

Augmented Reality is transforming the Armed Forces

Thermoteknix fuses augmented reality (AR) and thermal imaging tech to deliver the ultimate situational awareness system for night-time operations

Augmented Reality is transforming the way we approach warfare. With the right technology, users can gain more operational and situational awareness and make better judgements about their situation. AR is and will continue to be a priority for soldier modernisation programmes, including the UK MoD's Future Soldier transformation programme.

Beyond the training ground and onto the battlefield

Augmented reality has already delivered better combat training experiences that are less costly, and more immersive, ensuring that troops are more prepared for real-life scenarios.

But the advantages of AR are now being delivered to soldiers in the heat of battle. In 2021, UK-based thermal and night vision specialist Thermoteknix unveiled its Augmented Reality Tactical Interface Module (ARTIM), giving the foot soldier next-generation night vision, thermal imaging, AR, navigation, targeting and a whole lot more. ARTIM delivers heads-up situational awareness to the equipped user during outdoor on-the-move operations and enables personnel teams to perform tasks with high awareness of their surroundings, in close coordination with each other, and with enhanced safety and speed.

ARTIM mounts to the back of the helmet to track where the user is located and where they are looking, receiving and

publishing networked PLI (Position Location Information) data, and rendering an augmented reality overlay to the user.

Operational data is displayed by the Thermoteknix ClipIR XD – a thermal imaging clip-on device mounting on an NVG, providing not only augmented reality data but also thermal imaging fusion. The system provides heads-up navigation and tracking of friendlies, using GPS and digital terrain elevation data (DTED) to deliver accurate visualisation of geo-spatial information.

What sets ARTIM apart from other AR systems on the market, is the user's ability to view the AR overlay in different modes. The user can choose to view AR with thermal on or view the AR overlay with thermal off and only intensified night vision alone. Most importantly, the user can control how much information and what information is displayed.

The UK MoD has incorporated ARTIM into its Future Soldier programme with troops already using the technology in training and front-line operations. The UK MoD has procured over £3 million worth of AR-ready systems from Thermoteknix, to be delivered to the British Army over the next 12 months with an option to procure additional systems during the fulfilment of the contract.

ARTIM is also being trialled by a number of military powers across Europe and other continents who are equally seeking to modernise and meet the challenges of today and tomorrow's warfare.



ARTIM is an augmented reality (AR) head-up display (HUD) system for enhanced night-time situational awareness.



Augmented reality (AR) and operational data is overlaid on the clip-on thermal imager viewer.

Target identification – why AR is a game changer

Perhaps the greatest contribution AR devices might make to military operations concerns target verification. An important feature of AR devices is their interconnectivity, which enables information sharing and decision-making in the real-time battlefield environment.

Augmented reality and systems like ARITM enable soldiers to instantaneously summon vast amounts of information about a prospective target, the surrounding terrain, and the location of enemy and friendly forces.

The ability to share targeting information over a visual medium such as an AR device provides individual troops with additional means to evaluate attacks. It also ensures they undertake precautions to reduce the risk of harm to protected persons and objects, for instance, by verifying the mark as a legitimate military target and minimising incidental damage to civilians and civilian objects.

ARTIM plugin for ATAK

ARTIM has been designed to integrate with any number of digital battle management systems. It comes 'out of the box' ready to use with Android Tactical Assault Kit (ATAK), the app-based application that provides location information and utilises Blue Force Tracking to track team members in real-time and help coordinate movements. ATAK also uses Red Force Tracking to see where targets and dangerous threats or elements may be. Operators can view entered points of interest like terrain, topographical elements, and even weather. It also enables encrypted data communication like text and file sharing (i.e., photos and videos) for user-to-user, user-to-team, user-to-command, or user-to-entire force communications.

ARTIM acts as a head-up display (HUD) that delivers ATAK capability and augmented reality (AR) to the user. The AR capability connects to the ATAK app, enabling the user to identify teammates and targets, while also providing point-to-point navigation, all via hands-free operation.

Connected or unconnected

Depending on the requirements of the mission, ARTIM can be pre-loaded with data or real-time data updates can be shared with the team using WAN via MANET via a hub or via cellular network. ARTIM's ability to operate using ATAK either as standalone unconnected or as a fully networked system, offers teams greater flexibility and helps improve critical decision-making on the ground. ■

For more information on ARTIM or thermal imaging technology, visit www.thermoteknix.com

Learn more about ARTIM: <https://www.thermoteknix.com/news/thermoteknix-launches-new-augmented-reality-tactical-interface-module-with-atak-capabilities>

Learn more about how Thermoteknix supporting the UK MoD Future Soldier programme <https://www.thermoteknix.com/news/thermoteknix-selected-by-uk-ministry-of-defence-mod-to-supply-clipir-xd-e-thermal-imaging-clip-on-systems>

Key Features:

- ATAK Plugin unleashes Android Team Awareness Kit (ATAK) capabilities for enhanced situational awareness
- Operates using ATAK either as standalone unconnected or as a fully networked system
- Internal data storage to operate with or without connection to EUD
- Displays real-time routes, markers and Blue Force Tracking in AR
- ARTIM features an AR processor and smart computer
- Very low latency with 60Hz update rate
- AR displayed to user via ClipIR XD fitted to NVG
- Requires 4x or 8x AA batteries – two 4-way carousels with hot-swap for uninterrupted operation
- Up to 24 hours battery life
- External power supply for NVG