

TrafficWerks

Original Equipment Manufacturer TrafficWerks Uses Opto 22 SNAP Ultimate I/O™ in Toll Booth Monitoring and Data Acquisition Systems

TrafficWerks Systems, Inc. is a provider of Web-based traffic and road use information to local and federal government agencies as well as private and public companies involved in traffic engineering and management. Early on, TrafficWerks identified an extraordinary need for cheap, ubiquitous, relevant, and reliable data relating to everyday traffic-related activities and field operations. But the company also recognized the complexity often required to retrieve, format, and present this data. As it sought to address these issues, TrafficWerks began developing hardware and service offerings, in the process, applying a philosophy of using open and standard technologies.

TrafficWerks soon introduced the concept of data service providers for the traffic and transportation industries. Specifically, TrafficWerks transformed the complicated and costly issue of gathering and managing traffic-related data into an easy-to-use Internet service. This was accomplished by leveraging standard Ethernet, Internet, and wireless technologies to monitor, manage, and control traffic-related field devices anytime, from anywhere.

TrafficWerks was asked to develop several products for a local toll

agency, including the Advanced Toll Payment Machine (ATPM). TrafficWerks has embedded Opto 22 SNAP Ultimate I/O hardware as the key component in this product. The ATPM allows a cash-paying toll road customer to conveniently pay the cost of the toll—using paper currency, coin, or a combination of both—and receive change from the value deposited. The ATPM can also print a receipt of the transaction and even has the ability to accept credit and debit cards for toll payment.



ATPMs on site.

Built-in Intelligence

Opto 22's SNAP Ultimate I/O (SUIO) provides the intelligence that enables the ATPM to give toll road drivers their choice of how to pay. The hardware connects to existing lane controllers, which determine the class of vehicle (single or double-axle) and how much the corresponding toll is. The lane controller communicates with the SUIO unit, transmitting the data via a standard Ethernet connection.

"Typically, it's a toll booth operator that gets the information from the lane controller who then confirms the vehicle type and appropriate toll," says Bill Foster, President of TrafficWerks. "But in cases where SNAP Ultimate I/O is used, the hardware's intelligence and programmability allows it to parse the message string from the lane controller and interface with the ATPM's bill acceptor, coin acceptor, coin dispenser and other components, and ensure that correct tolls are applied, payment is received and correct change is dispensed."

According to Foster, "The bottom line is, we know that many of our customers lose money if they have their toll booths manned 24 hours a day. Using TrafficWerks' ATPM on the graveyard shift, on

holidays, etc., relieves them of this and lets them reduce man hours and realize tremendous savings without sacrificing service."

The fact that SNAP Ultimate I/O is built on open technologies and can communicate using any number of communication protocols was very important to TrafficWerks in selecting which hardware to embed in the ATPM. The company knew it needed a device that could interface with existing lane controllers and other legacy hardware and communicate via an RS-232 serial connection and other widely used networking protocols.

Change Machine Monitoring and Data Acquisition

As toll roads become more and more expensive, there has been an increased need for change-making machines to be installed at tollbooths so motorists can break large bills and exchange paper currency for coinage. TrafficWerks is remotely monitoring these change machines (as well as its own ATPM) using the company's Change Machine Monitoring System (CMMS). This system also has SNAP Ultimate I/O embedded as its key component and utilizes the hardware's intelligence and monitoring capabilities

to track currency that enters the ATPM, the number of coins dispensed, and the performance of individual components.

"Prior to the implementation of the CMMS, armored trucks would periodically visit each toll location for the dual purposes of transporting money from the vaults and refilling the change machines," says Foster. "Now, with the CMMS continuously monitoring change machine levels, these



TrafficWerks ATPM allows toll road users to pay with bills, coins, and other means.

trucks are only dispatched as needed. This has resulted in consolidation of truck rollouts and tremendous savings for some of our customers."

Lastly, embedding SNAP Ultimate I/O as the key component of the TrafficWerks ATPM and CMMS has enabled this equipment to communicate with enterprise databases directly, allowing all of the aggregated data to be presented back to individual TrafficWerks customers in a Web-based format for reporting, trending, and other purposes. This is made possible by the fact that the SNAP Ultimate I/O hardware is IP-based.

"Internet Protocol is the most popular and widely deployed networking protocol in the world," states Mark Engman, Opto 22 Vice President of Engineering. "For use in TrafficWerks' applications, this is critical, because it allows all collected data to be delivered to TrafficWerks' Microsoft business applications which run on a similarly IP-based corporate network."

Lower Total Cost of Ownership for Customers

TrafficWerks, by most accounts, is the only company of its type that is offering an integrated system that provides all of the described toll collection, change-providing, monitoring, and data acquisition features. By supplying both the necessary automation and monitoring hardware and also serving as a data service provider, TrafficWerks is relieving its customers of the burdens of installing and maintaining hardware and software and eliminating the need to hire additional staff to manage the data.

TrafficWerks recently sold both the ATPM and the CMMS systems to California's Transportation Corridor Agency (TCA), which operates most of the toll roads in Orange County. The agency plans to use the information to improve safety, reduce congestion and manage growth across southern California.

"The California TCA is one of the premiere toll agencies in the world, utilizing the latest in technology and toll road design," says Foster. "With the success we've had

in Orange County we are now getting requests from other agencies throughout the US."

For more information on TrafficWerks and the company's hardware and data service offerings for traffic management, go to <http://www.trafficwerks.com/>



Opto 22's SNAP Ultimate I/O system installed in TrafficWerks ATPM.

About Opto 22

Opto 22 manufactures and develops hardware and software products for applications in industrial automation, remote monitoring, and enterprise data acquisition. Using standard, commercially available Internet, networking, and computer technologies, Opto 22's SNAP systems allow customers to monitor, control, and acquire data from all of the mechanical, electrical, or electronic assets that are key to their business operations. Opto 22's products and services support automation end users, OEMs, and information technology and operations personnel. founded in 1974 and with over 85 million Opto 22-connected devices deployed worldwide, the company has an established reputation for quality and reliability. Opto 22 products are sold through a worldwide network of distributors, partners, and system integrators. For more information, contact Opto 22 headquarters at 800-321-OPTO or visit our Web site at www.opto22.com.