

Smart Parking, A Great Application of NB-IoT

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Parking, a common problem in China



China vehicle ownership trend (hundreds of million)

On March, 2017, the amount of private vehicle in China reached 200 million.

Gap in Beijing : 2.5 million

Gap in Shanghai : 2.2 million Gap in Shenzhen : 2.0 million



Parking Space Gap in Chinese major Cities (ten thousand)

Vehicle to space(Vs) ratio in DCs: 1:1.3

Vs ratio in tier I cities in CN: 1:0.8 Vs ration in tier II and III cities in CN: 1:0.5 Vehicle to space(Vs) ratio in DCs: 1:1.3



On street parking problems in China













"Good Parking", First Chinese Total APP-paid on street parking solution





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Parking solution to Shenzhen "Good Parking"





Implementation impacts and existing problems





Data source : Shenzhen traffic police (First year of "Good Parking" APP) 25% complaint caused by communication issues. User experience seriously influenced.

The complaint order



Tech advantages of NB-IoT 4 advantages, especially focus on "low frequency, small packet, insensitive time delay" IoT business, suitable on smart parking



Smart parking solution based on NB-IoT Tech





Advantages of NB solutions(Compared to traditional way)



	Traditional Solutions	NB-IoT Solutions
Security	Unreliable private network, unlicensed band.	Licensed band with professional maintenance. (Operator-level quality assurance)
Installation	Repeater and gateway should be installed even if under complex environment.	No repeater and gateway needed: No government's approval of installation. (Shorter project cycle)
Maintenance	Complex network maintenance. Risk of maintenance of gateway.	Good maintenance by network operator. Less maintenance because of fewer network nodes. (Smart parking companies are not responsible for communication maintenance)
Cost	Every 20 detectors need a gateway. Solar panel for charging needed.	Entire cost (equipment+installation+maintenance) reduces over 30%. For instance, in Shenzhen project 9 million CNV saved through equipment, 4 million CNV saved through installation and 0.6 million CNV saved through maintenance. (Less businesses investment)

Ecaray at China Mobile Global Partner Conference 2016

In December 2016, Ecaray, cooperating with China Mobile, Huawei, in Shenzhen successfully ran NB-IoT-based smart parking, and demonstrated at the scene of the meeting, through video broadcast to the public.







NB-IoT smart parking by Ecaray and SZ CMCC





The very first NB detector and smart parking platform successfully connect to China Mobile's OneNet !

— ECARAY亿车

Next step

Apply NB-IoT in more scenes in Shenzhen



Power consumption

Difficult to install, remove, or replace

detectors.



Longer battery life is needed (at least 5 years).





Lots of detector manufacturers and different ways to access to the NB-IoT network .

An unified standard of terminal access like "plug and play" is needed.





To accurately charge, elements of the detectors should be collected, including status, timestamp, etc.

Stability, accuracy and reliability is mostly needed.





Collect and monitor equipment, such as online status, signal strength and signal-to-noise ratio, battery, heart rate data.

Remote configuration and upgrade of equipment software should be achieved.

Ecaray Main business



City level static traffic solution provider, smart parking operator!





0.81m+ / 1m+

Space rebuilt/ Space signed

5.7m+ / 10.2m+ Active users/ users covered

117m+ Parking receipts 15 / 150 + Landed/In business (Cities) **610m+** Platform cash flow (CNY)

1100+/1500+

Parking lots connected/ Parking lots signed 10000+/30000+

Charging piles connected/ Charging piles signed

Ecaray NB-IoT integrated solution





- Smart "parking + charging" solution
- Massive application of NB-IoT

devices



Massive Connection brings Bright Future! NB-IoT, a great solution to smart parking !

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