

SPARTAN

SPAcE exploration Research for Throatable Advanced eNgine

SOFT AND PRECISE LANDING ON OTHER PLANETS

Imagine a spacecraft touching down on the surface of the Moon with the aim of establishing a permanent Lunar Outpost. Whether it carries robots or people, a soft and precise landing is paramount for success. The SPARTAN project develops new technologies in support of just that.

In the next decades, European space exploration missions are set for exotic destinations about our solar system. The surfaces of new worlds, such as the Moon, Mars and the even Jupiter's moon Europa, discovered 1610 by Galileo, may soon feel the impact of our landing spacecrafts.

The success of such future robotic missions - and eventually the success of future manned missions - depends from technologies that enable spacecrafts to land softly and precisely under extremely difficult conditions with and without the presence of an atmosphere.

Throatable propulsion technology presents promising features that make such landings possible.

The SPARTAN project explores this potential, exploiting both the throttling capability of the propulsion system and the peculiar characteristics of hybrid engine technology. In doing so, the project aims at implementing and strengthening the technological base in view of future space missions.

SPARTAN research focuses on three major objectives, including the hybrid engine design, the development of an oxidizer throttling device, and the design of the spacecraft landing system validation. Hence the project proposes the development of a comprehensive spacecraft landing concept, the efficiency of which it will assess by a landing test, that allows for the demonstration of the soft landing capabilities of throatable hybrid propulsion technology.



ENRICO GAIA
IS PROJECT COORDINATOR



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SPARTAN will develop throatable propulsion technology for planetary soft and precision landing.

QUESTIONS & ANSWERS

What do you want to achieve with this project?

Demonstrate that throatable hybrid propulsion technology with its very high (10:1) thrust adjustability ratio is capable in combination with an advanced Guidance and Navigation system to provide for secure, precise and soft landing.

Why is this project important for Europe?

Space Exploration can only be a shared enterprise between the space faring nations. Europe's capability to bring in the negotiation technologies that are key for these missions would put her at the level of USA and Russia.

How does your work benefit European citizens?

Contribute in effectively opening a new frontier by enabling the construction of permanent planet bases that can be used by first pioneer scientists but also later by other people interested in taking advantage of the available resources and maybe also for tourism.

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LIST OF PARTNERS

- Thales Alenia Space Italia S.p.A, Italy
- Università degli Studi di Padova, Italy
- NAMMO Raufoss SA, Norway
- Bradford Engineering B.V., The Netherlands
- Vysoke uceni technicke v Brne, Czech Republic
- Politecnico di Milano, Italy
- GMV Aerospace and Defence SA Unipersonal, Spain
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PROJECT INFORMATION

SPAcE exploration Research for Throatable Advanced eNgine (SPARTAN)

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