Essen RFID your window to the interconnected world

ESSEN

CASE STUDY

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Lifestyle

Luxury service apartment complex implements RFID-based CAR ACCESS SYSTEM

Efficient vehicle access control and parking management

Accurate identification of authorized vehicles

Automated operation of entry/exit gates, boom barrier and parking area indicators

Automated entry and exit logging

INSIDE:

Key Requirements
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TECHNOLOGY

Solution:
EPC Gen2 compliant vehicle tracking solution

Tag Type:
Parka™ UHF Passive

Reader/Antenna:
Xtenna™
Xtenna Proximity™

Method:
Multiple Tracking via Integrated Reader/Antenna modules

Integration Platform:
RFID Middleware:
Xtenna™ WebToolkit
Xtenna™ Studio
Application: Essen RFID's Car Access System
Database: SQL Server 2005 Exp. ed.

Tag Manufacturer/Supplier:
Essen RFID, with US based chip inlay

Reader/Antenna Manufacturer:
Essen RFID, with US based module

Systems Integrator:
Essen RFID

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Xtenna™ Integrated RFID Antenna/Reader

CASE STUDY

KEY REQUIREMENTS:

Lifestyle Apartment Services, a Portuguese run company in Bangalore is a luxury building complex for expatriates which provides the best services for luxurious living. These apartments are equipped with intelligent programmable logic devices that apply integrated technologies for communication, entertainment and energy management. In order to provide enhanced services to its clients, the company wished to extend this intelligent management to its car access systems for the apartments. It therefore required a system that would automate vehicle access control at the premises.

Main challenges in implementation:

- Identify and allow entry only to authorized vehicles.
- Indicate correct parking space without any waiting.
- Intelligently manage multiple parking spaces for vehicle owners.
- Automatically log each vehicle's entry and exit.

SOLUTION:

Essen RFID offered a Car Access System based on RFID, that was easy to operate, saved time and automated vehicle identification, tracking and parking management. The system deployed Xtenna™ antenna-readers at the entry/exit gates along with a boom barrier for vehicle access control and parking indicator lights.

IMPLEMENTATION:

Two Xtenna™ RFID antenna-readers are installed at the IN (Main) gate and two more Xtenna™ RFID antenna-readers are installed at the OUT gate of the building premises. A boom barrier is set up at the IN gate. A single Xtenna™ antenna-reader is installed at the entrance of the parking area. Indicator lights are placed at the ceiling of each parking bay. A multiple port trigger switch is deployed for triggering the parking indicator lights.

A PARKA™ RFID tag is issued to each authorized vehicle and affixed to its windshield. Each tag is registered into the database for the respective vehicle, using a Xtenna Proximity™ reader. The system, developed through .NET technology, utilizes MS SQL Server as the database.

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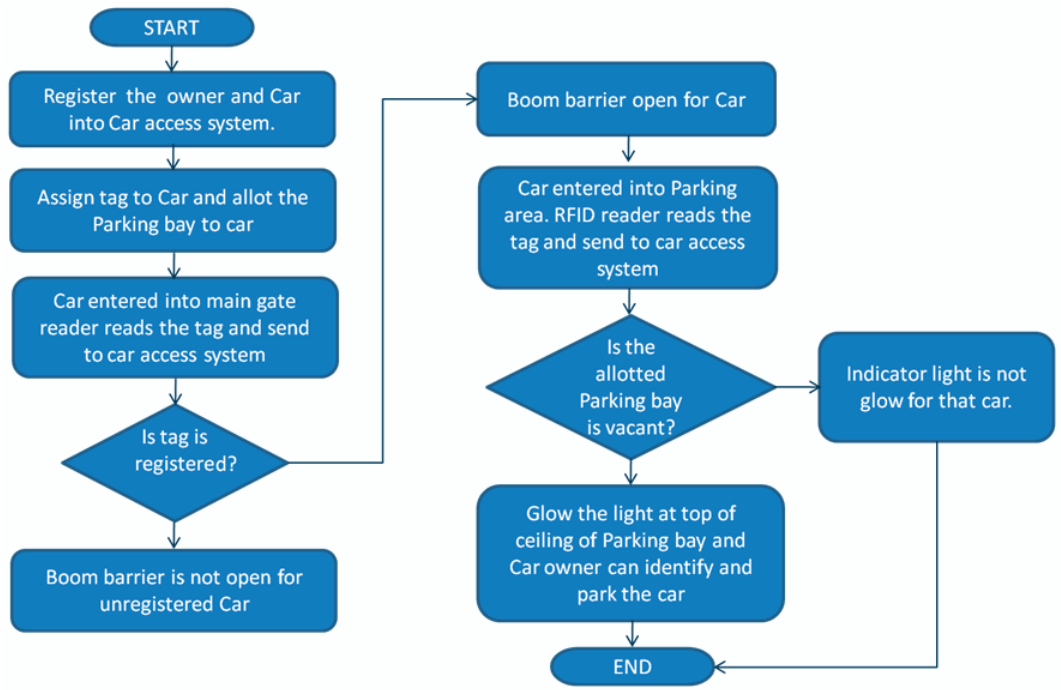

WORKING:

When a new vehicle owner requires a parking bay allocated to him within the premises, he registers the vehicle and owner's name into the Car Access System.

A PARKA™ RFID tag is registered using the Xtenna Proximity™ reader and assigned to the vehicle in the database. The tag is then affixed to the windshield of the car.

Xtenna™ antenna-readers are mounted at the IN and OUT gate for tracking and verification of vehicles. When a car enters the premises, the IN gate reader reads the tag and sends this information to the server, which checks if the tag has been registered. If the tag is registered into the system, then the boom barrier opens for the car and its entrance date and time are logged into the system. If the tag is not found to be registered, the system considers the car as not authorized and the boom barrier does not open.

On entering the premises, the car moves into the parking area. The Xtenna™ mounted there reads the vehicle's tag and sends the information to the server.

The server checks the vehicle owner's allotted parking bay and then checks if the bay is vacant. If any vacant parking bay is found, the system's multiport trigger switch triggers the indicator lights for that particular bay. The driver can now easily locate the exact parking bay for parking his vehicle.

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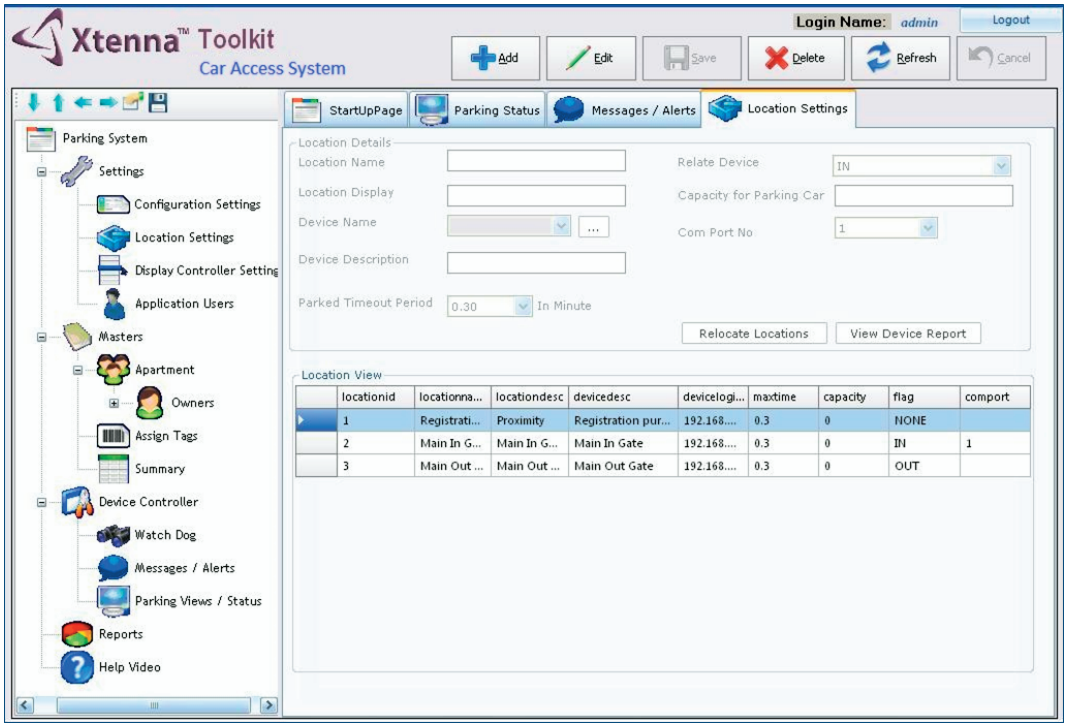
The various modules of the system are:

Location Master
Apartment Master
Owners Master
Vehicle Master
Assign Tags
Summary
Parking Status

Location Master: This module assigns the device IP for a particular location along with the purpose of that location, i.e. whether the location is used for IN, OUT, Registration, etc.



Apartment Master: This module enables the operator to register the apartments within the premises, including their details such as apartment code, name and description.

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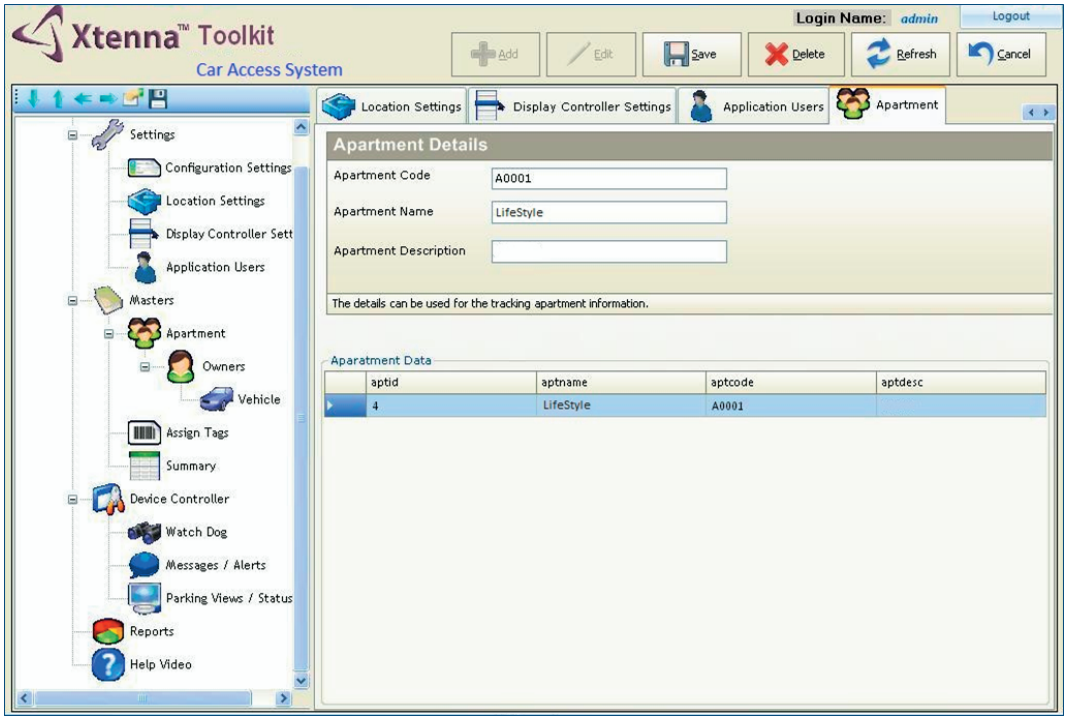
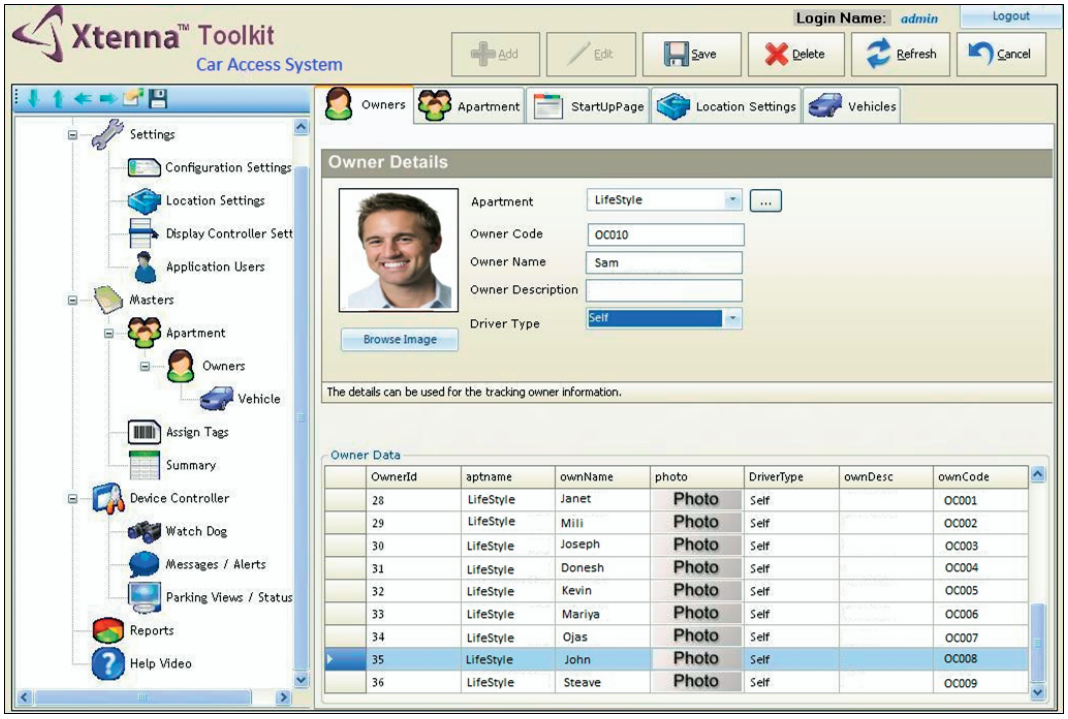


Owners Master: This module enters details of the vehicle owners. The operator selects the Apartment belonging to the vehicle owner and then enters owner details such as Owner Code, Owner Name, Description, photograph, etc.



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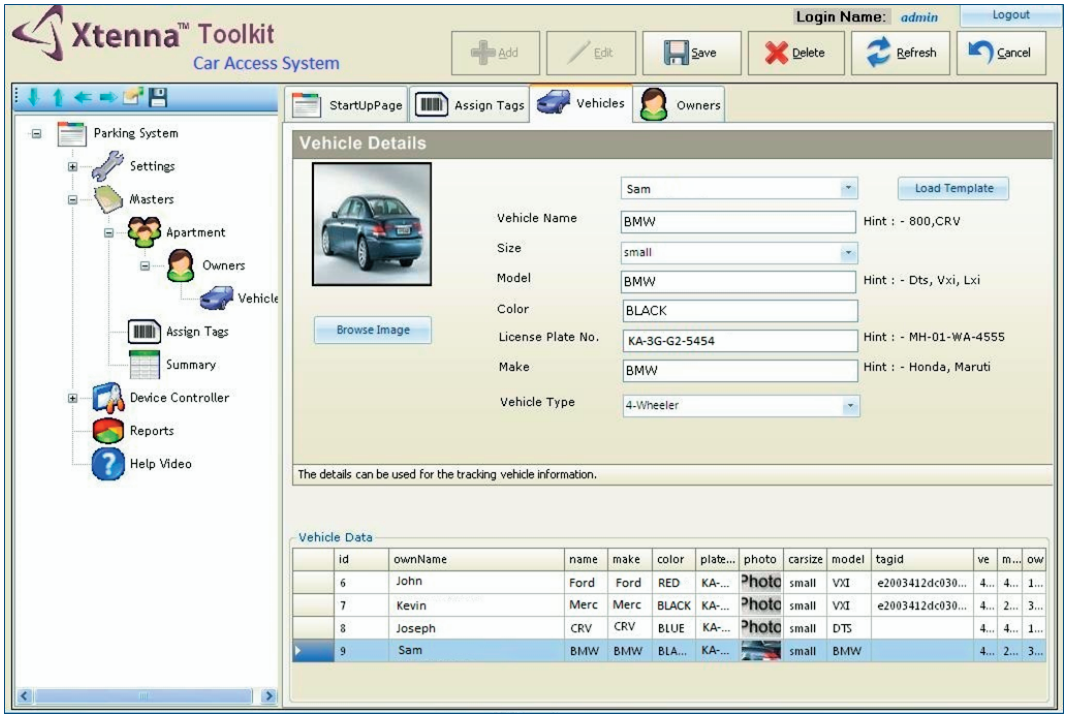
Vehicle Master: Here the operator registers the vehicle with its owner in the database. Vehicle details such as vehicle name, model, manufacturer, license plate number, vehicle photograph, etc. are also entered in this module.



Assign Tag: This module is used to assign the PARKA™ RFID tag to the vehicle that has already been entered into the system. The tag is read by a Xtenna Proximity™ reader and the operator selects the vehicle's license plate number. Once the tag has been assigned to the vehicle, the parking bay is also allotted to the vehicle.

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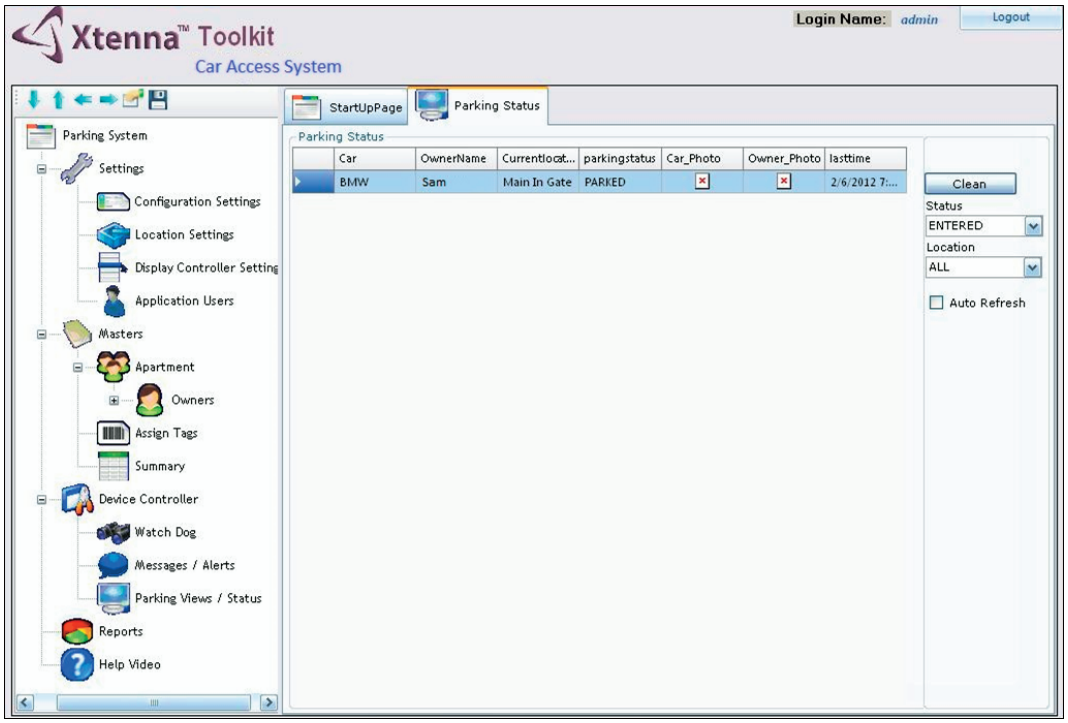
Summary: This module provides a summary owner-wise view of vehicles, along with the details of those vehicles.

Parking View/Status: Here the operator can view a list of all vehicles that have been parked in the parking area. This enables viewing of live parking status and location of the vehicles.



BENEFITS:

- Secure and automated functioning with RFID technology.
- Prevention of unauthorized vehicle entry into the premises.
- Reduction in time taken compared to manual identification of vehicles and opening of boom barrier.
- Automated logging of entry and exit at IN and OUT gates.
- Automatic detection of vehicle in the parking area and automated indicator light guidance for proper parking.
- Live status of vehicles in parking area.
- Saves time and brings ease of use through reduction in manual operations.
- Improved efficiency through automated processes.
- Features centralized report generation for the administrator.

LINKS:

Hardware:

Xtenna™

Xtenna Proximity™

Tags:

PARKA™

Software:

Xtenna WebToolkit™

Xtenna Studio™

Reference Example:

http://www.essenrfid.com/Mailer/accessparking-flash-demo.pdf