

Eurisa: developing the first compact and cost-effective European Inertial Measurement Unit (IMU) for space applications

Eurisa aims at developing a European compact, performant and cost-effective IMU to ensure European non-dependence on critical equipment for space. Funded by the European commission as part of the Horizon H2020 program, the 3.3 M€ project brings together 4 major actors of the European space ecosystem - Airbus Defence and Space, ETH Zurich, German Aerospace Center (DLR) and iXblue - and will run for 3.5 years.

As of today, there is no alternative in Europe for a compact, high-performance and cost-effective IMU, therefore, many EU space missions depend on non-European Inertial Measurement Units (IMU) and rely on foreign partners' goodwill for the procurement of those key components. Eurisa's main objective is to deliver an IMU including crafted hybridization algorithms at TRL higher than 6 for missions such as landing, rover navigation and interplanetary cruise.

The project, led by iXblue, is built on the extensive expertise of the 4 partners: participation in major space missions like Insight and LISA for ETH Zurich; CALLISTO and EAGLE projects for DLR and the Astrix gyroscope range for iXblue and Airbus Defence and Space. Beyond this know-how, available technological bricks from the different partners will be customized and assembled to make the future European IMU ready in 2024.

Guillaume Lecamp, project manager for iXblue, states: "Based on past and current developments together with the use of COTS electronics qualified for space, we ensure a cost-effective product and a safe path toward a TRL 6 maturity. Indeed, the partners gather strong and complementary competencies to make a success out of this project: space electronics, inertial sensors, knowledge on the space mission requirements, hybridization algorithms, space environment and also manufacturing and quality".

With all critical components from European manufacturers and IMU build by the project partners, Eurisa will contribute to European independence and sovereignty in space for future missions and exploration.

Learn more about Eurisa project: <https://eurisa-h2020.eu>

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About Airbus

Airbus is an international pioneer in the aerospace industry. It is a leader in designing, manufacturing and delivering aerospace products, services and solutions to customers on a global scale. We aim for a better connected, safer and more prosperous world.

About ETH Zurich

Freedom and individual responsibility, entrepreneurial spirit and open-mindedness: ETH Zurich stands on a bedrock of true Swiss values. Our university for science and technology dates back to the year 1855, when the founders of modern-day Switzerland created it as a centre of innovation and knowledge. At ETH Zurich, students discover an ideal environment for independent thinking, researchers a climate which inspires top performance. Situated in the heart of Europe, yet forging connections all over the world, ETH Zurich is pioneering effective solutions to the global challenges of today and tomorrow.

The Seismology and Geodynamics (SEG) group at the Institute of Geophysics develops electronics for a number of space missions here including Mars Insight and LISA.

About German Aerospace Center - DLR

DLR is the Federal Republic of Germany's research centre for aeronautics and space. We conduct research and development activities in the fields of aeronautics, space, energy, transport, security and digitalisation. The German Space Agency at DLR plans and implements the national space programme on behalf of the federal government. Two DLR project management agencies oversee funding programmes and support knowledge transfer.

Climate, mobility and technology are changing globally. DLR uses the expertise of its 55 research institutes and facilities to develop solutions to these challenges. Our 10,000 employees share a mission – to explore Earth and space and develop technologies for a sustainable future. In doing so, DLR contributes to strengthening Germany's position as a prime location for research and industry.

About iXblue

iXblue is a global high-tech company specializing in the design and manufacturing of advanced marine, photonics and autonomy technologies. iXblue develops systems for complex applications in extreme environments, from the ocean depths to outer space. iXblue was one of the first companies in the world to develop the Fiber-Optic Gyroscope (FOG) technology and is now a recognized leader on this market.

For space application, in partnership with Airbus Defence and Space, iXblue has developed the Astrix Series, a range of space fiber-optic gyroscopes. iXblue also designs and manufactures space grade optical components such as optical modulators, rad-hard fibers, fiber sources and amplifiers.