How We Use Drones and LiDAR to Collect Data More Effectively

BOLTON & MENK

Real People. Real Solutions.

Step 1

DATA COLLECTION

Our reality capture team collects millions of data points using a LiDAR (light detection and ranging) scanner, which emits a laser beam to measure the surface below, attached to a heavy lifting drone.

The drone records its precise position using both global navigational satellites and onboard navigation systems.

Simultaneously, our surveyors set a GPS receiver over an established point to account for any errors in satellite signals during collection.

Step 2

DATA PROCESSING

Navigational data collected from all sources in the field are processed to get precise drone positions during every second of the flight. This information is combined with the laser measurements to create a dense model of points with horizontal and vertical coordinates that represent the surface below called a point cloud.

Step 3

DATA QUALITY ASSURANCE AND CONTROL

Reflective targets marked on the ground prior to the flights are collected by surveyors. The targets are used as control points to detect any errors in the point cloud and make necessary adjustments.

Some of the targets are set aside as independent checkpoints to verify that data accuracy meets project requirements and professional standards.

Step 4

DATA ANALYSIS AND DELIVERABLES

Point cloud data can be classified into features such as ground, vegetation, poles, and buildings.

Classified data is then filtered and extracted to create different types of datasets such as bare earth models, slope data, surface models, canopy height models, and more to help meet project goals.

For more information on drones and LiDAR, contact
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