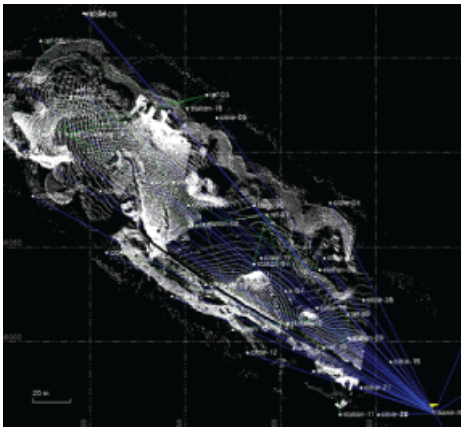


OBJECTIVE

In July 2013, ING Robotic Aviation and Centre de Geomatique du Quebec (CGQ) engaged in a special project to demonstrate the ability to perform volumetric estimations based on aerial imagery taken by an unmanned aerial vehicle (UAV). The purpose of this project was to be able to calculate amounts of gravel or sand once it has been removed from mining pits. For the mining industry, this is an important task as it measures the value of each site.

OPERATION

The images provided show the complete process including evaluation (software), image processing chain, and proper tools. The imagery captured by the robotic aircraft provided the ability to produce a 3D model, and from this, the ability to make volumetric estimations. Using terrestrial survey digital elevation models (DEMs), ING Robotic Aviation was able to perform a volume comparison that produced an accurate calculation within 98% of the actual.



APPLICATION

The completion of this project enabled a new advancement for the use of robotic aircraft. By testing robotic aircraft and establishing a complete process, this project has allowed ING Robotic Aviation to reproduce this research and commercially provide volumetric calculations services today.