Talking drone offers aviation safety boost

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Air traffic controller interacting with the talking drone.

In a world first, RMIT University researchers have developed a talking drone that can converse with air traffic controllers just like a normal pilot.

The development is a critical step towards the full integration of unmanned aircraft systems – or drones – into civil airspace.

The project, part of a larger research initiative that aims to address safety and efficiency issues related to drones and air traffic management, is the result of a partnership between RMIT, Thales

Australia and the company's Centre for Advanced Studies in Air Traffic Management (CASIA), and UFA Inc.

View and embed a video of the system in action: bit.ly/talkingdrone

Dr Reece Clothier, leader of the RMIT Unmanned Aircraft Systems (UAS) Research Team, said drones needed to be able to fly safely alongside other airspace users without causing disruption to air traffic management.

"The majority of air traffic control services are provided to aircraft by voice radio – aircraft controllers speaking directly to pilots," Dr Clothier said.

"Our project aimed to develop and demonstrate an autonomous capability that would allow a drone to verbally interact with air traffic controllers.

"Using the system we've developed, an air traffic controller can talk to, and receive responses from, a drone just like they would with any other aircraft."

Philippe Bernard-Flattot, Technical Director at Thales Australia, said: "This is a significant project that is important for the future of air traffic control systems.

"It brings the safe and seamless operation of Unmanned Aerial Vehicles within civil airspace one step closer, and is an excellent example of close collaboration between different teams."

The new system – which was presented by researchers in a paper at the Australian International Aerospace Congress held in Melbourne this week – enables a drone to respond to information requests and act on

clearances issued by an air traffic controller, using ATVoice, UFA's voice recognition and response technology.

Flight-testing of a prototype system was completed late last year, demonstrating integration to Thales' Top Sky Air Traffic Control System. Further studies are now underway to better understand the benefits, and explore the human factor issues associated with the automation of drone to air traffic controller communications.

Drones are the fastest growing sector of the aviation industry, with worldwide sales expected to top $US6 billion in 2015. The RMIT UAS Research Team addresses the safety, regulatory, social and technical challenges facing the emerging industry.

Provided by RMIT University