

NEW COOL TOY FOR GIS MAPPING

SCAUG
THE WOODLANDS, TX
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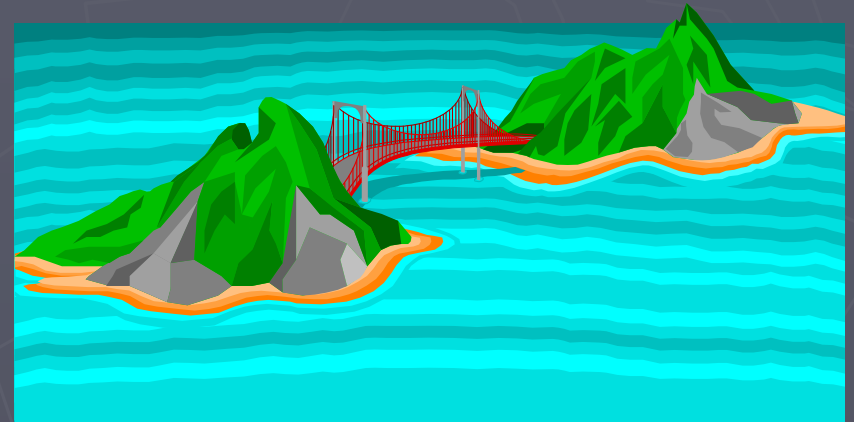
Limitations of GPS



Data acquisition challenge #1

"You can't get there from
here"

- ▶ Terrain separates you from the feature you want to map.



Data collection challenge #2

“You can get there ... but
don't want to”

- ▶ Also called the
Doberman
effect.



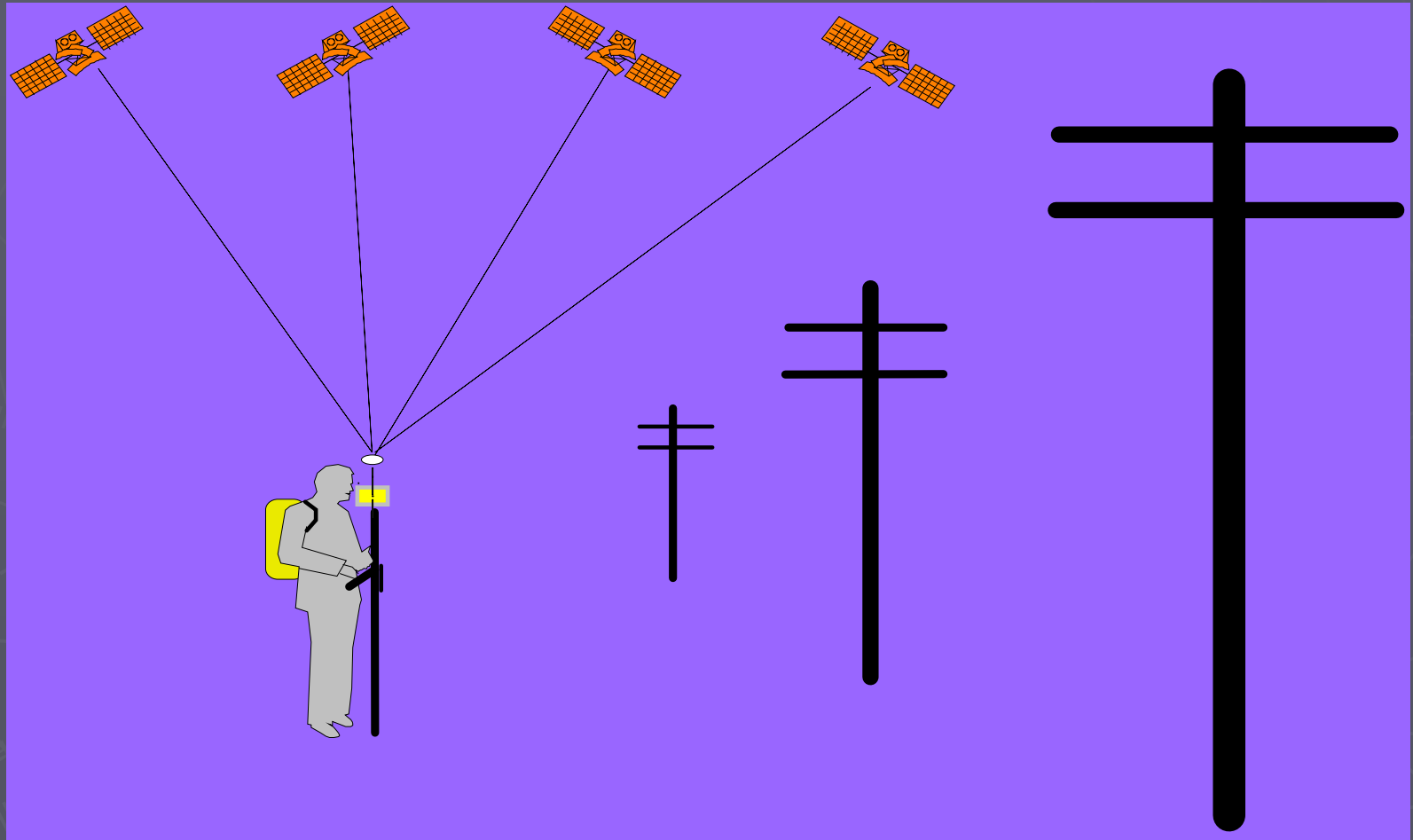
Data collection challenge #3

"You can get there ... but the satellite can't"



Data collection challenge # 4

"You can get there, and there,



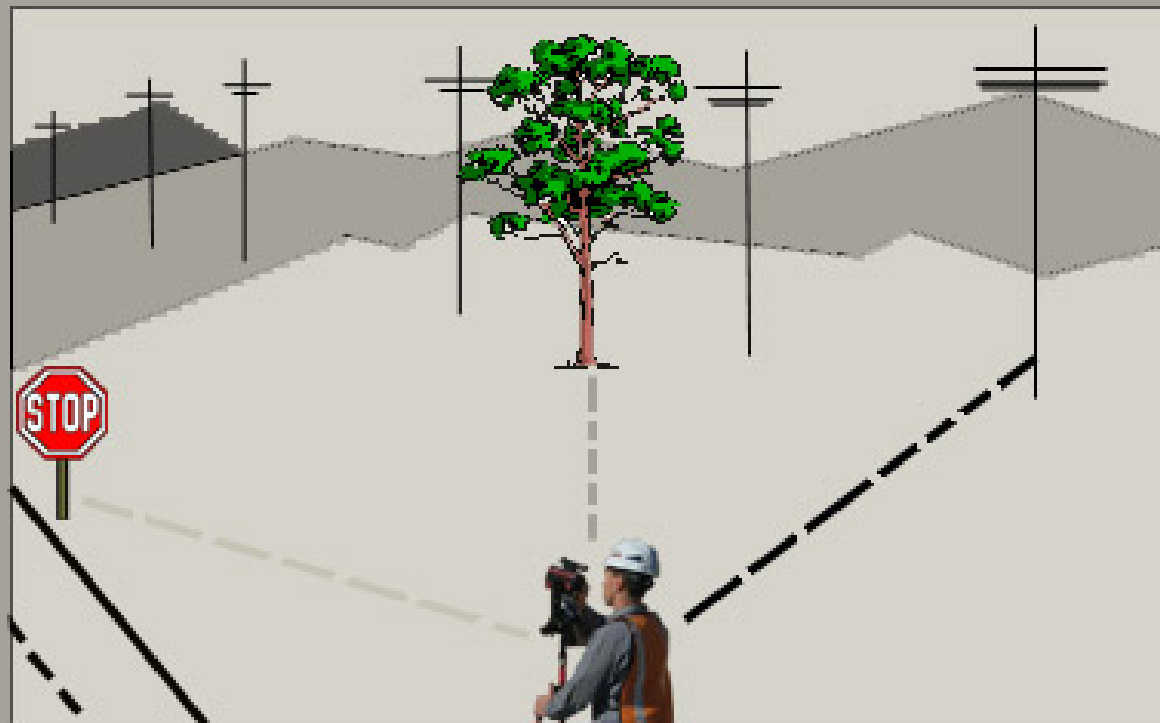
Overcoming limitations

- ▶ Laser range finder for offsets solves occupying dangerous and inaccessible location.
- ▶ Improves speed of data collection
- ▶ Assists in data acquisition in canopy environments.

To address these challenges,
consider using laser mapping
systems



The Secret to Faster GPS Data Collection is Simple ...



STOP OCCUPYING EVERY POINT!

New trends in GIS Data collection

- ▶ Lately GIS mapping professionals have started taking pictures for features
- ▶ That means
- ▶ So in addition to a GPS and a LASER you have to take a camera also. In newer PDA'S the camera is built in

New trends in Data collection

- ▶ Camera with GPS and compass are now available also.
- ▶ BUT
- ▶ No distance readings are available so one has to carry a laser distance device.
- ▶ GPS accuracy on the camera is not mapping grade, so you have take another GPS receiver

New trends in data collection



New trends in data collection cont'd

- ▶ All these solutions have worked well and professionals are using it but the big limitation is having to carry several units which adds to the weight and involves additional batteries, cables etc.

Better alternative is

- ▶ A integrated GPS, COMPASS, LASER and CAMERA unit with Windows Mobile OS
- ▶ Allowing software like ARCPAD to run
- ▶ One such unit is IKE
- ▶ (I KNOW EVERYTHING)

Before



Now

IKE IS A

All-in-one mobile GIS solution
Integrated camera, laser range finder,
3D compass, rugged PDA, GPS

Fast and Accurate
Locate, Measure, Document

Point, Shoot, Download



ikeGPS

Accurate Rangefinder

- 300m or 1000m range

Sub-meter GPS

Best-in-class camera

- 5.2 megapixel
- 10x digital zoom

3D compass

- Ferrous metals distort magnetic field

SD Card Access

Power Button



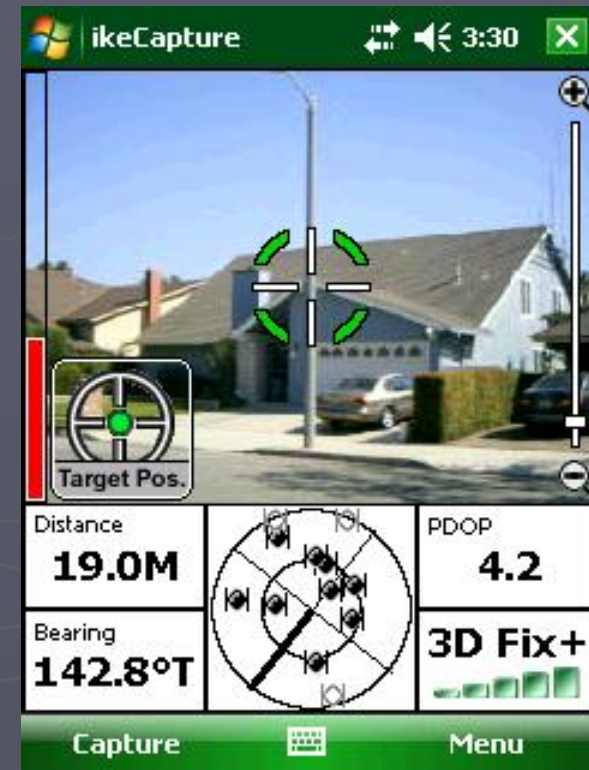
What is ikeCapture?

- ▶ Uses laser range, compass heading, inclinometer angle
- ▶ and ike's GPS coordinates to calculate the position of
- ▶ the remote target

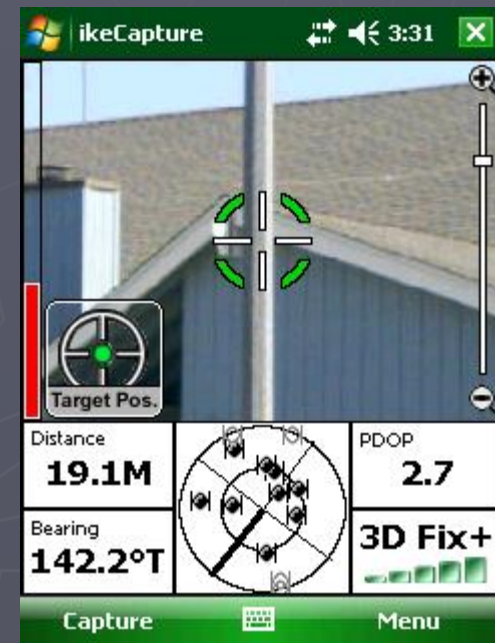
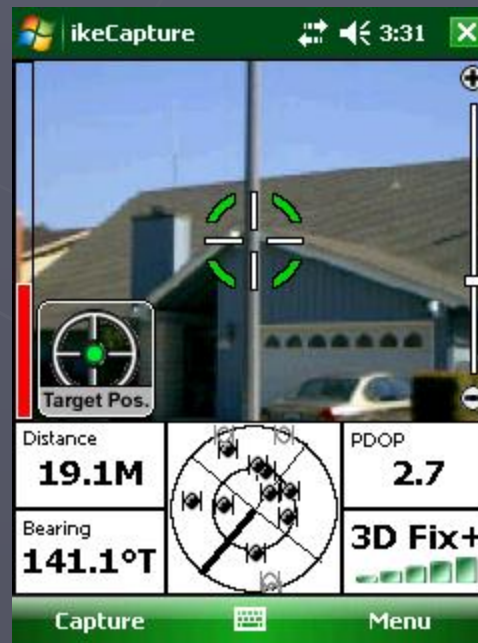
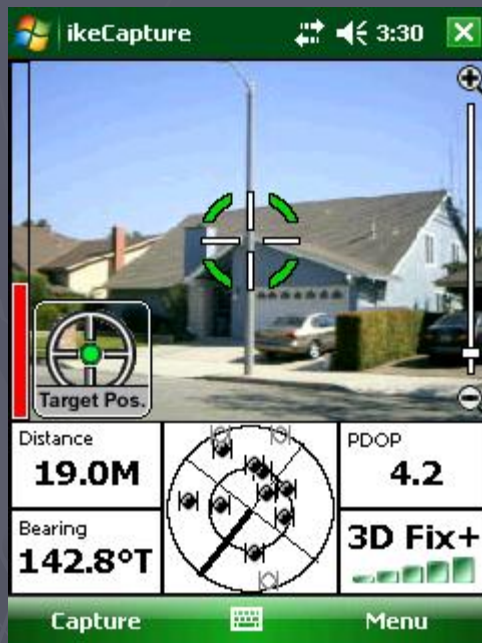
- ▶ Captures a jpeg image of the target and embeds all data
- ▶ in the image's EXIF header
- ▶ Stores data in
 - CSV file
 - KML file for use Google Earth
- ▶ Can be integrated into other applications

ikeCapture

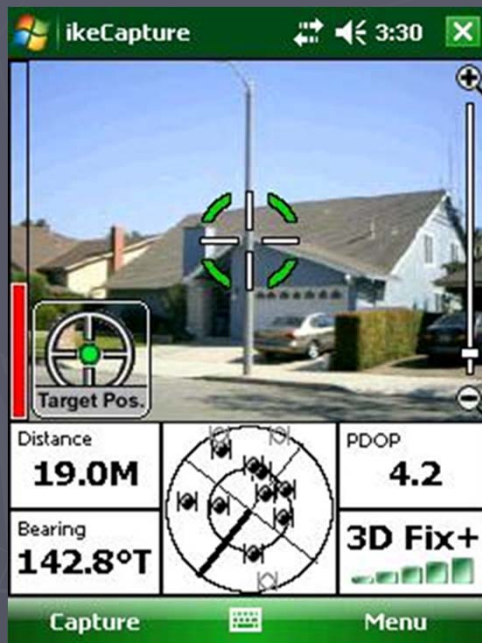
- ▶ Target Image
- ▶ Distance to target
- ▶ Bearing
- ▶ Skyplot
- ▶ PDOP
- ▶ GPS Fix Type
- ▶ High Accuracy GPS Option



ikeCapture Target Position Applet



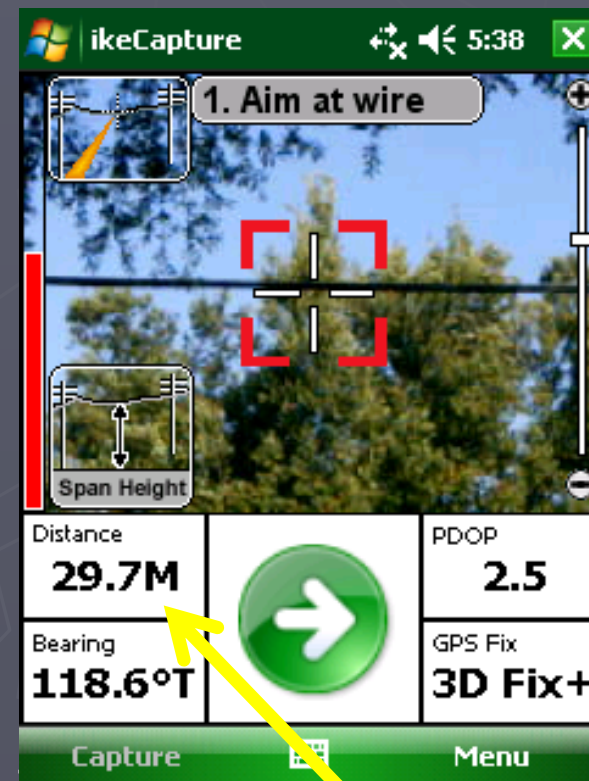
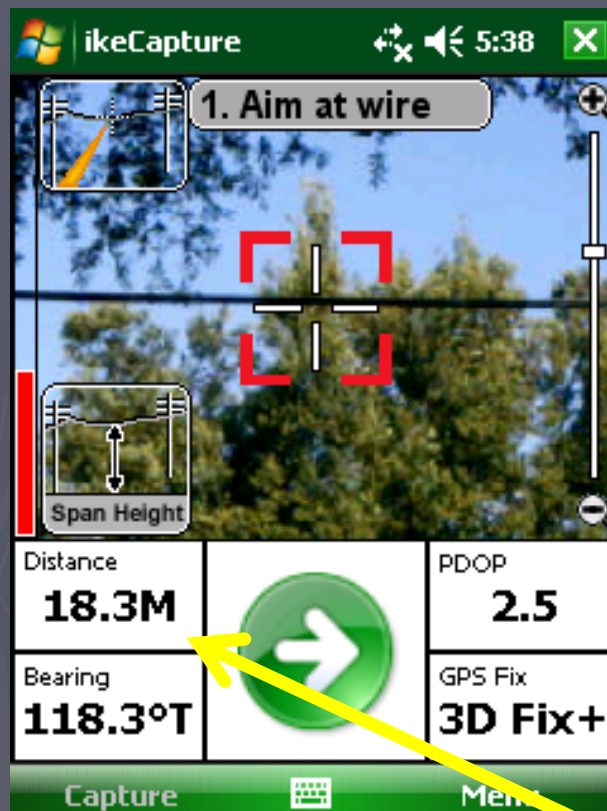
Target Position Applet



- ▶ Tap Capture or press Enter key
- ▶ Use virtual keyboard to enter label and comments



Span Height Measurement Steps



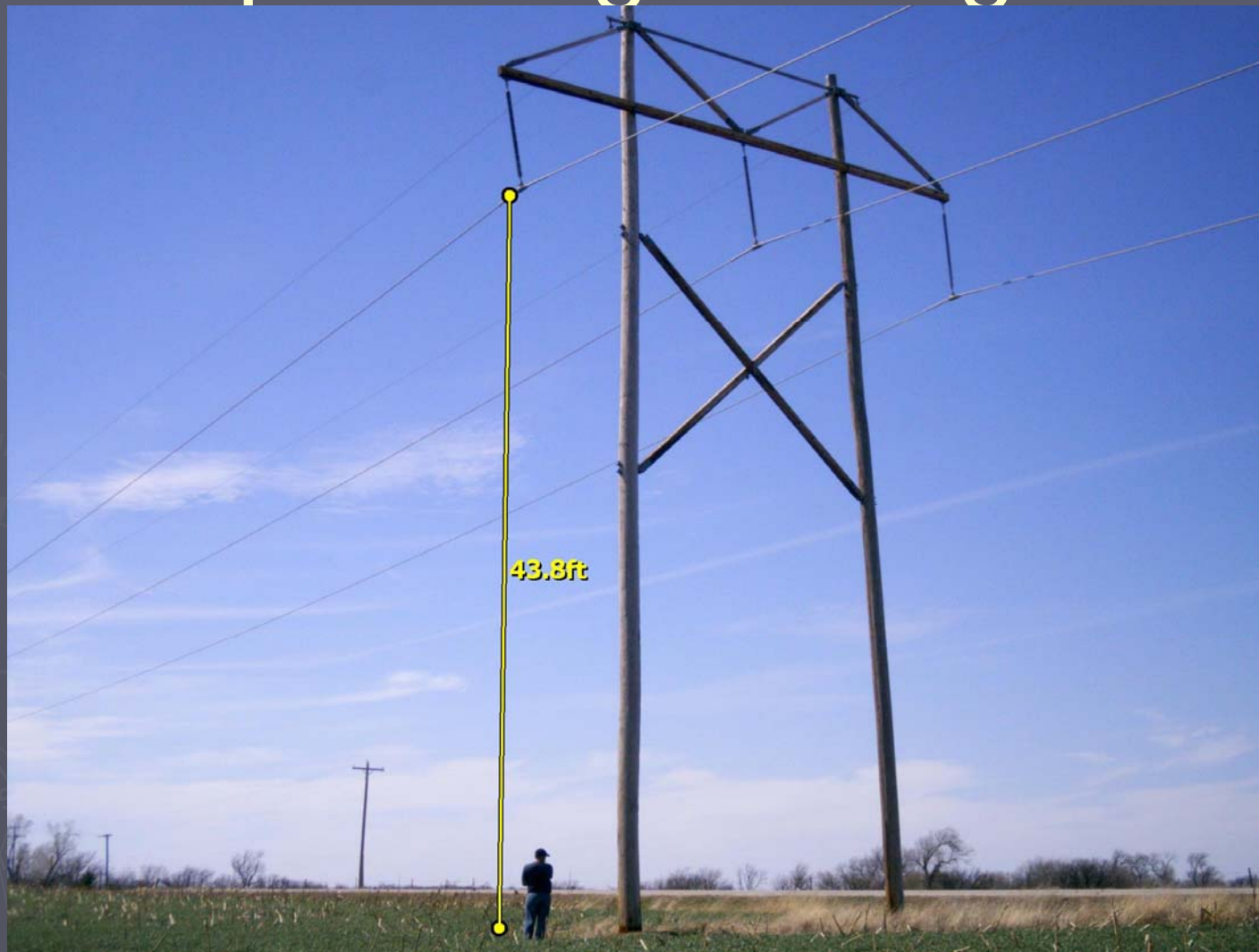
Check Distance to verify wire is targeted not background

Span Height Image





Span Height Image



ikeAnnotate Sample

ikeAnnotate for Pole Audit

Single Image Processing

Load Image Save Markup

Settings

Output Folder: PoleStack

Measurement Units: ☒ Feet ☐ Meters

Advanced ☐ fy 0 d 0 PX PI

Data Dictionary

Label:

Comments:

Select Measurement Type

Pole Audit

What is the pole length stamp?

75

Pole Owner?

Private

Pole Stack

Base offset (ft): 0

Attachments	Attachment Type
68'10.5" - Top	Top
23'8.9" - Lamp	Transformer
20'5.6" - Telephone	Crossarm
18'2.0" - CATV	Lamp
0'0.0" - Base	CATV
	Telephone
	Fiber
	Riser

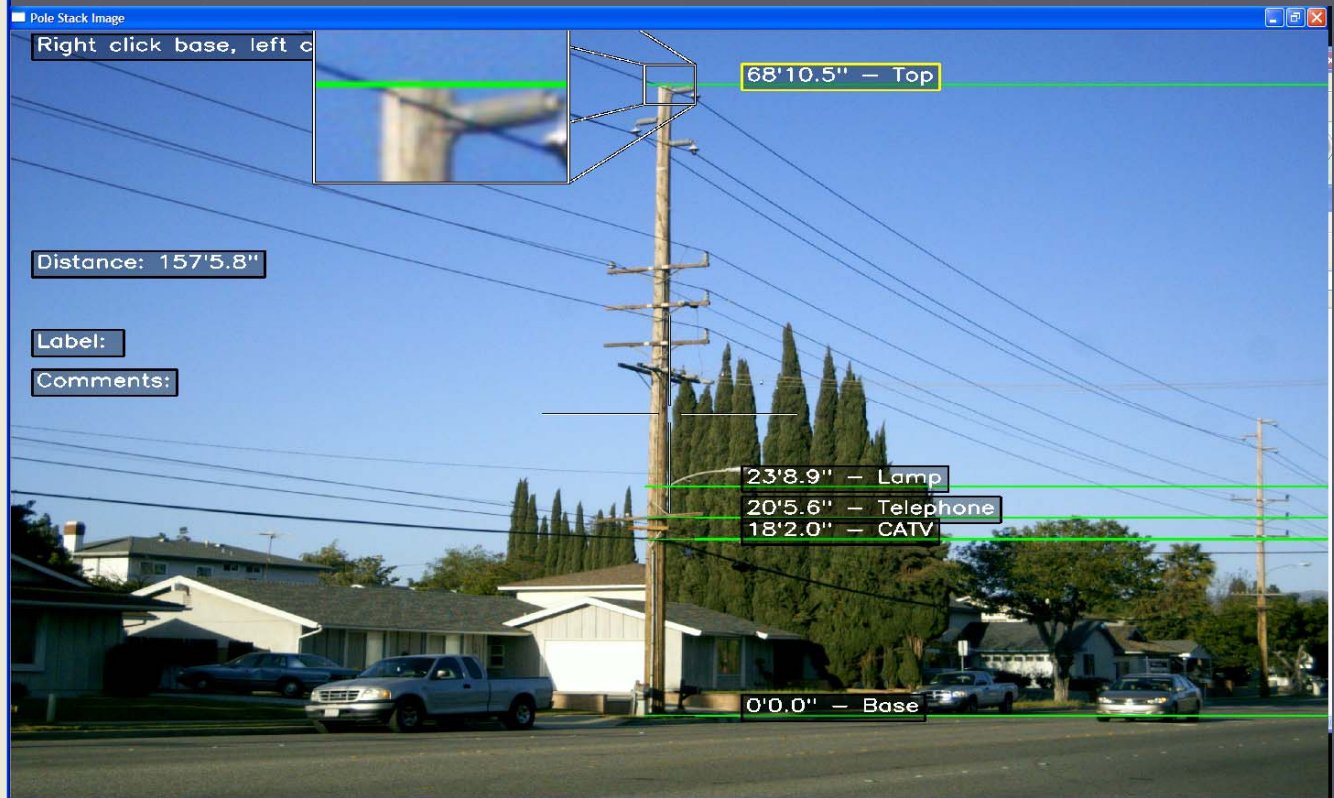
Multiple Image Processing

Pole ID:

Process Image List

Process all in folder

Save and Next

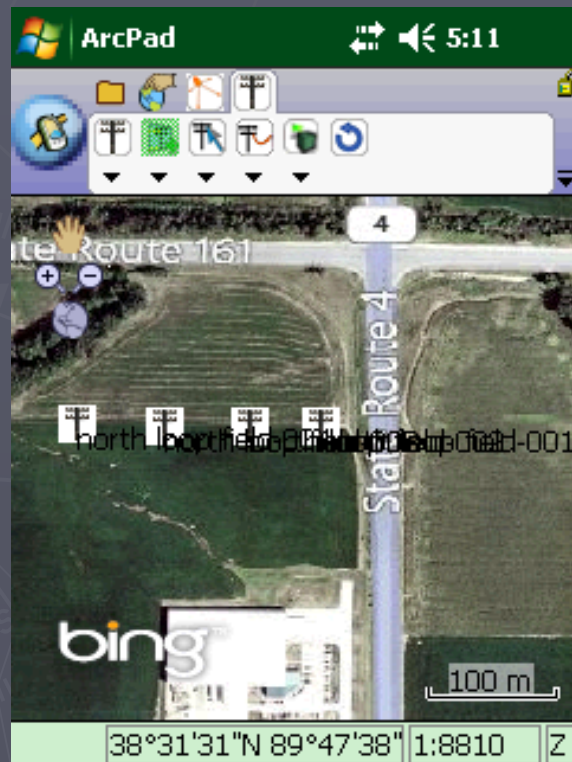


ArcPad – ikeCapture Extension

- ▶ Current Version – 1.0.7
- ▶ Installs ArcPad and ikeCapture Extension for ArcPad
- ▶ Use your existing ArcPad key
- ▶ Supports ArcPad versions (7.0.1, 7.1.1, 8.0.4, 10.0.2)
- ▶ Use the ikeGPS to capture
 - Points, lines and Polygons.

Why Use ArcPad?

Base Map



Custom Data Entry Forms

A screenshot of the ArcPad Custom Data Entry Form for Pole Form. The top status bar shows the ArcPad logo, a location pin icon, a speaker icon, the time 5:13, and an 'ok' button. The form title is 'Pole Form'. The form contains several fields with dropdown menus:

Grounded:	Yes
Height (ft):	45'
Classification:	H1
Material:	Wood
Transformer	No
Joint Use	No (Power only)

At the bottom of the form are tabs for 'Pole', 'Features', and 'Anchors'. Below the tabs are 'ok' and 'cancel' buttons, and a keyboard icon.

Applications

Utility applications-Line sags, vegetation mapping, pole audits

Emergency Response-Damage evaluations

Infrastructure audits-Traffic signs, trees, bill boards, appraisals

Geological mapping in remote areas

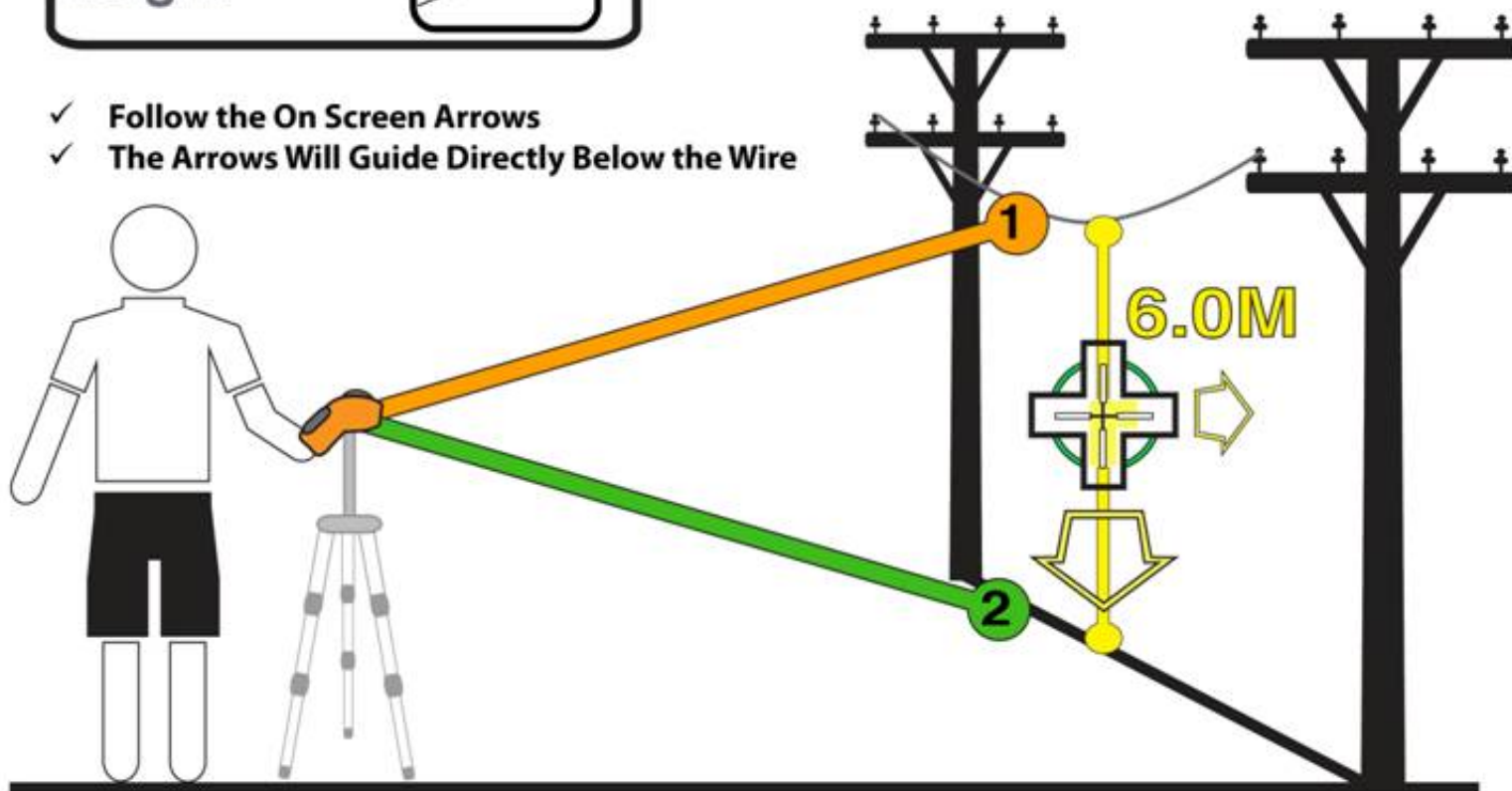
3-Shot Height



Span Height



- ✓ Follow the On Screen Arrows
- ✓ The Arrows Will Guide Directly Below the Wire



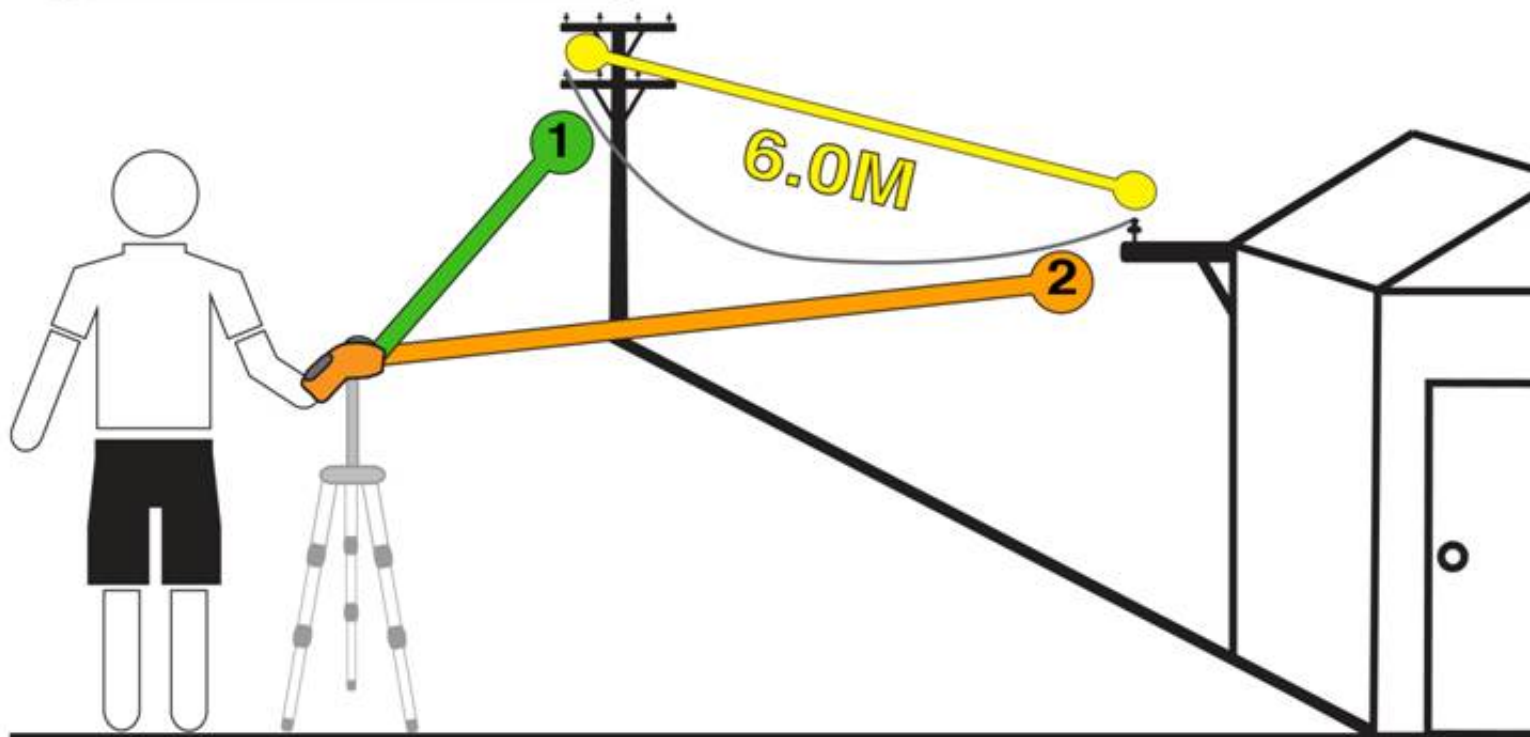
Span Height



Span Height – the old way



Missing Line



Missing Line Distance



ikeAnnotate Poles

ikeAnnotate for Pole Audit

Single Image Processing

Load Image Save Markup

Settings

Output Folder:

Measurement Units: ☐ Feet ☒ Meters

Data Dictionary

Label:

Comments:

Measurement Type:

Material:

Condition:

Pole Stack

Base offset (m):

Attachments	Attachment Type
49.63m - Lightning Rod	Top
47.94m - Top	Cell Antenna
43.71m - Cell Antenna	Microwave link
25.50m - Cell Antenna	Guy Wire
19.63m - Cell Antenna	UHF Antenna
0.00m - Base	VHF Antenna
	Lightning Rod

Multiple Image Processing

Pole ID:

Process Image List

Process all in folder

Next Image

Pole Stack Image

Right click base, left click attachments.

Distance: 108.50m

Label: MTN Cell tower

Comments:

49.63m - Lightning Rod

47.94m - Top

43.71m - Cell Antenna

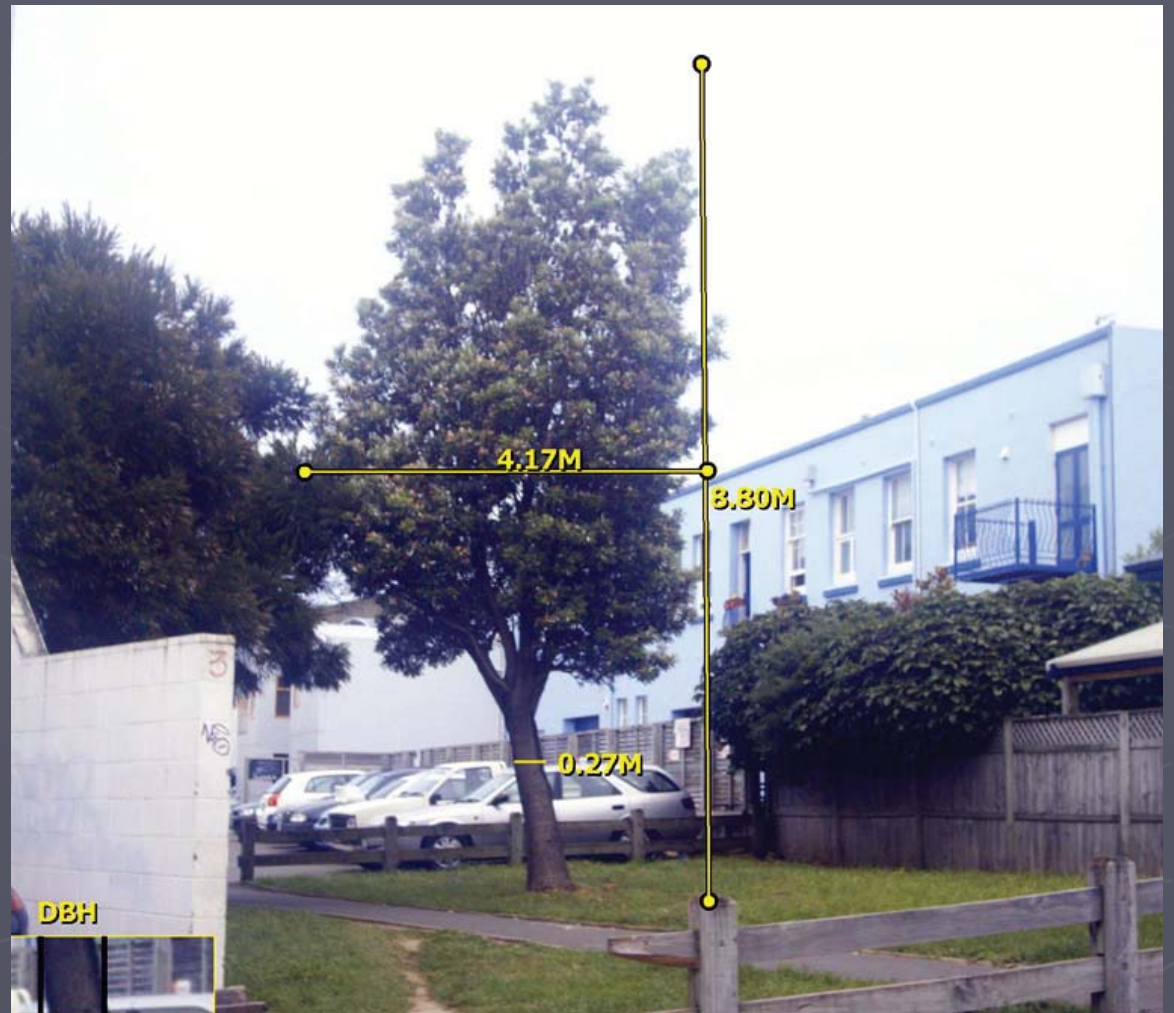
25.50m - Cell Antenna

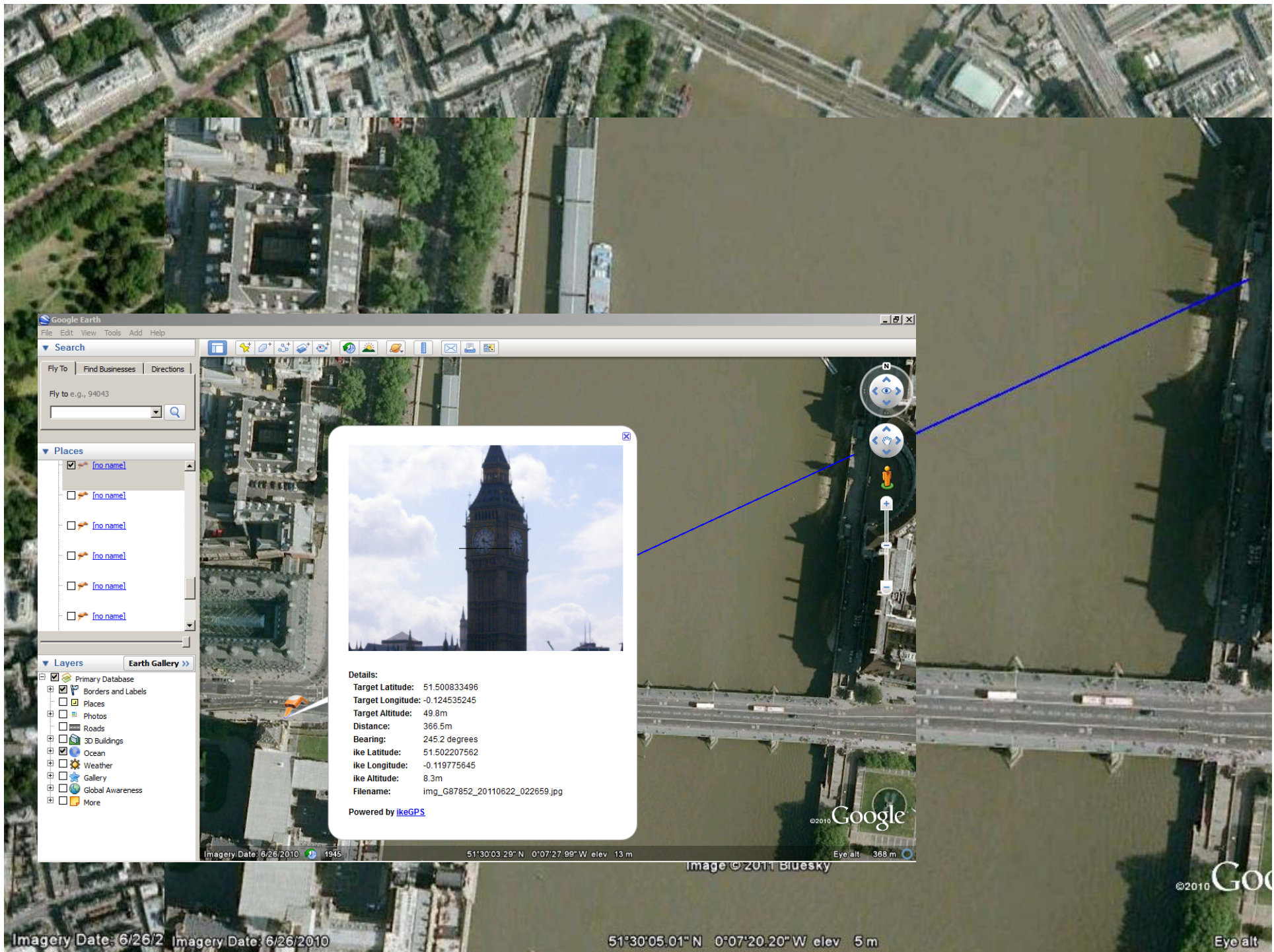
19.63m - Cell Antenna

0.00m - Base

Tree Assessment

- ▶ A single tool to collect
 - DBH (Diameter Breast Height)
 - Tree Height
 - Crown Width
- ▶ Generates annotated image
- ▶ Captures GPS of tree trunk







Questions?



Contact

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