

EYES IN THE SKIES

Nicolas Billecocq reveals new roles for drones and explains how they can solve potential socially distanced security issues

When it comes to physical security measures, there is no one-size-fits-all solution. There are always different ways to address different threats, and the physical protection of any property, room or area needs to be designed in accordance with the level of potential risk. With this in mind, and with threats varying considerably from premise to premise and changing almost on a weekly basis, it is no wonder that the security sector, worth \$93.5-billion, is booming. In fact, with innovation and cutting-edge technology on the rise, the physical security market is expected to grow to \$120.3-billion in the next five years, according to MarketsandMarkets.

Take industrial sites. Maintaining the security of industrial areas can be a complex endeavour, and one that is growing: the UK's industrial sector has increased by 1.4 percent a year since 1948, according to a recent report from the Office for National Statistics. Often spanning vast square-footage, industrial sites can contain infrastructure or equipment that is extremely dangerous to untrained or unauthorised people. And then there are the intricacies of what is being secured. For a sensitive site, such as a nuclear plant or shipping port, firms may be required to manage perimeter security, undertake quick situational assessments and prevent malicious intrusions. But for a logistics site, the threats may instead be focused on fuel or goods theft or illegal transportations.

DRONES PROVIDE 24/7 SITE COVERAGE, QUICKER INCIDENT RESPONSE AND CAN INVESTIGATE THREATS

While CCTV systems and regular patrols by human guards and dogs are the standard approach to securing such sites, ensuring a company has enough personnel to cover the site around the clock, and provide an effective visible deterrent, can be expensive. As a result, all too often teams go under resourced and intruders can slip through the net – another (often hefty) cost to the company. And the problem is a pervasive one. In the construction industry, for example, some 21 percent of sites are affected by theft on a weekly basis.

These cost and resourcing challenges have been compounded by COVID-19. With organisations around the world suffering declining revenues due to the pandemic,

many are looking to reduce indirect costs – and this tightening of resources has put further pressure on security teams. In parallel, companies' duty of care for staff during the pandemic means they must reduce humans' exposure to one another, adding another challenge for already stretched teams.

However, there are a number of solutions that not only dramatically improve site security, providing security guards with additional eyes on the ground without incurring major new costs, but also minimise human contact and risk from the virus. Implementing technology and using machines to manage site security is on the rise. One such solution is autonomous drones.

It is reasonable to predict that robotisation, whether that is harvesting food, transporting healthcare substances or screening for COVID-19 or securing an industrial site, will increase as a result of the pandemic. According to Statista, in 2016 there were 74 installed industrial robots per 10,000 employees globally, and by 2020, this has increased to 113 per 10,000. And according to analysts at Barclays, the commercial drone market is growing rapidly, and is predicted to increase from £3-billion last year, to £30-billion in the next five years.

This is because robots and drones provide valuable support to humans, allowing us to carry out essential and life-saving tasks that we now try to avoid, either due to their repetitive or dangerous nature, or the need to socially distance.

Over the last few decades, robots and drones have reached a sufficient level of maturity to be produced and used industrially, at scale. And advances in on-board intelligence and artificial intelligence (AI) enable manufacturers to produce reliable systems that can navigate autonomously. For example, AI-based cameras provide security guards with quick facial recognition capabilities, or can track and trace unwanted objects, such as intruders. This mechanical workforce has considerably lightened the load of human operators, and improved efficiency, productivity, safety – and even quality, without the risk of human error.

In the industrial site-setting – and other locations – the professional use of drones has increased significantly, thanks to their mobility and agility, ability to gather and send information, and even logistical transport capabilities. These drones are used for inspection purposes, mapping and surveillance operations and other security-related tasks. They are also a visual deterrent – an important aspect of security when it comes to would-be criminals.



Drones can operate in uncomplicated environments where there is a clear perimeter and a low, controlled population

The new, fully autonomous surveillance drone systems that are available today can supplement human security teams, providing 24/7 site coverage, quicker incident response and the ability to investigate potential threats without sending operatives into dangerous areas of the site (especially in the hours of darkness). Revolutionising surveillance activities, highly automated drones can easily operate in uncomplicated environments, where there is a clear perimeter and a low, controlled population.

Throughout these new security operations, the human operator remains fully responsible for the safety and the outcome of the mission, but they are more capable, with augmented eyes. The security team transforms from undertaking supervisory tasks – such as physically walking the boundary of an industrial site – to the executive task of monitoring the drones' visual feedback and decision-making. Empowered by the support of the technology,

security officers are enhanced in their safe-guarding of the location in which they work, as well as safe-guarding themselves from exposure to the Coronavirus and any other future threats.

As with all new technologies, there is some reluctance to embrace drones. Concerns over public acceptance are so challenging that some drone manufacturers and companies have hired teams of psychologists to help address negative perceptions. And in response to public perception in Europe, the European Commission (EC) has insisted the implementation of future European regulation on drones is based on the awareness of the benefits of these technologies. The EC also wants regulation to guarantee drone companies are complicit with the requirements related to the processing of personal data – such as video footage. It is therefore essential that any

precautionary measures carried out with drones (and robots) in public, must be accompanied by educational explanations on the value of the drones, and to reassure people about the ethics of their use.

However, as more positive use cases emerge, momentum and uptake are building. For example, since July 2019, the Grand Port Maritime of Dunkerque in France has been protecting a port facility using autonomous drones. With more than three million passengers and seven million tons of freight transit passing through, Dunkerque is one of the biggest ports in France. And due to its dense activity and regulatory requirements, the port must be secured seven days a week, 24 hours a day.

THE COMMERCIAL DRONE MARKET IS PREDICTED TO INCREASE TO £30-BILLION IN THE NEXT FIVE YEARS

Coupled with a video management system, the drones are complementary to existing human and technical measures. Strengthening site surveillance particularly in restricted access areas with a single click, the drones – which are equipped with optical and thermal cameras – allow security operators to quickly make the best operational decisions. Not only do these drones improve the responsiveness and efficiency of the security teams, but the technology enables a degree of remote working, reducing person-to-person contact and ultimately minimising the current risk of the COVID-19 threat.

The current level of regulation in Europe is based on the acceptable conditions in which a drone can be used in line with the foreseeable risks. For example, situations where there is risk of collision with another aircraft or a person on the ground. This is why, unsurprisingly, the

use of drones in built-up areas is limited, because of the high population. Private airspace is also strictly controlled by authorities to prevent disruption.

Because of the unique circumstances of the Coronavirus pandemic, and the clear benefits drones provide, regulatory barriers usually applicable for drones can – and have – been lowered. As a result of the pandemic, human-led workforces across the globe have had to adjust in response to the situation. In the field of security, operatives are still required to detect abnormalities and flag suspicious behaviours, but – and it is a big but – act in response to these situations while keeping human interaction to a minimum. In some cases, extra precautionary measures have been set in place, such as disinfecting surfaces or distributing PPE (personal protective equipment), which has added to security details' already-full, daily routine.

By their very nature, drones and robots are not at risk from the virus (although this must be caveated with the fact they could, technically, still carry it). The design of drones enables human operators to 'fly' them from a safe, social distance, essentially expanding the human's visibility and reach – and even the ability to measure temperature and record any respiratory conditions.

For the security sector, these same 'social distance' benefits apply. The mobility and flexibility of drones make security and law enforcement simpler, while avoiding close contact with the public. Bearing in mind the volume of work – and in the case of industrial sites, the square-footage to be covered – and the repetition of tasks, drones are becoming a popular choice for security forces.

As a result of the pandemic – and other factors such as the digitisation of business for efficiency and sustainability reasons – the role of the machine has been strengthened in reinforcing and protecting humans in the face of health and security threats. For industrial sites – from major ports to nuclear power facilities – and other sensitive and complex environments, the role of the drone is truly coming to realisation and we look forward to seeing new implementations of autonomous surveillance ●

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