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Technology continues to push the boundaries for banknote security holograms. Here, Dr Glenn Wood of the International Hologram Manufacturers Association looks at some of the latest developments [> more](#)

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VSD takes-off in the Middle East

Malcolm Gatenby, sales director at BSS-ME – D-Tec's video smoke detection (VSD) partner in the Middle East – considers the growing application and benefits of CCTV-based VSD for fire safety in the testing aircraft hangar environment

The critical issue for aircraft hangars is ultimately whether a solution, once commissioned, actually has the potential to detect smoke before a large-scale fire has taken hold and what impact, if any, factors such as stratification and temperature layering are likely to have on the speed of response.

Sadly the effects of a blaze can be, quite literally, devastating both in terms of the irretrievable damage to the hangar's structure, equipment and any aircraft it contains, and the associated injuries – or worse – for workers inside and the firefighters tackling a blaze. This potential for large-scale disruption was amply demonstrated by a fire in a maintenance hangar at Brussels International Airport in May 2006 where, despite the best efforts of more than 100 firefighters, the hangar – which at the time contained four large aircraft – completely collapsed. The severity of the fire was such that it was only 36 hours later when it had been completely extinguished.

'The beauty of video smoke detection is that it takes detection to the fire rather than waiting for the fire to come to the detector. This approach is ideally suited to the large voluminous nature of aircraft hangars'

Early warning

So what can be done to address this problem? When it comes to providing an early warning of fire in aircraft hangars there is one type of technology, based on the intelligent analysis of CCTV images, which is being increasingly deployed to protect these valuable assets. This CCTV-based solution is aptly referred to as video smoke detection (VSD) – a technology pioneered by D-Tec – and is a capability that is now operational in a wide range of commercial and military aviation sites across the globe.

The beauty of VSD is that it takes detection to the fire rather than waiting for the fire to come to the detector. This approach is ideally suited to the large voluminous nature of aircraft hangars where high airflows are present and it is just not possible, practically, to place conventional detectors close enough to the area of risk to provide an effective level of detection.

In lofty, extensive, structures such as aircraft hangars there is a high reliance, where traditional fire detection solutions are concerned, in smoke overcoming distance, stratification and temperature layering, before being detected. This can mean, with conventional detectors, that it can be many minutes before an alarm is activated – if at all – making it much more problematic to tackle a blaze as it is likely to have reached a more advanced stage. Thankfully, this is not a limitation faced by VSD as it is able to utilise images from standard CCTV cameras and analyse these, by applying sophisticated algorithms to detect the presence of smoke, in seconds and automatically alert control room operators to the danger.

Consequently VSD is not reliant on the proximity of smoke to a detector, whether the camera is 10 or 100 metres away from a risk area, VSD will detect smoke in the same amount of time.

Although it is claimed other camera-based systems are able to detect smoke, the reality is that these are really motion detectors or obscuration-change detectors which are unable to differentiate between smoke and other sources of movement and so are prone to false alarms.



In the case of Riyadh the large-scale hangars are designed to be able to house aircraft as large as the Boeing 747. The drawback with a linear heat cable being used in this case is that, realistically, temperatures would have to reach 75 degrees centigrade on the roof before an alarm would be raised which, with factors such as stratification and temperature layering, can be minutes rather than seconds, with the consequences which flow from this in terms of whether an incident can be tackled before a fire has the chance to take hold.

As a result, there were real concerns that if the project had moved forward with linear heat cables that in the event of fire serious damage could, potentially, be caused to the parked aircraft by the time either the smoke or heat reached the detectors.

Construction of the five new hangars at Riyadh started in June 2009 and was completed in April 2010. The commissioning and testing of the FireVu systems took place over a four-day period to ensure that the camera views in each hangar were optimised for the VSD's operation – leaving no critical gaps in coverage – and training was also provided for the client's personnel who would ultimately be controlling the user-friendly system. The smoke testing proved to be extremely successful and all the parties involved were impressed with the speed of response, typically in under 10 seconds, which was in line with expectations and the fact that no false alarms were generated by D-Tec's FireVu system.

Growing take-up of VSD

Undoubtedly, the number of VSD reference sites which now exist across the Middle East also helped to persuade the client to change to FireVu. From a BSS-ME perspective we have now provided D-Tec's VSD solutions for a number of landmark projects in the region, including the world's largest privately-owned aircraft hangar – the massive Royal Airwing Hangar complex at the Dubai International Airport in UAE and the Royal Hangar at Seeb International Airport, Oman.

In addition to the project at the Royal Maintenance complex at Riyadh, which has now been commissioned, FireVu Video Smoke Detection from D-Tec will soon be operational in a further three hangars in Saudi Arabia, this time at Jeddah Airport. On a wider note the success of the Riyadh hangar project has opened up other opportunities for BSS-ME and we have been asked by the same contractors to tender for a number of road tunnels in Saudi Arabia.

Further potential

These are exciting times for VSD. Its capabilities have been further enhanced by the potential for images and alarms to be

ISSUE 54: Creating a safe shopper's paradise

The third major development phase of The Avenues Mall in Kuwait City is now underway. SME magazine spoke to Mark Whyte of TPS, one of the consultants most closely involved in the project, about how a detailed specification at the outset results in less installation hitches later on > [more](#)

ISSUE 54: Taking the trouble out of transmission

NVT's transmission solutions offer retailers an alternative to coax or fibre bundle cabling allowing them to expand their CCTV network as and when they need to. The solution has been implemented in several malls including the City Mall in Jordan > [more](#)

ISSUE 54: Real advances in retail CCTV

The ability of CCTV systems to be integrated with other elements of the retail infrastructure not only makes security solutions more flexible, but also more cost-effective, writes Salim Idris > [more](#)

ISSUE 53: Shell steps on the gas with Oman upgrade

When Shell decided to upgrade security across its chain of gasoline stations in Muscat, it decided that it needed a reliable platform that could offer high definition video in preview and playback > [more](#)

ISSUE 53: High hopes

Crime rates at high rise residential blocks have been found to be more than double those of three storey apartment blocks – 68 crimes per 1000 families compared with 30 per 1000, > [more](#)

ISSUE 53: Entry level advice

Holly Sacks, senior vice president, Marketing and Corporate Strategy, HID Global gives her top tips on protecting your access control system from misuse and abuse > [more](#)

ISSUE 52: Dedicated Micros takes it to the edge

Dedicated Micros introduced a revolutionary concept to the DVR market late last year with the launch of its CamVu ICR (Integrated Camera Recorder), which combines a megapixel or standard IP camera with a powerful enterprise class video server > [more](#)

ISSUE 52: The future of explosives detection?

Terahertz light-based body scanning could provide an alternative to invasive x-ray and millimetre wave technology techniques as a means of rapidly detecting concealed explosives > [more](#)

ISSUE 52: Smoke, fire & videotape

The use of video analytics in smoke detection roles is gaining ground in the region because it offers advantages in certain key applications. Security Middle East looks at how the sector is developing > [more](#)

ISSUE 51: Reality check

Video content analysis (VCA) is big on claims, but can it really deliver? Colin

Practical advantages

In terms of practicality, the CCTV cameras associated with VSD can be fixed in conveniently accessible places, rather than being positioned well out of reach, as is the case with conventional detectors. Additionally CCTV can cover a much larger area so less cameras would normally be required compared to detectors for a given size of hangar. It may also be possible to take advantage of already installed, security, CCTV cameras for some of the monitoring.



▲ The Royal Maintenance complex at King Khalid International Airport in Saudi

A high profile project in the Middle East, which has just been completed, networkable FireVu VSD systems from D-Tec – part of AD Group – have been supplied and commissioned by us (at BSS-ME), for five large (90 m (L) x 90m (H) x 33 m (W)) hangars at the Royal Maintenance complex at King Khalid International Airport 35 kilometres north of Riyadh, Saudi Arabia. This application further extends the growing installation base of VSD in the Middle East region.

In terms of the final installation the CCTV-based video smoke detection solution adopted for the Royal Maintenance complex consists of eight cameras carefully positioned around each hangar with these in turn connected to two – four channel – FireVu systems, giving a total of 40 cameras and 10 FireVu units across the project.

With regards to the actual selection process for VSD at the Riyadh Airport project, it came into the picture at a relatively late stage. Initially linear heat detection had been specified in the open roof void of the new hangars as the primary means of fire detection, however this decision changed in preference to the faster and potentially more reliable CCTV-based FireVu VSD system solution following a presentation by BSS-ME to the client, specialist fire and security contractor – Modern Building Est.(Riyadh), and the main contractor, Saudi Oger.

The decision to discard linear heat detection and ultimately move to Video Smoke Detection was driven, in part, by the significant installation savings which BSS-ME was able to demonstrate – around 35% less than the original solution (if you include all the installation and fixing of linear cables) – by using the CCTV cameras specified for the project and being able to link-in to the IT network the VSD solution did not require extensive additional works or cabling.

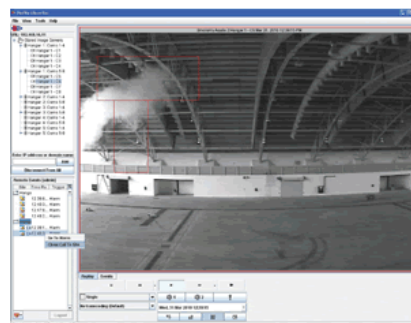
Another key advantage, highlighted by BSS-ME, was the proven speed of response offered VSD which has made it so attractive for voluminous aircraft hangar projects. The detection of smoke at source, typically within 10 seconds, which FireVu would be able to offer, is especially critical in a hangar given the value of the aircraft that are maintained there.

distributed, for review, over the network to a number of viewing platforms.

This is being realised through solutions, such as D-Tec's FireVu system, which readily integrate the well-recognised advantages of VSD with IP- based functionality. In practical terms, this advance means that, for ease of management, it is perfectly possible for a number of geographically dispersed aircraft hangars to be monitored from the same control room and more to be added should the need arise.

There is also the ability, with this flexible approach, for changes to configuration, testing and diagnosis to be carried out remotely – removing cost and delay. Another advance for the FireVu VSD offering which we plan to roll-out for future projects is the ability to bring together video smoke and flame detection so at a practical level we can offer customers a layered response.

For further information visit: www.dtec-fire.com (opens a new window) or www.bssme.com (opens a new window)



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