

Tools, Tips and Workflows

Wings versus Gliders

AirGon



Lewis Graham
May 2014
Revision 1.0

Several of us in the company are avid model airplane enthusiasts, actively flying various types of models. We have been debating the merits of fixed wing “flying wings” versus gliders. Which of these is the better mapping platform? In fact, I covered this topic from a stability point of view in a recent “Random Points” column in LIDAR News.

I thought we might look at these attributes in a tabular form for this comparison. We will assume that we have a purpose-built sUAS for both categories (wing, glider) aimed at precision aerial mapping. In the table below, 0 means awful whereas 10 means it does not get any better! As a point of reference, an excellent example of a mapping wing is the eBee from SenseFly. We do not know of a good example for a commercially available glider so we will use our experiences with the Skywalker platform using 3D Robotics components and APM software. Our operating scenario is a surveyor hauling the equipment to different sites for projects such as volumetric analysis and local area mapping.

Attribute	Wing	Glider
Durability	7	5
Ease of transport	9	4
Payload capacity	4	8
Payload flexibility	2	8
Ease of takeoff	8	3
Ease of landing (auto-landing)	8	2
Wind resistance	4	8
Mission duration	6	10
Totals	49	48

Well, that was not very useful!! To make it so, you need to apply weighting factors to the various considerations (as well as add additional considerations of your own). For example, launching and landing a glider is a more difficult process than for a wing. If this is a major consideration for you, then apply a high weight to these factors.

Tools, Tips and Workflows

Wings versus Gliders



For us, wind is a major concern. We see little advantage of being able to fly an sUAS under cloud cover if it cannot tolerate moderate winds. While it is certainly true that a wing can fly in some pretty stout winds, it executes a torturous flight path resulting in some wild camera angles!

As always, I am very interested in your thoughts in these areas. Send comments to lgraham@geocue.com or suas@geocue.com.