PMS : Parking Management System
VPGS : Video-based Parking Guidance System
Staff Member (Season Parking) Registration

NEXPA VISION TECHNOLOGY

NEXPA SYSTEM
GRAN SEOUL
SEOUL, SOUTH KOREA
CASE STUDY

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Introduction

- This study case has been prepared to introduce a project case NEXPA has successfully completed for a commercial building called Gran Seoul, located in the center of Seoul, South Korea.

- Installation was completed in 2014.

- Gran Seoul was constructed to serve as an office center, a restaurant, and a cultural complex. Meaning that parking should be managed differently for each visitor group. NEXPA's parking solution can meet this requirement by customizing the operating program based on the client parking operation scenario.

Background NEXPA SYSTEM

- Founded in 2004, NEXPA Systems Co., Ltd. has been developing and implementing revolutionary technologies that drive the world of smart parking and public traffic surveillance to the next level.

- At NEXPA, we constantly test and challenge our technology; we strive to offer smarter and convenient solutions to the businesses. With over 50 patents in video analytics and surveillance systems, we have the expertise and experience to provide solutions tailored to maximize the potential of smart parking solutions, transforming it into a pivotal asset for the business growth.

- Together with global partners like Cisco System, Inc., NEXPA looks to continuously develop advanced parking solutions as one of the key pillars of IoT(Internet of Things) domains. And as part of CIM(City Infrastructure Management) of Cisco Systems, Inc., we work towards the vision of a world with smart cities and communities in the future.

Project Overview

Gran Seoul functions both as an office and as a cultural complex. Both office workers and general visitors have access to parking. Workers use the parking lot regularly and visitors use the parking lot temporarily. Thus, the parking program should manage them in different ways that are suitable for each case.

Parking Management System	- Entrance : 2 gates - Exit : 2 gates
Video-based Parking Guidance System	- **Total Parking bays : 751 bays**
Season Parking	- For office workers
Auto Payment System	- Advance payment and Exit payment

Challenges

*"**Parking management should be easier** both for the operator and for the visitors"*

Visitors should be categorized to manage the parking lot more efficiently. Also, the management program should be able to properly charge the relevant parking fees depending on the categories of the visitors. The system should allow office workers to pay the adjusted parking free fee once every set number of days so the system can reduce inconvenience for the visitors who access the parking system regularly. For this project, NEXPA aims to find an easier way for both operators and visitors to manage and use the parking system.

NEXPA Solution Features

SMART	The automatic payment solution enables a ticketless parking system.
State-of-the-art TECHNOLOGY	NEXPA's solution uses state-of-the-art devices developed by our proprietary technology.
SECURITY	IP cameras for LPR has also surveillance camera features that does not allow any uncovered areas. The car exterior identification system gives the users a sense of security regarding any accidents that can happen at the parking lots.
EXPANDABILITY	NEXPA's solution has the expandability to interface new systems with existing devices and applications for easy management of the entire system.
CUSTOMER SATISFACTION	NEXPA's solution is easy to run for the parking lot operator and convenient to use for the visitors.

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Project Main Components

PMS : Dual Camera LPR System

LPR System is an automated control / management system that minimizes car congestion at the entrance and the exit of the parking lots. The system identifies vehicle license plate numbers within a single second, with more than 98% accuracy. The system uses the plate numbers as identifications for billing and security purposes. The computerized system reduces the need for consumables such as tickets.
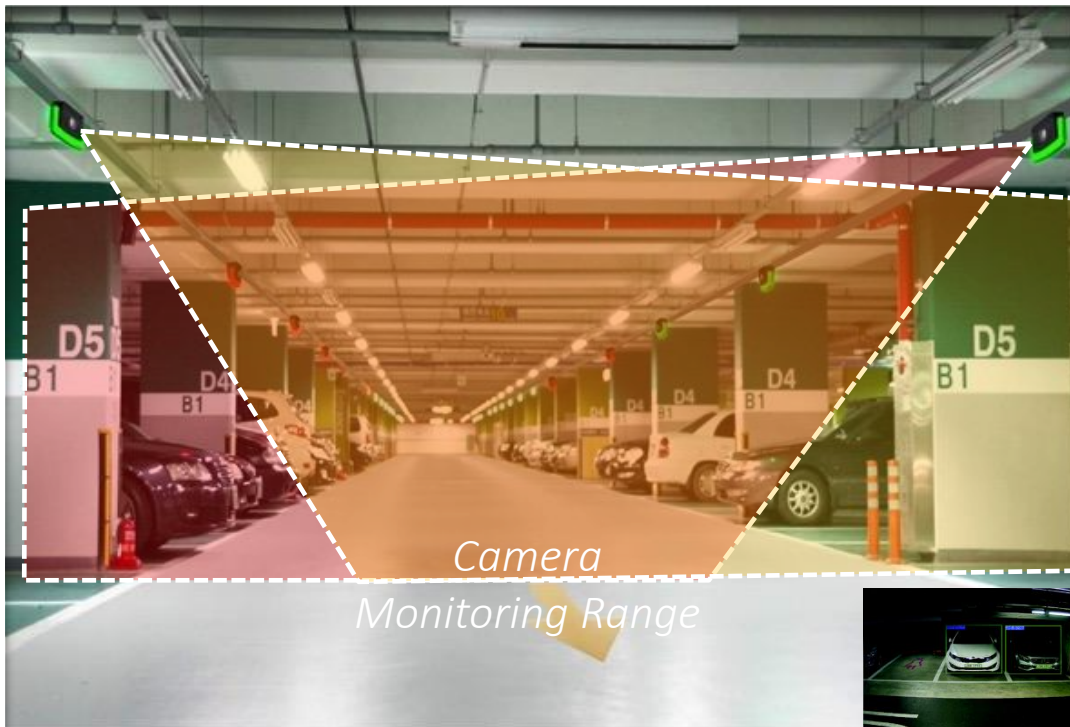
## PMS : Bi-Directional LPR Technology

The Dual Camera LPR System, with the bi-directional LPR technology, detects the rear license plate in the event of damaged or bent front license plate. It significantly reduces error rates, resulting in recognition rate higher than 99%

Project Main Components

VPGS : IP Camera

Camera Monitoring Range

Each uni-directional IP camera covers up to 3 bays for detecting cars and recognizing plate numbers. Built-in LED lights, which can be designed for individual parking spaces with optional additional LED lights, indicate the status of the parking bays.
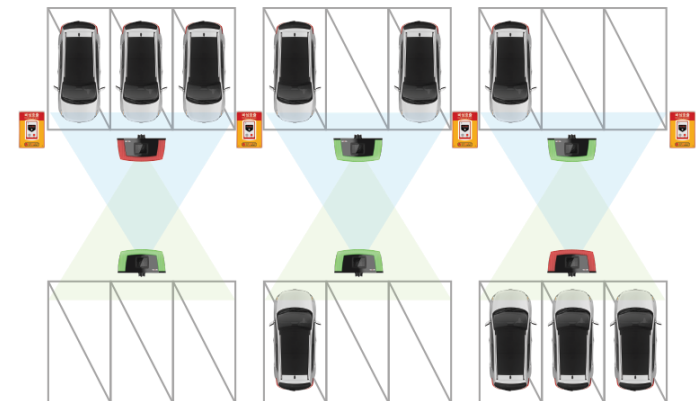
Project Main Components

Auto Pay Station

The Exit Auto Pay Station allows the drivers to pay their parking fees in the comfort of their cars at the exit gate. When the payment is done, the boom gate opens right away. This model only accept credit card payments.
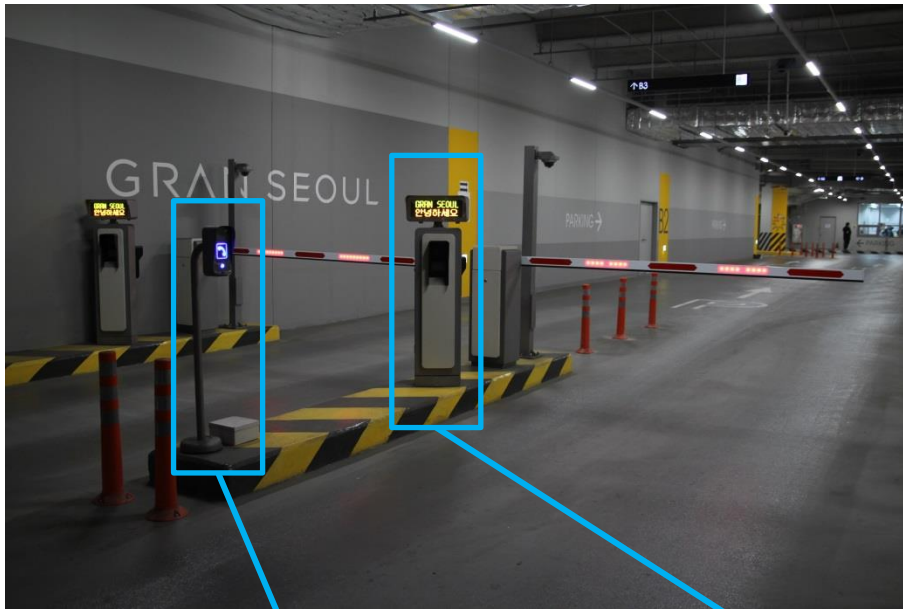
- 10.5" screen

The auto pay station for advance payments allows the drivers to pay the parking fee before leaving the building and heading to the parking lot. It reduces the congestion at the exit gate. This model accepts cash/credit card/voucher(magnetic) payments.
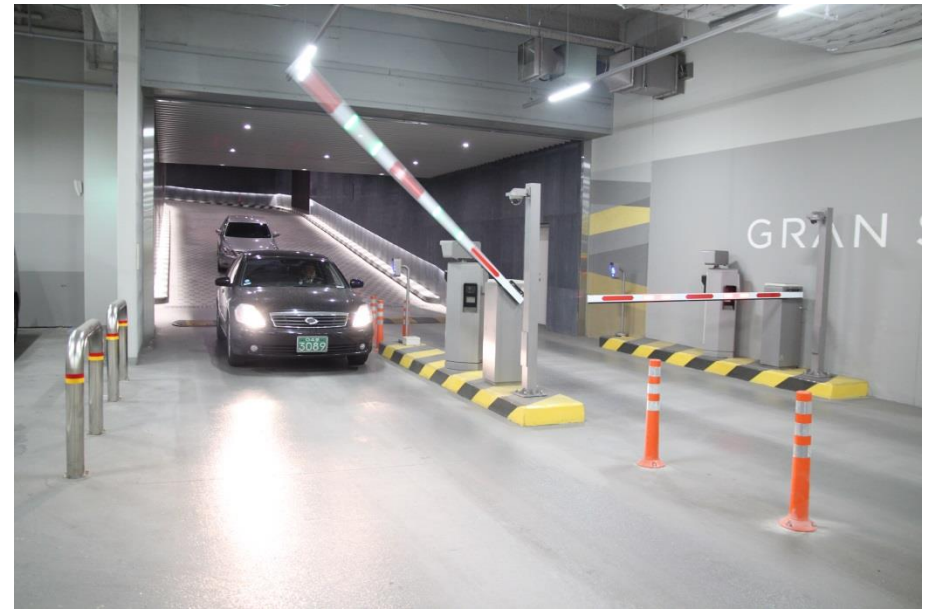
- 42" screen

Installation

Non-stop access

Drivers can communicate with a parking staff by pushing the call button on the intercom for any trouble and emergencies.

2 way LPR increases the accuracy rate. The recognition speed is within 0.8 seconds, enabling non-stop access.

Installation

Parking Guidance

Through parking guidance signage and LED indicators, drivers can easily find an available parking bay.

Installation

Parking Control Center

Parking Guidance program

Season parking for the office workers can be registered into the parking management program with payments in advance. Workers with authorized season parking can freely access parking during that specific period.

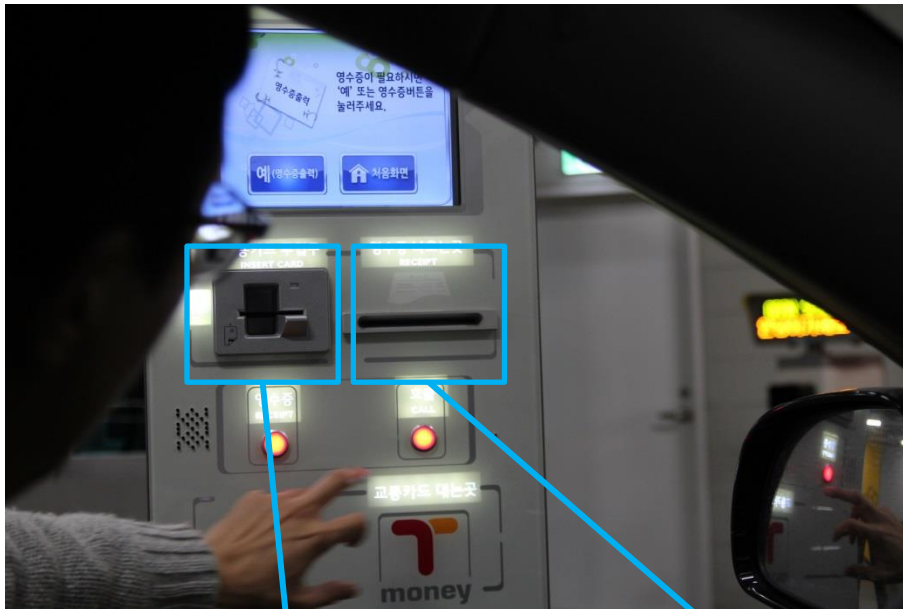# Installation

Auto Pay Station

Auto pay stations are generally deployed near elevators.

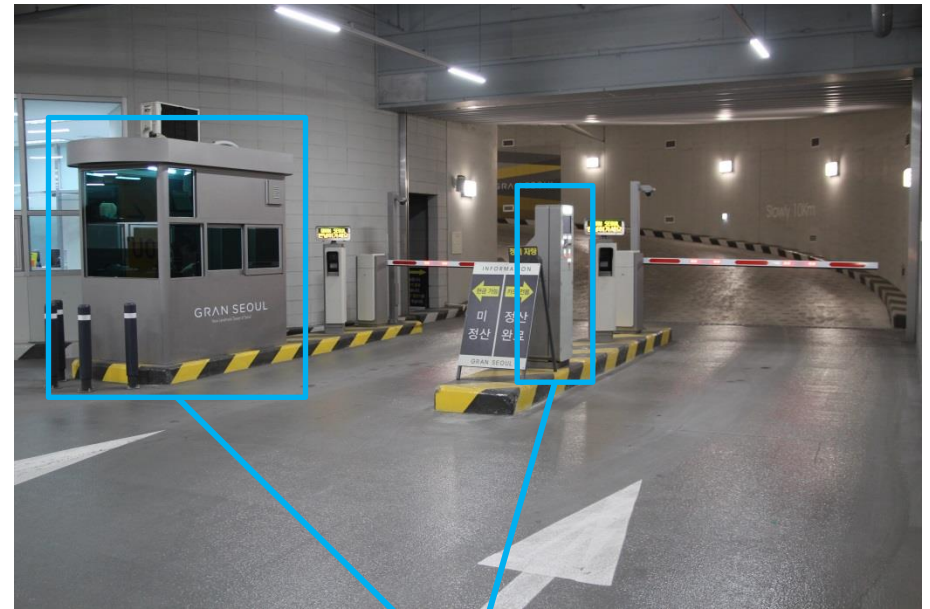This auto pay station has a Find-My-Car feature as well.

Installation

Exit Auto Pay Station

Credit card payment terminal

Receipt printer

This right lane is for the season parking and credit card payments. The left lane is for general visitors and cash payments, also with a cashier available.

Benefits

✓ *Easy to manage*

Parking operators can categorize visitors and manage revenues much more efficiently.

✓ *Cost efficient*

A fully automated solution helps to reduce operating costs and labor cost.

✓ *Increased building value*

A systemized and user friendly parking solution helps increasing the value of the building.

PARKING OPERATER

PARKING VISITORS

Easy to pay ✓

There are various payment options. And the office workers can reduce the time they spend paying parking fees.

Easy to park ✓

Parking users can easily find an available parking bay at a glance by checking the guidance signage and LED indicators.

Stress-free parking ✓

Non-stop access at the entry gate and a prompt exit using the auto pay station give the parking users a stress-free parking experience by reducing congestion.

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Conclusion

- For Gran Seoul, NEXPA categorized the parking users into 2 groups: general visitors and season parkers. Office workers access parking lots every day, so NEXPA solution provided them with the easiest way to park. The season parking registrations eliminated the time workers would otherwise spend to pay parking tickets every single day.

- Since the IP cameras for parking guidance can capture the entire parking lot without any excluded areas, additional surveillance system in Gran Seoul parking lot was deemed unnecessary. The parking staff can simultaneously monitor the whole parking lot at a single location.

- NEXPA suggests and proposes customized solutions that meet each and every clients' requirements based on the given parking scenario, and completes them to the clients' satisfaction.