Building a Stable UAV for Photogrammetry

CopterSystems is a manufacturer of high-end copter solutions for a variety of applications. Roman Paulus, the founder and CEO of the company, was one of the pioneers in using UAV technology for photogrammetry and other sensor-based airborne applications in Germany. Recently, more and more potential customers have been approaching CopterSystems and asking for Phase One cameras as sensor options for UAVs.

One of the camera features that stood out was the pinpoint accuracy; all cameras employ mechanisms to solidly lock their lens to the camera body. The demand reached a point when CopterSystems decided to develop a special UAV for Phase One iXU cameras, which they called the CS-P.O.C (CopterSystems Phase One Carrier). Their main goals were to maintain full control of the camera and the UAV from the ground, enable to fly waypoints with high accuracy, secure the camera as much as possible, and to make the UAV as stable as possible.

Wind conditions

In order to generate a precise and smooth flight, only one third of the maximum engine power is needed, so even in strong wind conditions, the stability will not be at risk, which is very important for the success of a photogrammetric flight. The operator has complete control of the UAV and camera via the remote control in order to get the best image quality possible while flying, and the live feed from the iXU camera can be streamed.

Phase One Carrier UAV of CopterSystems

Sand mine

During a demonstration for a survey company in the south of Germany, the CS-P.O.C. was flown over a sand mine. The results showed

the full photogrammetric potential of the CS-P.O.C. with a Phase One iXU 150 as a survey tool. The survey company was very impressed by the complete workflow and how little time this project took to complete. The UAV was able to capture parts of the mine that were classified as unstable to walk on. Eventually, using photogrammetry enabled the survey company to measure points at a higher standard than was even known before.

Roman Paulus said they decided to build a solution that combines the best aerial camera and UAV. Therefore, they chose to go with the Phase One iXU camera. The entire UAV was planned around the camera, which enabled them to choose the best components. After the proof of concept was finished, several projects were carried out and CoperSystems can proudly present a solution to bring photogrammetry with a UAV to a new stage for actual survey work, Paulus concluded.

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