ACROSS

Advanced Cockpit for Reduction of Stress and Workload

Objectives

ACROSS studies the impact of new technologies and novel interaction solutions to develop Avionic architectures that provide maximum benefits to the crew. These technologies aim to improve safety and reduce accident risk through the reduction of workload and stress.

Development and demonstration up to TRL 5
Component and/or mockup validation in relevant environment.

Development and demonstration up to TRL 3
Analytical and experimental critical functions and/or characteristics proof-of-concept.

Taking into account initial findings from evaluations conducted on workload reduction and reduced crew operations, ACROSS will identify the main aspects to consider for future implementation of single-pilot operations.

Enablers

- Crew monitoring
- Advanced Displays
- Advanced Controls and Interaction
- Communication
- Automation and Assistance
- Aeronautical information and mission management
- Emergency Aircraft Control System

Outcomes

ACROSS will provide tools, technologies and guidelines:
- a set of technology solutions for crew monitoring,
- a set of new avionics functions with the demonstration of global performance improvement for each crew task (Aviate, Navigate, Communicate and Manage) specifically during peak workload situations,
- a supplementary step in the technical capability for continued safe flight and landing in case of crew incapacitation.

Workplan

- Following initial human factor evaluations, recommendations for management of reduced crew operations, training aspects and evolutions on functions developed.
- While achieving these goals, ACROSS will also define short-term solutions with short implementation time for immediate use in the cockpit, in order to better support crews in the current two-pilot configuration during situations of high stress.

Coordinator: THALES AVIONICS (FR)
Partners: AIRBUS (FR), AIRBUS Operations (FR-UK-DE), SAE Systems (UK), BOEING (ES), CONTINENTAL (FR), DAVIDSTOWN Aviation (FR), DEEP BLUE (IT), DASSAULT Aviation (FR), DEUTSCHES ZENTRUM FUER LUFT-UND RAUMFAHRT EV (DE), DIEHL AEROSPACE (DE), EADS Innovation Works (FR-DE), GMV SKYSOFT (PT), GTD SISTEMAS DE INFORMACION (ES), HELLENIC AEROSPACE INDUSTRY (GR), INGENIERIA DE SISTEMAS PARA LA DEFENSA DE ESPANA (ES), JEPPESEN (DE), NATIONAL AEROSPACE LABORATORY (NL), SELEX GALEO (IT), SLUNGE DYNAMICS (SE), STIRLING DYNAMICS (UK), TECHNISCHE UNIVERSITAT BRAUNSCHWEIG (DE), THALES NEDERLAND (NL), THALES TRAINING AND SIMULATION (FR), TONY HENLEY CONSULTING (UK), TRAGNOSSYS (DE), TRINITY COLLEGE DUBLIN (IE), TURKISH AEROSPACE INDUSTRY (TR), UNIVERSITY OF MALTA (MT), USE2ACES (NL), WARSAW UNIVERSITY OF TECHNOLOGY (PL), ZODIAC Aerospace (FR).
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