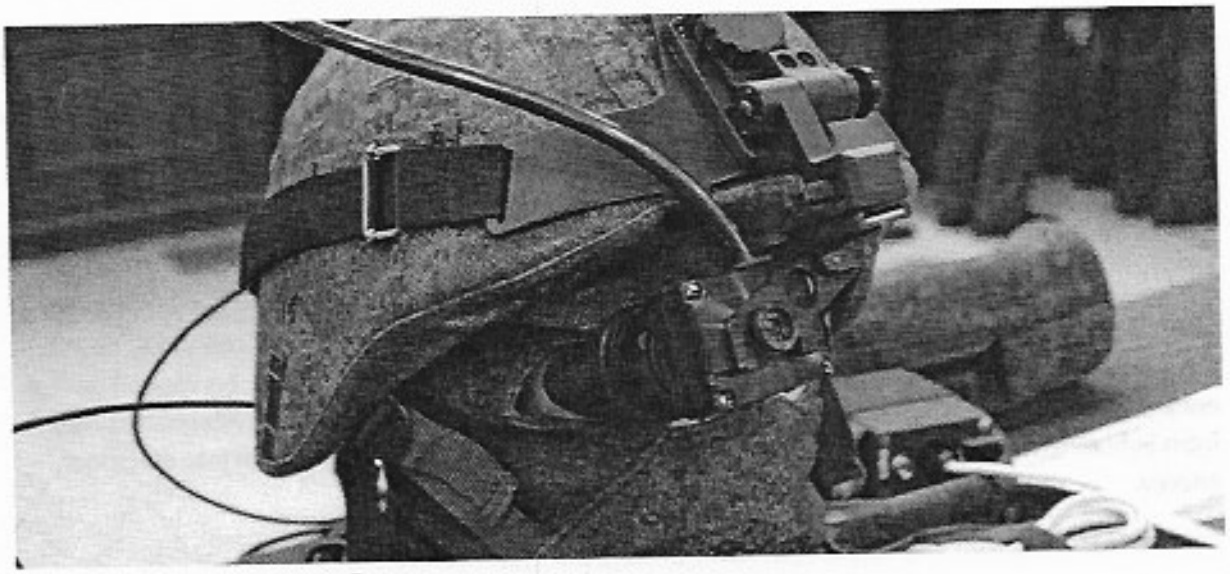


New Wearables For Future Forces

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This post is also available in: עברית (Hebrew)

Wearable combat tech that's straight out of a sci-fi movie was developed by Singapore company ST Engineering, and gives us a real life glimpse into what the soldier of the future could be like.

A system called Arielle combines elements such as high-tech helmet and body armour among other wearables which can regulate the body temperature of tomorrow's fighting forces in real time – which is an advantage to forces in sweltering tropic climates.

Also, the helmets comes with a futuristic heads up display (HUD) which not only provides protection from shrapnel but allows the soldier to view augmented reality images to communicate, coordinate movement and to track friendly forces.

The helmet is also fitted with a "Person of Interest" system that uses facial recognition to identify wanted suspects and this could be integrated for use by police officers too.

Officers would be able to call for backup by simply swiping on their visors.

According to businessinsider.com, those cool wearables also have a way for energy saving and recharging.

Special braces fitted around a personnel's legs will be able to convert kinetic energy from walking or running into usable electrical power that can be used to charge the wearables.

There's more to the Arielle system: a vest-mounted camera, sensors and smart watches.

The modular camera can be fitted onto the combat vest to feed live footage back to base so commanders can stay up-to-date on what's happening on the ground.

Sensors connected to an officer's sidearm will trigger an alarm when the weapon is drawn, transmitting the alert to headquarters to notify them of potential armed conflict.

Another one of those wearables is a smart watch that track vital signs such as heart rate and temperature, and will transmit data wirelessly back to commanders to ensure that officers stay in good health.

According to the company's website, they have a focus on "new generation systems and solutions for modern combat and homeland security" and looks to "help shape future fighting capability, modernise armed forces and enhance homeland security".

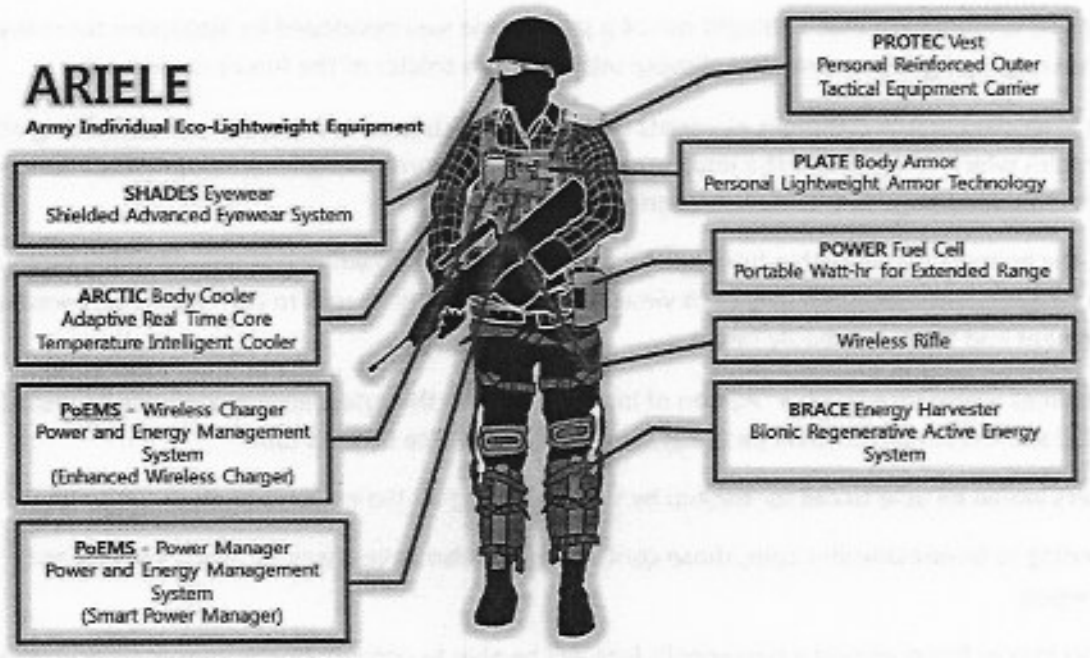
ST Engineering said it designed Ariele to help enhance "the efficiency and capability of the soldier on the ground."

Enhancing the War Fighter

The warfighter plays an increasingly important role in a battlefield that is digitally connected in the future. By providing him with increased protection, convenience and connectivity, his capabilities are enhanced as part of a force-multiplier effect. ST Kinetics offers a range of soldier systems that range from lightweight armour to energy systems that convert a soldier's walking motion into electrical energy.

Soldier of the Future

In our quest to optimise the capabilities of the future soldier, ST Kinetics has developed the ARIELE (Army Individual Eco-Lightweight Equipment) system that provides a holistic solution to many issues facing today's warfighter.



ARIELE

ARIELE is made up of various components, each contributing to boosting the efficiency and capability of the soldier on the ground.

Key to this is a system that could help a soldier keep warm or cool down during a mission. The Adaptive Real-Time Core Temperature Intelligent Cooler (ARCTIC) utilises both active and passive cooling methods to do this. The active cooling function makes use of thermal sensors to automatically decrease or increase the temperature, while its passive cooling function is fabric-integrated and sweat-activated.

Protection is just as important. As part of ARIELE, the Personal Lightweight Armour Technology (PLATE) uses an unconventional method to form the basis of composite armour plates. This involves

utilising vacuum consolidation to eliminate encapsulated air, reinforcing the conformity and support of the ceramic core of fibre composites.

The future soldier may also wear a load-bearing vest that is modular and scalable. Made from tough yet breathable textile, the Personal Reinforced Outer Tactical Equipment Carrier (PROTEC) is designed to protect soldiers from harsh environmental and excessive heat conditions as well as preventing them from suffering from heat stroke and dizziness.

Situational awareness is always important on the battlefield. To provide this, the Shielded Advanced Eyewear System (SHADES) comes with an intelligent Heads Up Display (HUD) with ballistic protection. Using augmented reality (AR) images, SHADES enables enhanced command and control over a wireless weapon station, communication and coordination, navigation, identification and the tracking of friendly forces.

Power is crucial for the connected soldier. The Portable Watt-hr for Extended Range (POWER) system aims to provide enough power to sustain longer mission while reducing the weight burden on soldiers. The adoption of fuel cell solution also obviates the need for battery recharging as it involves merely a swapping of fuel cartridges.

It helps that a soldier can convert his walking motion to electrical energy as well. This is what the Bionic Regenerative Active Energy System (BRACES) provides. It can generate up to 6W of power, while storing the harvested energy in a super capacitor. When required, it can be channelled to power the low power electronic devices.

Separately, the Power & Energy Management System (POEMS) offers a small, lightweight and easy way to draw power from sources such as fuel cells, solar-mats, building power sockets or even vehicle 12 VDC outlets. The power can then be used to charge batteries, directly power military equipment or simply do both.

Perhaps even more convenient is the Enhanced Wireless Charger developed by ST Kinetics. Using electric field induction, it enables a soldier to charge up devices anywhere. Compared to magnetic field induction, the technology used here also gives a user more freedom when it comes to placing the equipment to be charged near the charger itself.