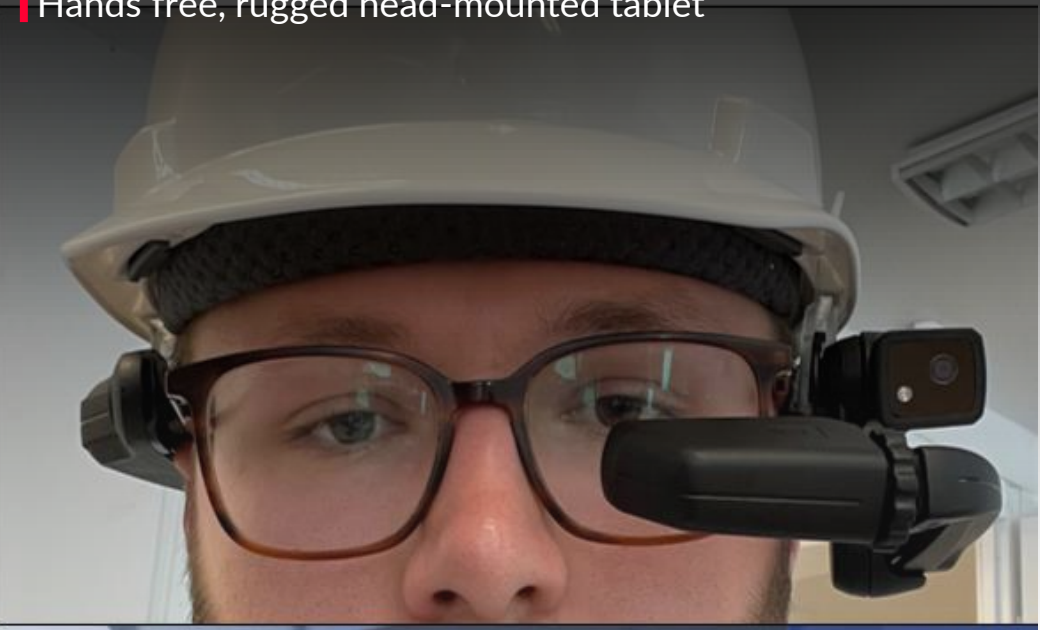
RealWear Headset

Hands free, rugged head-mounted tablet



Manufacturer	RealWear
GT Business Department	Highways (Southwest)
Site of testing	A303 Dualling Project Sparkford to Ilchester
Trial period	May-July 2022
Cost (spare battery, carry case and HMT-1 Headset	£2080

RealWear is a head-mounted system, with a screen in the eyeline displaying as a hands free 7inch tablet, as well as a mounted camera, microphone and speakers to allow for calls and voice control of the software suite. The headset has a built in gyro, so the user can navigate still images or documents by moving their head, as well as selecting different folders e.g. photos, drawings and documents. The headset has a noise-cancelling mic, working up to 95dba to allow for clear voice recognition and control, as well as allowing people on a call to be able to hear the wearer clearly despite noise on site.

Key Findings and Recommendations

- The headset allowed for a reduced number of people visiting and moving across the site, reducing chance of risk in dangerous areas. The use of a two-ways Teams call allowed both clients and SLT to view key processes on site without needing to travel. We recommend the product for further trial, targeted at checking and commissioning as that is where remote expertise would be most beneficial
- The integration of daily-use apps such as Dalux and FieldView would provide even further use, allowing for hands free model viewing and reporting, actions which are undertaken everyday but could be made more efficient. We would recommend a further trial where we test the use of the headset with those apps
- There were challenges integrating RealWear with the specific PPE used on the A303. In future, the compatibility of the headset with other equipment should be assessed before deployment

Background Information

RealWear's primary use comes from the ability to hold two-way Teams calls, allowing for clients to be toured around site without visit, SLT to engage with siteworks and training to occur, all from a remote location. This reduces the number of people travelling to site, cutting emissions and improving health and safety both on the roads for travel, as well as on site through removing people from work areas. The ability for a technical expert to remotely dial in to an on-site operatives headset and 'see' out of their eyes is useful for maintenance and operations of equipment, where if the onsite operative does not have technical experience they can be guided through the necessary processes.

The headset is fully voice activated, allowing for voice commanded photos and videos, as well as document navigation i.e. a technical manual for a piece of equipment. This provides reporting functions, such as recording a video of an ecological survey with narration, as well as photos of damage during auditing. This data would then need to be uploaded via a laptop.

The RealWear companion app on mobile is used for signing onto Teams on the headset, entering both your email address and password onto the app will produce QR codes, which are then scanned by the RealWear camera to allow login. This is also the method for signing in on other apps. This method does not use Microsoft Dynamic, therefore doe not require separate licences.

Trial Details

Two versions of the headset were trialled over a two-month period, the HMT-1 (left) and the upgraded Navigator 500 (right), along with a third-party battery pack. The trial included Teams calls to the senior leadership team to highlight issues, as well as taking photos and videos of important ecological habitats. The headset was also used to create an informative video of the site with narration for a local children's school.

One of the early lessons from the trial was the importance of engaging with site personnel correctly to ensure everyone was aware of what exactly the equipment was and reassure them in its uses, as additional camera equipment onsite can create discomfort.

Early in the trial, scoping of Dalux, Fieldview and Viewpoint as apps integrated to the helmet was discussed as it was felt these would hugely expand the usability of the headset through augmented reality. Constraints meant that this wasn't fully assessed within trial, but the site team felt this would increase the potential of the headset and improve potential uptake.

A site-specific issue was that the headsets could not be integrated with the JSP helmets with chinstraps mandated for use in Highways. The headsets therefore had to be used with helmets outside mainline works with primary testing carried out by the Environmental Coordinator. In an attempt to solve this issue, RealWear provided a universal headband to attach the equipment to Galliford Try mandated JSP helmets with chinstraps, however it was felt that the intensive usage of the band could lead to failure from constant rain, sun and stretching when removing it. It was clear that specific clips would be needed in order to integrate RealWear within Highways, due to the PPE specification.

Whilst there was an option for an integrated 4G module to aid in use, it was found that streaming service from GT mobile phones provided better coverage whilst on site.

Conclusions

The site team felt that whilst the Navigator was lighter, and provided better picture quality, this did not provide enough improvement to offset the difference in cost. A comparison can be seen overleaf.

Ultimately, if the improvements suggested i.e. specific clips to integrate with JSP helmets, a belt clip for additional battery packs, the equipment in its current form would be recommended for usage primarily in commissioning and checking, based on the Teams calling remote training and site visit aspects, as well as the video recording and photo reporting, however further BIM integration could see it become even more valuable.

RealWear HMT-1®

Snapdragon 626 Pro	Processor	Snapdragon 662
3GB RAM	Memory	4GB RAM
32GB Flash	Storage	64GB Flash
Samsung 16MP	Camera	Sony 48MP
20°FOV 854 x 480	Display	20°FOV 854 x 480
Warm Swappable	Battery	Hot Swappable
7” tablet	Visual display	7” tablet
385g	Weight	270g
33mm	Width	22mm
95dBA	Noise cancellation	100dBA

RealWear Navigator™ 500