

Spanish company is offering an Advanced Control Moment Gyroscope (CMG) based on Inertial Actuators (IA) for Satellites

Summary

Profile type	Company's country	POD reference
Technology offer	Spain	TOES20230703005
Profile status	Type of partnership	Targeted countries
PUBLISHED	Commercial agreement with technical assistance Investment agreement Research and development cooperation agreement	• World
Contact Person	Term of validity	Last update
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General Information

Short summary

The Spanish SME, established in 2019, specializes in aerospace technology with a focus on the design, manufacture and integration of Control Moment Gyroscope (CMG) for satellite vehicles using Inertial Actuators (IA). Their patented CMG-IA offers precise control for agile satellites, significantly reducing control system weight and improving maneuverability. The company is currently seeking investment, commercial agreements, and research and development partnerships to further develop solutions.

Full description

The Spanish company is at the forefront of developing an Inertial Actuator (IA) specifically designed for its integration into air and space vehicles.

Their revolutionary technology harnesses the power of Control Moment Gyroscope (CMG) in a patented configuration to provide unparalleled control for agile satellites with high angular velocities, all while maintaining a lightweight design. By implementing this cutting-edge solution, the company aims to significantly reduce the overall weight of satellites, thereby enhancing maneuverability and increasing payload capacity, particularly for Earth observation and communications satellites ranging from 10 kg to 500 kg in weight.

Operating on a B2B model, the company offers comprehensive hardware and software components of their CMG-IA



to large companies with a global market presence, ensuring widespread adoption of their technology. The company has gained strong support from key stakeholders in the space industry, both private and public, who recognize the transformative potential of their system for satellite applications. With a presence in Europe, South America, and North Africa, their services have undergone rigorous validation by industry experts, universities, and research institutions. Through successful participation in various European and Spanish Grants, the company has secured valuable public-private investments to drive their advancements forward.

In order to continue expanding its reach and further developing its innovative aerospace solutions, the company is currently looking for foreign partners to undertake commercial and/or research and development agreements.



Advantages and innovations

Their groundbreaking actuator design revolutionizes the traditional pyramidal configuration used in control moment gyroscopes (CMGs). By utilizing only two rotors and one reaction wheel, their innovative design achieves a remarkable reduction in weight compared to conventional CMGs, which typically feature four rotors with gimbal motors.

This optimized configuration not only enhances the satellite's maneuverability and operability but also leads to significant performance improvements. The streamlined design results in reduced power consumption and increased efficiency, thereby reducing operating costs by more than 75%.

The innovative actuator design represents a significant leap forward in the field of satellite control systems, setting it apart from other traditional approaches. With its superior weight reduction and performance enhancements, it offers a compelling solution for satellite manufacturers and operators seeking to optimize their missions while minimizing costs.

What sets this technology apart is its unique ability to inertially control a satellite with the presented configuration, achieving exceptional response times and an ideal weight ratio between the controller and the controlled satellite. No comparable flight control device exists in the literature or among competitors, making it a truly groundbreaking solution in the aerospace industry.

Recognized as Industrial Research in accordance with EU Regulation 651/2014, this technology represents a significant advancement in the aerospace sector. It encompasses research efforts aimed at acquiring new knowledge and skills that have the potential to develop innovative products, processes, and services. By creating the technological foundation, it paves the way for future applications and services with high added value to be developed on space platforms.

Technical specification or expertise sought

Stage of development

Available for demonstration

Sustainable Development goals

- **Goal 9: Industry, Innovation and Infrastructure**
- **Goal 12: Responsible Consumption and Production**
- **Goal 11: Sustainable Cities and Communities**
- **Goal 17: Partnerships to achieve the Goal**
- **Goal 14: Life Below Water**
- **Goal 15: Life on Land**
- **Goal 8: Decent Work and Economic Growth**
- **Goal 4: Quality Education**

IPR Status

IPR applied but not yet granted

Partner Sought

Expected role of the partner

The Spanish company is extending a compelling technology partnership opportunity to various entities, including small and large companies specializing in customized satellite development and satellite service providers engaged in market-based satellite assembly and launch. Their ground-breaking CMG-IA technology, based on the patented Inertial Actuator (IA), delivers precise control and enhanced manoeuvrability for satellites.

Through collaboration, entities can tap into their expertise to optimize their satellite operational efficiency, achieve significant weight reduction, and lower launch costs. The potential outcomes of this partnership encompass the co-development of cutting-edge, tailored CMG-IA solutions for satellites of varying sizes and applications, utilizing EU grants to drive improvements in overall mission performance, cost reduction, and enhanced competitiveness within the aerospace industry. With the company serving as a trusted technology partner, entities can unlock new possibilities and foster innovation in their respective domains.

Type of partnership

Commercial agreement with technical assistance**Investment agreement****Research and development cooperation agreement**

Type and size of the partner

• **SME 11-49**• **Other**• **SME 50 - 249**• **Big company**

Dissemination

Technology keywords

- **02011003 - Helicopter**
- **02011004 - Satellite Navigation Systems**
- **02011005 - Space Exploration and Technology**
- **02011002 - Aircraft**
- **02011007 - Guidance and control**

Market keywords

- **09001006 - Airfield and other transportation services**
- **01005002 - Satellite ground (and others) equipment**
- **01005001 - Satellite services/carriers/operators**
- **09001001 - Airlines**



Targeted countries

- **World**

Sector groups involved

- **Renewable Energy**
- **Aerospace and Defence**
- **Electronics**

Media

Videos

[Inertial Control System technology](#)