



“ Using UAVs is a significant leap forward in building inspections. Without Intetics our monitoring process was slow and disorganized. ”

www.intetics.com

A MAJOR CONSTRUCTION COMPANY OPTIMIZES RESOURCE ALLOCATION WITH ONGOING DRONE DATA PROCESSING BY INTETICS

OBJECTIVE

To help a major construction company optimize spending by monitoring construction sites using topographic maps of their building sites.

CHALLENGE

Intetics was approached by a representative of a major construction company. The company constructs industrial facilities in several locations in different parts of the country. It is crucial for them to know of any site issues to successfully distribute their resources and ensure well-developed, timely results.

To optimize their resource allocation, the company collects and analyzes data about their building sites. A recent audit, however, showed that the ongoing monitoring of building sites is unreasonably expensive, and data processing takes too much time. Moreover, reports about construction sometimes come a few weeks late, critically impairing quality control, which in turn leads to loss of time and money.

Looking for outside GIS (Geographical Information

Systems) expertise, the construction company asked Intetics to analyze the situation and come up with a solution for better and timely collection and processing of their building sites data.

SOLUTION

Intetics first analyzed the existing capabilities of the client's staff and available technologies on the market. Intetics concluded that the most effective solution would be regular aerial photography surveys performed by UAVs (Unmanned Aerial Vehicles). The modern level of UAV data collection and photogrammetry opens up tremendous opportunities for efficient, rapid, low-cost and continuous monitoring of industrial sites, but it has to be implemented and used in an efficient manner.

In addition to creating better data collection process, Intetics discovered that the industrial facilities builder also needs to create a topographical map of each area after completion of construction. This task can also be perfectly resolved with UAVs.

After the decision to use drones was made, Intetics moved on to detailing the process. The industrial construction company

CONSTRUCTION COMPANY ABLE TO VISUALIZE BUILDING SITES HOURS AFTER SURVEY COMPLETION

agreed to adopt the following data process:

They will purchase a few sets of shooting equipment (UAV + Camera) based on Intetics recommendations. Intetics will prepare a flight plan for each site, and workers on the site will fly the drone on their own as often as necessary in automatic flight mode. Then, construction workers will send the data collected to Intetics for processing. Key personnel will be trained by Intetics to ensure successful data collection. Data transfer will be performed via the Internet, using a UAV data cloud service already created by Intetics.

After the survey data is received, Intetics engineers start processing. Modern GIS software performs automated processing, but Intetics engineers perform quality control at each stage (and other adjustments as needed). Processing data in this way ensures highest quality results, while providing high speed and low cost data processing.

After processing, the construction company then receives data visualizations, such as digital surface and terrain models, orthophoto and 3D-models of the construction site. The visualizations demonstrate the current situation at the building site. This data also allows Intetics engineers to perform change analysis, and illustrate changes both visually and numerically. For example, Intetics can monitor key performance indicators and compare several surveys using tables and graphs, letting the client know where construction can be improved and how. Each aspect of construction and assembly can be inspected for quality control and materials can be monitored and managed.

Finally, after construction completion, a

control survey must be performed. Using the data from this final survey, Intetics is able to create a topographical map of the entire facility using vectorization from DTM and orthophoto source data.

RESULTS

Thanks to the new data collection and processing procedure and use of drones, the construction company is able to analyze and optimize their construction resource allocation. They have ongoing access to Intetics GIS experts, who can easily analyze construction surveys and uncover insights that can further help the construction company optimize resources.

Intetics helped train key personnel and helped the company innovate their processes using drone technology. The client is able to collect data more efficiently and receive insights from the collected data, without having to modify their internal software or hire additional staff for the maintenance of UAVs.

The main result is a long-term and mutually beneficial cooperation. The whole process from the initial survey and to site visualization takes 1-2 days, depending on the complexity of the construction object. In most cases, the first data processing results, such as a point cloud, 3D mesh or true orthomosaics, become available to the client in couple of hours after the survey. More detailed results and analysis are then delivered as soon as possible after survey results are received. The construction company significantly reduced the costs for current monitoring of their building sites, as well as increased efficiency in management decisions.