

Electronic Handheld Terminal System for Parking Enforcement

Increasing Efficiencies with Mobility



The Housing & Development Board (HDB) is Singapore's public housing authority and a statutory board under the Ministry of National Development. Its missions include providing affordable homes of quality and value to residents in the country, maintaining the vibrancy and sustainability of the towns and building active and cohesive communities.

As part of its efforts to upkeep their service quality to the communities, HDB planned to upgrade its system using wireless technology in managing their car parks.

IMPROVING EFFICIENCIES WITH WIRELESS TECHNOLOGY

The previous system then was implemented in 2005, a time when the cost of wireless hardware and communication costs were high. Hence, wired communications were adopted for data interface with the servers back in HDB offices. The downloading of parking information such as season parking ticket records and car parks information could only be done at SP's premises at prescribed timings and uploading of parking offence information was done once daily during working days.

Through the years, the technologies limitation grew more apparent and with wireless and communications becoming increasingly available at more reasonable costs, there was an opportunity to improve HDB's operational efficiency, customer service and productivity in managing their car parks.



CHALLENGES

- Enabling data uploading and downloading real-time throughout Singapore
- Providing reports real-time
- Ensuring data accuracy between EHT Host, EHT Client and HDB Enterprise Server(s)

SOLUTION

Integrated Electronic Handheld Terminal System comprising of

- Sybase suite of products including Afaia Software, Remote Control Software, Mobilink and sFTP
- Psion Teklogix Workabout Pro C (G@) handheld mobile computer
- Zebra Road Warrior 220 mobile thermal printer

KEY BENEFITS

- Enhances operational efficiencies through real-time data synchronization wirelessly
- Provides greater convenience to motorists in payment of parking fines
- Increases accuracies in data management
- Increases productivity of management decision-making through availability of key information anytime

To meet the rising expectations of the motorists and their operational needs, HDB required a wireless solution via General Packets Radio Services (GPRS)/3G that could satisfy their key technological requirements, including:

- Real-time updating and synchronization of data between Client, Host, and HDB Enterprise Servers
- Nation-wide wireless system to support enforcement works anywhere and anytime
- Interface with various systems including legacy system

INTEGRATED ELECTRONIC HANDHELD TERMINAL SYSTEM

NCS was thus entrusted to provide a new Electronic Handheld Terminal (EHT) System that will enable parking enforcement officers to issue parking offence notices to vehicles infringing the parking rules. Information of the parking offence notices will be sent on-line via GPRS/3G to HDB's Enterprise Server(s).

In view of the intensive usage of the handheld devices, features such as durability and ruggedness were considered as well.

The solution is a Mobile Business Application that comprises the following:

- **The EHT Host**

The EHT Host module is the overall administrative reference point for the System and shall be capable of performing tasks like exchanging information with HDB Enterprise Server(s) and EHT Clients, as well as maintaining reference tables.

- **The EHT Client**

The EHT Client module allows the parking enforcement officer to issue parking offence notices and print via Bluetooth to the mobile thermal printer to the vehicle that infringes parking rules. The parking offence information will be sent to EHT Host on-line via GPRS/3G.

NCS proposed a suite of products that were able to integrate to offer the following features:

- Provides synchronization of data between EHT host, EHT Client and HDB Enterprise Server(s)
- Allows data retention for EHT Host and EHT Client
- Provides security management of devices
- Simplifies management of the devices



Parking Enforcement Officer operating with EHT

SEAMLESS, REAL-TIME WORKFLOW

The integrated system transformed the current process into a seamless, real-time workflow for HDB and its Service Providers. Operational efficiencies are significantly escalated as parking enforcement officers are able to obtain updated data anytime and anywhere. In addition, parking enforcement officers no longer need to make trips back to offices for uploading and downloading of data, improving their operational efficiency. Such conveniences allow the HDB team to track effectiveness of their enforcement to provide more conducive environment for the communities.

The real-time data synchronization has also made it more convenient for the motorists to pay their parking fine real-time over the internet and any self-service kiosks throughout Singapore.

The integrated Electronic Handheld Terminal system enables a seamless, real-time workflow for HDB and its Service Providers.
