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BODY WORN VIDEO

CorporateLiveWire

INNOVATION & EXCELLENCE AWARDS 2019

This article is an extract from the upcoming Corporate LiveWire Innovation & Excellence Awards 2019. In this edition, the Corporate LiveWire judging panel recognise Audax Global Solutions Ltd. for its market-leading body worn video camera device bestowing the company with its Most Innovative in Security Technology award. The full Innovation & Excellence publication is due to be published in January 2019. For more information, please visit www.corporatelivewire.com

Body Worn Videos: The Next Revolution in Surveillance and Security?

In the United Kingdom, video technology as a means for surveillance and security reached new heights in 1994 when the government backed a major expansion of the CCTV network in which then Home Secretary Michael Howard said he was "absolutely convinced that CCTV has a major part to play in helping detect, and reduce crimes and to convict criminals". At its peak, Britain was reported to have a staggering 4.2 million surveillance cameras which were even cited by another Home Secretary, David Davis, during his resignation speech in June 2008 when he said there is "a CCTV camera for every 14 citizens."

Over the years, CCTV footage has been instrumental in identifying suspects and capturing criminals in high-profile cases around the world, such as Robert Thompson and Jon Venables in the murder of toddler James Bulger, the London 7/7 attacks, the Boston Marathon bombing, and the hunt for the Charlie Hebdo attackers. However, more recently, CCTV appears to be out-dated when it comes to crime prevention with more and more councils scaling back and slashing their funding. Rather, with the advancement of technology, we now see businesses and homeowners implementing their own high-quality surveillance, as well as the emergence of new trends such as the use of dash cams for car owners as an effective tool to identify who is at fault in road traffic collisions. Yet, despite progress, these means are still imperfect with home surveillance running the risk of being in breach of neighbours right to privacy whilst evidence from dash cams can easily be manipulated and are often not admissible in court due to concerns over chain of evidence and custody of evidence.

Along a similar vein, video technology is increasingly being utilised by emergency service workers and security firms through the widespread implementation of body-worn video cameras ("BWVs") to capture footage that will lead to the protection of both the worker and the member of the public alike. BWVs protect workers from false accusations of misconduct and enhance their safety as members of the public are far less likely to behave in an abusive/aggressive manner if they know they are being recorded. Similarly, they provide a resourceful tool for learning and generally promote a higher standard of professionalism and conduct from staff. This in turn can be seen to improve public relations, confidence and accountability whilst offering an additional layer of protection to members of the public.

The topic of BWVs was brought up in the House of Commons on 12 November 2018 during a discussion on police powers to stop-and-search. Describing BWV's as a 'game-changer', Nick Hurd, the Minister of State at the Home Office, added: "The most recent figures I saw showed that 65,000 [body worn] cameras had been deployed across 41 forces, and from memory I think we are on track to get to 80,000 in short order."

Almost a quarter of a century since the expansion of CCTV, we are now at the precipice of the next revolution in surveillance and security.

What is a Body-Worn Video?

BWVs are small, portable recording devices that can be worn as part of a uniform to document what the individual sees and hears whilst performing their duties. The technology has been in existence since 2005, when BWV products from the UK-based company Audax were used at a G8 Summit. The UK was quick off the mark when it came to adopting BWV technology; under Labour's Tom McNulty in 2007, the first Global Standards for BWV were produced and the government provided over £3 million in funds to help equip UK police. By 2010, more than 40 police forces across the UK had equipped their police with BWV. However, other countries have been considerably slower to react. For instance, it took a case study report in 2013 for the United States to appreciate the benefits of BWVs after a field experiment conducted by a California-based police department found that when police were equipped with cameras, use of force incidents and citizen complaints against officers were reduced by 50 and 90% respectively. Now, BWV systems are a critical technology for reducing threats, violence and complaints against police officers or other sensitive users such as social workers, waste and road work employees, car parking inspectors, security guards, ambulance staff and fire fighters.

What are the Benefits?

There is a wide range of benefits to using BWVs. We have categorised them into three key areas: protection of emergency service workers, protecting the general public, and speeding up the administration of justice.

i. The Protection of Emergency Service Workers

After CCTV was rolled out across the UK in 1994, crime statistics fell dramatically in 1995. This was largely attributed to the deterrence of offenders being more easily identified and prosecuted. Similarly, BWVs are able to capture video evidence to provide another layer of deterrence against the threat of violence and to securely capture evidence in a dynamic environment when violence does take place.

Recent years have seen an increase in assaults on emergency workers, with 26,000 assaults on police officers in the past year and over 17,000 on NHS staff. Assaults on prison officers rose by 70% in the three years to 2017, with an 18% increase experienced by fire fighters in the past two years too. These statistics indicate a serious issue regarding the safety of emergency service workers that has led to the government doubling the jail term for offenders from six to 12 months under the Assaults on Emergency Workers (Offences) Act 2018. Whilst increased prison sentences should serve as a deterrent for possible offenders, the widespread use of BWVs – which are already utilised by police officers – is another avenue being explored by the Justice Secretary.

A recent study conducted by the University of Cambridge, RAND Europe, and police forces in the UK and US, found that rates of assault against police officers are 15% higher when they wear cameras. However, the study also suggests that this could possibly be because they feel more confident about reporting assaults once they are captured on camera.

In addition, it is not just the threat of physical violence that BWV protects police officers from but also against the accusation of wrongdoing. While in some instances video can prove the use of excessive force by an officer, it can also be used to corroborate the police officers account of events. This can be particularly useful when it is the word of an officer against that of the alleged victim, as the BWV can be utilised as an independent witness of sorts. Far too often we see biased footage emerge on YouTube which shows a few key seconds in which an incident has taken place with the aim of driving a wedge between the community and the emergency service worker. However, the use of BWVs capture the full lead up and after action of a dynamic event which in term improves public relations and public confidence whilst reducing unfounded/malicious complaints.

A prominent example in which BWVs have been used to provide objective footage during contentious police encounters was in Washington D.C. on Christmas Day in 2016 when police fatally shot a man whom they claimed was armed with a knife. There were various claims that the man was unarmed, however, the body camera footage corroborated with the officer's version of the event. The Department's Chief of Police Peter Newsham emphasised this benefit, explaining: "when we say something [it is valuable] to be able to back it up with a real-world view that others can see."

Furthermore, the use of BWVs can be utilised as a valuable public relations exercise. It can highlight the bravery and excellence of police officers in the line of duty when faced with a serious threat of violence. An example of this is the recent emergence of body-cam footage from an incident in August 2017 in which a police officer in Derby, UK, managed to apprehend a dangerous criminal without the use of force moments after he 'almost decapitated' his victim.

Finally, the captured footage can also be utilised for purposes of quality control and training. Recorded examples of policing excellence can be used as case studies while training new officers. Likewise, it is possible for superior officers to identify and address issues in which officers have not acted in the best conduct. Audax CEO Adam Liardet, the pioneer of BWVs, explained: "The introduction of body worn videos is nothing that police officers should be worried about provided they are doing their job properly. Rather, it offers an added layer of protection for both officer and members of the public alike."

ii. Protecting the General Public

In the United States, police brutality against black and minority individuals has been a continuous topic of conversation ever since the infamous Rodney King incident in 1991. According to numerous studies, black men aged 15-34 in the United States are between nine and 16 times more likely to be killed by police than other people.

There is also growing concern surrounding police use of force against black and minority individuals in the United Kingdom too. Recent data from the Metropolitan Police show that during a three month period, force was used more than 12,600 times. Of those, the figures show that 36% of incidents where an individual was affected by police use of force were black, a disproportionate figure given that black people make up just 13% of the population of London. Shadow Home Secretary Diane Abbott exclaimed: "It cannot be right that black people and young black men, in particular, are so much more likely to have force used against them."

The use of BWV footage is widely considered to be a safeguard against police brutality as it is believed that if police know they are being watched, they will be more conscientious. If they are more conscientious, they will be less likely to use excessive force, and, in tandem, there will be fewer instances where civilians file complaints about such excessive force. Therefore, having police wear body cameras – to watch their tense encounters – the result will be fewer instances of excessive force and civilian complaints.

Likewise, it is also able to ensure police officers are accountable. Although BWV footage can be utilised to corroborate the police officers account of events – as discussed earlier – it can also be utilised to prove instances of excessive force.

Although BWVs are still in their infancy in the United States, we have already begun witnessing the emergence of a new trend. Traditionally, few police officers face trial in shooting deaths, and even fewer are convicted. Most police-involved shooting deaths have ended in acquittals or no charges at all despite national protests condemning police brutality. However, more recently we have seen a growing number of incidents of police brutality make national headlines, with dozens of major police departments using BWVs to provide transparency and accountability.

Perhaps the most notable use of BWVs to establish excess force, a Texas jury recently sentenced a former police officer to 15 years in prison for the shooting death of an unarmed 15-year-old African-American teen in a Dallas suburb. Police body camera footage played a crucial role in the conviction of former Balch Springs officer Roy Oliver after he fired his police rifle into a car full of teens, claiming the vehicle was moving aggressively toward his partner. However, the footage revealed the car was, in fact, driving forward, away from the officers.

Acknowledging the importance of BWVs in achieving justice, Kristen Clarke, president and executive director of the Lawyers'

Committee for Civil Rights Under Law said: "convictions such as Oliver's are rare mostly because when an officer says the person flashed a gun or made a sudden move, jurors tend to side with them. At the end of the day, officers in their badge and uniform enjoy the benefit of the doubt."

iii. Speeding up the Administration of Justice

"Another key advantage of BWVs," says Adam Liardet, is "if the 'output' is 'captured' on systems that are 'fit for purpose', BWVs can provide compelling video and audio that is fully admissible and increasingly used as vital evidence in court."

A 2014 review backs this claim showing early guilty pleas were obtained in 91% of cases where the camera footage formed part of the evidence, allowing 697 officers to be on the streets rather than in the courts. With the total number of police officers employed in England and Wales falling in September 2017 to the lowest recorded figure since comparable records began 22 years ago and the number of police officers decreasing by over 20,000 between March 2010 and March 2018, removing a burden from an already stretched police force is of vital importance. Furthermore, half of these guilty pleas were also submitted at "first calling" meaning officers did not have to prepare additional paperwork for the Crown Office. Not only does this allow police officers to return to policing, it also has the added benefit of saving the tax payer a huge amount in court costs.

Additionally, BWVs have the potential to speed up the administration of justice and help reduce emotional trauma to the victim in other ways, as seen recently in Tasmania. The technology is being utilised in the island state of Australia to give courts a new insight into abusive relationships in domestic violence cases. Police are hopeful they may soon also be able to record on-the-spot statements that will take place of victims having to give evidence later in court.

Presently, to press charges, victims must give a formal statement to police and if it gets to the stage of a court hearing, the victim will have to retell their story in a court that is open to the public and in front of their abuser. Clinical psychologist Dr Tess Crawley strongly believes it is a hugely traumatic process for victims, adding: "we're not just talking about stating facts as if they are passionless, we're talking about reliving an experience."

The Drawbacks of Body Worn Video

Money, Money, Money

The increasing use of Body Worn Video (BWV) has led to governments and police agencies recognising the requirement for a standard in the manufacture of BWV systems, coupled with a code of practice and specific guidance on the deployment and use of BWV.

It is this guidance that has dictated the form factor (look and feel) and the technical aspects, which now differ little from the numerous suppliers and the smaller 'pool' of quality product manufacturers. This has encouraged a 'race to the bottom' on pricing and, while this might sound beneficial to the tax payer, some manufacturers have thus compromised on product quality.

As discussed above, the number of police officers on the street has declined in recent years and even the decline in number of functioning CCTV cameras can in part be attributed to budget cuts. Similarly, austerity measures have impacted other emergency service workers and care workers so it is perhaps unsurprising that cost has become one of the major sticking points of body worn videos.

When budgets are stretched, often we look for cost-cutting measures. However, when the price seems too good to be true, more often than not that is in fact the case. As a result, the equipment being purchased is often not up to the required standards with issues including insufficient battery life, poor sound and video quality, and data protection concerns regarding use of an insecure connection.

> **"The number of police officers on the street has declined in recent years and even the decline in number of functioning CCTV cameras can in part be attributed to budget cuts"**

In Scotland, police officers have logged 302 faults in the force's IT portal since 2013, with the number of issues doubling from 57 in 2014, to 120 in 2016. The bulk of the problems logged related not to the cameras themselves, but officers being unable to log the cameras in and out. An officer in Stonehaven told the BBC "the BWV system is not recognising any BWV cameras which renders the system unusable."

When Free Isn't Always Free

When TASER International rebranded as Axon Enterprise in April 2017, its CEO Rick Smith caused quite a stir when he announced the Arizona-based company was willing to provide every police officer in the United States with a free BWV camera in addition to offering supporting hardware, software, data storage, training, and support to police departments free of cost for one year.

Whilst at first this deal appears to be an absolute bargain, in reality it is merely a marketing ploy to lure users in with the promise of something free and then make them pay in other ways. Although users receive a "free" BWV device, they then find themselves tied into a contract which comes with the caveat of costly annual storage and licence fees. This in turn leads to significantly higher costs than if they had just purchased the devices from the offset which is crippling many police forces operating on models such as these. Furthermore, all video footage captured on an Axon camera is owned and stored by them through their platform Evidence.com making it difficult to opt out upon completion of the contract.

Despite the obvious flaws, this strategy has enabled Axon to dominate the market in the United States. Their devices are worn by officers in some of the biggest cities such as Los Angeles, New York, Chicago and Washington. They have also utilised this strategy to make their mark on the UK market with its subsidiary, Axon Public Safety UK Limited, equipping several of the largest forces including the London Metropolitan, Greater Manchester and West Midlands.

Made in China and the great GDPR debate

Since coming into force on 25 May 2018, the General Data Protection Regulation ("GDPR") has completely overhauled the way in which companies and bodies handle personal information with an increased emphasis on their obligations for better data management. This new regulation has further highlighted one of the most pertinent problems with the way BWV devices are made and utilised.

As discussed above, the market is largely 'cost orientated' which has led to a race to the bottom. This has resulted in there being very little innovation in the BWV market with the majority of products now being made in China using a low cost, low quality model. The first issue this presents is the obvious matter of effectiveness; in a bid to make the product as cheap as possible the quality is often compromised meaning they are unable to perform in a way the user actually needs. Where this relates directly to the GDPR debate is in the way the captured video is recorded and streamed.

It was reported at the DefCon security conference in Las Vegas in August 2018 that many body cameras on the market today are vulnerable to remote digital attacks, including some that could result in the manipulation of footage. Presenting his research, Josh Mitchell, a consultant at the security firm Nuix, found that the majority of devices tested would allow an attacker to download footage off a camera, edit things out or potentially make more intricate modifications, and then re-upload it, leaving no indication of the change. Or an attacker could simply delete footage they don't want law enforcement to have.

Another pressing concern is the lack of assurance over security and data protection where China is concerned. Many of the country's biggest technology companies possess links to the Chinese government which raises the question as to whom can access the data recorded.

In the United States, President Trump recently signed the John S. McCain National Defense Authorization Act for Fiscal Year 2019 which bans the use of Dahua and Hikvision products and their OEMs in US government and US government-funded contracts from August 2019. There is also wording that suggests the barring of the purchase of any such equipment produced by an entity believed to be owned or controlled by the Chinese government.

There is also growing concern across the United Kingdom around Hikvision, a company controlled by the Chinese government, as it is now one of the largest providers of closed-circuit television cameras and recorders across the country with clients including major airports, government buildings, sports stadiums and the London Underground. Former MI6 officers and security ministers have called for greater oversight of Chinese business amidst concerns the cameras could be hacked or accessed by Beijing.

Another company that is central to security concerns is Huawei. The Chinese company is the world's largest supplier of telecom network equipment by revenue and the third largest smartphone brand behind Apple and Samsung. However, in 2013, Australia banned Huawei from bidding for contracts on infrastructure rollouts, citing cyber-security concerns. Then in 2016, the New York Times revealed a secret backdoor in some Huawei cell phones in the United States in which software transmitted the full contents of text messages, contact lists, call logs, location information and other data to a Chinese server every 72 hours. More recently, in January 2018, the United States blocked an £880m deal for Huawei to sell its new smartphone via a US carrier citing concerns of "Chinese espionage in general, and Huawei's role in that espionage in particular".

In addition, combining the two concerns regarding the security of the device and the integrity of China, many of the devices also use phones to stream their live video – which given what we have learnt above, are proven to be insecure devices.

> **"The race to the bottom on price is now stifling innovation"**

Stifled Innovation?

The falling in quality/durability now means a number of these products are non-compliant against this guidance. It is this area that is so often overlooked by the Procurement and purchasing departments in the preparation of tenders and the reviewing of quotes trying to sort the 'wheat from the chaff'. Price and size of the company seems to be the salient factors for selection and recent examples of large companies failing, shows that this criteria is flawed. It is also these 'standards' produced by government and police agencies that have in effect stifled innovation, with 'new' products being produced each year all seemingly from the same mould.

Let's face it, BWV cameras are just that – they are cameras. They are a tool to 'capture' evidence in a secure manner. However what if they could be of more use to the 'officer' and still meet the market average cost of a standard BWV camera – would this be the innovation that has been missing?

How Bio-Ax Can Lead the Revolution

Audax Global Solutions Ltd. ("Audax") has recently been identified in a report by public.io on '*Police Tech Pioneers*' as one of the UK companies that could drive a new wave of technology-enabled policing. Featuring contributions and insight from leading figures such as former Commissioner of the Metropolitan Police Service, Lord Bernard Hogan-Howe, QPM, the report highlights the importance of new technologies such as those presented by Audax in minimising time-consuming processes, missed opportunities and misallocation of resources.

By reacting and having listened to 'coal face' professionals in the emergency services, transport security and border control to what they actually require to assist them in their work, Audax® have produced a market disrupting innovation which is feature rich, highly competitive and the future 'Benchmark' of the market.

BIO-AX is the next-generation of complete BWV camera ecosystem. It offers secure evidential video gathering together with active user protection and can transfer a live stream of video and audio footage (via 4G or Wi-Fi) to a command centre.

The camera was designed to meet the New British Standard 8593:2017 on the deployment and use of BWV and is in full compliance with GDPR. It packs high security, AES 256 encryption, GPS mapping and lone worker safety features into a rugged and lightweight product. It contains an enhanced staff 'safety blanket' alarm feature, with capability for remote access, remote memory wipe and even a 'man down' function.

"Let's face it: most BWV cameras are just that – they are cameras. They capture evidence in a secure manner, and there is very little difference between products. This has encouraged a 'race to the bottom' on pricing and, as a result, some manufacturers are now compromising on product quality," says Adam Liardet.

BIO-AX is the opposite of this levelling down approach. Let's take a practical example: whilst most BWV cameras use an insecure tethered connection to a mobile phone that drains the phone battery in about an hour, providing a slow stream with a huge latency and often prevents the phone from using other functions, BIO-AX connects directly to WiFi or 4G thanks to a SIM card that is freely chosen and inserted into the camera by the user.

"Customers are very excited about our live streaming camera because of the high level of functionality for the same price you'd get for a far lower spec camera that can't stream. They are also highly surprised that we are providing such a feature-rich back office software for no additional annual licence fee. This is a complete "step change" in the market and completely calls competitors' business model into question," Liardet explains.

Audax®
BODY WORN VIDEO

Audax Global Solutions Ltd. is offering live demonstrations of their innovative body worn videos at the International Security Expo and International Disaster Response Expo (www.internationalsecurityexpo.com) at London Olympia on 28-29 November 2018. Audax will also be present at the Security Research Event 2018 (https://www.sre2018.eu) on 5-6 December in Brussels. The Security and Counter Terror Expo (https://www.counterterrorexpo.com) at London Olympia on 5-6 March 2019. Audax will also be present at InfoPol (http://www.infopol-xpo112.be) on 2-4 April 2019 in Belgium. In addition, for more information about Audax Body Worn Videos please visit: https://audaxsecurity.co.uk.

BIO-AX® Camera Key Features

Google Maps

Secure website login to view live Bio-AX® video streams & GPS positions/live tracking and remotely see via Google Maps where your users are, at any time.

Dual video encoders

Bio-AX® has dual video encoders which allows the unit to live stream and record video at separate bit rates and frame rates. This feature can help with reducing mobile data consumption.

Securely monitor all your users' activities.

You can immediately be aware if a user needs assistance – SOS.

Securely download and view recorded media from any Bio-AX® camera without the user returning to base, allowing users to continue with their jobs.

Built-in cellular module

The unit has a built-in cellular module (LTE/ HSPA/ 3G/ 4G/ EDGE/ GPRS) which supports most cellular service providers around the world. The unit only requires a SIM card (data only) to operate.

Alarm button

The unit has a built-in alarm-button which can be pressed by user in the case of an event or emergency. The alarm button can be set to trigger a variety of actions such as: video streaming, recording and others.

Encryption capabilities

The unit supports AES256 secure data transfer encryption between the unit, server and any clients in the network. Recorded files can be encrypted as well.

Video compression

The system uses a high performance DSP based video CODEC (H.264/.FLV), allowing you to stream live video at the highest available quality over wireless mobile networks (low latency).

Battery

The unit has a built-in rechargeable lithium battery. With a full battery, the unit can record video for 8-10 hours and 12-14 hours on stand-by.

Internal solid-state 64GB memory

The unit has an internal solid-state 64GB memory for on-board device video/ audio, biometric recording. Memory contents are password protected.

GPS tracking

The unit has a built-in GPS receiver which provides accurate GPS co-ordinates. The system features a variety of GPS functions such as: Live GPS tracking/ map recording/ GPS alarms/ speed tracking/satellite and coordinates information and more.

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