

Figure 1: Digital Surface Model

Acquisition, processing and mapping of drone data in the cloud is the core business of DroneDeploy, a San Francisco-based company. Through an easy-to-use app, drone users can program a drone and upload the data to the cloud, where it then is being processed and a final map is returned, even before the drone has landed.

By Eric van Rees

DroneDeploy is a San Francisco-based cloud software company, offering a cloud-based solution which allows anyone to create on-demand aerial drone maps in a single click. "Lots of the expensive, high end drones aren't easy—they require lots of money and training. We offer a simple-to-use tool so people can do better things with their data", says Sales and Business Development Manager Ian Smith.

He continues: "The idea behind our tools is to remove the barrier to entry of doing useful things with drones. We want to make it just two or three taps on your cellphone for generating powerful and useful data." To make this happen, the company offers a free app, that is connected to the drone and offers the user to do some simple planning. Then, the drone is launched through the app, flies and acquires the imagery of the area as specified by the user and finally uploads the imagery after landing to the company's cloud services where it is stitched together automatically.

Although the app can be downloaded for free, there's a software subscription rate that generates revenue for the company. Smith explains: "until now, you could try the app for 30 days and generate maps with it. After that, a monthly subscription rate applied, allowing to generate up to 5000 acres of map every month. Our pricing struc-

ture has changed since September 15th though, removing any acreage restrictions and now there's be a totally free, unlimited maps and 3D models tier. Also, we will now be able to process maps from any type of drone or aircraft, not just DJI's, as long as there is embedded GPS EXIF metadata on the photos, you can use DroneDeploy to process them to create maps, 3D models, and take advantage of our cloud-based features like annotations, measurements, and easy sharing."

Need for speed

It's the smart application of the cloud that sets the company apart, yielding in fast results, says Smith: "we use multiple cloud servers to process all this drone data. They're optimized to process the data as fast as possible, so that you can get your map on your phone half an hour after you land the drone. By putting and processing the data in the cloud, you can dramatically limit the amount of processing time compared to if you would have to do it yourself. We have users who have done fifteen to twenty flights in a day."

One sector where speed is important is agriculture. Here, DroneDeploy booked a lot of success already, says Smith: "having instantaneous data is incredibly important for farmers. With our partners in this sector, we now have a device on board which puts us on the internet. As the images are being taken, they're sent to the cloud

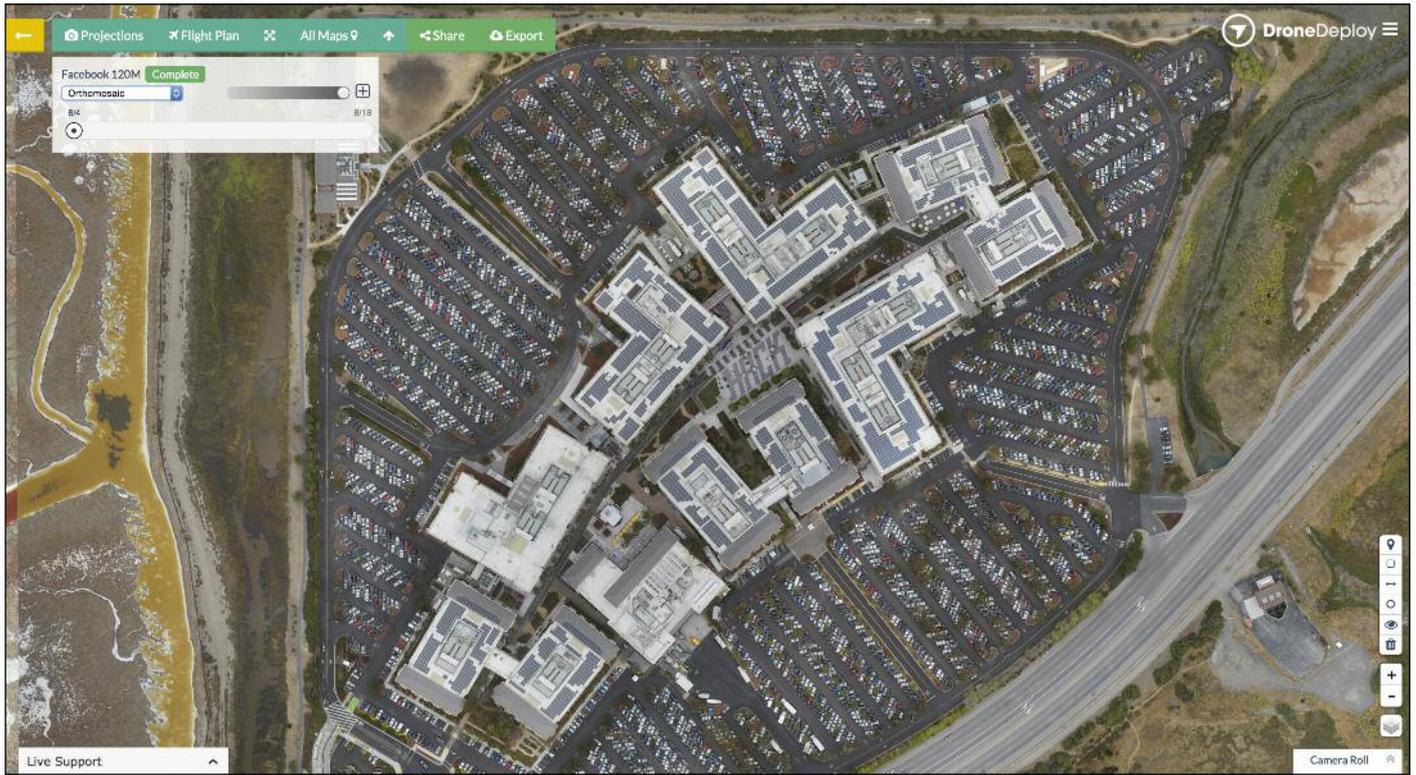


Figure 2: Orthophoto

immediately. That enables us to stitch the map and generate while the drone is still in the air." Another agriculture application is monitoring, with a modified camera attached to a drone that can generate vegetation indices to monitor crop health. Smith states that this solution is already paying dividends to farmers who are using it. However, a necessary condition for using the system this way is the availability of cellular Wi-Fi, or some kind of online service if you have a hotspot. Smith admits there are places with limited opportunities for data capture, but says that people are making maps everyw-

here: "we have offline versions so that you can go out and do the mapping, and generate the data in an area where there is internet connectivity available."

Partnerships

The company has partnerships with lots of drone companies. The most recent one is Chinese drone maker DJI, which is the world's current largest manufacturer of drones says Smith: "they sell like 2000 units per day, all over the world." Another important partnership is with Esri and the company participates in its Startup Program. Smith explains: "The cooperation with Esri is ongoing. Our goal is for the culmination to result in an easy, one-click ArcGIS import, straight from the DroneDeploy dashboard into ArcGIS."

For more information, have a look at www.dronedeploy.com.



Figure 3: 3D quarry