

## SBWF Grant Assists as Extreme Endeavors Develops New Technologies

Extreme Endeavors and Consulting designs reliable and robust equipment for the harshest conditions found on the Earth. The company specializes in taking technology into the most remote and desolate places.

Located in Philippi, Mike Masterman, director and CEO, founded Extreme Endeavors and Consulting in 1998. Its team members are involved in engineering for a variety of scientific operations, ranging from Radio Astronomy Observatory operations to equipment development of scientific apparatus within Antarctica for the National Science Foundation.

Masterman contacted the Small Business Work Force for assistance in financing a DSP (digital signal processing) Integration workshop conducted by Texas Instruments.



Mike Masterman contacted SBWF for help financing a Digital Signal Processing Integration workshop from Texas Instruments to help develop an innovative firefighter suit.  
*Photo Courtesy of J. Alex Wilson/WV Development Office*

Small Business Work Force (SBWF) gives small businesses a competitive edge by providing access to quality workforce training and raising the skill level of West Virginia's small business workforce. The program reimburses pre-approved technology, technical and regulatory compliance training. Most small businesses are eligible for up to \$5,000.

The DSP technology will help Extreme Endeavors and Consulting during development of an innovative firefighter suit. The sensor technology in the lightweight suit allows constant contact with other firefighters, aids in locating victims in poor visibility conditions and features the Electronic Lifeline, which monitors vital signs and transmits them to an operations base.

According to Texas Instruments, digital signal processing is a method of processing real world signals using mathematical techniques to perform transformations or extract information. A DSP is a type of microprocessor - one that is incredibly fast and powerful and processes data in real time.

"The DSP technology will take data from sensors in the suit and extract the heart rate from noise that is

100 times greater than the heart rate itself using mathematical computation information," Masterman said. "Second, the DPS chip provides software-defined radio so that you're not using actual components for the radio, it's all in the chip."

Masterman said that Texas Instruments will display the firefighter suit at its 2006 conference.

The National Institute of Health awarded a Phase I Small Business Innovation Research (SBIR) grant to Extreme Endeavors and Consulting in 2003 to conduct research and development of the suit. In 2004, the NIH awarded a Phase II SBIR grant. The West Virginia Small Business Development Center helped Extreme Endeavors apply for and receive an SBIR Phase 0 grant, which helped the company prepare its proposals for the Phase I and Phase II awards.

SBWF is a program of the Small Business Development Center (SBDC). The SBDC is a division of the West Virginia Development Office and works with colleges, universities and other host institutions to provide free business consulting and technical assistance at 15 statewide locations. The SBDC is a program supported by the U.S. Small Business Administration (SBA) and extended to the public on a non-discriminatory basis. The SBA cannot endorse any products, opinions or services of any external parties or activities. Workshops, seminars and conferences are held in disabled accessible locations. Arrangements for people with disabilities will be made if requested in advance.