Georgia Tech Wearable Motherboard

Michael Fagbote

Department of Biomedical Engineering, University of Rhode Island

Due to the constant and every growing need to keep soldiers well protected and cared for in battle, US military's 21st Century Land Warrior Program and the Defense Advanced Research Projects Agency Funded the research and development of the Georgia Tech wearable mother board. The mother board is a type of smart clothing. Smart clothing is fabrics that are wireless and washable and have integrated computing fibers and materials.

The Georgia Tech Wearable Motherboard uses optical fibers to detect bullet wounds, and special sensors and interconnects to monitor the body vital signs during combat conditions.

For the shirt to be used a solider must attach the sensors to his body and put the shirt on. The smart shirt uses its plastic optical fibers and other specialty fibers woven throughout the shirt.

To pinpoint the location of bullet penetration or another type wound, a light signal is continually sent from one end of the optical fiber to a receiver at the other end. The fiber is also connected to a personal status monitor worn on the hip. If the light from the emitter does not reach the receiver inside the attached monitor, a signal is sent saying the body has been penetrated. The light signal then is reflected back to the point of penetration, which enables the doctors or paramedics find the wearers wound.

Information on the wound and the soldier's condition is transmitted immediately electronically from the PSM to a medical triage unit somewhere near the battlefield. The triage unit then dispatches the medics to the wounded victim. The Georgia Wearable motherboard can help a physician determine the extent of a soldier's injuries based on the strength of his heartbeat and respiratory rate.

The smart shirt wearers vital signs-heart rate, temperature, respiration rate, etc. are all monitored by the smart shirt by both the sensors integrated into the shirt and the sensors on the soldier's body, each one of the sensors are attached to personal status monitor. The Georgia Tech wearable mother board was solely intended for military and combat use but through adequate research it found that it can be useful by not only the military but by the police firefighters and hospital use. It can be pretty much used for any person that requires around the clock monitoring of vital signs. This type of shirt is still in its early stages of development and as of now there is only prototypes available but in a few years it should be mass produced and out commercially.

Work Cited

http://www.gtwm.gatech.edu/

http://computer.howstuffworks.com/computer-clothing2.htm

http://delivery.acm.org/10.1145/520000/513961/p170-park.pdf?key1=513961&key2=5384858521&coll=GUIDE&dl=GUIDE&CFID=63719004&CFTOKEN=51854156