



Unmanned vehicles, known as UxVs, are highly diverse machines that can provide valuable information to professionals in various fields.

Gradiant has years of experience in equipping UxVs for different sectors. Its technological developments have diversified and enhanced the capabilities of unmanned vehicles, applying its expertise in RF communications, electronics, video analytics and intelligence to create UxVs equipment specially tailored to the industry's needs. Gradiant utilizes Artificial Intelligence and develops software and hardware specifically designed for each client.

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Intelligence · Security
for your business

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UxVs for industry

Cooperative technology for unmanned systems



Unleashing UxVs: Tailored Solutions for Superior Performance

Communications link design

Gradiant provides two options for designing communication links:

- the link can be created from scratch, addressing all technical aspects from the physical layer to modulation and demodulation. This option allows for complete customization based on the client's needs, such as interference resistance or performance.
- commercial components that meet the client's specific needs can also be integrated.

Gradiant stands out as one of the few Spanish organizations with the technical capacity to design communication links from scratch, ensuring solutions tailored to each client's specific needs.

Mission planning

Gradiant designs efficient and safe operations for UxV missions that meet specific requirements. Whether it's the type of drone, mission duration, area to cover, quality of the communications link, or even weather considerations, we work on algorithmic and software solutions to ensure mission success.

Our advanced algorithms optimize every aspect of the operation. This includes specific actions during the mission, such as photo capture or data collection, which are integrated into the overall planning to maximize efficiency and accuracy.

Our strength lies in our ability to adapt to each client's unique requirements. Based on these requirements, we develop customized algorithms that generate optimal routes tailored to their specific needs, whether in terms of time, resources, or security.



5G remote control

Gradiant implements remote control of Unmanned Vehicles (UXVs) through 5G links or datalinks to expand their operational capabilities, enabling control beyond Line of Sight (BVLOS). Unlike conventional remote controllers with limited range, the use of cellular technologies could potentially provide almost unlimited control ranges in theory, and many kilometers in practice.

This capability is complemented by advanced onboard systems that not only enable BVLOS control but also provide capabilities of artificial intelligence, computing, and backup communication links. Thus, Artificial Intelligence allows UXVs to make autonomous decisions; onboard computing facilitates real-time data processing, and backup communication links ensure communication reliability.

These capabilities enhance the efficiency and versatility of UXVs in various applications. Such technology is particularly relevant for entities involved in transportation, emergencies, and companies engaged in surveillance of large areas.

On-board Video Analytics

Our extensive experience in onboard Video Analytics on drones, crucial for ISR (Inspection, Surveillance, Reconnaissance) operations involves extracting video streams from drones and connecting them to AI-based video analysis systems.

Onboard Video Analytics enables real-time processing and analysis of visual information, providing advanced capabilities for object detection, tracking, and pattern recognition on the ground.

Our focus is on integrating this technology both within the drone itself and in Edge Computing (MEC), ensuring efficient processing and rapid response in limited communication environments, including Beyond Visual Line of Sight (BVLOS) operations.



Custom payload design

We can design and develop custom payload solutions that integrate into UXVs to meet specific objectives or use cases. Its primary advantage lies in its **adaptability to the needs and use cases** of the client: from custom software development to hardware selection and integration, prototype assembly onto the UXV, communication, and remote control.

The payload is mounted onto the drone and can be tailored to different use cases and methods. Examples include developing a coverage meter to extract signal quality and performance parameters from cellphone towers, an ILS signal receiver to verify the functionality of airport Instrument Landing Systems, and a platform for selectively repopulating insect populations based on ground commands.