ITEA3

Project Profile

HI-RISE

UAS safety and security in non-segregated airspace

The ITEA project HI-RISE aims to allow expanding applications of UAS by increasing the level of safety, especially over cities where we can expect aerial delivery, emergency response, etc., and mixed UAS-manned aircraft airspace governed by current ATM rules and regulations. A feasible certification methodology with a separation provision and collision avoidance capability on low-cost UAS – the main aspects of the HI-RISE project – are key to seamless integration for non-segregated airspace.

ADDRESSING THE CHALLENGE

Unmanned Aircraft Systems (UAS) or drones, whether autonomously or remotely operated, can offer citizens many societal benefits in terms of supplying new and improved services. Drones are perfectly suited to do important tasks that are considered dull, dangerous or dirty, like traffic management, coastguard search & rescue, mapping fire or natural disaster areas and ecological surveillance. However, since high-value applications of UAS, including freight delivery, real-time traffic information and emergency responder applications often occur over cities and in areas where other aircraft fly, UAS are banned from this airspace due to safety concerns. Topping the list of the project's challenges is to ensure that unmanned aircraft systems or drones are safely and securely integrated into a mixed manned and unmanned aviation system and the Air Traffic Management (ATM) environment.

Safety and Security - securely integrating unmanned aviation systems into the Air Traffic Management (ATM) environment

PROPOSED SOLUTIONS

The HI-RISE project brings a new vision to assurance and certification procedures whereby a systematic methodology and tooling forms a bridge from a qualitative and intuitive approach to a formal validation procedure for the certification of the underlying UAS architecture.
HI-RISE will shape this approach into a complete toolset that integrates all the experience and developments of previous projects and extend them towards UAS. The project aims to create a novel software system that can take the raw images from optical cameras, and process the image in real-time to identify other (flying) objects, their trajectory, analyse the threat they pose, and propose evasive action when needed.

PROJECTED RESULTS AND IMPACT

This approach will encourage new actors to the UAS business by providing them with a consistent and easy-to-use validation toolset that will shorten their learning curves and increase their chances of "right-first-time" validation and certification of new UAS architectures. The highly promising market for these technologies means job opportunities, especially in engineering, manufacturing, IT, information management, and in the services they provide.

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HI-RISE

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Project start
December 2016

Project leader
Richard Owen McIntyre, MicroPilot

Project website
https://itea3.org/project/hi-rise.html

Project end
December 2019

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