

## News

### Sensor Products Inc.

#### **New Generation of Body Armour Takes the Load Off Soldiers - Credit Given to Partnership of New Sensor Technology and Human Factors Engineering**

Wearing body armour for protection against bullets and shrapnel has been a double-edged sword for soldiers. While the armour provides an indispensable defence, its weight and placement on the body exposes the wearer to neck, shoulder and back discomfort, and possibly years of lingering pain. To alleviate discomfort and reduce the fatigue that reduces the soldier's tactical effectiveness, a new generation of body armour systems is being developed. A body mapping pressure system by Sensor Products Inc. called Tactilus is enabling a highly-skilled team of designers and engineers to develop new vests and carriage systems that optimally distribute the load that soldiers carry. The project is being directed by KDH Defense Systems of Johnstown, PA through a contract with the US Air Force.

EDGE Product Development of Newtown, PA is using human factors engineering, design and prototyping to adapt the armour systems to the needs of the soldiers. "To enable soldiers to perform their duties with more comfort and less fatigue, we are designing body armour systems that eliminate 'hot spots' of excessive pressure during typical activities," says Daniel Massam, director of industrial design.

Dr. Evan Goldman, a professor of gross anatomy and physiology at Philadelphia University, is using the sensor



Rifle with vest and body armour being tested by sensor software



Soldier running in the field being tested with sensor system

technology to test the body armour on the soldiers. When a soldier complains that they feel pressure in a certain area, the pressure points change on the computer screen and pinpoint where the vest and armour need to be redesigned to improve the pressure distribution. Besides increasing comfort, the team says the new body armour will significantly increase the soldier's flexibility and manoeuvrability, which has enormous strategic advantages in the field.

"The challenge for us in sensor technology was to modify our sensors and software to conform to the dimensions of a vest, while providing full three-dimensional pressure distribution visibility of the chest, back and neck," says Blume.

Jeffrey Payne, Project Manager of KDH Defense Systems, says the project is on track to meet its goals. "Most armour designs today are from within the armour industry, but by using a human factors company like Edge that thinks outside the box, we come up with unique and innovative approaches to better protect the soldier," says Payne. "Armour designs today are over the body and wrap like a jacket. Edge looks at applying different ways to take off loads, making the vest and armour wrap around the wearer so tightly that it becomes load bearing," adds Payne.

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