

The GPS Connection

A White Paper on SDI's GPS Implementation

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SDI works hard to stay ahead of the technology curve.

Introduction:

Significant Digits Incorporated (SDI) is a software engineering company that focuses primarily on the utility industry providing software tools and embedded systems for route management, meter reading and utility billing. The vision of SDI is to become the premier software engineering systems provider for metered utilities industry through a total commitment to customer service and product excellence.

Historically, SDI was incorporated in 1992 when work was begun on the first SDReader Route Management System. The initial implementation was completed in 1993 with SDI's first customer. It was the first Route Management handheld meter reading system offered as a complete Microsoft Windows based tool. Development tools have since evolved and SDI with them. Today, SDI utilizes the latest Microsoft.NET environment to develop their utility management, meter reading and billing systems. SDI is staffed by competent and capable software engineers with a wealth of experience that reaches back to the 1970's. Through this experience and a strict determination for customer satisfaction, SDI's client base climbed to 400 in 2007 with customers spanning the United States, Europe and the Middle East.

Significant Digits Incorporated does not work on its own however. SDI has partnered with the top meter equipment and electronic equipment providers to offer the customer the highest quality equipment and software tools. Also SDI is constantly updating and increasing the scope of their products to ensure that they stay on the forefront of the technology curve. Not only does SDI constantly increase the scope of their current offerings, they also develop new technologies to increase the productivity of its users.

Significant Digits strive to win your business through superior, cutting edge products and retain your business through excellent customer service.

In summary, SDI is realizing their vision to become the premier software and hardware provider for municipalities and utilities through their commitment of providing powerful software products and excellent customer service. SDI prides themselves in being innovators in the field of utility management and consistently staying ahead of the technology curve by constantly thinking forward. The commitment to excellence in product development and customer support pursued by SDI can be summed up by a single fact. Their first customer remains a customer.

Overview:

SDI's GPS Connection is offered in several different packages of varying price and plotting accuracy. The levels, starting from least accurate to most accurate are, plotting by 911 addresses, low performance GPS gathering , Trimble high performance GPS and Trimble high performance GPS with post processing.

The cheapest and least accurate way to plot points is 911 address plotting. Microsoft MapPoint has a database of coordinates for 911 addresses. These are easy to obtain, but the downsides are that not all addresses have an associated GPS coordinate. They are not very accurate and represent a general location rather than a specific point.

Low performance Bluetooth GPS collection units such as the Garmin receiver are, at about \$50, very cost effective solutions for gathering GPS coordinates. They communicate wirelessly to a Bluetooth enabled handheld. The downside to these receivers is that they have an accuracy of around 10 meters, or about 30 feet. There is no way of telling exactly how accurate a GPS plot actually is.

Trimble is THE NAME in high performance GPS coordinate collection. Their systems offers sub-meter accuracy in the field and accuracy to within 4 inches with post processing performed after the readings are collected. This accuracy does come with a bit of a steeper price with units starting at \$1500. Not only are the Trimble receivers much more accurate than the low performance receivers, they also tell the user exactly how accurate the collected coordinate is.

Solution Details:

The following describes different details for each GPS collection method

- 911 Addresses
 - Uses the Microsoft MapPoint 911 coordinate database
 - Plots points based on address and not a specific location
 - Included in all SDReader6 standard installations
 - No manual collection of points is required
- Low Performance GPS
 - Uses an inexpensive Bluetooth GPS receiver to receive GPS coordinates
 - Plots coordinates with an accuracy of about 10 meters
 - Accuracy is assumed and not truly known
 - Manual collection of meter points is required
- Trimble High Performance GPS
 - Uses a Trimble high performance GPS receiver
 - Plots coordinates with sub-meter accuracy
 - Know exactly how accurate the plotted point is
 - Accuracy to within 4 inches with post processing
 - Manual collection of meter points is required

Business Benefits:

The plotting of GPS coordinates is a relatively new practice, but one that is quickly becoming standard. Knowledge is power, and knowing where all the vital assets are gives a lot of power to the user in many ways.

GPS technology helps the users who deal with water, electricity or gas meters by showing exactly where they are on a map. This is especially useful to the people who are changing meters out because they won't be familiar with the meters location like a meter reader is.

GPS technology helps city planners by showing the locations of vital assets in a city. This is a great boon to city planners when deciding the best way to expand. In the future, all infrastructure management will utilize GPS technology to make life easier.

Time is money and having everything mapped out saves a lot of both. Time that is spent looking for that vital asset will be minimized which will essentially give the day more hours.

Summary:

Significant Digits Incorporated has been providing advanced software and hardware technologies to the utility management community since 1993. The staff of expert software engineers is constantly developing and re-engineering ways to better serve their customers. By utilizing the latest advancements in hardware technology and software development practices, they remain on the cutting edge of utility management innovation. In addition, Significant Digits Incorporated offers around the clock customer service that is knowledgeable and personable.

SDI has developed GPS solutions to help utilities find and store coordinates for all their vital assets. SDI appreciates the varying concerns of the various utilities which is why they offer different levels of GPS plotting to fit into any budget. GPS is the newest must have technology and a technology that is here to stay.

The GPS Connection is integrated into the full range of SDI's suite of tools including SDIComplete, SDRReader6, SDMobile, SDRReaderCE and SDRReaderCE OEM. The GPS Connection is offered as part of a package at purchase, or as an upgrade to an already existing SDRReader setup.