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Unmanned Systems: The Threat to Public Safety

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SYNOPSIS

Consumer-grade drones already pose a threat to public safety. Criminals are now using remote-controlled cars and drone boats too. Law enforcement agencies need more tools to combat the misuse of these unmanned systems.

COMMENTARY

"Public safety" is defined as the protection of citizens from danger and harm. Those responsible for the public's safety include the police, fire department, emergency medical services and the military. Public safety can be threatened by, amongst others, terror attacks, natural or man-made disasters, and crimes. Good governments take public safety very seriously as it affects a country's economic growth, international standing and even voter behaviour.

In May this year, INTERPOL convened a high-level meeting in Riyadh, Saudi Arabia, to examine the threat posed by unmanned systems to public safety. Attended by police officers, academics and engineers from all over the world, the closed-door event sought to come up with ways to tackle the criminal use of unmanned systems. That the international police organisation would convene such an elaborate gathering tells us that the problem is not trivial.

The fact is, unmanned systems – in the air, at sea and on land – have become enough of a threat to public safety that law enforcement agencies (LEAs) are now all over it. It is interesting to note that unmanned systems have in recent years become valuable tools for police officers, helping to keep them safe in dangerous situations. But it works both ways. In a world where novel technology is readily available to anyone with cash, criminal groups have also caught on to unmanned systems and are deploying them in their unlawful activities.

Unmanned Aerial Vehicles

Commonly called “drones”, unmanned aerial vehicles (UAVs) are uncrewed aircraft guided by auto-pilot or remote control. Used extensively by the military, as we are currently seeing in the war in Ukraine, drones have fallen dramatically in prices, as a result of which members of the public can now easily get their hands on these small aerial vehicles. No doubt positive for innovation, this development has also created a new set of difficult problems for LEAs.

For example, in April 2015, a drone piloted by an anti-nuclear activist touched down on the rooftop of the office of then Japanese prime minister Shinzo Abe. Reportedly, the rogue drone was carrying radioactive sand from Fukushima. Then in 2018, an assassination attempt was made on Venezuelan President Nicolás Maduro using commercially-available drones laden with explosives. But as luck would have it, Maduro survived the attack. If anything, these high-profile attacks highlighted the potential for consumer-grade drones to undermine public safety like never before.

There are also incidents where consumer-grade drones were used to smuggle contrabands into prisons. In the US for example, recreational drones have been used to deliver mobile phones, drugs and even weapons to prisoners. To avoid detection by prison guards, criminal groups would spray paint their delivery drones black and tape over navigation lights, making them practically invisible to the naked eye in low light conditions.

Remote-controlled Cars

Criminals are also getting creative with remote-controlled (RC) cars – small motor vehicles operated by a person with a radio transmitter. Loved by hobbyists all over the world, these remotely controlled toy cars are fast, highly manoeuvrable and totally legal. One can purchase a RC car from a hobby shop anytime without problem. The more advanced models can even be upgraded using more powerful engines, longer-lasting batteries and so on.

Given how creative the criminal mind can be the RC car has already been co-opted for nefarious activities. An American teenager reportedly modified his RC car for drug trafficking but thanks to alert US border patrol agents, he was busted in 2019 while attempting to smuggle drugs across the US-Mexico border using his modified RC car. If commercially-available toys can be used for drug trafficking, one must wonder what else they can do.

Unmanned Surface Vessels

The unmanned surface vessel (USV) is another unmanned system that LEAs are worried about. Known colloquially as drone boats, these remotely-piloted vessels operate on water (and in some cases, underwater). Advanced drone boats using GPS data can set a course and proceed to their destinations autonomously. In theory, a solar-powered USV packed with chips and sensors will be capable of operating on its own for days over hundreds of kilometres.

There is no evidence that criminal groups are fielding USVs yet. What LEAs have

encountered so far are so-called narco subs – small semi-submersibles used by drug cartels to smuggle narcotics across international waters. Up to 30 metres long and several metres wide, narco subs ride low in the water, usually revealing only their sails/towers. They are very difficult to detect for which special equipment is needed.

It is troubling to note that drug cartels may be developing narco subs that are even harder to detect. There is reason to believe that the next generation of narco subs will be fully-submersible, quieter and made of materials designed to foil conventional magnetometres. It is only a matter of time before these ultra high-tech submarines become a reality and when they do, they are going to be very difficult to stop.

Fighting Tech with Tech

As unmanned systems become increasingly available to criminal groups, LEAs will need novel and more sophisticated tools to counter them. For starters, better intelligence and stronger police-community relations are absolutely necessary. These are fundamental to police work.

Existing policies should also be re-examined to see if they are still effective and strong enough to deter criminals. Besides these basics, LEAs are going to need new technologies to counter the use of unmanned systems in criminal activities. These include more powerful software, sensors, and optical devices to detect them, and jammers to stop them.

But let's not forget that when any of the unmanned systems used in crime are captured, we must have a way to extract data and evidence from them. This is where vehicle forensics – the science of collecting and analysing data from mechanical systems – come in. Specifically, its application can help investigators retrieve valuable physical and digital evidence from captured unmanned systems to identify and prosecute the criminals behind them.

The unmanned systems fielded by criminals are getting more sophisticated by the day. Fighting them with novel and more effective technologies is the way.

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