Surfacing Land Measurements

Ground based sensors play a key role in Agriculture. Light reflectance sensors could be used to monitor the canopy color, which is an indicator of nitrogen supply. If nitrogen or other nutrients are low, crops may express differences in leaf color. Plants usually become yellow and stunted, with smaller than average flowers and fruits. In this activity a ground based robot with light sensor is used to track the light reflectance in different spots in an exercise area.

Helper's Guide

How to Prepare

The X, Y, Z (color) values for before you start activity is given below.

	X	Y	Z (Color)
1	8	32	3.5
2	18	35	3
3	27	45	1
4	41	28	4.5
5	34	5	9
6	16	16	7
7	14	3	9.5

Help the students to pick the 7 locations which are spread around in the field. Review how to record a waypoint and get the geographic coordinates of a location. Use the example data given in case of bad weather. Refer to activity 28 for help with interpolation.

Need to Emphasize

- Sensors can be used to detect surface conditions in different locations of a field.
- It is hard to make measurements everywhere.
- Robots can help make data collection more efficient.
- Data interpolation is needed to determine measured parameter through he field.

Related Links

- http://webhelp.esri.com/arcgisdesktop/9.2/index.cfm?TopicName=Understanding%20interpolation%20analysis
- http://www.esri.com/news/arcuser/0704/files/interpolating.pdf
- http://www.esri.com/library/whitepapers/pdfs/arcgis_spatial_analyst.pdf

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