Spatial Image Digitizer to Iprove Agricultural GIS

(2015-070)

Spatial Image Digitizer with Normalized Difference Vegetation Index and soil analyzing capabilities

Market Overview

This spatial image digitizer (SID) provides not only normalized difference vegetation index (NDVI) data with true color imagery but can also indicate soil texture variability. From 2017 to 2018 there is a forecasted nearly twelve percent drop in farming net income in the U.S., making 2018 forecasted to have the lowest net income in over eight years. This decrease in net income will affect over two million farms in the U.S. with over 850,000 employees. Clemson University researchers have developed a spatial image digitizer (SID) to help farmers with growing crops and increase yields. The SID technology is specifically developed and marketed for agricultural management application. Prior technologies do not have options for digitized pixel outputs and require specialized cameras to collect NVDI data. SID solves these problems and can be used to determine soil qualities.

Technical Summary

The SID creates new methods for using GIS software in agricultural applications. It is designed to work with preexisting farm management technology, making it easier to incorporate. Created with people less experienced with global information systems (GIS) in mind, SID accessible to a wider range of people. SID's ability to analyze pixel brightness of soil images allows for data on soil texture variability, leading to improved development of management zones for precision agriculture. It allows for NDVI to be calculated from true color images, reducing the investment farmers need to put in to get their land surveyed by unmanned drones. The SID technology allows for more applications in a centralized bundle.

Application
Farming; GIS Software

Development Stage
Provisional

Advantages

- Calculates NDVI from true color images, eliminating the need for more costly specialized cameras

- Determines soil texture variability from pixel brightness, enabling more accurate judgements on crop placement

- Works with satellite images, reducing the need for farmland to be surveyed with drones for soil analysi

App Type	Country	Serial No.	Patent No.	CURF Ref. No.	Inventors
Copyright Registration	United States	NA	Txu 2-007-647	2015-070	Dr. Kendall Kirk

About the Inventors

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Dr. Kendall Kirk is an adjunct assistant professor in the College of Agriculture, Forestry, and Life Sciences at Clemson University. He received his Ph.D. in Biosystems Engineering from Clemson University in 2010. Along with teaching classes he has served as a precision agricultural engineer since 2014. He was an advisor or committee for several Clemson masters and Ph.D. students. During his time as a professor he has authored several papers, presentations, and softwares. His interests include farm software, methods to increase crop yields, and aquaculture.

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