ITEA project results enhancing people's lives

A new chapter for Unmanned Aircraft Vehicles

Unmanned Aircraft Vehicles (UAVs) are opening up a promising new chapter in the history of aviation. These unmanned aircraft, whether autonomously or remotely operated, offer citizens many societal benefits in terms of supplying new and improved services. Because they can fly close to the ground and near obstacles, UAVs are perfect for doing all sorts of important jobs that are considered dull, dangerous or dirty like freight delivery, real-time traffic management, search & rescue operations, mapping fire or natural disaster areas and ecological surveillance.

However, today's UAV is extremely limited in its operational abilities because it needs to be in line of sight of the operator, which means the UAV along with its required equipment must be transported to its mission destination. This is inefficient, as a lot of time and effort is wasted. In addition, given their relatively high failure rate, for UAVs to fly over built-up areas compliance with recognised safety standards such as DO-178C, the current aircraft software safety standard, is essential. The problem here is that this safety standard is not a good fit for UAVs. First of all, because there is no pilot on board and, secondly, because UAVs tend to sell for much lower than manned aircrafts. It is difficult, therefore, to justify an investment in DO-178C certification given the current cost and time of certification.

With all the players involved, HI-RISE will attempt to develop a "plug-and-play" ecosystem where certified and certifiable UAV components can be integrated into a certifiable UAV system to fly over cities safely. HI-RISE is researching innovative ways to adapt aviation software standards, such as DO-178C, to the unique characteristics of UAVs. It will offer a feasible certification methodology for seamless integration of low-cost UAVs into the national airspace with provisions for separation and collision avoidance capabilities. This will exponentially increase potential uses for UAVs, with society being the main benefactor.

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