YellowScan | Designed to Innovate.

SUCCESS STORY

Railway Inspection

CORRIDOR MAPPING

INTEGRATION
DJI M600

SOLUTION
Vx20-200

> *The purchase of the Vx20 from YellowScan has allowed us to expand our 3D tools. We now use LiDAR for topographic surveys that we weren't offering before, so it has allowed us to expand our services. I knew I was going to get a robust and high-quality system from YellowScan, and also, it is a French company!*
>
> Pierre-Augustin, Director of CDGI

Company: CDGI
Website: www.cdgi.fr
Country: France

Business challenge.

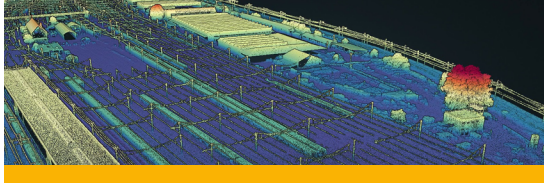
How do drone LiDAR surveys compare to traditional methods in railway corridor mapping projects?

The first project CDGI worked on, and for which they equipped themselves with a YellowScan LiDAR, was the Charles de Gaulle Express. The SNCF, plus the companies contracted for the works, wanted to compare LiDAR surveys with those done with traditional methods, in a real work situation.

The problem CDGI had to solve was how to survey the land surrounding the railway tracks and the embankments on the side of the tracks without interrupting the railway lines and traffic.

Their goal was to prove that it was possible, in terms of safety, to carry out these drone surveys close to the tracks in use.

At the beginning of the project, there were no clear procedures or doctrine in France on surveys done by drones. It was, in fact, rather forbidden to fly drones above trains, but CDGI managed to obtain permission to fly their equipment over them.



SUCCESS STORY

Solution

You want to learn more about LiDAR applications ?

Scan this QR CODE

Acquisition.

« We use our YellowScan Vx20 to do surveys in order to compete with traditional surveys, either for the installation of structures or for quarry projects. We also use it to create existing 3D scenes to produce 3D models faster. LiDAR scans allow us to have the positions of all the elements in an environment in order to model them, which saves us time on the 3D modeling. We're also able to save time on workflows that were already put in place before purchasing this tool. » stated Pierre Augustin, director of CDGI.

YellowScan Vx20-200 with camera module on DJI M600

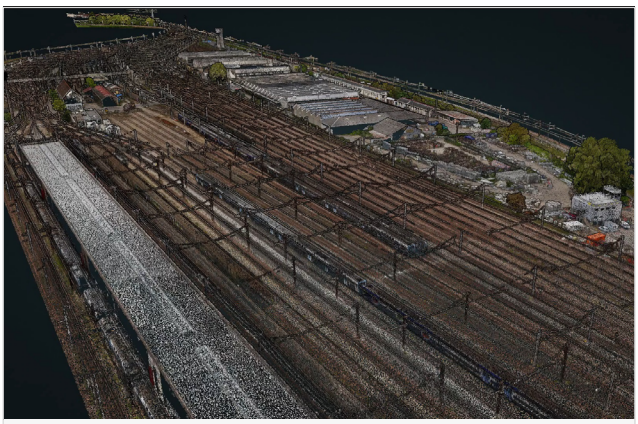
Mission parameters.

- **Survey size:** 50 hectares (37 acres). About 10 hectares (25 acres) per flight with horizontal and vertical grids.
- **Duration:** Over 3 years - once every 3 months. At first it was a full day of survey, then half a day. CDGI had to space out the missions as there were multiple phases of construction works. Nothing happened for months at a time on the site.
- **Number of flights:** 5 flights per mission with about 10 missions in 3 years.
- **Flight height and speed:** 50 meters high (164ft), at 5m/s (11mph).
- **Point density:** 100pts/m^2 (10pts/sqft) - to have enough points on rail or civil engineering elements.
- **Accuracy:** 1 to 2 cm (0.4 to 0.8 in).
- **Equipment used:** Vx20-200 LiDAR system, DJI M600, camera Sony A7RIII, CloudStation (strip adjustment and colorization modules).

Results.

The conclusions observed were that they got the same accuracy with the survey done with the YellowScan Vx20 as with traditional survey methods.

However, a major difference was that the surveys done with the Vx20 are much faster when compared to traditional land surveys. For example, with a LiDAR mounted on a drone, 150 hectares can be scanned in one day, whereas with traditional surveying, it can take several days or even weeks, and more people are needed to complete the project.



Colorized point cloud of the railway section