

FOSTERNAV

Flash Optical Sensor for Terrain Relative Robotic Navigation

SOFT AND PRECISE TOUCHDOWN ON OTHER TERRESTRIAL BODIES

Imagine a spacecraft landing on another planet or an asteroid. Touchdown must be precise, soft and swift. FOSTERNAV will develop sensor technology that may pave the way for landing spacecrafts in the most challenging environments.

Europe is committed to exploring our solar system. In the future, the Moon, Mars and even asteroids are amongst possible destinations for European space exploration missions.

Touchdown in such extreme environments is a major challenge. Precise and soft landings on the surface of other planets, moons and near-Earth objects (NEOs) are paramount for the success of such missions, carrying expensive and vulnerable assets designed to enhance our understanding of the universe we live in.

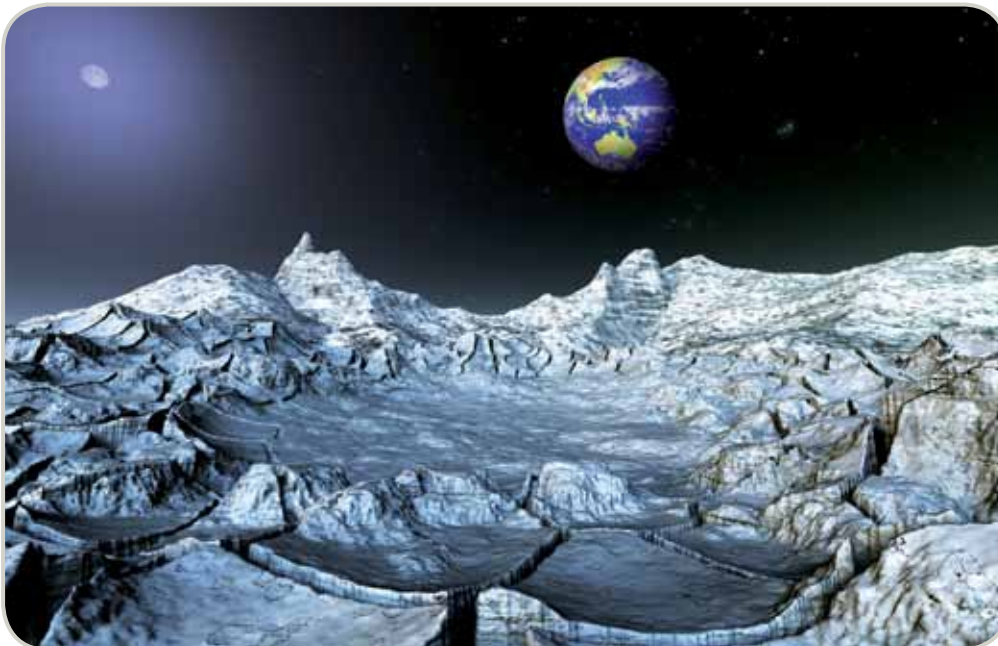
The FOSTERNAV project is designed to improve the level of miniaturization and robustness of spacecraft position and altitude control systems used to land softly and precisely and to deploy sensitive scientific payloads on

extraterrestrial bodies. In doing so, the project undertakes the development and the assessment of a prototype of a Guidance Navigation and Control (GNC) sensor: a flash optical sensor. FOSTERNAV's proposed concept consists of the merger of previously separated technologies into one sensor architecture; the project intends to integrate research concepts developed for laser rangefinder or Light Detection and Ranging device (LiDAR) with new elements, which have demonstrated technological supremacy in other fields such as robotics and security applications. The resulting prototype of a new beyond state-of-the-art flash optical sensor will be demonstrated and assessed in FOSTERNAV.

If successful, the project's innovative optical sensor is set to increase the competitiveness of the partners, whilst also strengthening European non-dependence in this area of critical technologies for space exploration.



ALEXANDRE POLLINI
IS PROJECT COORDINATOR



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FOSTERNAV will develop a novel optical sensor for on-board guidance, navigation and control of spacecraft.

QUESTIONS & ANSWERS

What do you want to achieve with this project?

The objectives of the FOSTERNAV project's consortium are to design, realize and assess a miniaturized and robust system architecture for vision sensor. Its characteristics should allow future GNC systems to fulfill forthcoming exploration missions' term of requirement.

Why is this project important for Europe?

The project offers a chance to achieve several steps forward in a number of engineering domains. Securing new knowledge and solving challenges in these areas - for space applications - will allow the European industry to maintain a leading role in the domain of GNC systems.

How does your work benefit European citizens?

The sensor's architecture is interesting not only for spacecrafts but also for unmanned air, water, or ground vehicles GNC systems. It has also other applications such as: environmental resources mapping, urban landscape monitoring, etc that can benefit the European society.

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LIST OF PARTNERS

- Swiss Center for Electronics and Microtechnology, Switzerland
- Technical Research Center of Finland, Finland
- EADS Astrium, France
- Deutsches Zentrum für Luft- and Raumfahrt, Germany
- Modulight, Finland

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PROJECT INFORMATION

Flash Optical Sensor for Terrain Relative
Robotic Navigation (FOSTERNAV)
Duration: 36 months
EU Contribution: € 1.953.289
Estimated total cost: € 2.662.263

