

# Argentine Drivers Use Passive Tags to Pay Bridge Tolls

The newly deployed system replaces one that used costlier active RFID tags.

By Claire Swedberg

Sept. 8, 2006—In southern Argentina's Neuquén Province, commuters crossing the Neuquén-Cipoletti Bridge can cut their travel time by using passive RFID tags that allow them to pay for their tolls. A private toll-collection company, Caminos del Valle, implemented the new automated system for Neuquén Province throughout the summer.

The province had been using an electronic toll-collection (ETC) system involving active RFID tags that could cost each driver \$50 and require battery replacements. The new system uses inexpensive passive RFID tags, enabling drivers to receive an RFID-enabled windshield sticker at no cost.

The system is based on IP-XTM technology from IPICO, which provided the tags, labels and readers for the system. About 40,000 vehicles cross the bridge daily through 14 lanes of tolls. For four of those lanes, however, an RFID UHF (860 MHz to 960 MHz) interrogator, mounted on an overhead gantry, captures the unique ID number encoded in each windshield stickers' read-only tag. The interrogator can read tags as far as 17 feet away while the cars are in motion at speeds up to 240 kilometers per hour, says IPICO president Gordon Westwater.

IPICO has pilots of similar systems underway at other sites in Argentina, in Brazil and in several other countries, according to Westwater, but this is the first full implementation of the system and the first passive RFID toll collection system deployed in South America.

"This [technology] is targeted for developing markets where there is a large population of cars but the cost of implementation is quite critical," he says. The bridge's previous active RFID system was not only expensive for drivers, it also required a credit card to pay for the tolls. Many drivers, however, do not have credit cards. The new system allows drivers to prepay for a specific number of trips across the bridge by buying the stickers at the toll plaza. The tollgate staff input the amount on the database in connection with a specific RFID tag number, and the driver attaches the sticker to his or her windshield. Instead of prepaying, drivers can choose to pay per trip, by providing a credit card number at the time the RFID sticker is provided.

When the reader captures a tag's ID number, that number is sent via a local area network to the server, which then directs the number to the database via an Ethernet connection. All data integration and related software was provided by electronic engineering firm Dyna Group.

About 3,000 drivers are using stickers for the new passive system. Dyna Group president Jose Luis Alvarinas says he expects about 5,000 more drivers to acquire the stickers each year. The system used only for toll collection, although there is a potential for it to be used by motor vehicle agencies and law enforcement agencies, Westwater says. If a motor vehicle agency, for example, issued stickers to driver registering their

cars, and made use of the stickers mandatory, the stickers' ID numbers could be used for security and law enforcement, as well as for traffic control by counting the number of vehicles passing through certain areas. When it comes to those kinds of applications, Alvarinas says, "it's not a reality right now, but there is a trend" of interest from government agencies to use the stickers for multiple purposes.

The toll for the Neuquén-Cipoletti Bridge costs about 20 cents a crossing, Alvarinas says. While drivers do not pay for the stickers, they pay a slightly higher toll for privilege of saving time by using the automated toll system. The RFID lanes process about 1,200 vehicles an hour, Alvarinas says; lanes where tolls are paid manually process about 300 vehicles in the same time period.

The transition from the active RFID system to the passive one required that both RFID systems be operational simultaneously for about three months, Alvarinas says. Prior to the transition, the passive system was tested for two years on four lanes of the toll plaza. During that time, the IPICO/Dyna Group system read 100 percent of the tags involved, he says.

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