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Understanding multiscale dynamics of landscape change through the application of remote sensing & GIS



Survey Grade GPs and Bluetooth enable Rangefinder

Mobile GIS allows the user to bring the functions of GIS out into the field. It integrates Global Positioning Systems (GPS), handheld computers, and GIS software. This allows the user to view and edit spatial information on top of a background image (such as a topographic map or aerial image) in real-time. Bringing these technologies together makes GIS databases instantly accessible out in the field.

Physically occupying every location for data collection is not only time consuming but, in some cases, impractical and unsafe. Laser rangefinders allow users to record the position of remote features from a single location. A single shot provides horizontal, vertical, and slope distance with one-foot accuracy. A built-in tilt sensor delivers angular accuracy of 0.25 degrees, even when shooting at the steepest angles. (Laser tech Website, 2009)

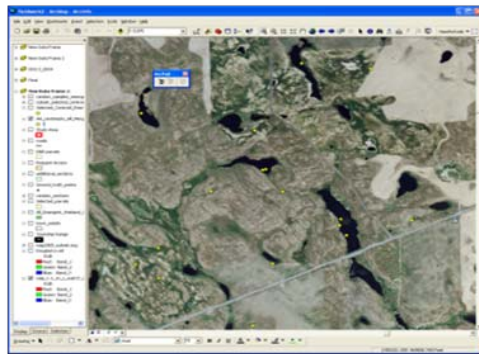
Using the measurements taken from laser shot a blue-tooth enabled laser rangefinder communicates directly with the GPS and instantly offsets the data point location. Users shoot the desired object to gather its precise location.

Applications:

- Used to collect spatial data from features that are difficult to access such as wetlands, cliffs, and trees.
- Used to collect data in areas that have poor satellite reception such as features obstructed by tree canopy.
- Can increase the speed at collecting points by using a vantage site and hitting targets of interest with a laser rangefinder
- This technology is used in numerous ways such as collecting tree locations for urban forestry projects, delineating wetland edge and collecting groundtruth data for remote sensing projects.

Steps:

1. Find Suitable Vantage Point
2. Open Arcpad on Trimble Unit and begin collecting satellite information
3. Enable rangefinder
4. Shoot target
5. Accept point, add attribute information and save data
6. Post process data. Bring into GIS



Wetland mapping field accuracy assessment, Eastern WA, Summer 2009



Mobile GIS and Bluetooth rangefinders used for mapping forest inventory.



← GPS data acquired with a recreations, research and survey grade GPS; variation of mapped area is only 2%.



Mobile GIS applied in Himalayan blackberry mapping in Magnuson Park, Seattle, WA, Summer 2007

THE ISSUE: Physically occupying every location for data collection is not always possible. A blue-tooth enabled laser rangefinder allows the user to collect GPS data from a remote location and communicates directly with the GPS to instantly offset the data point location.

THE KEY QUESTIONS:
How can we collect GPS data from a remote location?