ESRM 430 Lab 7
Mobile GIS for Collecting Spatial Field Data
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Why Collect Spatial Field Data for Remote Sensing?

Provides a "Ground Truth" for developing new models or performing accuracy assessment

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(Vector) GIS Basics: Generalizing the Real-World using Three Data Types

Point – Sample Location, Tree, Bench, Bus Stop, Street Sign, or City (no length or area)
Line – Sample Transect, Road, Bus Route, Stream, or Utility line (no area)
Polygon – Sample Plot, Parking Lot, Vegetation Patch, Building Outline, or Political Boundary

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Mobile GIS vs. GPS vs. Laser Rangefinders:

Mobile GIS – Field-portable Geographic Information System for storing, displaying, collecting, and sometimes analyzing spatial data.

GPS – Satellite-based navigation system used by Mobile GIS to provide a user's location as latitude/longitude coordinates.

Laser Rangefinder – Higher-end models, like those shown in the lab, collect distance, bearing, and inclination angle between the viewer and target. They can be used by Mobile GIS along with GPS to calculate the coordinates of a distant object, or as a stand-alone tool for measuring object height.

Spatial Accuracy of Equipment

GPS – 2 to 5 m (95% confidence)   **Rangefinder** – 1 m (well-defined vertical target < 1 km)

Tips for Successful Field Data Collection:

Use Highest Resolution Base Map Data Available – High resolution remotely sensed imagery makes an excellent backdrop for field data collection. Imagery and other base map data can help users gauge accuracy of field measurements, aid in navigation, and provide a reference source of previously gathered field data or data generated in lab analysis (e.g. a land use/land cover classification).

Pre-fieldwork Project Setup – Clearly define your data collection needs before heading to the field. Develop electronic data collection forms to speed up data entry and eliminate errors. Test your methodology close to home, since error will inevitably occur. Practice each method for collecting and editing data, multiple times. Keep your approach flexible to accommodate the uncertainty of field work.