European Project Semester

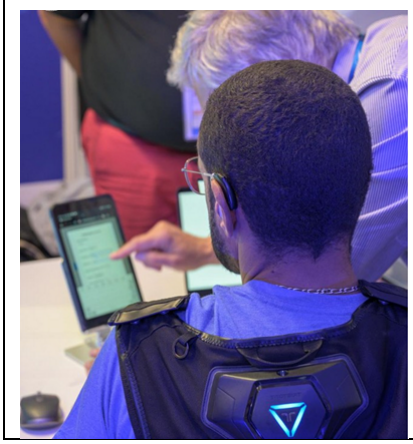
PROJECT OUTLINE

Project dates: March – June 2026	
Title: ACCESS - Adaptive Communication & Contextual Enhanced Support Systems	
Project activity areas: Adaptative communication technologies, Technological accessibility, human factors, complex systems	**Keywords:** peripheral vision, multisensoriality, cognitive and informational overload, Human-Machine Interaction, Efficient Communication
Tutor's name and coordinates Client – End-user: UTTOP – CERTOP, Fans4All, Peripheral ENIT Technical Supervisor + contact: Philippe Marrast: philippe.marrast@uttop.fr	**Project origin** UTTOP – CERTOP, IUT (Philippe Marrast, Phd), Fans4All (Etienne Ceretto), ISAE (Pr. Yves Gourinat), Peripheral (Aymar de La Mettrie)

Project technical background:

This project is part of an ambitious **interdisciplinary research program** bringing together **laboratories (CERTOP, ICA), engineers (ENIT, ISAE), start-ups (Peripheral) and field operators (Fans4All, flying clubs, civil security)** with a common goal: to enhance the security and accessibility of communication in complex, cognitively demanding environments.

The challenge? To **design an innovative communication support device** capable of assisting operators faced with **critical situations** (primarily in aeronautics, but also applicable to civil security and crisis management, depending on the time available) by dynamically providing them with ambient information in an accessible, intelligible manner that is adapted to their context.



The device will be based on a **modular architecture, powered by AI** and integrating several technological building blocks: automated **speech transcription**, **semantic analysis** and **dynamic situation mapping**, and **multimodal feedback** (haptic, peripheral vision, touchscreen tablet). The approach is based on **co-design and user feedback**, with co-design workshops, simulator tests and real-life validation (air traffic simulations, flight tests). The project also exploits advances in situational awareness modelling and artificial intelligence to offer a solution that is both robust and adaptive.

This project will be presented at Le Bourget Air Show in June 2026.

Studied topics:

Trainees will explore several technological and scientific areas at the heart of current challenges:

- **Automated speech transcription**: implementation and optimization of speech recognition solutions for noisy and dynamic environments.
- **Semantic analysis and dynamic mapping**: development of algorithms to extract, structure and visualize information in real time in order to map the operational situation.
- **User interface and multimodal feedback**: design and development of innovative UX/UI interfaces, integrating haptic, visual and tactile modalities for accessible and effective feedback.
- **Co-design and user validation**: participation in co-design workshops and simulator and in-flight testing campaigns to evaluate and iterate on the proposed solution.

This internship offers immersion in a project at the crossroads of engineering, fundamental research and social innovation, with stimulating technical challenges and a strong collaborative dimension.