

## SLOVENIA GOES LOCAL

The Future Soldier 2008 event in Prague, Czech Republic, showcased soldier systems capability indigenous to small countries as well as large. For example, the Republic of Slovenia has picked local industry for the research and development phase of its own 'Warrior of the 21st Century' programme, in this case Ljubljana-based S&T IT Solutions and Services, which development engineer Ales Ormahan describes as an 'integrator, but not a manufacturer'.

The future soldier system is designed to fit into the Slovenian Armed Forces' 'PINK' C2 information system, so the Windows XP-based soldier computer runs the same applications. The prototype integration of soldier communications and information devices into a fragmentation vest was launched in 2006 as the KISB project, the result of which is the OTIS personal tactical information

system. The main components of OTIS are a head-mounted display, a PDA, a GPS, a six-axis head tracker, a solid-state inertial measurement unit and a camera.

S&T's design philosophy is to keep things as simple as possible. The primary display for the soldier is the eyepiece that attaches to the helmet. This always shows a strip compass across the top that indicates the direction in which the soldier is looking. (The enabling device for this is a solid-state unit on the back of the helmet that contains inertial sensors and a means of combining their output with that of a GPS sensor. The result is a lightweight head tracker.) Under the compass strip are displayed standard military symbols for friendly and enemy units with range information underneath. Permanently shown in the bottom left corner of the display are the soldier's GPS coordinates. On the right are mobile phone-style signal quality



and battery life indicators. These are normally only visible if there is a problem.

The eyepiece itself is transparent and overlays the information, including a digital map if the soldier wants it, over the view of the outside world. The advantage of a see-through display like this is that it preserves the wearer's field of view and binocular vision, although it includes a cover that can be slid over the front to make the display easier to read if necessary. The eyepiece enables the soldier to use the core capabilities of the system, even without the PDA.

► Slovenia's future soldier is still in R&D. PHOTO: AUTHOR

The programme's manufacturing phase is expected to go out to competition, but Matevz Ferjancic, head of S&T Defence's programme department, reckons that the Slovenian MoD will look to favour domestic industry. This, he argues, is because they will have more leverage over a local company for whom orders for a few hundred systems represent a big slice of business, which is far from the case with a major multinational.

Peter Donaldson, Prague

## PROTECTED HEARING IS KEY TO SOLDIER AWARENESS

Protecting the senses of soldiers is now a big issue with the British military and others around the world, both to help maintain their combat effectiveness and to minimise the risk of hearing and vision problems in later life.

The Racal Acoustics RA5500 Frontier IEC (in-ear communications device) protects soldiers from sudden loud noises such as gunfire and explosions while still enabling normal communications through the headset and, critically, maintaining natural

hearing that is essential for a soldier's situational awareness. These requirements demand very high-quality audio equipment with sophisticated hearing protection systems. Combat hi-fi such as this is no luxury, it is the final link in the communications chain that, if the sound quality is poor, can render the most expensive radio equipment mediocre at best and useless at worst. This has been recognised for a long time in ground combat vehicles and aircraft, but now the focus has shifted to dismounted infantry,

who bear the brunt of today's combat operations.

The manufacturer describes the RA5500 as a dual-sided in-ear headset that effectively neutralises gunfire and explosion noises whose high-frequency components contain extremely high sound pressure levels. It offers more than 40 dB(A) of protection against these. Against continuous noise sources found in the interiors of tactical vehicles and aircraft, for example, it offers in excess of 17 dB(A) of protection. The headset can be

worn with extra protection in even noisier environments.

'Talk-through' microphones mounted in the headset continuously monitor the local environment and present sounds to the soldier naturally, while allowing the system to filter out harmfully loud noises. The earpieces also act as microphones to pick up the wearer's voice from within the ear canal, eliminating the need for a separate boom microphone.

Peter Donaldson, Prague