



## RFID for Managed Parking Lots

RFID technology can provide independent, non-stop systems for security, parking, and access control. Our RFID technology provides businesses and communities with hands-free control to ensure only authorized vehicles have entry. The system can also provide access data for administering periodic access charges or parking fees.

- RFID tags can be affixed to automobiles for activating hands-free access to communities and parking lots
- The RFID reader can also trigger surveillance cameras or video recorders whenever a vehicle enters or exits the controlled area
- Each access can be recorded in the RFID reader or host computer's database to maintain a history of access activities and administer billing of daily, weekly, or monthly fees

*Operating a managed, busy parking lot can pose significant challenges, especially to a government organization that also owns some of the vehicles in the lot. The parking area has to be secure, with barrier-enforced entrances and exits. It also has to have an automated, efficient monitoring system that allows for accurate vehicle tracking as well as easy in-and-out access for drivers.*

### CHALLENGE

The Municipality of Pendik in Istanbul, Turkey, operates a highly trafficked parking area for its municipality-owned fleet of 1,000 vehicles. The lot has four gates, far away from each other. The cars move in and out of the lot four or five times each day. The municipality did not want to hire four parking lot attendants, yet funneling all the traffic through a single, congested gate was not an option. Since some of the gates are dangerously close to a motorway, municipality officials did not want to distract its drivers by having them press buttons to open the barriers.

**Company:** Municipality of Pendik, Istanbul, Turkey  
**Application:** EPC-compliant vehicle fleet tracking  
**Area of Use:** 1,000 vehicles housed in parking lot with four separate entrances  
**Status:** Production  
**Tag Supplier:** Alien Technology  
**Frequency:** 866MHz  
**Range:** 6 readers, 5-6 meters of range  
**Reader Supplier:** Alien Technology

### Challenge

- Use RFID to efficiently track vehicles going in and out of a parking lot
- Parking lot is expansive and has four gates

### Solution

- Municipality of Pendik worked with STS technology, a Turkish RFID solutions firm, to develop EPC-compliant vehicle tracking solution
- Toolset includes:
  - Alien® ALR-8800 series readers and circular antennas
  - Alien M tags

### Benefits

- Complete, automatic traceability of 1,000-vehicle fleet
- Secure parking payment system
- Easy, automatic authorized in-and-out

They wanted a completely automated solution that would give the drivers better ease of use with an easy in and out.

To solve their problem, the municipality turned to STS Technology, an RFID solutions provider based in Turkey. STS has deployed Alien Technology products, including UHF (866 MHz) RFID EPC-complaint solutions, throughout the country. Like Falken Secure Networks, STS is a system integrator provides RFID solutions and services to customers in various industries, including retail, textile, manufacturing, transportation, and logistics. "When we heard about the problems that the municipality was facing, we decided that RFID would be the best solution," says Levent Yalcinkaya, STS Technology Technopark Director.



## SOLUTION

STS recommended RFID solutions from Alien Technology and developed a complete RFID vehicle tracking solution for the municipality's parking lot and fleet of vehicles. Each gate has exit and entrance doors equipped with Alien ALR-8800 readers and circular antennas. Each vehicle has an Alien M tag, which is applied inside the windshield. The M tag is a high performance tag that is ideal for plastic. The tags are encapsulated in a sticker that has the logo of the Pendik municipality.

"We are very happy with the Alien products," says Yalcinkaya. "The reader has many options, and we can change the behavior of the reader by simply changing some parameters. It fits almost all cases of the project. The performance of the tag is perfect." STS built software based on Alien's API, so the municipality administrators can record the vehicle movements.

"The system records about 4,000 transactions to the database each day," explains Yalcinkaya. On some gates, STS deploys one reader for the entrance and exit. On other gates, STS uses two separate readers, for a total of six Alien readers to monitor the lot traffic. Each reader can detect the vehicle tags from approximately five to six meters, he adds.

## RESULTS

STS's RFID solution for the municipality was able to overcome the challenges of monitoring the fleet. "The municipality before would have to open the barriers with the help of security people or by the driver's action button. And the administrators were recording the vehicle movements manually," says Yalcinkaya.

"With RFID, we collect the data automatically and without human action. The municipality gets reports from its IT system, and it can easily track the employee's vehicles and parking lot status," he explains. And the drivers are not busy opening the gates—they are only driving their vehicles.

Yalcinkaya adds that the key to the project's success was the ongoing testing that STS did first in lab conditions and then on-site. "It's very important to test hardware and software with the real conditions," he says.

STS also creates extensive documentation during each deployment. "We write down whatever we do on the project. That information becomes very valuable as we deploy the RFID and start work on future implementations."

STS predicts that the Turkish market will continue to embrace RFID for tracking solutions, and it will change the way businesses operate.

"Collecting data with RFID and without human intervention will change many business sectors," says Yalcinkaya. "Classic methods of parking and vehicle tracking operations will be history in the near future."

## **BENEFITS AND NEXT STEPS**

Alien is the first RFID supplier to come to Turkey, and the Pendik Municipality project is the first UHF RFID project announced in the country, according to STS. Pendik and STS both stated that it was very important to have accreditation from EPC Global for the solution they chose. Alien was the only accredited RFID product supplier that

was active in Turkey at the time this project began, says Yalcinkaya. "And we knew that Alien support is with us for every problem that we would encounter."

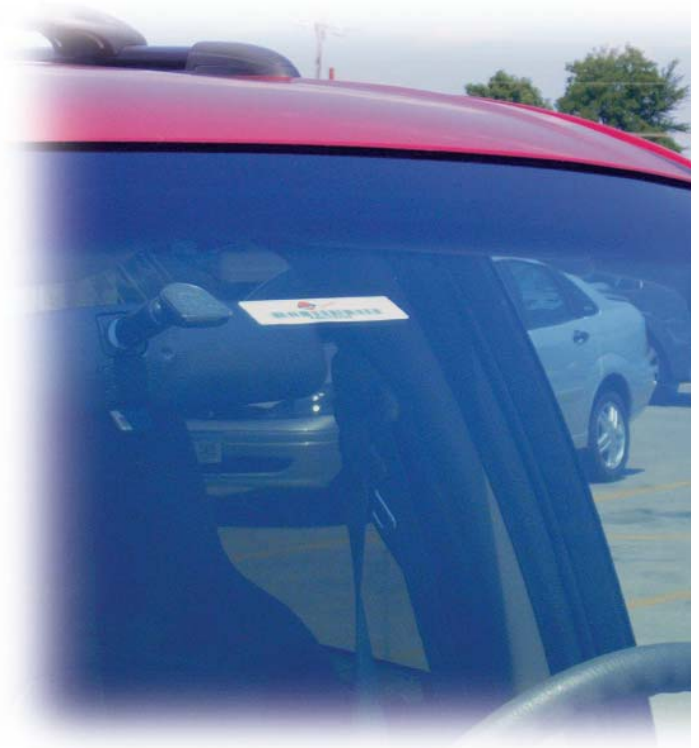
The Pendik Municipality officials are also pleased with the success of the RFID deployment.

"We believe the RFID reader/tag solution from Alien to be superior to other solutions we tested," says Omer Elci, Transportation Manager

for the Pendik Municipality. "We were impressed with the ability of STS to provide the RFID hardware and software integration solution to suit our needs," Elci adds.

As a second phase of the project, STS is working with Pendik to set up a system that will track the vehicles and their respective drivers at fuel stations owned by the municipality.

For that implementation, each gas station will have a reading point, and each driver will also have an RFID-embedded card. The reader will record information from each vehicle's RFID tag along with the driver's RFID-embedded card.



# Tamper Evident Technology \*

FALKEN Secure Networks and MIKOH work together with customers to design and implement physically secure solutions to track, seal and/or monitor valuable assets, secure crime scene evidence, documents and case files. MIKOH offers a broad suite of patent-protected RFID and non-RFID technologies incorporated into low cost pressure-sensitive security seals.

The **Smart&Secure Inform** RFID tag disables the RFID functionality of tags, labels and seals if tampering occurs. This creates a unique, one-to-one relationship between the tag and the asset to which it is attached, preventing unauthorized tag removal and transfers. Thus, a secure chain of custody is established whether in storage, or when transporting court documents and crime scene evidence.



**Smart&Secure Insight** tag is a pressure-sensitive RFID label incorporating a chip, antenna and dedicated tamper circuit manufactured from destructible conductive ink. Smart&Secure Insight's tamper layer causes disruption to the tamper circuit on tampering or removal of the tag without affecting the chip or antenna. During a read operation, this disruption is sensed by the chip and the tampering is reported to the reader.



**Electronic Vehicle Registration (EVR):** By incorporating MIKOH's process expertise and patented tamper-evident technologies, security managers can be certain that the registration and asset itself is being tracked, as opposed to just the presence of the tag. This system from FSN and MIKOH electronically identifies vehicles and validates the identity, status and authenticity of registration data, which enables automated compliance monitoring of all vehicle registration requirements within a given parking lot, state or country. MIKOH has provided access and registration systems to Departments of Motor Vehicles, toll roads, border crossing control areas and vehicle access control systems for military bases.

EVR dramatically enhances registration enforcement through the use of RFID in addition to traditional paper-based forms. The EVR tags are monitored as vehicles pass under readers at normal driving speeds. Readers can be placed at tollgates, underpasses and other convenient locations to automate the monitoring and enforcement of registration compliance. Additionally, law enforcement personnel may be equipped with handheld readers to interrogate tags while documenting traffic violations and other traffic stop encounters. Tamper-indication technology\* is imperative in EVR applications to safeguard against RFID tag theft and fraud.

**Vehicle Access Control:** Vehicle access control enables true campus and parking vehicle security by controlling and tracking where and when vehicles enter designated areas. When a restricted area or a parking lot entrance is approached, a reader at the site accesses the tag. If the vehicle is authorized, the gate opens and it is allowed to pass.

*\*For further details, refer to FSN's Brochure on Tamper Evident Technology*

## FALKEN Secure Networks(FSN)—Your partner for RFID automation

If you choose to pursue RFID implementation in your organization, here is the FALKEN Secure Networks commitment to you:

- FSN will provide solution architects to work with you to define system requirements for your particular installation. Multiple locations can be networked together for a central and real-time view and centralized management.
- FSN will do a RFID site survey to validate radio frequencies, tag types, system design and performance
- FSN will provide all necessary hardware and software to make the system work for you
- FSN will integrate the system with your existing enterprise management software
- FSN will provide documentation for the system, including operating procedures
- FSN will train your people
- FSN will provide warranty and continued system support

For RFID-enabled Document Tracking and Management, FALKEN Secure Networks (FSN) and partners bring together the right technologies to give you control over your files and make your office run more efficiently. Our automated and secure processes save time and labor, and prevent problems before they occur. With FSN ,you get the latest, non-proprietary secure RFID technology with the most powerful and flexible RFID file tracking software available.

## Contact Us

FALKEN Secure Networks is a specialized System Integrator, RFID Solution Architect, and Value-Added Reseller with focused expertise in the RFID site survey, cost-effective design, and turn-key project implementation.

Contact FSN at [sales@falkensecurenetworks.com](mailto:sales@falkensecurenetworks.com)



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