

DOD Research: Empowering and Supporting Our Troops in Combat



a INDIVIDUAL FIRST AID KIT: Most soldiers carry a HemCon bandage, which stops hemorrhaging within minutes and was selected in 2004 as one of the “Army Top 10 Greatest Inventions.” Research & development of the HemCon bandage was funded by the Army and performed by the US Army Medical Research and Material Command.

b INTERCEPTOR BODY ARMOR: Most soldiers wear a flexible and highly ballistic-resistant body armor system that protects them in combat. This lightweight armor is the result of materials (ballistic fibers and ceramic plates) and engineering design research sponsored by the Marine Corps, Army, and DARPA.

c JOINT PRECISION AIR DROP SYSTEM: Improved air delivery drops food and equipment closer to soldiers, increases the survivability of aircraft personnel and critical supplies, and makes humanitarian relief more efficient. This joint Army/Air Force research effort began in 2004.

d LASER DESIGNATOR: Soldiers’ weapons are equipped with laser sights to increase their precision in the field. Initial laser research was started at Bell Labs in the 1950s and later sponsored by the Army and Air Force.

e LUMINESCENT POLYMERS FOR EXPLOSIVE SENSING: DOD-sponsored research has recently identified nanotechnologies capable of detecting hidden improvised explosive devices (IEDs).

f MEAL, READY-to-EAT: Advanced processing techniques protect food rations from deteriorating in extreme environments. Nutrition technologies added to some rations enhance the physical endurance of soldiers. Biosensors and marker systems help detect contaminants in food. These advances were the result of research sponsored by the Army and conducted at its Natick Soldier Research, Development, and Engineering Center.

f NIGHT VISION GOGGLES: Image intensifiers employ the photoelectric effect, allowing soldiers to see images in very low levels of light. Current night vision technology is the result of several years of DOD basic and applied research.

g SOLDIER PERSONAL DIGITAL ASSISTANT: Soldiers in the field receive important situational awareness and information using a variety of technologies.

- **GPS:** Basic research funded over several decades by the Air Force, Navy, and the AEC (now DOE) led to the development of the global positioning system, which gives the specific location of a soldier anywhere in the world.
- **Wearable Soldier Radio Terminal:** This technology provides voice communications and links soldiers’ personal digital assistants to FalconView, a new software that networks and maps soldiers on the battlefield. The research leading to this was funded by multiple contracts with various DOD sponsors.
- **Lithium Primary Batteries:** A lighter and longer-lasting power source for soldiers was developed as a result of basic research funded by DOE and applied research funded by the Army and DARPA.

h SOLDIER TRAINING: Gaming technology and the simulation of battlefield environments help prepare soldiers for deployment and provide them with theater mission training. The underlying technologies were developed from basic research funded by the Army and conducted by the Institute for Creative Technologies at the University of Southern California, starting in 1999.

i TRANSLATION DEVICES: Highly accurate voice recognition technology allows soldiers to generate and interpret speech in other languages. These translation devices have been used heavily by U.S. troops in Iraq. The original technology resulted from DARPA-sponsored research and is being improved by other DOD agencies.