



TECHNOLOGIES

PROCESS AUTOMATION:

- Apache
- MySQL
- HTML
- CSS,
- PHP

DATA STORAGE:

- MS BizSpark
- GDAL/OGR
- Leaflet
- JS
- GeoJSON
- PHP
- MBTiles

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SURVEY AND MAPPING COMPANY ACCELERATES BUSINESS PROCESSES WITH A CUSTOM SYSTEM BY INTETICS

OBJECTIVE

To create a custom content management system for faster order processing and data storage for a major provider of mapping services.

CHALLENGE

Increasingly more mapping and geographical tasks can be solved with Unmanned Aerial Vehicles (UAVs), for example industrial survey and inspection, 3D modeling and land use management. While the use of UAVs significantly improves efficiency, the ever-increasing amount of collected data requires specialized infrastructure for data storage and maintenance.

Facing rapid market growth, a major provider of UAV survey and data processing services sought a technology partner to create a new web-service. Their services produced a lot of data, and it became increasingly important to create a system that would allow quicker management of customer orders. The new system also had to store, catalog and visualize drone data and other derivatives.

The first task in building the web-service was automation of the sales and order processing. The second task was to build a cloud-based database where drone data and its derivatives (such as visualizations and cleansed data) could be stored and maintained.

SOLUTION

The drone services provider found that Intetics' combined expertise in software development and geographic data processing was vital for a successful result. Intetics GIS experts began by analyzing the client's business requirements and developed a content management system (CMS).

The first task they tackled was automation of sales and order processing. The client worked with two main groups of customers: those who ordered custom surveys from them, and those who preferred to arrange their own surveying and only needed data processing services. Keeping this difference in mind, Intetics designed a fully cloud-based CMS that would allow users to rapidly schedule land surveys depending on their preferences, or easily specify their data processing needs. The resulting user flowchart can be seen on page 2.

The second task Intetics engineers tackled was the issue of data storage, maintenance and visualization. Intetics created a standardized data structure, which automated some data processing tasks and reduced management costs. How the solution worked with the automated system is pictured in grey in the flowchart on page 2.

User projects were stored in the cloud as either public or private. They were accessible via the Internet to the users involved. Users could view and make simple measurements using

CUSTOM SYSTEM ATTRACTED NEW CUSTOMERS THANKS TO RELIABLE SERVICE AND FASTER ORDER PROCESSING

the stored geo-data.

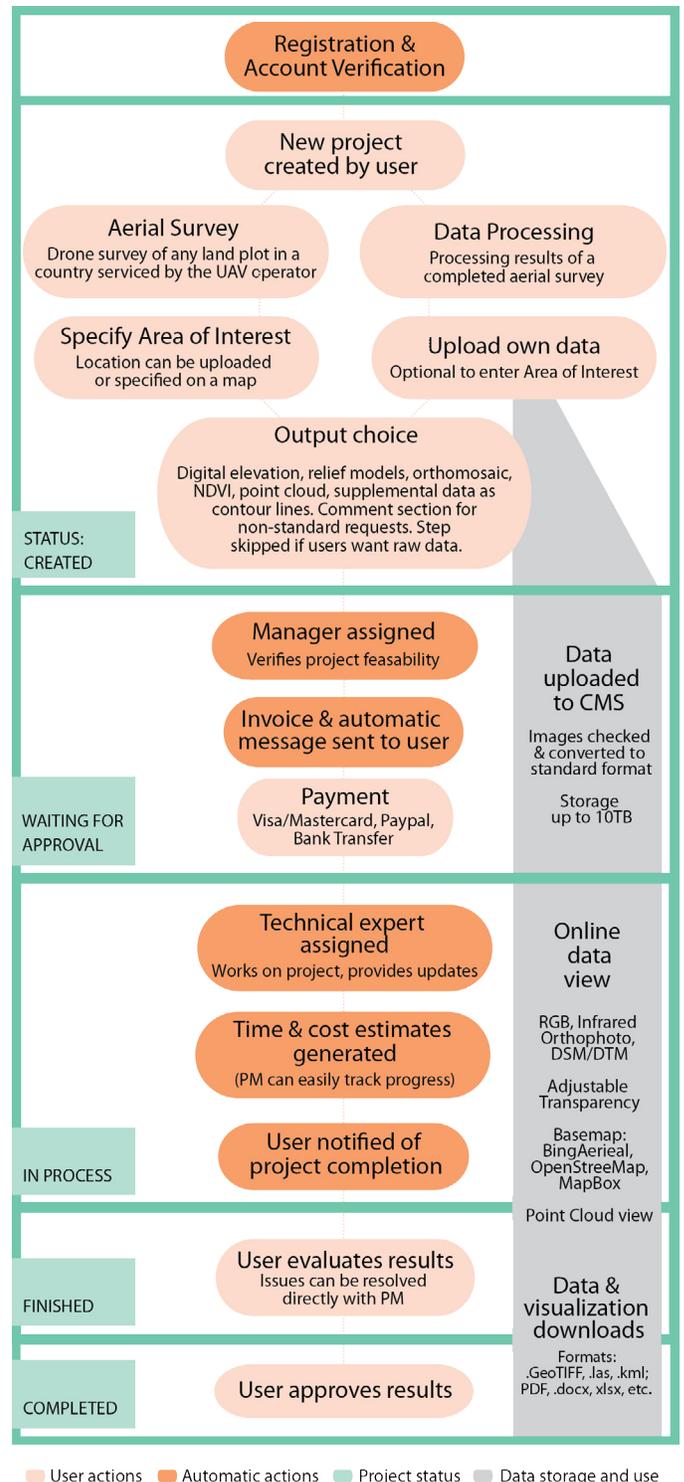
The data structure consisted of two subsections: the source data and data processing results. The main type of source data were raster images, such as photographs captured with a UAV camera, which could be uploaded directly by the user. During data upload, the system automatically read image metadata and stored them in the CMS project profile for processing. It also checked and converted images into a standard format (without quality loss) and created thumbnails. Uploaded files could be viewed, sorted by parameters and downloaded.

After upload, data could be opened as map layers. Users had an option to switch between RGB and Infrared orthophoto, Digital Surface and Digital Terrain Models (DSM/DTM). Users could change layer transparency and display vector data. They also had the option to select Bing Aerial, OpenStreetMap or MapBox as a basemap. A point cloud view was also available, which allowed the user to see a 3D terrain model. Using this data, users were able to conduct simple measurements, such as area or length measures, volume calculations (for example, the volume of the heap/excavation) or build a profile of the surface.

The second section of the data structure contained the processed data. The data was available for download in .GeoTIFF, .las and .kml formats. Reports, analytics and metadata were available for download in pdf, docx, xlsx or other formats (not available for view online). A direct link to the data gave users the opportunity to gain direct access to the data without visiting the site.

RESULTS

With the cloud drone data management system, the UAV services company significantly accelerated their business processes and reduced costs. The system accelerated order processing, reduced the number of processing errors and improved productivity. All this contributed to the attraction of new customers and allowed the company to enter new markets.



Flow chart of CMS automation and data storage