Concept of Operations for EuRopean UTM Systems

Informe

Información del proyecto

CORUS

Identificador del acuerdo de subvención:
763551

Sitio web del proyecto

DOI
10.3030/763551

Proyecto cerrado

Fecha de la firma de la CE
29 Mayo 2017

Fecha de inicio
1 Septiembre 2017

Fecha de finalización
30 Noviembre 2019

Financiado con arreglo a
SOCIETAL CHALLENGES - Smart, Green And Integrated Transport

Coste total
€ 2 003 651,25

Aportación de la UE
€ 800 000,00

Coordinado por
EUROCONTROL - EUROPEAN ORGANISATION FOR THE SAFETY OF AIR NAVIGATION
Belgium

Periodic Reporting for period 2 - CORUS (Concept of Operations for EuRopean UTM Systems)

Período documentado: 2018-09-01 hasta 2019-11-30

Resumen del contexto y de los objetivos generales del proyecto

Unmanned Aircraft Systems (UAS) are a major driver of innovation and bring great benefit to society. However, the very low-level (VLL) airspace where these “drones” generally fly in is already used by

many others - general aviation (GA), helicopters, military exercises, etc.
The integration of UAS into the airspace must take place safely, both for other aircraft and for people and infrastructure on the ground. People's privacy must be maintained and the environmental impact must be minimised. U-space is the EU's vision for the phased introduction of procedures and services to support safe, efficient and secure access to airspace. To fully support the rapidly growing drone industry, a U-space concept of operation supporting an harmonized approach for the integration of drones into Very Low Level (VLL) airspace is vital.
Gathering experts from aviation (manned and drone),research and academia, the CORUS consortium has developed and written a Concept of Operations (ConOps) for U-space. The ConOps describes how VLL airspace should be organised and what rules and regulations should be put in place to enable the safe integration of drones with other users of this airspace, and what U-space services should be available to help the drone user achieve this.
The principles laid out in the CORUS ConOps will enable drones to bring about the full potential they offer to many aspects of life in the 21st century in safety and security, respecting the environment and people's privacy.

Trabajo realizado desde el comienzo del proyecto hasta el final del período abarcado por el informe y los principales resultados hasta la fecha

The CORUS project has written a Concept of Operation (ConOps) for the Management of Unmanned Aircraft (drones) Traffic in Europe. The ConOps provides a detailed definition of the services necessary for drone operations in VLL airspace, also including the airspace around airports.The services are defined in a way that shows how they can and should be used together to enable safe drone operations while balancing the needs of the drone sector with those of society as a whole. An initial architecture is also proposed.
Since the CORUS ConOps is relevant for a large group of stakeholders, the success of the project depended on its being widely known and accepted. A U-space Community Network (UCN) over 600 members strong was therefore constituted to ensure the greatest participation of the whole stakeholder community. A 32 memebers Advisory Board was also organised, actively supporting the consortium.
The elaboration of the CORUS ConOps was an iterative process, starting from the state-of-the-art and built around three workshops with the partecipation of a wide base of stakeholders, allowing CORUS to build,refine and validate its U-space concept of operations. During these three iterations of the ConOps well over a thousand written comments were received on the drafts and acted upon. Comprehensive communication and dissemination activities were implemented to ensure the widest possible outreach of the project outcomes throughout the project's life.

During the three workshops the CORUS team presented the current status of the ConOps, animated and guided the discussion and collected the workshop results and the contributions of the Advisory Board. Subsequently, the team built upon the findings of each workshop to further identify implications, solutions and trade-offs. They used these to create and update three incremental versions of the ConOps and the conceptual definition of U-space.

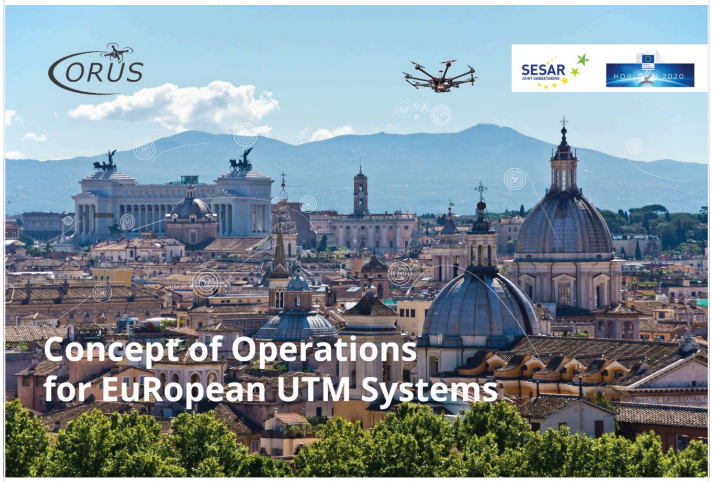
With the objective of producing a forward-looking ConOps, CORUS has addressed many different elements of the future drone operations, from airspace rules and procedures to safety and social aspects, describing the necessary U-space services and a high-level architecture.
Starting from the original service list of the U-space Blueprint, the CORUS ConOps describes 31 U-space services to be implemented from U1 to U3. It has also defined the division of VLL airspace into 3 different airspace types – X, Y, and Z - describing the different services provided in them, the types of operation that may be performed in them, and the different access requirements for each of them.
Finally, the project has defined a possible risk management and mitigation methodology – MEDUSA -, a list of social impact metrics and indicators and a possible U-space architecture, with the initialisation of a dedicated EATMA database for U-space.
The CORUS ConOps has been presented to the U-space community during the U-space ConOps and Research Dissemination Conference (30 September - 1 October 2019) with over 250 participants.
The CORUS ConOps is now published and can be taken as input for defining the evolution of the framing regulation for the management of UAS traffic in Europe.

Avances que van más allá del estado de la técnica e impacto potencial esperado (incluida la repercusión socioeconómica y las implicaciones sociales más amplias del proyecto hasta la fecha)

As the emerging business sector of drones operating in very low level (VLL) airspace is growing and the number of use cases is increasing, a clear and complete integration concept is needed.
The project has addressed several unanswered questions and found solutions, ranging from a clear definition of the VLL airspace and environment, how drones will need to be managed in that environment, how to deal with contingencies and emergencies and how to address the societal implications and concerns.
Large scale drone operations may directly impact society at large from a number of different perspectives, which include such examples as noise, privacy and access to public/private spaces, as well as accident reporting. The project has started to identify which elements of the UTM concept could impact society in general and institutions and organisations in particular. The evaluation of those impacts, both positive and negative is generating the necessary constraints or modifications of the UTM concept to guarantee its long-term viability and smooth integration with Society.

This innovation potential associated with the project are:
• The CORUS ConOps provides further momentum to the growth of drone applications in very different sectors, such as energy and infrastructure, agriculture, forestry and so on. These applications, in particular logistic and parcel delivery have an increasing interest in terms of market value, as can be inferred from the different research and development activities.
• CORUS results have relevant outcomes for the current (non-drone) airspace users operations in VLL (i.e. GA11, Gliders, Medivac/OAT12 flights,…). The benefits of the CORUS project, therefore, are not limited to drones but encompass also the other AUs domain, having the potential to provide innovation in both frameworks.

• The CONOPS, by describing the possible architecture, solutions and services of UTM systems, provides guidance for the raising industry of UTM service providers. The presence in the consortium of a UTM system company has ensured the soundness of the architectural definition and the timely exploitation of the project findings.
• The CORUS innovative concept elements are providing guidance to the other SESAR RPAS projects and demonstrations.



CORUS logo with drone on Rome background

CORUS logo with a drone

Última actualización: 22 Abril 2020

Permalink: https://cordis.europa.eu/project/id/763551/reporting/es

European Union, 2025