

## How a Shared Services Center Helped to Explore Mars

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NASA's Small Business Innovation Research (SBIR) Program is a highly-competitive, three-phase system, which provides qualified small business concerns with opportunities to propose innovative ideas that meet the specific research and development needs of NASA and the Federal Government. The NASA Shared Services Center (NSSC) awards and administers Phase I and Phase II SBIR contracts for NASA. The NSSC, in coordination with the SBIR/Small Business Technology Transfer (STTR) Program Executive and SBIR/STTR Program Management Office, also participates in the development of SBIR/STTR solicitations, development of model contracts, debriefings of unsuccessful offerors, and in design and content maintenance activities. Innovative technologies, developed with the support of the NASA's SBIR Program, have made significant contributions to the capabilities of the [Mars Science Laboratory \(MSL\)](#), which landed on the surface of Mars on August 6, 2012.

An SBIR contract was awarded to Create, Inc., who developed a space-qualified pump, roughly the size of a flashlight battery. The pump runs on direct current (capable of running at 200,000 revolutions per minute) and will vacuum dust samples of Mars to support the Sample Analysis at Mars (SAM) instrument, aboard Curiosity. An SBIR contract was also awarded to GrammaTech Inc., who developed a static-analysis tool used to eliminate defects in the software that controls the operations of the MSL. This software eliminates defects in mission-critical and embedded applications, where safety, high-assurance and high-security are required. Starsys Research developed two technically advanced planetary gearboxes under an SBIR contract. One is the science rovers articulated arm, which deploys instruments and collects samples and the other is the descent braking system. Both applications are aimed at an improved level of performance for space robotic exploration applications. Under an SBIR contract, Yardney Technical Products developed and demonstrated a promising lithium ion battery for space applications. Yardney Technical Products have supplied lithium ion batteries for several NASA space robotic missions including the Mars Polar Lander, the Mars rovers Spirit and Opportunity, and Juno and Grail spacecraft, as well as the MSL. The mission of the NASA Shared Services Center (NSSC) is to provide timely, accurate, high-quality, cost-effective, and customer focused support for selected NASA business and technical services. We focus our efforts to help save as much money as possible for the Agency to focus on its mission to drive advances in science, technology, and exploration.

For more information regarding SBIR's, visit: [About the SBIR/STTR Program](#).