



BEYOND THE VISIBLE

Veronica Spalberg explains how body worn cameras can contribute to more than just safety and security

Bats use echolocation to 'see' in their environment – even in complete darkness. Bees are excellent at distinguishing between bright and dark and see on the ultra-violet light spectrum. Some snakes use infrared vision to improve their ability to see better in the dark by sensing heat. The examples show animals have adjusted their way of orientating according to the territory they live in. So, why wouldn't humans do the same? Of course, we can't just change out eyesight but humans have been copying nature to improve their technical solutions for decades. We're talking about network surveillance cameras – particularly in cities.

The devices are used to cover certain 'blind spots' of premises. Including areas that are too dangerous for a person to be in (eg in critical infrastructure) or that are vast and would need a whole team to monitor in person. Cameras that cover 360° and can pan, tilt and zoom or have special features like infrared light (IR) light or thermal vision have enhanced this task. Needless to say that the vision of every camera is still limited to its location – which is where body-worn cameras combine the best of both worlds; high-quality footage and the option to cover everything necessary as it's always mounted where it's needed – on a security guard or officer who is usually near or in the midst of events. They are a valuable addition for a security portfolio and with increasing improvement

Body worn cameras led to a 93 percent drop in complaints made against officers by members of the public

of the quality of moving images (despite vibration and shaking), efficient storage and high-speed transfer at the edge, body worn cameras will become more common and not only in the security industry. Together with existing surveillance systems, they can contribute to more than just the security and safety in cities.

Urban environments provide a particular challenge when it comes to safety, security and a clear overview of events. In our society cities are the symbols of the modern era, and even more so since we're transitioning towards smart cities. The world's biggest cities – New York, Tokyo, Shanghai and an ever-increasing number – are often referred to as the 'asphalt jungle'. An expression that emphasises the often intimidating nature of urban environments for humans. Cities can be a difficult place for authorities to keep citizens safe.

Skyscrapers that only allow you to see to the next junction, tight streets and dark alleys between the concrete giants that rise to the sky. Places that are almost predestined to become a site of criminal events such as assault or burglary. Urban environments also bring challenges: a higher risk of fog that stays in the streets and impedes the view; smog thanks to high traffic levels; and the increasing number of people in a compressed space, all of which need to be taken into consideration when creating a strategy for safety and security.

In an environment like that, it's crucial to cover large parts of the area – especially the hotspots – in as little video frames as possible so security operators can get an immediate overview of the situation. Installing network cameras has helped a lot with crime prevention and identifying those responsible in the case of a criminal event. Having static cameras to monitor streets and parks has been the first step. Now, using movable cameras to cover even places that are difficult to oversee is the next level. Officers wearing these cameras can record incidents in the more isolated city parts. It allows for footage of incidents from proximity and if there's a group of people involved it can become difficult to keep an overview and to attribute certain actions to individuals.

At the beginning of this piece we talked about animals and their different ways of orientation, and these can partly be found in cameras. In cities, similar camera features can tackle the different challenges of lighting, location or other external factors. Thermal cameras, for example, are suitable in areas where poor visibility is common as they capture images based solely on the heat radiating from people and objects. This means they can see a clear outline of a potential threat, no matter the lighting.

And thermal images don't provide a specific personal identification, which makes them an ideal choice in populated or crowded spaces where privacy regulations are a concern. Built-in radar functions are a good choice for wide-open, outdoor areas with less activity (eg industrial sites). This technology can be used for tracking movements in restricted areas while also providing crucial information such as the exact position and speed and direction of an object's movement.

As in every jungle, the number of hazards in an urban environment can quickly become a threat for the health and safety of its citizens – from air pollution to flooding to fast-spreading fires and traffic incidents. A

network of cameras and sensors stretched out over the city can help to detect these potential hazards before they become an issue.

For authorities and governments, the ultimate goal should be to prevent incidents from happening and in most cases it's the human factor that needs to be considered. Knowing what can trigger people or heat up a situation is essential to avoid a violent outcome. That's where, for example, body worn cameras can play a bigger role by affecting behaviour.

Research has shown that wearing the devices had an impact on both the side of law enforcement and the citizens: A year-long study undertaken by the University of Cambridge's Institute of Criminology in the UK and the US outlined that the usage of wearable cameras led to a 93 percent drop in complaints made against officers by the public. Not only because it makes frontline policing more transparent, which leaves less room for mistrust and rumours, but also because it improved the procedural compliance of the wearers, thanks to the awareness of being recorded and the knowledge that misconduct could be traced back to them. For the same reason, it improved the way people treated the officers. Generally, the extra pair of digital eyes encourages cooler heads and a more peaceful approach to problems. Plus, having officers feel safer because of this digital back-up generates a more confident appearance that can support the occurrence as an authority towards criminals.

USING STATIC CAMERAS TO MONITOR INCIDENTS ISN'T ALWAYS ENOUGH TO GATHER USEFUL EVIDENCE

By reviewing the footage of the body worn cameras after a shift, it's possible to analyse situations and surroundings. It can help to discover possible problem areas before they escalate. Is there a tight, dark alley that would benefit from a street light? Or maybe a particular place that seems to become a regular site of disputes of citizens or a junction where there are suddenly more accidents recorded?

In addition, footage can be used as a valuable aid in training. Real-world recordings bring life to the theory that's taught in a classroom and imparts an idea of managing an incident under genuine conditions with all its unpredictability. Ultimately, this benefits the security of a city if the patrolling police officers are more effectively prepared and trained; reducing risks for themselves and citizens.

As an increasing number of people are understanding the true extent of our environmental impact on the world, new solutions for how we can improve the way we live have been developed. When planning future cities, sustainability – and, therefore, also liveability – have become key factors. One way in which the smart use of cameras (and sensors) can help here is by using the information collected to decrease the costs for a city, which can then be invested in other sustainability projects.

For example, data from sensors attached to LED street lights allow operators to adjust the lighting

according to changing weather conditions and the natural lighting conditions. Thus, street lights only use power when needed and can lower energy emissions for the city as well as the costs of running public lighting.

BODY WORN CAMERAS CAN PLAY A SIGNIFICANT ROLE IN AFFECTING A SUSPECT'S BEHAVIOUR

From a security point of view, surveillance solutions are imperative to optimise the operations of security personnel in a city. Sending security guards to what turns out to be a false alarm might cost time and manpower that would be needed at a real incident. A network of cameras makes it possible to decide if security is needed on-site or if it's a false alarm. In cities like Detroit, for example, this system has been extended as business owners have been giving the police department access to the video footage of their cameras in real-time. This means they can access the video from a central monitoring facility and assess the scene from there.

Ultimately, saving resources and energy doesn't necessarily require new approaches. Especially with

the constant development of technology, it's important to find ways to connect legacy systems with new ones. That also applies to the surveillance systems and open architecture is the magic word here as it provides the flexibility to make it possible to connect new devices with existing software.

REDUCING EXPENSE

For instance, being able to integrate solutions like the body worn cameras with an existing video or evidence management system. Not having to invest in completely new systems every time the solution needs to be upgraded (eg with new devices that have more features) doesn't only reduce the expenses of the municipality, but also leads to a reduction of e-waste if you don't have to replace entire, still functioning, surveillance systems. Thus, open architecture greatly increases the ROI.

Today, surveillance systems provide more than just an increased level of safety and security. Developers think ahead and create solutions that can make urban environments more sustainable, environmentally friendlier, healthier and even change behaviours of people. With every new technological achievement, the possibilities increase and the cameras – in combination with sensors, smart video analytics software and audio – will help to turn complex city structures into smarter and safer places ●

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Having a digital back-up keeps both officers and members of the public's behaviour in check

