

Case Study: The most straightforward and highly secured Digital NFC Wallet adoption for everyone's phones



With the advancement of technology, WiFi and 3G mobile networks are becoming more accessible and more common place; and with the availability of more convenient, faster access to the web, all sorts of applications and virtual services have also become increasingly diverse and interactive, this trend has silently rendered contactless transactions and contactless payment services offered through traditional contactless cards inferior.

In Taiwan, EasyCard (in Chinese: 悠遊卡), the contactless smartcard system owned, issued, and operated by the Taipei Smart Card Corporation which is accepted by the Taipei MRT, most public and private bus services across the city and surrounding counties, and many public and private parking services since June 2002, after expanding their venues to all major convenience stores, department stores, supermarkets, and various other retailers, has started a pilot project that turns people's mobile phones into handy contactless wallets for their customers. With just a few simple steps to install Taisys' duoPASS™, the project allows users to enjoy the speed and convenience of the EasyCard directly on their mobile devices, no matter if the device is 2G or 3G, Smart Phone or Feature Phone.

Based on the successful SIMoME™ technology and the KingTrust™ product line, Taisys developed and offers the duoPASS™ solution to advance EasyCard's already innovative business model and services with the use of a combi (contact and contactless) smart card chip in the KingTrust™ to authorize the EasyCard transaction, a specially designed RFID antenna, and an absorber in an easy-to-install kit for the consumers to transform their own mobile devices into contactless cards with additional features through the mobile device's interface.



The duoPASS™ implementation is an additional channel of EasyCard service called “EasyCity” (in Chinese: 魔翼翱翔) that started purely for the purpose of gathering market and consumer data during the initial stages of adoption in a live environment, “EasyCity” has since received a steady increase in users and support since its launch in early 2011 even with minimal media exposure.

The following sections details key components of the product as well as service models for the early adoption phase, concluding with a projection of “EasyCity”'s prospective.

“EasyCity” Kit Element – KingTrust®

The KingTrust™ duoPASS™ contains a highly secure combi (meaning supporting both contact and contactless functions) smart card IC chip that is EAL 5+ certified; a certification that is recognized by international organizations as secure enough for use in monetary transactions. In addition, since it is designed to work in the mobile phone’s SIM environment, it is also compliant with all relevant ISO and GSMA/3GPP standards.

The value remaining on the EasyCard is stored in the chip-secured memory of the IC, but through the access rights granted by the Taipei Smart Card Corporation and the support of the SIM protocols by the chip, the user can make requests through the phone’s display

and keypad to access additional value-added services not available on traditional cards.

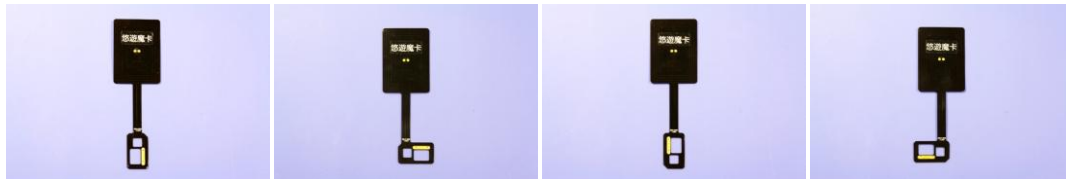
And while these additional value-added services available through the device interface requires that the mobile device be functioning and powered on, the NFC contactless functions require only the induced current and can still function even if the device is powered off or when the battery is low.



“EasyCity” Kit Element – Antenna

The antenna is designed to fully meet the specifications of ISO 14443 Type A and MiFare 13.56 MHz and is fully compatible with EasyCard’s existing readers.

In addition, in order for the antenna to fit into the various designs of the SIM card slots of the existing and future handsets on the market, the “EasyCity” duoPASS™ has four types of antenna designs, and every antenna is printed with an unique serial number for the customer’s warranty and maintenance.



“EasyCity” Kit Element – Absorber

Also in the kit is an Absorber film that is needed to insulate the complex circuitry of the mobile device from interfering with the RF waves and help stabilize the frequency at 13.56 MHz.

In general, the battery is the main source of RF interference in the mobile phone environment, so users need to attach the absorber on the

back of the battery of the mobile device, isolating the antenna.



5-minute installation guide for Beginners

A video installation guide for “EasyCity” can be viewed at http://easycity.com.tw/yoyo_02_02.htm

“EasyCity”’s Life Cycle Management for Service Continuity

Each “EasyCity” duoPASS™ is printed with the EasyCard logo and marked with a designated digital code for card identification.

The design of the duoPASS™ focuses on the portability of the mobile wallet. Even though a user may change to a new phone, it is not likely that the user will need to change SIM cards, so the duoPASS™ is designed to be attached firmly to the SIM card yet the antenna can be removed and changed to fit the SIM card slot of a different device. This design to have the antenna separate from the chip eliminates the need for the user to contact EasyCard administration in the event that the user wants to switch to different device.

Some examples of retail shops accepting EasyCard



Additional Functions and Features of unique to “EasyCity”

Being in the mobile environment not only increases the portability of the “EasyCity” in comparison to traditional cards, the mobile device’s keypad and screen provides interfaces for additional features not possible with traditional cards.

1. The mobile device can act as a card reader and legally access authorized information in the card, such as remaining balance and stored transaction records.
2. The device screen can automatically display a transaction notice with relevant transaction details immediately after a transaction.
3. The user can access authorized information in the cards on their own without the need to purchase a contactless reader separately.
4. Interactive value-added services and features are automatically enabled as soon as the device is turned on.
5. The user’s phone becomes the user’s EasyCard; the additional accessibility provides the potential for additional services and features such as 3rd party’s coupons, loyalty programs and point redemption etc. These services and features can be activated for the user to execute non-EasyCard transactions and services

In Dec. 2011, a questionnaire was collected from more than 1000 randomly selected “EasyCity” duoPASS™ customers inquiring about their opinion. Response from these early adopters show that consumers welcomed the idea of transforming their existing handset into their EasyCard because it provides them with the convenience of needing to only have their handsets for making payment and transactions. In addition, 84% of the respondents would like to have their credit cards linked to auto-recharge their EasyCard accounts; 56% of respondents are even open to the idea of having a second phone number on the KingTrust™ duoPASS™; and up to 81% of the respondents support the idea of integrating other loyalty programs (among over 20 selected merchants) into their phones. The survey result shows huge

potential for mobile commerce and merchant sales among new and existing customers.

“EasyCity”’s Prospective – Mobile and Social Commerce

Even during the initial phase of deployment, “EasyCity” duoPASS™ not only brings convenience to the daily lives of early adopters, it also demonstrates its potential to be a cross industry marketing and service platform for delivery of various applications and value-added services in addition to the traditional role of NFC in transportation and micropayment.

Moving forward, “EasyCity” duoPASS™ is poised for majority acceptance and differentiating itself as an alternate channel of EasyCard services with tremendous market potential through a series of new relationships with technology stakeholders to serve banking and retail customers.

Through the mobile device and “EasyCity” duoPASS™, online internet advertisers will not only be able to reach customers via Smartphone downloads, but also directly interact with customers even when transactions take place offline.

Through “EasyCity” duoPASS™, merchants and rewards program members will have access to the entire ‘catalogue’ of participating merchants and their merchandise and services, selectable on the internet yet redeemable offline wherever EasyCard is accepted.

Other potential opportunities for delivering innovative services beyond what is commonly envisioned will most likely take on the form of utilization of Smartphone applications, which are in general still unable to communicate with physical cash or transaction terminals because of the lack of hardware and infrastructure support. Examples of such innovative services which were unavailable but possible with the duoPASS™ includes mobile point-of-sales transactions, non-currency (e.g. bonus points, membership points, etc.) redemption at proximity points, automatic redemption of e-catalogue/e-coupon, identification or personal verification services for social commerce, etc.

Set for take-off in 2012, it’s expected that some of the above-mentioned services will be launched via “EasyCity” platform.