

PROJECT

BUBBLES

Defining the BUilding Basic BLocks for a U-Space SEparation Management Service

Funding: European (Horizon 2020)

Duration: May 2020 - Oct 2022

Status: Ongoing

Total project cost: €1,893,198

EU contribution: €1,606,109



Call for proposal: H2020-SESAR-2019-2

[CORDIS RCN : 228660](#)

Objectives:

BUBBLES is a project targeting the formulation and validation of a concept of a U-Space advanced (U3) 'separation management service' at TRL3. BUBBLES will develop algorithms to compute the collision risk of UAS (taking into account all the involved risk sources), allowing to define separation minima and methods (procedural, tactical self-separated or tactical ground-based) so that a safety level stated in terms of overall probability of collision can be defined and maintained. The project will apply these algorithms to a set of generic CONOPs for UAS Operations defined by BUBBLES.

These CONOPs will be detailed enough to cover all envisaged applications, but generic enough not to be linked to any particular one. The generic CONOPs will be classified in terms of risk using the SORA methodology. Afterwards, separation minima and methods will be assigned to them, leading to the definition of a set of generic OSED from which safety and performance requirements for the CNS systems will be derived through a safety assessment and based on the Performance-based Navigation (PBN) and Performance-based Communication and Surveillance (PBCS) concepts, including performance monitoring.

To contribute the use of highly automated and digitalised systems in the U-Space, BUBBLES will also investigate the use of Artificial Intelligence (AI) to support the separation management, both for centralised and distributed systems. Moreover, BUBBLES will contribute to the standardisation of the U-Space by drafting required performance specifications for the CNS and AI-based systems involved in the provision of the Separation Management service.

Lastly, the project will exploit the similarity between the U-Space Separation Management service and the Air Traffic Control (ATC) and the widespread confidence on the latter to improve the perception of safety regarding the UAS operations among the general public, thus contributing to their social acceptance.

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: SESAR-ER4-31-2019 U-space

Lead Organisation:

Universitat Politecnica De Valencia

Address:

Camino De Vera S/n
46022 Valencia

Spain

Organisation Website:

<http://www.upv.es>

EU Contribution: €470,750

Partner Organisations:

Eurocontrol - European Organisation For The Safety Of Air Navigation

Address:

Rue De La Fusée 96
1130 Bruxelles
Belgium

Indra

Address:

Avenida de Bruselas, 35
Alcobendas Madrid
Spain

Organisation Website:

<http://www.indra.es>

EU Contribution: €354,109

Universidade De Coimbra

Address:

Paco Das Escolas
3001 451 Coimbra
Portugal

EU Contribution: €390,000

Universita Degli Studi Di Roma La Sapienza

Address:

Piazzale Aldo Moro 5
00185 ROMA
Italy

Organisation Website:

<http://www.uniroma1.it>

EU Contribution: €391,250

Technologies:

Sensor technologies
Collision avoidance system

Development phase: Validation

Network and traffic management systems, Other

STRIA Roadmaps: specified

Transport mode: Air transport

Transport sectors: Freight transport

Transport policies: Safety/Security, Digitalisation

Geo-spatial type: Other

