PRESS RELEASE

Politecnico di Milano, TXT and ANT-X collaborate for HEMS+ Scout Drone Project, an innovative solution to support SaR missions with helicopters.

Milan, 21 April, 2022 - Politecnico di Milano, TXT e-solutions and ANT-X established a partnership for HEMS+ Scout Drone project which presents an innovative solution based on an exploration drone able to provide a solid support to optimal management of search and rescue missions in emergency situations.

The project aims at supporting emergency rescue missions performed by helicopter that present many challenges related to weather conditions. The meteorological environment affects flight operation and pilot decision making process: restricted visibility caused by stormy clouds or difficulties in finding the best landing zones undermine the successful coordination of search and rescue procedures. In such cases, it's paramount to improve the data quality concerning weather conditions to provide the pilot or the control station with a complete overview of the emergency situation to identify the best solutions to safely perform HEMS (Helicopter Emergencies Medical Services).

Thanks to specific sensors, the drone analyzes the weather conditions and maps the land morphology to help rescue vehicles in selecting the best routes and landing. Thus, the pilot is able to reach the place of intervention with a higher safety level and a quicker response.

The helicopter crew can verify in advance the routes accessibility, especially focusing on the final operations related to landing or take-off that can be critical for the mission success. Moreover, if the field or weather conditions are difficult, the scout drone can identify possible alternative routes to avoid potentially critical situations and efficiently complete the rescue operations.

The successfully cooperation between Politecnico, Ant X and TXT is due to knowledge sharing of technical expertise and technological skills that includes 3 components:

- Scout Drone, tailor-made by Ant X according to the requirements of the mission, is equipped a powerful computer and on-board sensors able to collect data on the surrounding environment in different domains (infrared system, distance from obstacles, weather data, etc.).

- Decision support system, provided by TXT, that, thanks to a user-friendly interface, provides support to the pilot in the decision-making process related to the drone's mission based on atmospheric measurements and morphological data collected by the device.
- Simulation of PinS (Point in Space) routes, performed by Politecnico, with dedicated planning algorithms that are used to define the optimal routes even in the presence of meteorological events and unexpected obstacles identified by the explorer drone. These algorithms are also used to plan certified approach routes.

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Note to editors

Politecnico di Milano, one of Europe's most renowned technical universities, participates through its Department of Aerospace Science and Technology (DAER). The department is a leader in aeronautics and space research and actively contributes to innovation and to the development of new technologies. In the emerging Advanced Air Mobility (AAM) sector, the department promotes the development of long-term strategic alliances with leading companies, sharing research and development activities, joint participation to public and private research programmes, co-creation of patents and organisation of training activities

TXT e-solutions is a multinational provider of end-to-end consulting, software and service solutions. The company participates through its "TXT Research & Innovation" unit which, in collaboration with the Aerospace & Defence business unit, has always been active in the development of new solutions, incorporating and developing new technologies to bring to market, continuously innovating its offering. TXT provides its expertise in terms of the development of training and simulation systems that include the development of dedicated ground stations, the development of embedded software and its own software products that enable the exploitation of the potential of Virtual Reality.

ANT-X, a spin-off company of Politecnico di Milano, contributes with its expertise in the design, prototyping and flight testing of custom multi-rotor drone platforms for specific industrial applications.

The **project (Cup I64D20000000006)** is cofunded within POR FESR 2014 – 2020 programme with joint investment from EU, Italian State and Sardinia region under art. 115 EU Regulation 1303/2013 and 821/214 and in accordance with Sardinia Region purposes

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For more information

TXT Corporate Communications

Aerospace & Defense

communications@txtgroup.com

DAER PoliMI Public Relations

Laura Dalzini, laura.dalzini@polimi.it

ANT-X Public Relations

info@antx.it