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Tomorrow never waits

Smart Street

High Lights Your City

ZTE Romania

The Theme

ZTE Smart Lighting Solution

01

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02

ZTE Smart Parking Solution

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Requirement Analysis of Traditional Streets & Roads

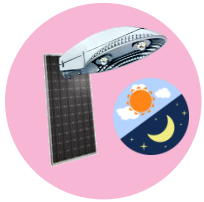
- Street, Roads & Public Areas Light Energy Waste
- Idle Lamp Pole Resources with Low Integration
- Additional Poles for Security Cameras, Sensors, & other Equipment
- Non ICT/IOT based Static & Manual Scheduling of Street Lights Operation

- In congested cities 30%+ Traffic Generated by Vehicles Looking for Parking Slot
- 30%~70% of Public Roadside Parking may be Occupied without Paying Fee
- Irregular & Unmanaged Roadside Parking causes Wastage of Time to Citizens
- Traffic Pollution & Illegal Car Parking Couple the Headache for Municipalities

ZTE Smart City - Total Solution Architecture

3. Consume

ZTE M-ICT Applications



Street Lighting

Street Parking

Smart City Services

2. Collect

ZTE UOC Cloud, Big Data & M2M Platform

1. Connect

IOT – Sense & Monitor

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1. Smart Street Light: One Pole – High Configurations

Sensors

-Monitoring cities' environment
-Noise sensor
-Air pollution detector
-Temperature / Humidity sensor
-Brightness sensor
-Monitoring municipal buildings

Video Monitoring

-Security monitoring
-Vehicle monitoring

RFID

-Special populations Monitoring
-Manhole Monitoring
-Community security monitoring
-Municipal facilities monitoring

Emergency call

-Field contact with the monitoring center
-Active broadcast from the monitoring center to field

Intelligent Lighting

-Cellular cooling technology
-Light distribution based on brightness
-Intelligent single lamp / centralized
-A variety of optional module design

Wireless network

-WiFi hotspot
- Small cell

Information Display

-Advertising
-Political news
-Information release

Charging pile

-Electric car
-Electric bicycle

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Smart Group Control for Energy Saving

Management Centre

Internet

Fiber/4G

Zigbee

Main lamp | Aux. lamp | Aux. lamp | Aux. lamp

Main lamp | Aux. lamp | Aux. lamp | Aux. lamp

PLC

Features

- Continuous brightness adjustment between 0~100%
- Two control mode (Zigbee and PLC) between main lamp and auxiliary lamps to realize smart group control
- For the control mode, it gives priority to choose Zigbee
- Control the streetlamps to turn on or off, adjust the brightness according to season and time

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1. Smart Street Light: Flexible Configurations & Models

Auxiliary lamp

Main lamp

- Functions customizable based on requirements.
- Applicable to different scenarios.

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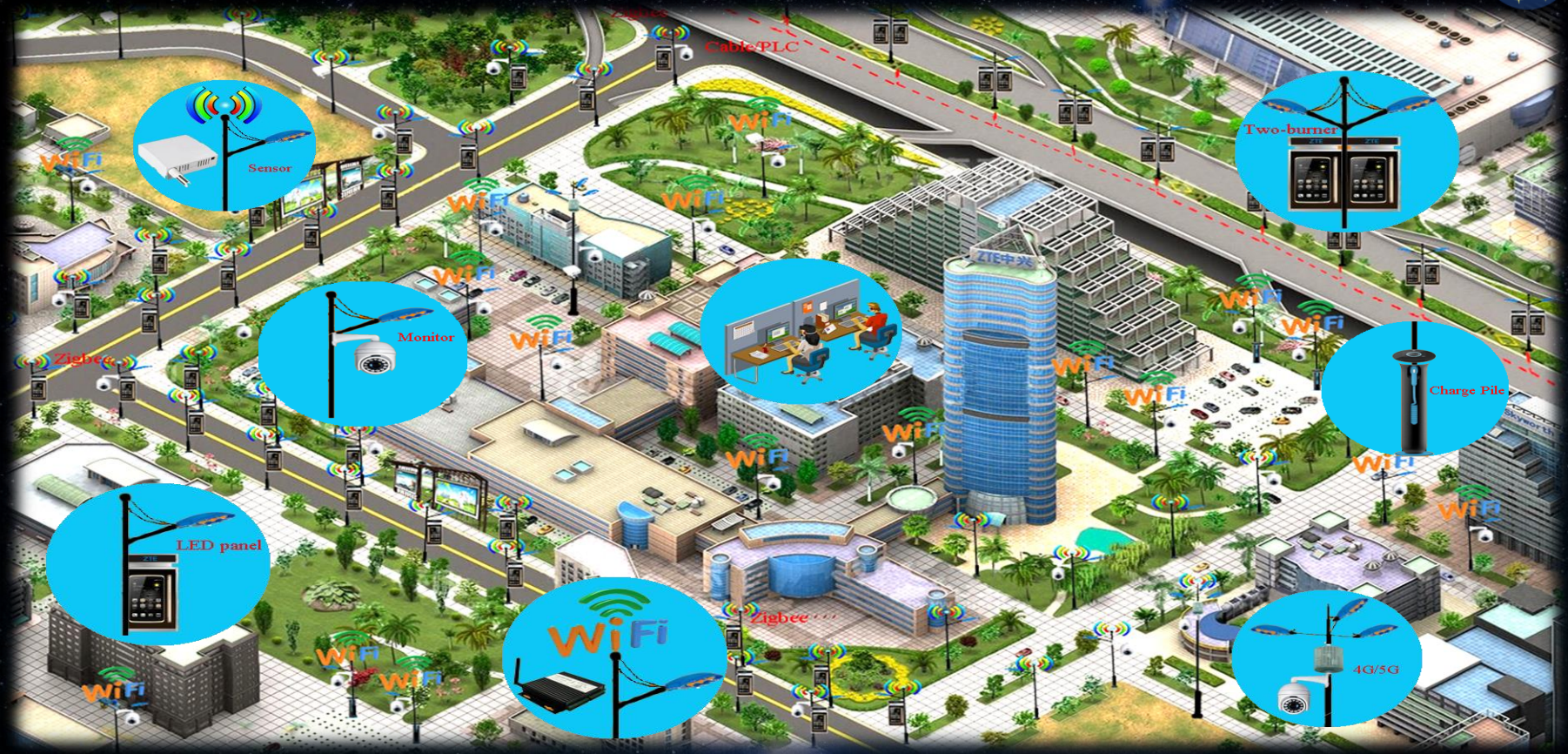
Smart Street Light: Combo Installations Scenario



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Smart Roadside Parking Solution: Operating Flow

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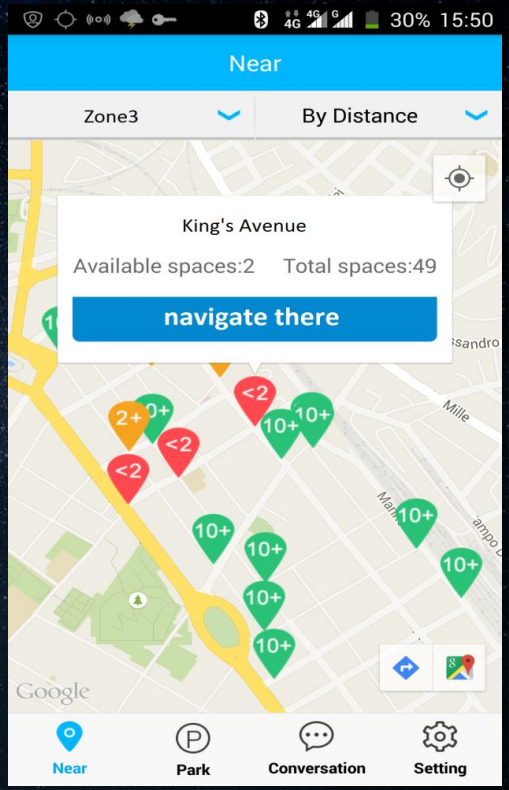
Find Parking Slot Quickly Via App

- All the status of parking slots are showed in the app in real time
- the “navigate there “ button shows the route to the selected parking slot
- No longer to drive along the street blindly
- This function is convenient to drivers and helps to reduce up to 30% of the traffic

And…

- User can easily extend the parking time through the App without going back to the vehicle
- Best Customer Experience via App
- No tickets needed (eco-friendly paperless system)
- Versatile payment methods



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Smart Roadside Parking Solution Key System Components

Parking Detector

(in the parking slot;
on the ground/buried)

A parking detector is installed in each parking slot. It detects whether the slot is occupied.

Description

The roadside parking system uses the wireless networking technologies. The system consists of parking detectors, controllers, parking guidance boards, handheld terminals and the background service management platform.

Parking Controller

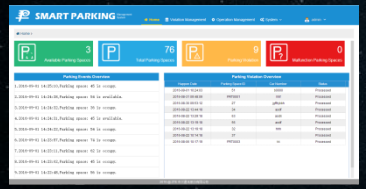
(Vertical/Wall-mounted)

It collects data about the occupied parking slots from the parking detectors. Moreover, it sends the data to the management platform.

Parking Guidance Board

It shows the quantity of vacant parking slots and direction information for drivers.

Cloud based IoT platform



It manages the whole parking system. It receives, stores and analyzes all the parking data and provides parking and payment information for drivers and patrols via smart phone app.

Handle Terminal

It is mainly used as an assistant for patrol. It can be replaced by a smart phone with ZTE parking app for patrol.

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Smart Street Parking: Benefits to Society

Benefits of ZTE Smart Road Side Parking

City Hall

- **Increase Fiscal Revenue:** Drivers are conscious & find convenience to pay parking fee
- **Green & Low Carbon:** All devices use low-power designs. Solar power is supported. Working time of detector battery is about 5 years. Less time to Park & Low Carbon Emissions.
- **Smooth Expansion:** Based on big data analysis of parking data, easy expansion to other smart city applications, eg., smart tourism

Parking Police

- **Higher Efficiency of Inspectors:** Via APP, illegal parking slots are shown precisely on the map. Inspectors don't have to check one by one.
- **Improve Parking Patrolling:** Working routes of inspectors are recorded.The working area of each inspector can be adjusted automatically.
- **Information Share & Collaboration:** Digital mgmt. of parking enables sharing of information between different departments & personal

Citizens

- **Reduced Traffic Congestion:** Via APP, drivers can know exactly which parking slot are available. Reducing Traffic Congestion & Time wastage.
- **Easier to pay:** Drivers can pay the parking fee via APP online, or just make a phone call or use Paypal, credit cards, & virtual parking accounts.
- **Easier to park:** ICT based dynamically updated road signs and notices help drivers navigate to the available parking lots.

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An Estimation of Annual Parking Fee

If there are 10,000 parking slots, how much we can get in one year?

Here is the **calculation model**, which has been proved in some European cities.

Number of pay parking slots	Occupancy Ratio of pay parking slots	Average parking hours per pay parking slot	Average parking fee per hour	Pay days per year	Annual revenue (mln Euro)
10,000 p Parking slots	Suppose the occupancy rate is 50%;	Charging time：8:00am~08:00pm，totally 12 hours. Suppose there are 6 hours when the parking slots are occupied averagely	Average 1.4 euro per hour	Free parking on weekends(104 days) and holidays(suppose 11 days), so pay days are 250 days	
10000	50%	6	1.4	250	**10.5**

10000 * 50% * 6 * 1.4 * 250= 10.5 Million

For 10,000 roadside parking slots, the annual average parking fee could up be **€10.5 million**,

while traditional ways only collect about €3 million per year.

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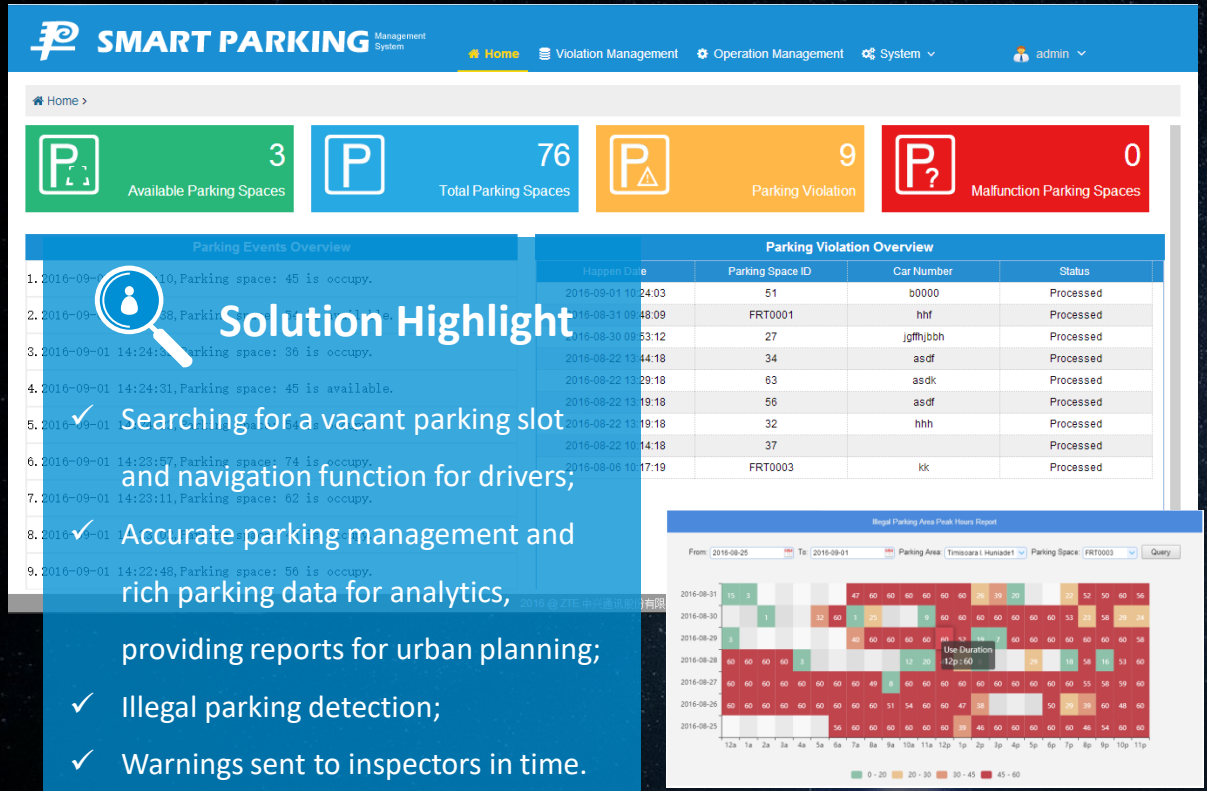
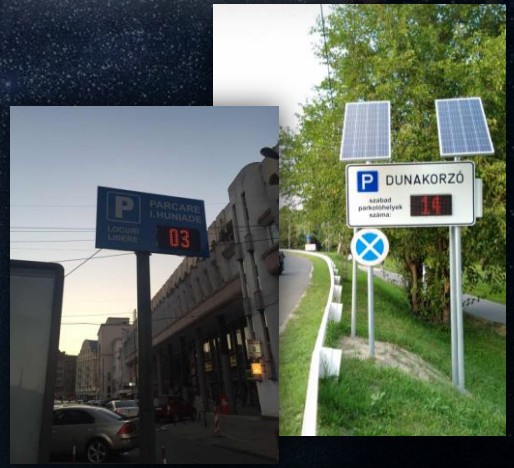
Successful Cases: Smart Street In Romania and Hungary



Solution Highlight

- ✓ Searching for a vacant parking slot and navigation function for drivers;
- ✓ Accurate parking management and rich parking data for analytics, providing reports for urban planning;
- ✓ Illegal parking detection;
- ✓ Warnings sent to inspectors in time.



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Thanks!

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