Wingtra

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Flying robots are expected to profoundly change various industries - in particular the land surveying and the industrial inspection businesses should be amongst the early users. However, there are still limiting factors keeping users from adopting this new technology. First, quadcopters exhibit poor flight performance in terms of the distance they are able to cover, due to their energy intensive operation. Second, currently available fixed-wing planes are able to cover longer ranges, but they are challenging to maneuver autonomously and require infrastructure such as runways, catapults, nets and large open spaces.

At Wyss Zurich, engineers, scientists and programmers are developing a completely new aircraft design that will overcome these challenges. The project evolved from years of research conducted at the Autonomous Systems Lab of ETH Zurich by leaders in the field of flying robots. This novel type of Unmanned Aerial Vehicle (UAV), called Wingtra, combines the advantage of a traditional airplane and a helicopter. Just like an airplane, the wing will generate lift in forward flight, thereby allowing longer distances to be covered and heavier payloads to be carried farther. The main handling burdens will be overcome by their ability to autonomously Vertically Take-Off and Land (VTOL).

The easy handling of the device will enable even untrained personnel to operate Wingtra and the widespread adoption of such aerial robots. This disruptive aircraft design promises to dramatically improve inspection efficiency and reduce costs of linear infrastructure assets such as pipelines, railroad tracks or high-voltage lines. Furthermore Wingtra could also be of great value to the farming industry in optimizing crop management.