

NIMBUS

THE ANTI-DRONE SOLUTION

ProActive Risk Management

POWERED BY

PARM



THE ANTI-DRONE SOLUTION

NIMBUS's capabilities minimize personnel risks and potentially save the lives of operators during sensitive missions, or provide safety and security in areas where restricted airspace has been violated.

With the aggressive development and complexity of modern unmanned aerial vehicle (UAV) technologies and their rapid adoption by the public, drones are now capable of presenting new challenges to securities agencies across the globe.

Due to the increased presence of online manuals and the prevalence of e-commerce platforms selling the necessary components for assembling self-built devices, drones are rapidly becoming the weapon of choice for those with criminal intent.

Pairing their simplicity to operate and the anonymity of their operators, these aerial devices have become the ideal application for bad actors in their use in illicit activities, including (but not limited to):

- Targeting and engaging VIPs and political figures for assassination
- Disruption of public transportation lines (land, sea, and air)
- Military and munitions warehouse attacks
- Transference and delivery of chemical and biological WMD payloads
- Contraband delivery into restricted areas and across international borders (narcotics, weapons, mobile phones)
- Unauthorized video surveillance
- Hacking into wireless networks to compromise secure data

POTENTIAL TARGETS FOR UAVS OPERATED BY TERRORIST CELLS

Crowded Public Spaces

- stadiums
- sporting events
- demonstrations
- concerts

Infrastructure

- hydro-, electric, and heat generation stations, nuclear power stations
- communications networks (cell towers, relay stations, fiber optic cables)
- medical facilities

Essential-to-Life Systems

- Water
- Gas

Technogenic Structures

- Chemical plants
- Hazardous waste storage facilities
- Oil and Chemical distribution pipelines

OUR ANSWER TO THE UAV THREAT: THE NIMBUS ANTI-DRONE SYSTEM

Due to the overall lack of regulation, the autonomy of drones permits the routine violation of safety and security in restricted spaces. Therefore, the ability to rapidly detect, assess, and mitigate security risks to critical infrastructure or personnel is limited to mere seconds.

Designed specifically for the timely detection of UAV targets in 3D space, the NIMBUS Ant-Drone System allows for the accurate optical detection and tracking of UAV targets. Our solution architecture is a platform focusing on versatility and simplicity, which is based on flexible scalability and the ability to use available commercial, off-the-shelf components.

Algorithms developed with expert knowledge and practical experience acquired in real combat situations, enable the NIMBUS to automatically detect and recognize UAV targets, predict their behavior and flightpath, allowing operators to engage and neutralize their threat. A noise filtering system further enhances the NIMBUS's accuracy, and is easily trained "on the fly."

Specifically, the NIMBUS Anti-drone Solution provides UAV threat neutralizing capabilities including:

- Definition of UAV type (plane, multi-copter, quadcopter, etc.)
- Definition of UAV size
 - MINI UAV (weight <50 kg.) – up to 5 km of direct visibility
 - MICRO UAV (weight <10 kg) – up to 2 km of direct visibility
 - NANO UAV (weight <1 kg) – up to 800 m of direct visibility
- Definition of the associated flight characteristics of the UAV target (speed, direction) based on those factors
- UAV target route tracking and flight trajectory forecasting
- Real-time determination of UAV target coordinates in 3D space
- Coordinates data transfer and operates mechanisms in real-time
- Additional equipment coordination for UAV target interception (weapon, drone interceptors)

KEY FEATURES OF THE NIMBUS ANTI-DRONE SYSTEM

- wide-angle optical high-resolution real-time video system
- zoom telescopic high-resolution real-time video system
- thermal vision high-resolution real-time video system
- mechanisms of exact management positioning with feedback
- communication channels for video transfer and platform management
- protected laptop for the system operator
- autonomous power supply systems
- turret mechanism with the necessary technical characteristics and documentation for the rapid deployment of production
- Algorithms for controlling an external turret and interacting with an additional external RF radar

THE NIMBUS SYSTEM CONSISTS OF

- mobile autonomous platform for mission-specific mounting on different platforms
- self-propelled 4X4 platform
- optical detection of UAV targets in conditions of full radio silence (both the UAVs and detection stations)
- automatic detection and tracking of a UAV target in a zone of direct visibility, up to 2000 meters
- possibility of simultaneous detection and tracking up to 10 UAV targets in the assigned sector
- automatic UAV target type classification by size and speed of flight
- adaptive forecasting algorithm of UAV target fly trajectory, based
 - on UAV type characteristics (fixed-wing/quadcopter)
- automatic and manual modes of optical capture of UAV targets
- internal ballistic calculator for various weapon systems
- various configuration options for execution depending on application conditions

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NIMBUS's capabilities minimize personnel risks and potentially save the lives of operators during sensitive missions, or provide safety and security in areas where restricted airspace has been violated. Our platform assists in identifying threats other systems can't see and eliminates false positives (birds). Our Artificial Intelligence software can also mitigate risks in cases where command and control personnel are perplexed when facing situations of increased complexity, therefore speeding up the process to create valuable intelligence.

By combining the necessary synergy of technical knowledge and battlefield experience, our Subject Matter Experts have answered the call to develop a solution for the current problem sets associated with combating the illegal use of drones and drone swarms. While Current industry solutions are only able to detect only the most common UAVs available on the market. In contrast, our basic systems are designed for the optical detection and tracking in 3D space of a 20cm mini drone, with a 50 x 50-pixel resolution, for up to 2Km. Extending that range to greater than 5Km is our high-end system (a plug-and-play module improvement). Our systems can also be synchronized with acoustic sensors to determine sniper locations to never miss a threat.



PROACTIVE RISK MANAGEMENT

PARM



ProActive Risk Management (PARM) is a leading global provider of enterprise risk management and security services. By taking an integrated approach to risk management and by recruiting the security industry's top talent, PARM has positioned itself as its clients' trusted vulnerability partner, providing an unmatched level of service based on its patented Five Dimensions of Risk Management.