



DRONES SOLUTIONS

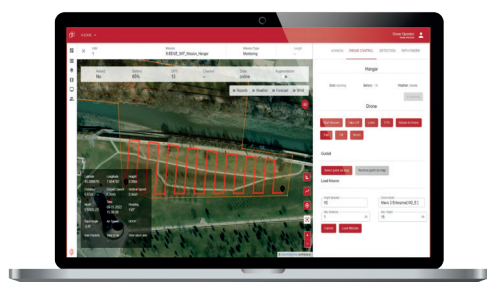
S-EDGE

DRONE SOLUTIONS FOR LAW ENFORCEMENT

S-EDGE (Satellite and 5G for Law Enforcement) is an innovative service to manage public security through a solution, based on the use of Drones, which integrates 5G broadband connectivity together with satellite technologies.

The service is conceived to support law enforcement operations for preventing and detecting crime and/or dangerous situations for the citizens, thanks to the provision of a Drone-based surveillance solution. The service is provided through T-DROMES platform, which supports the end-to-end operational activities, covering both the management of fleet of drones and data exploitation services: from mission planning to automatic management of surveillance operations, up to data exploitation thanks to advanced video processing algorithms.

Drones are set up to carry out both “automatic periodically planned” and “on demand” patrolling missions, both during day and night, over critical areas of the Urban environment, being equipped with optical/thermal imaging cameras to detect events of interest.



OPERATIONAL SCENARIOS

The S-EDGE Drone-based surveillance solution responds to several operational scenarios, including:

- **Area Surveying:** survey of a user defined area, for periodical patrolling of the territory, in order to detect illicit, suspicious or dangerous situation, including people gatherings for social distance monitoring as well as surveying of vast green park areas and peripheral urban areas;

Each drone or its ground control station is equipped with 5G modem and TPZ-Air100 Satellite communication box to ensure BVLOS/BRLOS communications and automatic/remote management of the mission through the T-DROMES. 5G broadband connectivity enable the transmission of payload data in real-time from on-board cameras to T-DROMES, while the satellite link, based on IridiumNext constellation, is used mainly as backup channel to control the drone where the 5G coverage is poor or absent ensuring a safe drone control and mission execution.

The Drone-based surveillance service provides End User with both real-time (RT) data (i.e. video streaming) and near real-time (NRT) actionable information products: image/video-processing tools based on AI allow detection, identification and geo-localization on map of possible illicit activities.



- **Police On Demand Monitoring:** illicit, suspicious or dangerous situation detection, with on-demand activation by Police;
- **Citizen On Demand Aid:** people detection in emergency situation or needing assistance, with on-demand activation by citizens;
- **Crime Scene Analysis:** acquisition of information on a crime scene, after an event.

KEY INNOVATION ELEMENTS

- End-to-end solution with the adoption of a Drone Digital Platform to supports all operational phases, from mission planning up to data exploitation
- Integration of 5G technology with different space-based technologies:
 - SATCOM – reliability and availability
 - Geo-Information layers
 - GNSS integrity services on positioning
- AI technology processing algorithms for pattern detection
- Information Layers for the operation management:
 - high-precision DSM/DTM maps
 - risk-based maps and path
 - a weather forecast model, integrating IoT data for micro-weather analysis
 - GNSS augmentation service



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