Shopping Center Directs Visitors to Available Parking Using Banner Wireless

Application Summary

Industry – Traffic & Parking

Company – A large shopping center serving a major metropolitan area

Challenge – Increased competition for available parking spaces

Goals – Reduce vehicle congestion, customer aggravation and drive-offs

Solution – Parking guidance system comprised of SureCross® DX80 Wireless M-GAGE™ Nodes, DX80 Gateways and MultiHop Data Radios, and R-GAGE™ QT50R Retroreflective Radar Sensors

Guidance kiosks provide visitors with real-time parking space availability information. This information is gathered by SureCross® DX80 Gateways from SureCross® DX80 M-GAGE™ Nodes deployed in each parking space.

Why Banner?

Cost – Total cost, including products and labor, was less expensive than competing systems, a critical factor in a very large solution deployment

Flexibility – System components were adaptable to differing conditions throughout the parking facility

Battery Life – Batteries have a five year lifespan and are easy to replace, ensuring a long lasting solution and protecting the investment

Customer Benefits

Reduced Congestion – Directing traffic to available parking made it easier for visitors to navigate parking lots and access the shopping center

Improved Experience – Visitors spent less time in lines of traffic looking for parking spaces, allowing longer visits and reducing customer agitation

Background

A large retail shopping center has over 4000 parking spaces. There are approximately 2500 ground level parking spaces. Of these, more than half are covered by an elevated parking area. Elevated parking accounts for all the remaining spaces.

Challenge

During peak shopping times, demand for parking spaces at the center increases dramatically, as does vehicle congestion in the parking lots and around the shopping center. Prolonged searches and long waits for parking spaces has a negative correlation with time and money spent at the center, as well as on overall customer experience and the frequency or likelihood of return visits.

Solution

Working with a local integrator with experience in traffic and parking applications, a dynamic parking guidance system was implemented at the center. The system uses Banner vehicle detection sensors deployed in a SureCross® wireless network.

Ground Level Parking – SureCross DX80 Wireless M-GAGE™ Nodes are deployed in each ground level parking space at the facility. For open air deployments, a node is housed in a compact, disc-shaped enclosure

which is installed into a small hole cut into each parking space. The top of the enclosure lies flush with the surface of the parking space to facilitate snow removal and other lot maintenance. In covered deployments, where protection against the environment is greater, each node is housed in a low-profile, heavy-duty dome, which is mounted to the surface of a parking space.

A node is made up of a wirelessly-enabled M-GAGE™ magnetic sensor, antenna and a replaceable battery. M-GAGE sensors measure magnetic field changes. When a vehicle enters or leaves a space, the local magnetic field is altered. The availability status of a space is regularly transmitted to an associated SureCross® DX80 Gateway.

DX80 Gateways are deployed in kiosks located at the end of every other row of parking spaces. Parking space status is shared with a PLC which directs an LED indicator on the kiosk to display the count of available spaces. This information is also sent to a SureCross DX80 MultiHop data radio. A radio is housed inside each kiosk in covered areas, or on a range-enhancing antenna in open air deployments.

Upper Level Parking – A total of six one-way entrance and exit ramps control traffic between upper and ground level parking. R-GAGE™ retroreflective radar sensors are deployed on the side wall of each ramp. Each sensor is connected to the counter input of a SureCross DX80 MultiHop data radio and housed in a fiberglass enclosure.

R-GAGE sensors emit beams of high frequency radio waves. A vehicle passing through this beam alters the time delay of the return signal. The number of available upper level parking spaces is displayed at each entrance ramp. Each time a vehicle enters or leaves the upper deck, an R-GAGE detects it and the display information is updated.

Data Collection – SureCross DX80 2.4 GHz MultiHop radios transmit parking lot information from the Gateways and the R-GAGE sensors back to a control room inside the shopping center. Facility managers use this information to monitor parking throughout the facility. Additionally, by combining the gathered data with historical information and other metrics, vehicle turnover times can be calculated.

Conclusion

The implementation of a parking guidance system made it easier for motorists to access the shopping center and improved their overall experience. Less time spent looking for available parking translates into visitors spending more time and money at the center. This makes the shopping center a more attractive location for retailers and allows the center to charge more for store space.

SureCross® DX80 Wireless M-GAGE™ Nodes

- Powered by a single, lithium battery with a five year life expectancy
- Two-way communication with fully acknowledged data transmission
- Reliable wireless communication eliminates wiring runs

SureCross® DX80 Wireless Gateways

- Expandable network enables one Gateway to support up to 47 Nodes
- Reliable data transmission via FHSS technology and TDMA control architecture
- Four selectable discrete inputs and four NMOS discrete outputs

SureCross® MultiHop Data Radios

- DIP switch selectable operational mode: master, repeater, or slave
- Self-healing RF network with multiple hops to extend network range
- Built-in site survey mode enables rapid assessment of a location's wireless transmission properties

R-GAGE™ Retroreflective Radar Sensors

- Easy setup and configuration of range, sensitivity and output with DIP switches
- Reliably detects moving & stationary objects
- Ignores objects in the background beyond the retroreflective target

Talk with an app engineer. Get product specs. Order now.
bannerengineering.com 1-888-373-6767

BANNER®
more sensors, more solutions