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Mexico's National Automatic Vehicle Identification System

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Axiompass and Vehicle Identification

Axiompass

- Axiompass develops powerful and secure identification solutions to identify and control people, vehicles, and assets with a wide variety of products and solutions in different branches of security technology and systems development.
- Developed more than 10 product lines with full intellectual property including solutions in the identification of persons, vehicles and assets, tolling and high transaction volume applications.
- Axiompass team has over 15 years experience in the development and implementation of national-level systems and real-time mission critical applications.

Axiompass

- 2009 – Implemented the first Automatic Vehicle Identification and Monitoring System in Mexico for the Federal Government on 43 lanes and three toll plazas using Sirit readers and Axiompass software which was inaugurated by president of Mexico Felipe Calderón.

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Axiompass

- 2009 – Developed and installed the Back Office system for the Federal Vehicle Identification System which is operated from the National Command and Control Center Bunker.

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Axiompass

- 2011 – Implemented the first toll-free system in Mexico for CAPUFE with a total of 24 exclusive lanes for the residents of five municipalities in the states of Sonora and Hidalgo using Sirit readers and Axiompass software.

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Axiompass

- 2012 – Implemented the second phase of the Automatic Vehicle Identification and Monitoring System in Mexico for the Federal Government along with the US State Department on 73 lanes and four toll plazas

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System Overview

System Overview

Form with Mexico's National RFID Tag (REPUVE)

+

Vehicle Registration and Tag Placement

+

Automatic Vehicle Identification System (ANPR Camera + RFID Chip Reader + Vehicle Picture Camera)

+

Portable Vehicle Inspection (RFID Chip Reader + FBI Fingerprint Reader + GPS + Photograph Camera + Contact Chip Reader + Barcode Reader + 3G Data Transmission)

Benefits:

- Automatic Vehicle Monitoring (stolen vehicle report, non-regular vehicles, pending infractions)
- Mobile Operatives
- Dual Vehicle Identification by Tag and License Plate
- Driver Identification by License and fingerprint validation
- Digital Expedition of Infractions
- Online Infraction Payment by Credit Card
- Process Certification using Digital Signature

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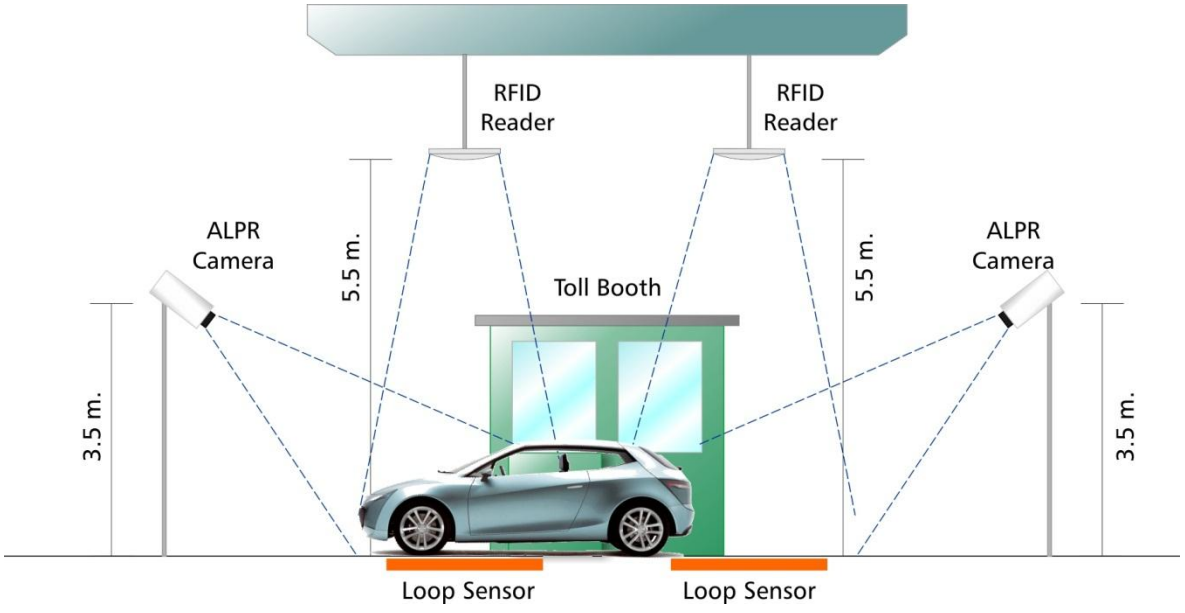
System Overview

- Infrastructure installation for automatic license plate recognition (ALPR) and the RFID identification component in toll booths.
- Fixed monitoring positions in toll booths.
- Transactions and events reported to the central site.



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ALPR Camera

- **PIPS P392 Spikelet** – Integrated license plate recognition camera. Has two lenses and an infrared LED array; a visible light lens for vehicle photographs and an infrared lens for character recognition of the license plate. The camera is activated by the metallic presence sensor (loop).

RFID Reader/Antenna

- **SIRIT IDentity 5100** – Radio frequency device capable to operate in different frequency ranges that reads the National vehicle tags. The reader is activated when a signal from the metallic presence sensor (loop) is received as a vehicle is detected, and the tag in the read area is received.

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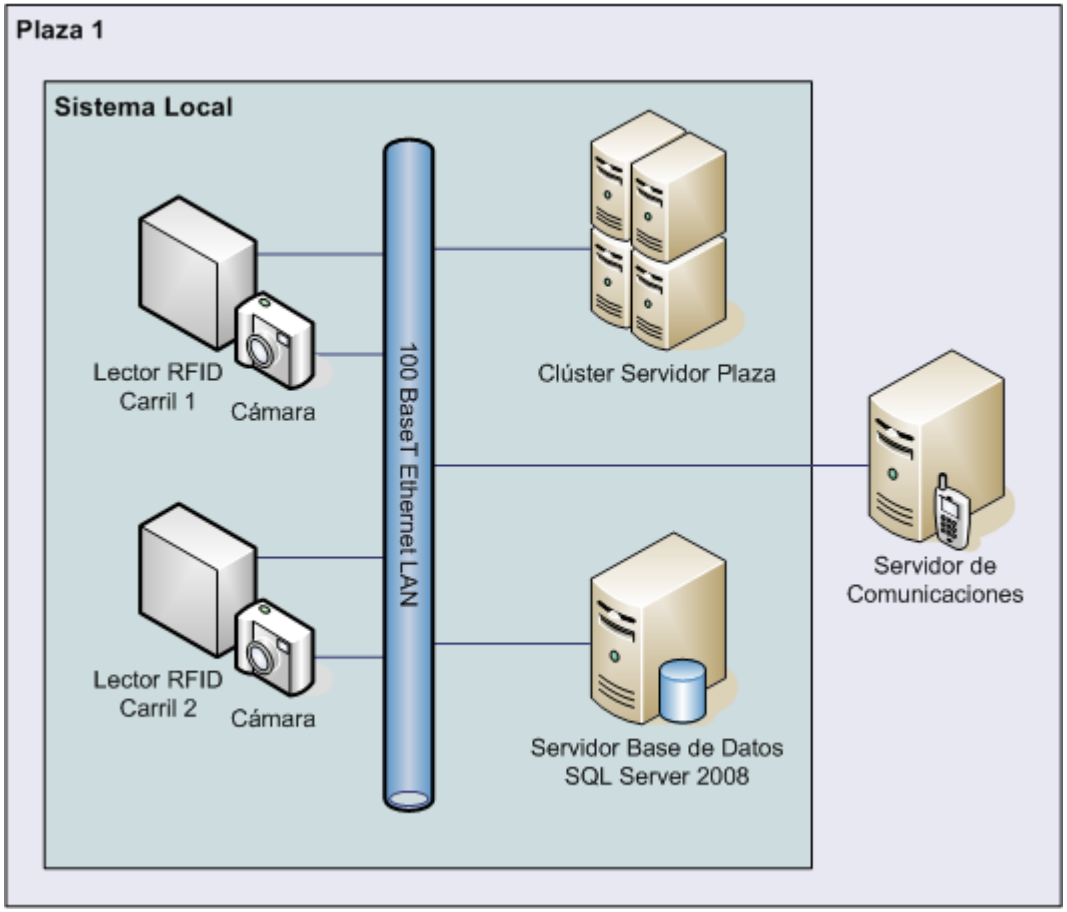
Toll Plaza Systems

System Architecture

- Toll Plaza Level Architecture
  - Lane Equipment
  - Lane Controller Servers
  - Data Base Server
  - Communications Server



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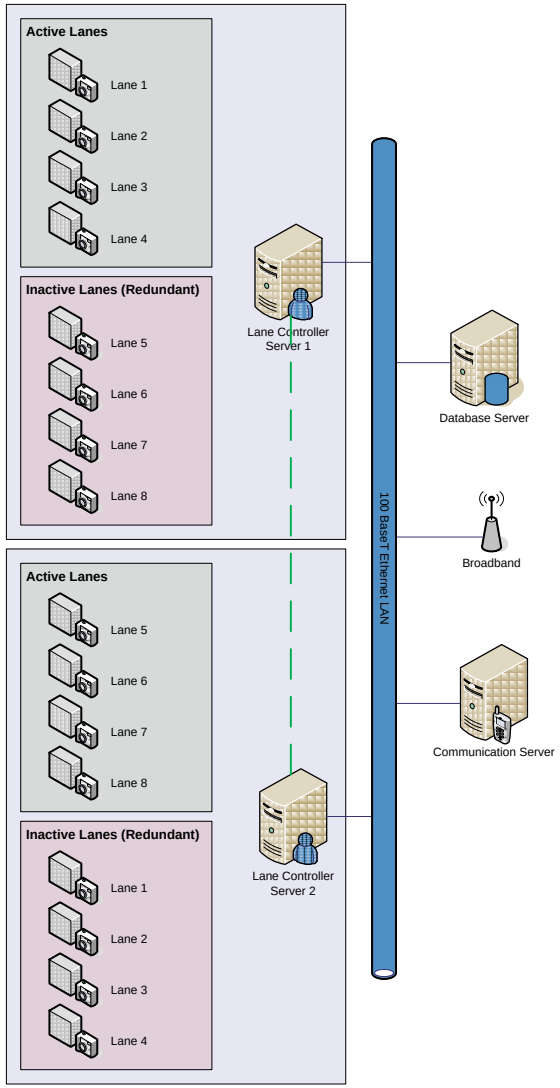
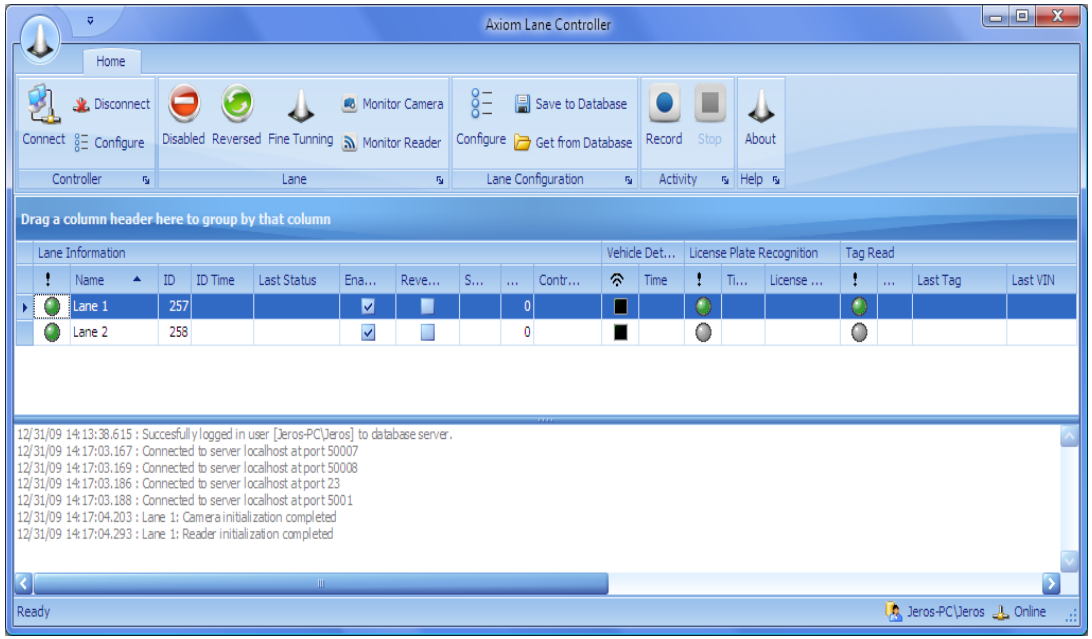
System Architecture

- Redundant Architecture at lane level.
- Multiple redundancy levels in hardware and software.
- If a server stops working, another one can take control.



Lane Controller

- **Axiom Lane Controller** – Controls all the vehicle identification devices and generates unique transactions.



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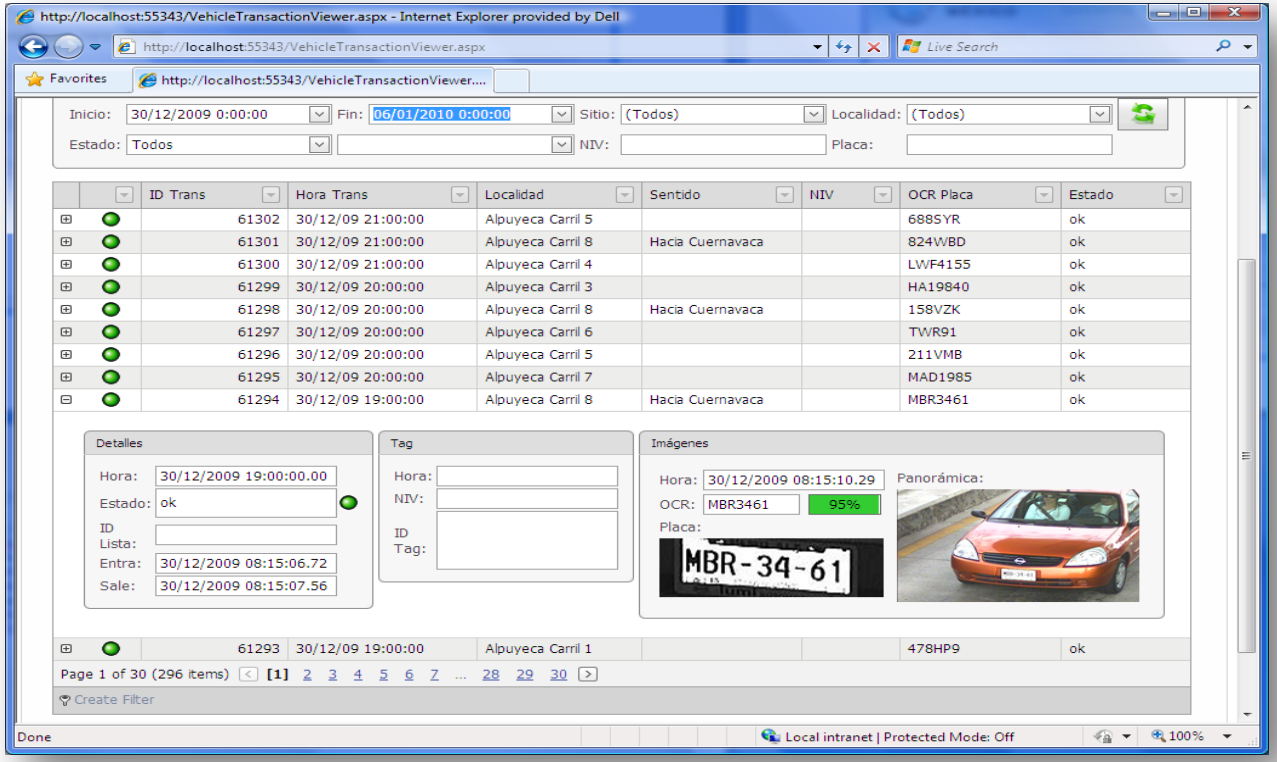
Central Site Systems

Web AVI System

- **Axiom Web AVI** - Obtains in real time the vehicle identification transactions and hits



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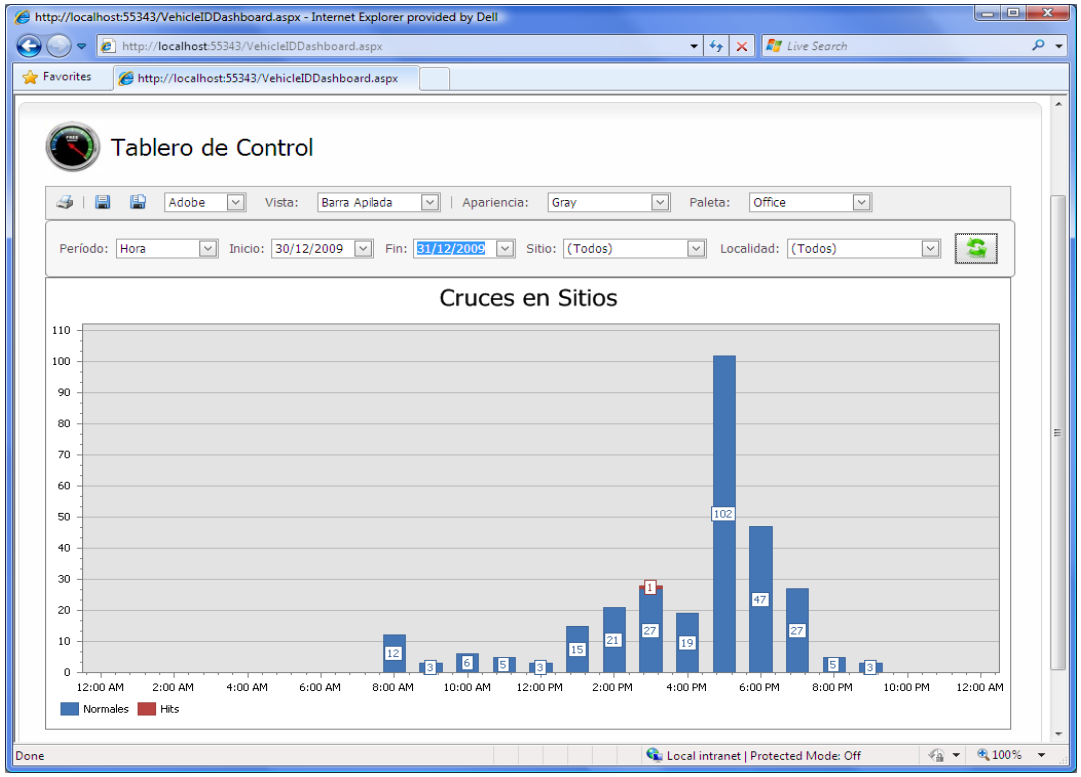
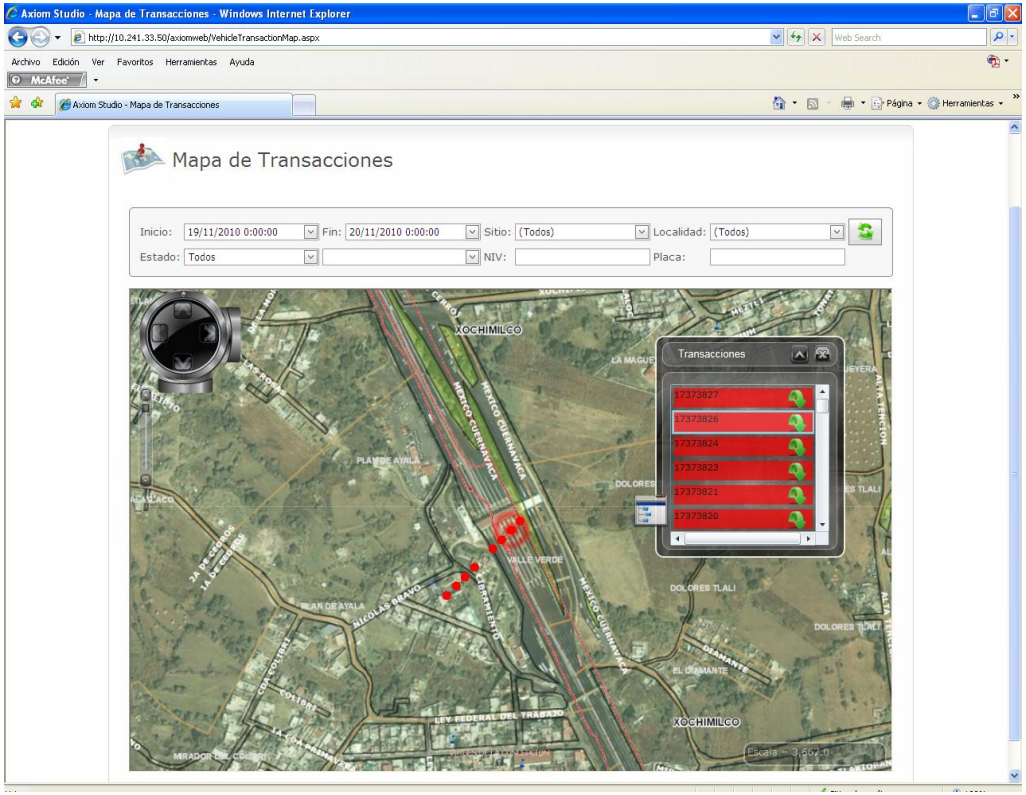
Reporting

- **Axiom Web AVI** – Includes a full featured reporting and charting system.



Maps

- **Axiom Web AVI** – Can identify transactions and hits in a cartography subsystem.



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Hit Response

- **Axiom Web AVI** – Allows operators to respond to hits and initiate a Federal police patrol dispatch.

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Project Numbers

- **Phase 1** – 3 toll plazas, 42 lanes
  - **Tlalpan**
  - **Alpuyeca**
  - **Tepoztlán**
- **Phase 2** – 4 toll plazas, 73 lanes
  - **Tepotzotlán**
  - **San Marcos**
  - **Chalco**
  - **Lechería**
- **Total** – 7 toll plazas, 115 lanes

Project Numbers

- **Phase 1** – 25 million yearly transactions
- **Phase 2** – 60 million yearly transactions
- **Total** – 85 million yearly transactions
- **Hits** – 0.16% of transactions (more than 1,300 hits every year).
- **RFID Tags** – 5% of vehicles

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The Future

The Future

- Mexico sets the standard in AVI where every vehicle will have a unique RFID tag.
- The tendency is to use this tag as a means of payment for ETC, gas stations and parking.
- A fully automated system will allow the authorities to implement the enforcement in the areas of vehicle inspection (smog check) mandatory insurance and vehicle registration.

Axiompass Strengths

- By the end of the year, Axiompass may have more than 200 lanes operating with RFID.
- Currently generates 85 million transactions per year on CAPUFE toll plazas and by the end of the year may generate over 150 million transactions per year which makes Axiompass the company with more vehicle electronic transactions in Mexico.
- Complete intellectual property of the central system currently used in vehicle identification (including communications systems, transaction processing, monitoring, response and business intelligence)
- Can deliver turn-key projects including design, planning, procurement, installation, testing, development, integration, training and support.

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Questions?

www.axiompass.com