytheon, Lockheed Martin Corp., Univ. of Penn., Metrica Inc., Life Science & Technology Research Institute Inc, Alliance Spacesystes Inc
4301	Coordinated Multisource Maintenance on Demand	University of Southern California	Los Angeles, CA 90089-1147	2.47	12.25	14.72	NASA-ARC, Vanderbilt Univ., Coordinated Software Systems LLC

2878	Fault-Aware, Modular, Reconfigurable Space Processor	University of Southern California Information Sciences Institute	Arlington, VA 22203-1707	2.11	15.90	18.01	NASA-GSFC, NASA-ARC, UCLA, SEAKR Engineering
3659	Magnetic Nozzle and Detachment Efficiency of the Plasma	University of Texas, Austin	Austin, TX 78713	1.96	1.85	3.80	NASA-MSFC, NASA- JSC, Univ. of Alabama, Budker Institute of Nuclear Physics
1094	Space Communications Testbed	ViaSat, Inc.	Clarksburg, MD 20871	3.74	25.48	29.22	NASA-LaRC, NASA-JPL, NASA-GRC, NASA-GSFC,
1350	Global Technology Discovery and Database Development and Support	WorldTech Inc.	McLean, VA 22102	2.21	5.51	7.72	N/A
1793	Long-Life Lightweight Oxidation-Resistant Cryogen Tank	XCOR Aerospace	Mojave, CA 93502-1163	1.07	6.16	7.23	NASA-WSTF, Orion Propulsion, Holder Consulting Group, Van Blaricom Tech., CAZtek