



Media Release

SESAR U-space demonstrations in the Gulf of Finland (GOF) to reach the next level

Tallinn, 13/03/2019

The objective of the SESAR Joint Undertaking GOF USPACE project in Estonia and Finland is to take concrete steps towards showcasing how U-space can serve both unmanned and manned aviation from the very beginning of its rollout. The broad consortium with 19 members, including three world-leading UTM (Unmanned Traffic Management) technology vendors, two Air Navigation Services Providers as well as deep Air Traffic Management (ATM) experience is developing interoperability and data-sharing solutions, which are aligned with SESAR's overall U-space architecture. A pre-operational authority SWIM-based Flight Information Management System (FIMS) integrates existing commercial off the shelf (COTS) UTM components. The consortium is also proposing and demonstrating new interoperability solutions to bridge gaps when needed. Seven advanced drone operational scenarios including both manned and unmanned aircraft in shared airspace demonstrate many of the most attractive use cases, relying on U-space services to be safe as well as cost effective with the aim to accelerate the realisation of a shared U-space in Europe, starting with low-level airspace.

All three UTM technology vendors share responsibility for providing U-space services to the drone operators and authorities in the trials. Data sharing will happen through the FIMS as well as delegated directly from UTM to UTM serving the same airspace. The seven ambitious trials include ten drone operators in addition to manned aircraft: International parcel delivery between Helsinki and Tallinn, dense urban drone fleet operations in Helsinki with Police intervention and also in Tallinn in controlled airspace, 100km+ beyond visual line of sight (BVLOS) multisensory inspection flights in forestry and utility inspection, co-operation with general aviation and recreational users at uncontrolled airfield, maritime search-and-rescue with drones and helicopters, and an electrical vertical take-off and landing (eVTOL) Volocopter Air Taxi flight from Helsinki-Vantaa airport to Helsinki.

The GOF concept enables shared situational awareness for all aviation stakeholders. The proposed SWIM-based, service-oriented architecture (SOA) underlines that the proposed data exchange layer might be subject to a centralised regime owned by the ANSPs providing unique services to U-space service providers (USSP). GOF addresses not only FIMS to USSP connectivity, but also proposes an open industry standard for connecting unmanned systems (UAS) to selected USSP services. ATM data, such as traffic information, is available to USSP's through the FIMS, and vice versa, making U-space immediately relevant for low-level aircraft, such as Helicopter Emergency Medical Services (HEMS), air taxis and state aviation. FIMS's in different Flight Information Regions (FIR) can also be interconnected, which will be demonstrated by connecting the FIMS in Estonia to the FIMS in Finland to handle cross-border operations in one of the trials.



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GOF and its different live trials have already generated large interest with both unmanned and manned stakeholder groups, and has activated and inspired the commercial drone services scene in both Estonia and in Finland. The trials will be open to qualified visitors.

During World ATM Congress, the world's largest international air traffic management (ATM) exhibition and conference in Madrid taking place from 12 to 14 March 2019, there was also a SESAR Walking Tour presenting the GOF U-space project. The aim of these walking tours is to give the audience a chance to meet with experts from the SESAR community and see first-hand the wide variety of solutions that are being delivered and deployed across Europe, thus the GOF U-space project will be introduced to a broader audience and interested stakeholders.



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About SESAR

As the technological pillar of the Single European Sky initiative, SESAR aims to modernise and harmonise air traffic management in Europe. The SESAR Joint Undertaking (SESAR JU) was established in 2007 as a public-private partnership to support this endeavour. It does so by pooling the knowledge and resources of the entire ATM community in order to define, research, develop and validate innovative technological and operational solutions. The SESAR JU is also responsible for the execution of the European ATM Master Plan which defines the EU priorities for R&D and implementation. Founded by the European Union and Eurocontrol, the SESAR JU has 19 members, who together with their partners and affiliate associations will represent over 100 companies working in Europe and beyond. The SESAR JU also works closely with staff associations, regulators, airport operators and the scientific community.

About Lennuliiklusteeninduse AS (EANS)

Estonian Air Navigation Services (EANS, Lennuliiklusteeninduse Aktsiaselts) is efficiently operating public limited company acting under private law, which provides Air Navigation Services in Tallinn FIR and at Tallinn and Tartu aerodromes. The Company has a long and fruitful experience in the modernisation of Air Traffic Management (ATM) and Aeronautical Information Management (AIM) systems, airspace organisation and procedures design and implementation. EANS has experience in the realisation of EU funded development and implementation projects. In year 2013 new PRNAV/CDA procedures were implemented in Tallinn TMA and Sherpa project were successfully finalised– building capacity for SBAS LPV procedures design and implementation, ASM Tool as well as DLS service implementation. In 2012-2014 we worked on IDSG IDP implementation projects. EANS participates actively in different kinds of regional initiatives, i.e. Northern-European FAB implementation projects, in the projects of Borealis ANSPs alliance, particularly expanding the recently implemented NEFAB FRA into NEFRA and Borealis FRA initiatives.

About ANS Finland

ANS Finland is responsible for managing the use of Finnish airspace as well as providing air traffic control services at airports in Finland. En-route services include area control services in Finland, airspace management, aeronautical search and rescue and air traffic flow management. Our technological air navigation services maintains and develops all navigation, communication, surveillance and monitoring systems related to en-route services, such as the air traffic control and radar systems required for flight surveillance. Our customers include airports, the commercial aviation industry, the Finnish state's aviation operations and military aviation, general aviation and pilot training schools.



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About Robots Expert

Robots.Expert (REX) is a consultancy focused on unmanned aviation. REX help companies adopt new drone technology in their business, often through live demonstrations to jump-start understanding of the potential. Robots.expert main focus in the Nordic and Baltic countries is to advance a strong network with drone stakeholders in Europe. REX' personnel have a strong background in UAS, technology and strategy, as well as in project management to support the tasks of facilitating demonstrations and to manage large projects or consortia. Robots.expert is the ambassador in Finland for EIP-SCC Urban Air Mobility.

About Frequentis

Frequentis is an international supplier of communication and information systems for control centres with safety-critical tasks. These control centre solutions are developed and distributed by Frequentis in the business segments Air Traffic Management (civil and military air traffic control, and air defence) and Public Safety & Transport (police, fire and rescue services, emergency medical services, vessel traffic and railways). Frequentis maintains a worldwide network of subsidiaries and local representatives in more than fifty countries. The company's products and solutions are behind more than 25,000 operator positions in almost 140 countries. With this extensive portfolio, Frequentis is the leading provider of voice communication systems... all making our world a safer place every day! For more information, please visit www.frequentis.com

About Altitude Angel Limited

Altitude Angel is an aviation technology company delivering solutions that enable the safer integration and use of fully automated drones into airspace. Through its Airspace Management Operating System, GuardianUTM, they deliver the essential software 'building-blocks' that enable national deployments of U-space compatible services. One of Altitude Angel's core objectives is to accelerate the development of drone-related solutions by building and maintaining the many complex 'backend' services. These services provide the data, storage, identity and command & control structures required to deliver excellent experiences to users via on-board drone solutions and mobile applications. In synchronicity with changing global drone regulations, Altitude Angel has already built a number of key services focused on delivering our long-term vision: fully autonomous, safe control of drones. Altitude Angel's leadership team has a wealth of experience across technology industry, specialising in building massively scalable, secure and distributed cloud based services, and a passion for aviation.



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About AirMap Deutschland GmbH

AirMap is the world's leading airspace management platform for Unmanned Aircraft Systems (UAS), commonly known as drones. AirMap partners with civil aviation authorities, air navigation service providers, drone manufacturers and solutions developers, and enterprises to integrate drones safely into the airspace. Developed by experts in aviation, airspace management, drone technology, mobile network communication, automotive and policy, the AirMap UTM platform includes solutions for registry, geo-awareness, notification, authorization, and traffic deconfliction to support autonomous, BVLOS operations. AirMap UTM has been deployed worldwide, including Switzerland, Czech Republic, the United States, and Japan. Visit www.airmap.com for more information.

About Avartek

Avartek is a Limited Partnership company founded in 1996 in Finland. Avartek ky is based on Avaruustekniikka ky which has provided target drones for the Finnish Armed Forces since 1968. We have serviced and trained our customers since those days and manufactured and sold over 1000 UAVs. We develop and manufacture unmanned aerial systems for long range heavy duty use. Our unmanned systems are economical, easy to use and extremely durable. Our systems are designed to accommodate multiple sensors and to handle day in day out missions in very challenging conditions. Our systems are based on 50 years of military target drone experience. Our drones are used in extreme military conditions and in challenging weather conditions. Our experience is unique and makes the core of our offering.

About BVdrone

BVdrone is a BVLOS all-weather drone operator. BVdrone provides long-range, long-endurance operations for monitoring, remote sensing and surveillance missions, to create a new market for aerial work by lowering the cost, as well as provide services in conditions that civil, nonstate aviation normally does not operate in. BVdrone partners with other companies for sensor solutions and data processing. BVdrone is based in Finland.

About Cafa Technology

CAFA (Center of Automated Flights Applications) develops 3D maps for automated drone flights. CAFA 3D maps visualize drone flights in the true 3D environment. CAFA has developed a Tallinn 3D Map and its web application for drone operations (<https://cafa3d.com/3dpoc>). CAFA 3D map has also Google Earth 3D cities integration for planning low altitude drone operations in Europe and in USA. 3D Map is essential part of safe and efficient drone route and flight corridor planning.



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About Estonian Police and Border Guard Board (PPA)

Estonian Police and Border Guard Board is responsible for public order and general safety in Estonia. Estonian Police has been developing its capabilities to control public order by using Drones. Estonian Police and Border Guard Board has trained one hundred officers as Droneoperators who can use Drones on different cases (public events, security measures, search of lost people, boarder surveillance, technical crime investigation support and traffic accidents). Situation Pictures of flying objects is crucial part of possible counter measures. Estonian Police and Border Guard Board contributes to the project by organizing demos and testing different circumstances.

About the Finnish Transport and Communications Agency Traficom

The Finnish Transport and Communications Agency Traficom is an authority in licence, registration and approval matters. Traficom promotes traffic safety and the smooth functioning of the transport system. It also ensures that everyone in Finland has access to high-quality and secure communications connections and services. Traficom has approximately 900 employees at 15 locations in Finland.

The Finnish Transport Safety Agency (Trafi), the Finnish Communications Regulatory Authority (FICORA) and certain functions of the Finnish Transport Agency merged to form the Finnish Transport and Communications Agency Traficom on 1 January 2019.

About The Finnish Air Rescue Society

The Finnish Air Rescue Society (SLPS) has 38 affiliate members, which will provide the actual aircraft and manpower to the project (test flights with general aviation aircraft, coordinated by SLPS). The Air Rescue Society is one of three coordination Societies of the Finnish Voluntary Rescue Service, a force of almost 20 000 voluntary persons, and is responsible of all Aviation operations of the Service. The Society maintains 35 readiness groups, with one 24/7 duty officer at the time to forward different flight operations asked by the Police and Fire Departments.

About Fleetonomy.AI Oy

Fleetonomy.ai Oy develops a remote operating platform for automated vehicle fleets for vehicle fleet operators. Platform manages key issues in the automated vehicle operator environment including regulation, exception and responsibility management while keeping the human in the loop. Foundations rest upon innovations in interactive 3D control systems for display and analytics of complex data sets for managing fleets of automated vehicles and airborne drones.



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About Helsinki Police Department

There are tens of trained officers as Drone-operators in Helsinki Police. Helsinki PD has approximately ten drones for operative purposes 24/7. They are in use almost every day - especially in public events, security measures, searching lost people, barricade situations, supporting technical crime investigations etc. for three years now.

About Hepta Airborne

Hepta Airborne, a leading robotics and Big Data company, has developed the next generation power line inspection technology. The technology consists of in-house developed 6 hour long-duration UAV, upgraded measurement sensors and autonomous post-flight data analysis platform. The whole system inspects hundreds of kilometres autonomously and analyses the collected data. Utilities and Network operators receive a detailed overview of their assets, automated defect reports and detailed vegetation analysis.

About Threed Systems

Threed Systems specializes in developing, producing, and operating Unmanned Aircraft Systems (UAS) that are designed for information collection and exploitation in military, governmental and civil applications. Threed supports the decision-making process on every level of command. Threed Systems is known for rapid product development and tailor made UAS solutions for small multirotors, fixed-wing UAV platforms, and in-house developed subsystems. Threed System designs, develops, manufactures and operates Unmanned Aircraft Systems and subsystems for information collection, surveillance and other tasks related to unmanned sensing including VLOS and BVLOS operations.

About Unifly

Unifly created a platform to safely integrate drones into the airspace that offers a step-by-step, futureproof path towards a full UTM solution. Unifly's award winning Unmanned Traffic Management (UTM) platform supports all stakeholders, authorities and drone users, and is already deployed in many multilingual international environments, such as the US, Japan and Europe. It is already in use today by the national authorities of Germany, Denmark, Austria and Belgium. In the US, Unifly is a LAANC certified partner to UPP and IPP projects and the NUAIR Alliance. Unifly also deployed the first African UTM system in support of UNICEF's drone corridor in Malawi.



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About VideoDrone

VideoDrone Finland Oy has designed and manufactured multicopters for professional applications since 2011 and as a limited liability company since 2013. The drones are completely designed, manufactured and tested by our experts. Our drones are used currently for various technical inspections, land survey and planning, orthoimaging and point cloud processing, oil and other environmental accidents, accident investigation and surveillance. Our customer base includes land surveying professionals, companies, municipalities, educational institutions and farmers. VideoDrone delivery is always a complete, tested and ready-to-fly package to help the customers together with the operational training.

About Volocopter

Volocopter is the global leader in the development of electrical vertical take-off and landing multicopters (eVTOL) as air taxis to fly people safely to their destination. The technical platform is extremely flexible and permits piloted, remote controlled, and fully autonomous flight. In addition, the unique design offers unprecedented degrees of safety based on the high level of redundancy in all critical components. As early as 2011 the company earned its entry into the history of aviation through the manned flight of the world's first purely electrical multicopter. Since then, the young enterprise has set new milestones: in 2016 Volocopter obtained provisional licensing for a two-seater Volocopter from the German aviation authorities, and in 2017 the aviation start-up showcased the first ever autonomous flight of an urban air taxi in cooperation with RTA Dubai. Daimler and Intel are among the investors in the company. Find out more at: www.volocopter.com

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