Welcome!

3F 93
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NEXPA

PMS : Parking Management System
(Ceiling Mounted LPR)
VPGS : Video-based Parking Guidance System
(Guidance Displays, Emergency Bell)

NEXPA SYSTEM
LOTTE WORLD,
SEOUL, SOUTH KOREA
CASE STUDY

Background NEXPA SYSTEM

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

- At NEXPA, we constantly test and challenge our technology; we strive to offer smart and convenient solutions to our customers. 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 a parking lot, transforming it into a pivotal asset that supports 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). As a part of CIM(City Infrastructure Management) of Cisco Systems, Inc., we work towards the vision of a world with smart cities and communities.

Project Overview

<introduction of LOTTE World>

LOTTE World is Korea's leading total entertainment service provider. LOTTE World is easily accessible by public transportation and visited by nearly 6 million visitors from all around the world each year. LOTTE World selected Nexpa's smart parking solution for the efficient operation of their parking lot. Nexpa's solution is easy to run for the parking lot operator and is convenient for the parking lot visitors.

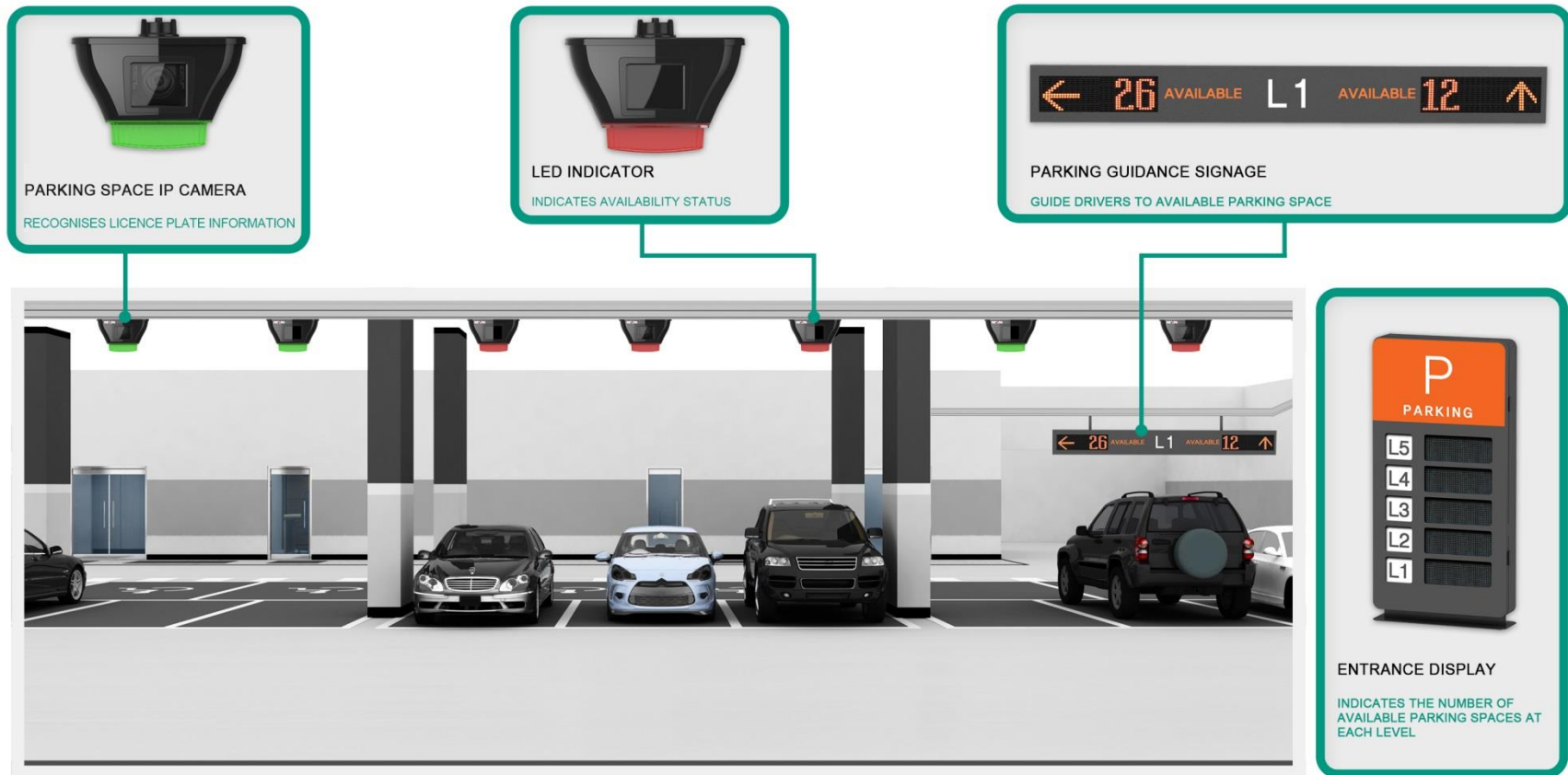|	
Site Name	LOTTE World
Completion Date	2020. Dec
Total Parking bays	3,000 bays
Solution	- Parking Management System (Ceiling Mounted LPR) - Video-based Parking Guidance System

Challenges

Requirement :

- ✓ Parking Management System
- ✓ Checking for the parking location
- ➢ Ceiling Mounted LPR

- ✓ Video-based Parking Guidance System
- ✓ Parking bays video surveillance
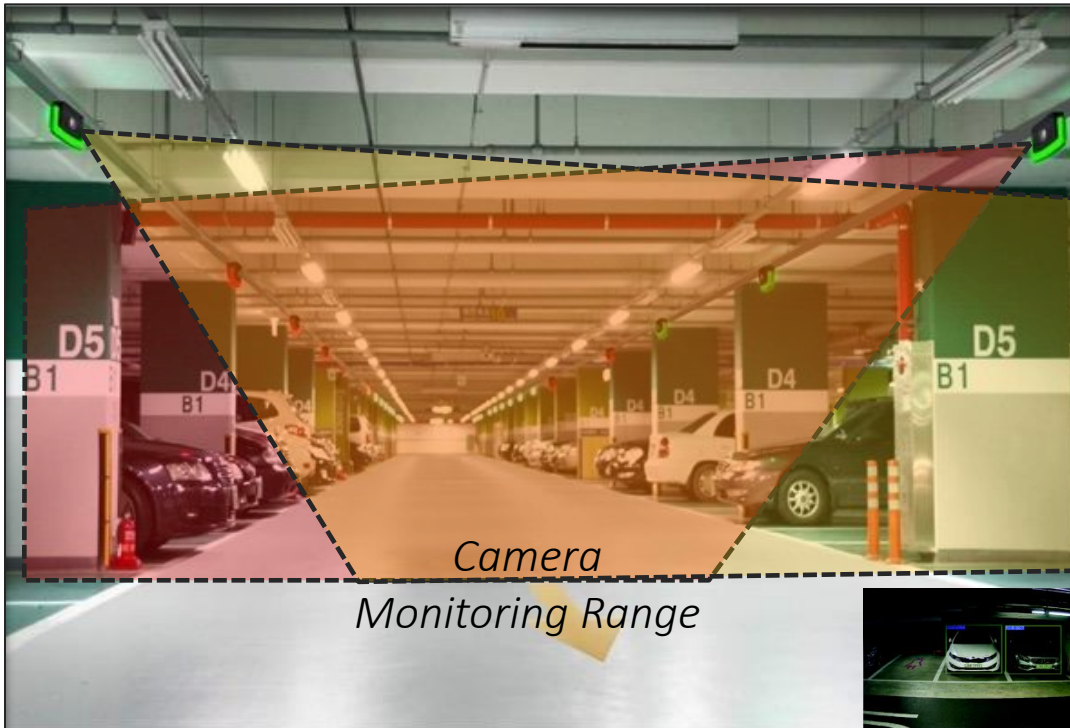- ➢ Guidance Displays
- ➢ Emergency bell

# NEXPA Proposed Solution – System Specification ①

System Concept Image

PARKING SPACE IP CAMERA
RECOGNISES LICENCE PLATE INFORMATION

LED INDICATOR
INDICATES AVAILABILITY STATUS

PARKING GUIDANCE SIGNAGE
GUIDE DRIVERS TO AVAILABLE PARKING SPACE

← 26 AVAILABLE L1 AVAILABLE 12 ↑

P PARKING
L5
L4
L3
L2
L1

ENTRANCE DISPLAY
INDICATES THE NUMBER OF AVAILABLE PARKING SPACES AT EACH LEVEL

NEXPA Proposed Solution - System Specification ②

VPGS : IP Camera (Uni-directional)

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.
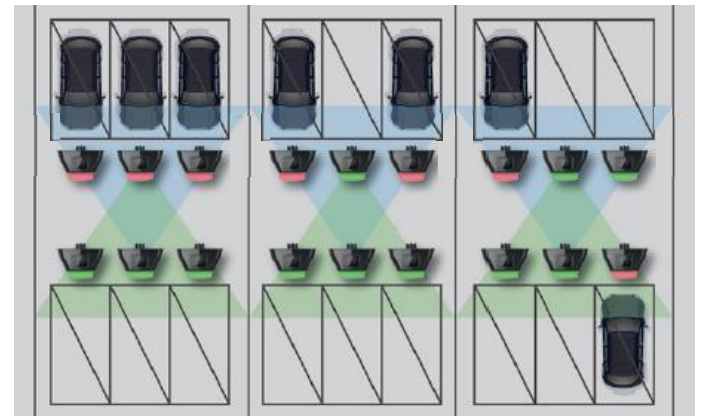
NEXPA Proposed Solution - Major Components ①

[Uni-directional IP camera – 12MP (A Type)]

Uni-directional IP camera recognizes vehicle license plate numbers and supports the security surveillance. It covers 3 parking bays and is installed in the opposite side of the parking bay where should be recognized to capture the image. A type is LED indicator embedded IP camera. LED indicator shows the occupancy of the parking bays beneath the camera using different colors. (Red: Occupied/Green: Available)

[Uni-directional IP camera – 12MP (B Type)]

Uni-directional IP camera recognizes vehicle license plate numbers and supports the security surveillance. It covers 3 parking bays and is installed in the opposite side of the parking bay where should be recognized to capture the image. B type does not have a LED indicator and is installed at a place where there are no parking bays beneath the camera.

[Parking Lot LED Indicator]

Parking lot LED indicator has the same appearance with the IP camera for visual consistency of the parking lots. It shows the occupancy of the parking bay beneath the camera using different colors. (Red: Occupied/Green: Available)

[Mini LPR (Ceiling Mount Type)]

1.3M pixel, IR or White LED, Indoor Type, Designed to install in constrained sites, Recognizes license plate number of vehicles entering parking lots, High-recognition rate by using infrared high-brightness LED or white LED even in dark environments and harsh weather, Record data of car plate number and image in embedded PC.

NEXPA Proposed Solution – Major Components ②

[Entrance Guidance Display]

Displays available spaces for every floor of the parking lots at the Entrance.

[Floor Guidance Display]

Displays available spaces with directional arrow for the current floor in parking lots.

[Zone Guidance Display]

Displays available spaces with directional arrow for zone in a floor.

[Emergency bell]

Sound warning, Pop-up window on operation PC, Flashing LED lamp on camera.

Site pictures ①

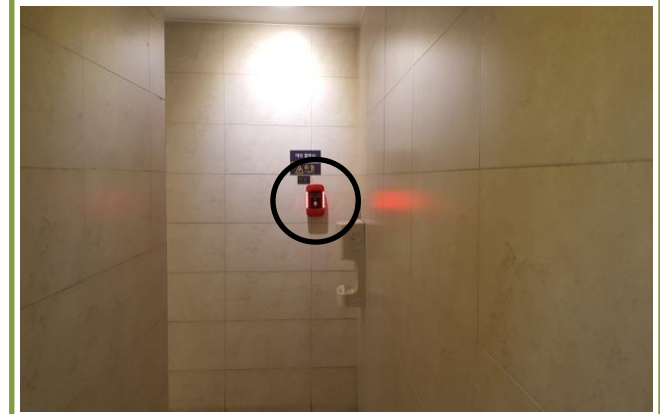| Uni-directional IP camera (A Type) | Uni-directional IP camera (B Type) | Parking Lot LED Indicator |

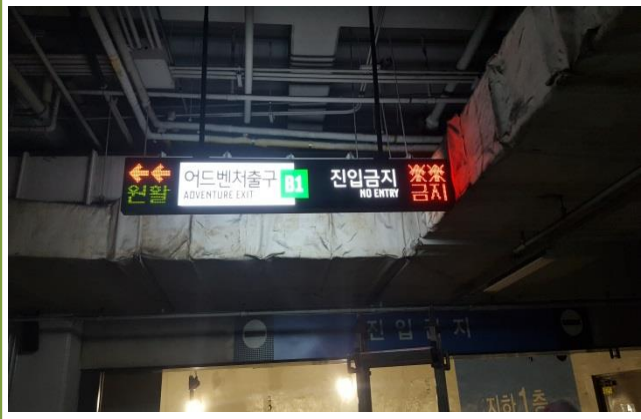| LED Indicator for handicap parking spaces | Emergency bell | Emergency bell for ladies' toilet |

Site pictures ②

PHC Hub Housing	Entrance Guidance Display	Floor Guidance Display

Zone Guidance Display	Guidance Display	Mini LPR (Ceiling Mount Type)

Site pictures ③

CCTV	Parking Guidance Operation PC	IPU & KVM switch
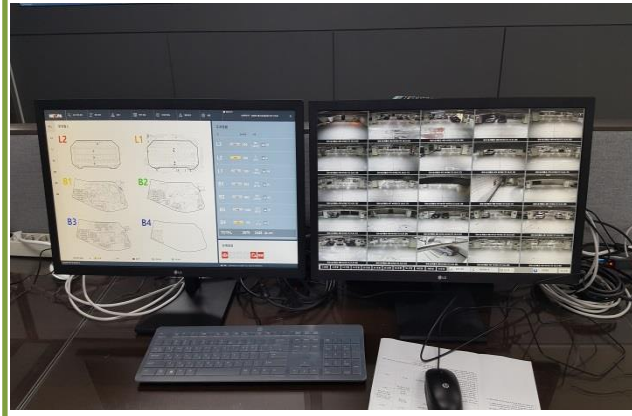
Main switch	UPS (Rack type)	Rack & Center equipment

Conclusion

- LOTTE World is one of the total entertainment service provider in Korea. They has also advanced into the vast global market, building a network that spans Russia, Vietnam, and Indonesia. They wanted to deploy a high-end parking solution using state-of-the-art technology and selected NEXPA's smart parking solution.

- Our system is not only simple for visitors but it is also convenient for operators. In visitors' perspective, they can easily find an available parking space by checking the color of LED indicator and see the entrance/floor/zone guidance signage to decide where to go. In operators' perspective, they enable to operate parking lots efficiently using an automated system. Allows the operator to monitor the parking lots, manage the parking bays, and use statistics. It helps to increase the utilization of the parking lots and reduce the labor costs.

- We will continue to accompany LOTTE World in the future as a trusted partner with our excellent smart parking solutions. 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.