

## Development of an Indoor Drone Designed for the Needs of the Creative Industries

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**Abstract :** With this contribution, we want to show how the AiRT system could change the future way of working of a part of the creative industry and what new economic opportunities could arise for them. Remotely Piloted Aircraft Systems (RPAS), also more commonly known as drones, are now essential tools used by many different companies for their creative outdoor work. However, using this very flexible applicable tool indoor is almost impossible, since safe navigation cannot be guaranteed by the operator due to the lack of a reliable and affordable indoor positioning system which ensures a stable flight, among other issues. Here we present our first results of a European project, which consists of developing an indoor drone for professional footage especially designed for the creative industries. One of the main achievements of this project is the successful implication of the end-users in the overall design process from the very beginning. To ensure safe flight in confined spaces, our drone incorporates a positioning system based on ultra-wide band technology, an RGB-D (depth) camera for 3D environment reconstruction and the possibility to fully pre-program automatic flights. Since we also want to offer this tool for inexperienced pilots, we have always focused on user-friendly handling of the whole system throughout the entire process.

**Keywords :** virtual reality, 3D reconstruction, indoor positioning system, RPAS, remotely piloted aircraft systems, aerial film, intelligent navigation, advanced safety measures, creative industries

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