The future of military combat is going high-tech as scientists create an Internet of Things for combat gear embedded with biometric wearables to help soldiers identify the enemy, perform better in battle, and access devices and weapons systems using speedy edge computing.

Recently, the United States Army Research Lab awarded $25 million to the Alliance for Internet of Battlefield Things Research on Evolving Intelligent Goal-driven Networks (IoBT REIGN) to develop new predictive battlefield analytics.

one key element of healthy IoBT/IoMT is a strong edge architecture that uses biometrics, environmental sensors, and other connected devices to send and receive data quickly, allowing military personnel to respond to potentially dangerous situations on the battlefield.

In the Internet of Military Things (IoMT) or Internet of Battlefield Things (IoBT), the sensing and computing devices worn by soldiers and embedded in their combat suits, helmets, weapons systems, and other equipment are capable of acquiring a variety of static and dynamic biometrics such as their face, iris, periocular space, fingerprints, heart rate, gait, gestures, and facial expressions.

Identifying the enemy

In asymmetric warfare, it isn’t always easy to identify enemy combatants. They can appear as civilians or access restricted military bases with a stolen badge.

Now, sensors can scan irises, fingerprints, and other biometric data to identify individuals who might pose a danger. Edge computing allows, for example, fingerprints from a weapon or bomb to be uploaded to the network and used to identify a combatant instantly. It can also confirm the identity of a target so a sniper can take him out.

Monitoring soldiers’ physical and mental state

Biometrics aren’t just limited to identifying combatants. Sensors embedded in military uniforms and helmets can send information to a command center about a soldier’s physical condition, helping him or her survive otherwise lethal enemy attacks.

For example, pilots under g-force conditions or soldiers exposed to toxic chemicals can receive assistance.

Syncing soldiers with weapons systems and other devices

Edge computing can help soldiers gain access to vehicles and weapons systems as well as monitor battlefield conditions through, for example, connected drones.

“Context information may also be valuable to achieve performance optimization and operational adaptation of biometric systems implementing ubiquitous user authentication/monitoring on mobile hardware architectures (in IoMT and IoBT devices that can function as a smart and mobile cyberweapon). In this scenario, context data may also include information about the surrounding environment or terrain, lighting conditions, soldier physical status (e.g., collected via sensors embedded in the combat suit), and ongoing activity (in motion or at rest, such as a sniper quietly waiting for a target to present itself), and so on,