

**MASTER THESIS** Creating a virtual cockpit for drone operators

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# A virtual cockpit for drone operators

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POPULAR SCIENCE SUMMARY Philip Alm

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**A virtual cockpit could be essential for the future of operating drones. A virtual cockpit allows the operator to get a view around the drone from the drone's perspective. This can be achieved by mounting a 360-degree camera on the drone and display the feed in a virtual reality (VR) environment. To give the operator better awareness a collision avoidance system (CAS) can be used. The information from the CAS should be displayed in the virtual cockpit in such a way that it adjusts to the direction that the operator is looking at.**

Drones are today getting more and more popular. But what can they be used for? Today the usage of drones is heavily limited due to operators being required to have visual line of sight to the drone. The requirement is there to ensure that the operator have awareness of what is going on around the drone. I have therefore created a virtual cockpit that allows the operator to look around the drone from the drone's perspective. To further assist the operator, I have explored how to present information from a CAS in the virtual cockpit. To test out the concept two prototypes were created. The first with a live 360-degree video feed that allowed the operator to use the virtual cockpit whilst flying the drone. The second prototype had prerecorded 360-degree video in the VR environment. This allowed for three different displays of CAS information to be tested. The three systems are a circular HUD, a dashboard, and a radar. The most promising system proved during usability tests to be the circular HUD, due to its adjustability to the direction the operator is looking at.

**Drone and camera used in project**



**Circular HUD display system**

