

PROJECT

PEGGASUS

Pilot Eye Gaze and Gesture tracking for Avionics Systems using Unobtrusive Solutions

Funding: European (Horizon 2020)

Duration: Jan 2019 - Dec 2020

Status: Complete

Total project cost: €1,026,229

EU contribution: €950,824



Call for proposal: H2020-CS2-CFP07-2017-02

[CORDIS RCN : 218814](#)

Background & policy context:

As the capabilities of cockpit systems increase, the way in which the pilots interact with them evolves. At the same time, flight management concepts and tools continue to increase in complexity, as well as flight and non-flight data streams, which consequently challenges the pilots' abilities to cope with the information they need to be aware of, and exerts pressure on their cognitive states.

Objectives:

In the framework of the development of new Human System Interfaces carried out in WP1.2.4 the Clean Sky 2 SYSTEMS ITD, the PEGGASUS project proposes an approach to bring innovative smart vision systems to cockpits. The system we propose to develop is a crew interface and monitoring system implementing eye gaze, face, and gesture tracking technologies to bring new functionalities to Human-Machine Interfaces in the cockpit. It consists in a set of NIR-sensitive cameras powered by Computer Vision and Machine Learning algorithms running on a central processing unit. Three prototypes will be developed from a standalone lab prototype, to a TRL5 model integrated in the topic leader's "cockpit demonstrator". The system design shall be compliant with aircraft cockpit installation, the operational environment and pre-certification requirements. The requirements defined at the beginning of the project with the topic leader's inputs, will be verified after its successful integration into the "cockpit demonstrator" avionics.

Methodology:

PEGGASUS brings together partners able to cover the complete value chain of innovative product development: SERMA Engineering (FR), an OEM for aeronautical equipment, CSEM (CH) an RTD with proven experience in innovative technologies for aeronautics, ETHZ (CH) represented by the Geogaze lab that conducts cutting edge research with eye tracking technology, particularly for the use in aviation training, and Swiss (CH), an airline and potential end user who will provide expertise in crew interfaces and monitoring.

Parent Programmes:

[H2020-EU.3.4. - Horizon 2020: Smart, Green and Integrated Transport](#)

Institute type: Public institution

Institute name: European Commission

Funding type: Public (EU)

Other programmes: JTI-CS2-2017-CfP07-SYS-01-07 Development of a system for pilot eye gaze and gesture tracking in the cockpit environment

Lead Organisation:

Csem Centre Suisse D'electronique Et De Microtechnique Sa - Recherche Et Developpement

Address:

Rue Jaquet Droz 1
2002 Neuchatel
Switzerland

EU Contribution: €547,079

Partner Organisations:**Serma Ingenierie****Address:**

RUE DE L AUSSONELLE AU VILLAGE
31700 CORNEBARRIEU
France

Organisation Website:

<http://www.serma-ingenierie.com>

EU Contribution: €135,345

Swiss International Air Lines Ag**Address:**

MALZGASSE 15
4052 BASEL
Switzerland

EU Contribution: €40,600

Eidgenoessische Technische Hochschule Zuerich**Address:**

Raemistrasse 101
8092 ZUERICH
Switzerland

Organisation Website:

<http://https://www.ethz.ch/de.html>

EU Contribution: €227,800

Technologies:

Aircraft design and manufacturing
Automatic flight controls

Development phase: Research/Invention

STRIA Roadmaps:

Cooperative, connected and automated transport, Vehicle design and manufacturing, Network and traffic management systems

Transport mode: Air transport

Transport sectors: Passenger transport

Transport policies: Safety/Security, Digitalisation

Geo-spatial type: Other