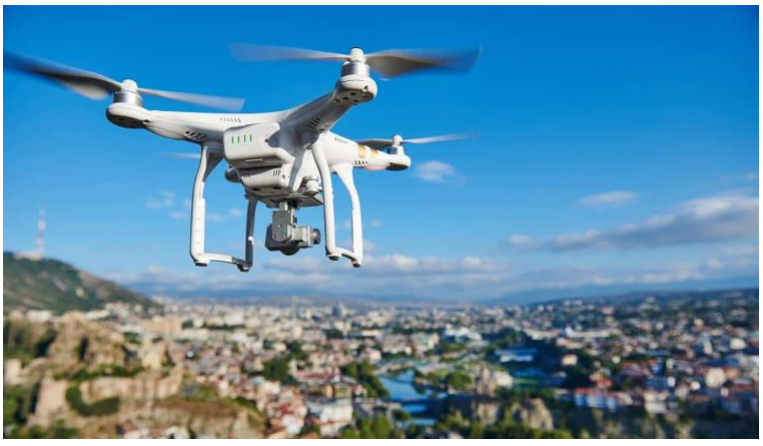
Aerial Surveillance and Security

The close observations of a person, group of people, behaviors, activities, and infrastructure for the purpose of managing, influencing, directing, or protection, makes up the surveillance duties of Security Services.

Traditionally, surveillance involves the deployment of Security personnel who conduct several patrols on foot or in cars all day and night. Due to the nature of ground surveillance and patrols they are limited to just what they see at the ground level.

Unmanned aircraft systems (drones) provide the ideal solution to the problems and limitations faced by the traditional surveillance methods by providing an aerial perspective from which they can be able to make very insightful decisions and strategies. Drone, once airborne, provide a very wide field of view which the personnel on the grounds would not have and with such a wide coverage from a distance, surveillance can be conducted discreetly and efficiently.

Small lightweight drones are also be equipped with sophisticated cameras and sensors that are able to provide imagery that the human eye is unable to detect.

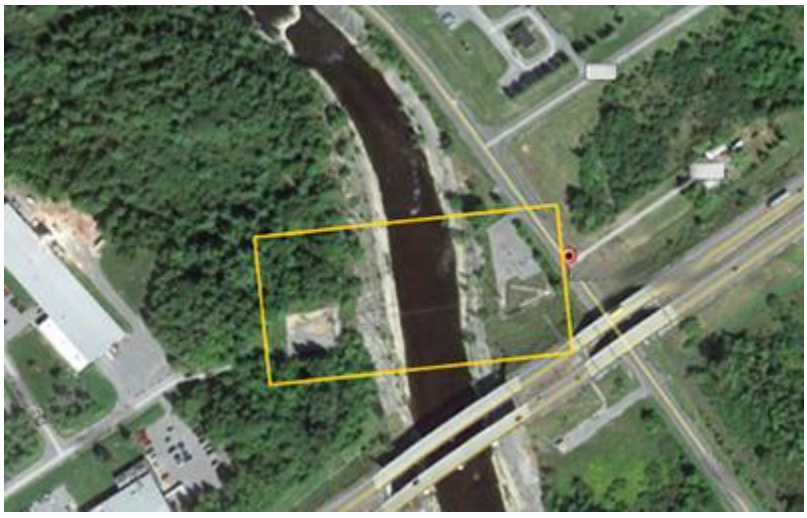


Reconnaissance

Aerial reconnaissance is reconnaissance carried out by aircraft (of all types including balloons and unmanned aircraft). The use of drones in reconnaissance operations of Security services include, observing tangible structures, particular areas, and the movement of enemy forces.

The use of drones in reconnaissance operations to gather intelligence information about ground situations within an area has a positive impact because it reduces costs as well as optimizes human resources in security operations.

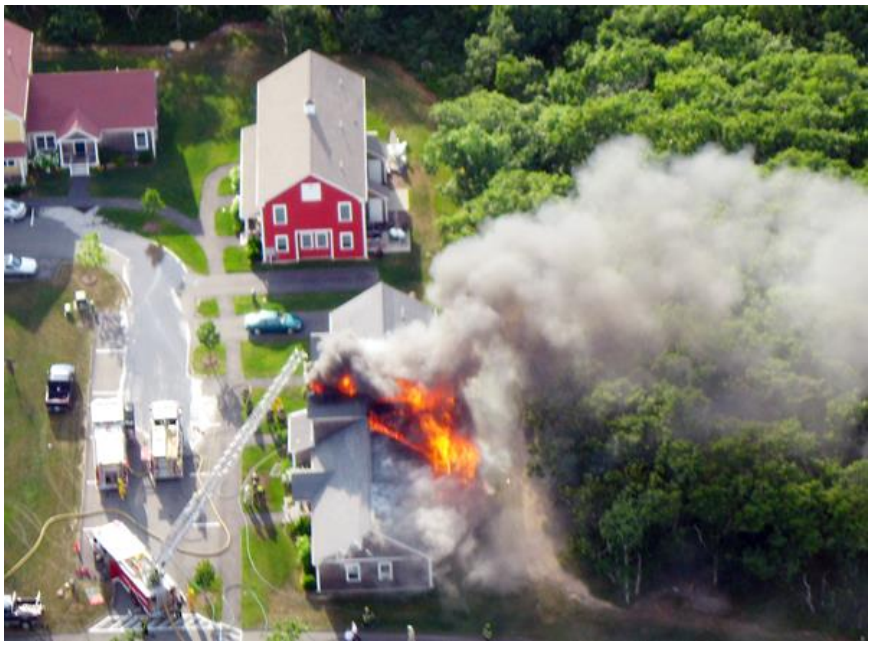
The information gathered using drones proves very useful to ground units and personnel who can then avoid high risk situations or best yet go into such situations with better information of the ground situation as well as accurate locations of any hostiles.



Situational Awareness

Today's Security services personnel are often deployed in tactical settings with limited access to real-time intelligence data. This lack of efficient real time data and information severely limits both commands' and operators' capability for situational awareness, particularly in riot situations, which are common in security operations.

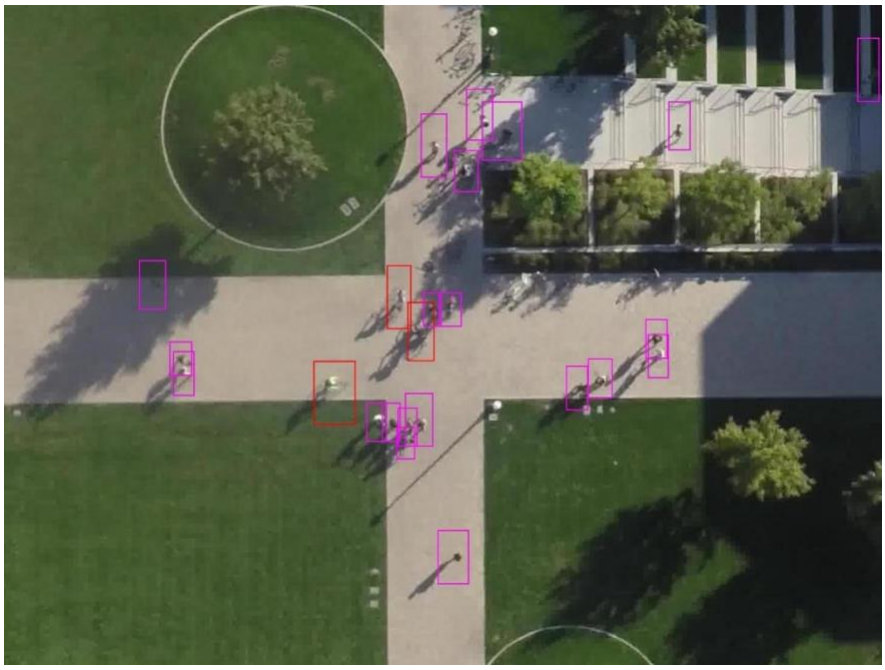
The integration of drones into the operations of the Security will allow UAS operators to operate safely and efficiently with real-time data insight as well as providing situational awareness that will enable them to make well-informed decisions. These drones are a force multiplier by giving the situation commander an "eye in the sky" perspective without risking any personnel's safety.



Target Acquisition

The detection, identification, and location of a target in sufficient details to permit the effective employment of lethal and non-lethal means of attack, known as target acquisition, is another operation of the Security service which can better be done with the use of sophisticated drones.

We present a field-tested mini-UAV gimbal mechanism and flight path generation algorithm as well as a human-UAV interaction scheme in which the operator manually flies the UAV to produce an estimate of the target position, and then allows the aircraft to fly itself and control the gimbal while the operator along with the ground patrol team move in on the target's position as required.



CROWD MONITORING

In situations such as large gatherings or protests, drones allow the Security service to see deep into the crowd. If someone commits a crime and runs into the mass of people, this aerial perspective allows the security service to be able to track the suspect without endangering innocent bystanders.

This aerial perspective from drones also helps the security service to identify anyone in the crowd that may need assistance and is otherwise incapable of notifying the authorities.