

IrFM (Infra-red Financial Messaging) Wireless Mobile Payment – Background and Market Status (as of Dec. 2002)

a) Why IrDA and not 2.5G/3G, Wireless LAN, Bluetooth?

1. Cellphone/SIMM card (e.g. NTT DoCoMo's I-mode, etc.) has been successfully used for mobile payment for many years. However, it adds too much load to the base station infrastructure, especially for micro-payments (e.g. vending machine, movie tickets, etc.). For each vending machine transaction (e.g. buy a coke), it takes 3 RF data exchange between cellphone and base station, slows down the purchasing process and prevents "fast pay".
2. WiFi (Wireless LAN) or Bluetooth as payment technology has security/privacy concern. Although there are many encryption techniques, but it adds cost, power consumption, performance penalty. Users often turn off such security due to the noticeable performance penalty.
3. IrDA is ideal for wireless mobile payment for the following reasons:
 - a. It's free and in most cellphones.
 - b. It's secure because IrDA spec. is only 100cm or less and 30-degree cone angle.
 - c. There is no interference with other sources, except sun or spotlight.
 - d. There is no radiation health concern.
 - e. Its compatibility with Windows O.S., adapters, PDA, etc. are well established.
 - f. There is public, free, international standards (IrFM) just published in Jan. 2003.

b) IR/IrDA Mobile Payment Status - Japan

1. All NTT DoCoMo's 3G cellphones are equipped with IrDA for local wireless payment. Many devices (vending machines, ticketing machines, kiosk, exercise equipment, etc. are being retrofitted with IrDA readers or to release new IrDA-enabled models to interface with NTT DoCoMo's 3G phones.
2. In Japan, over the past 16 months, NTT DoCoMo shipped 3.5M units of IrDA-IrFM upgradeable 504i 3G cellphones, excluding other Japan cellphone operators. By end 2002, there will be 10M units of such IrDA-IrFM upgradeable phones sold in Japan.
3. Visa International, KDDI, UC Card, JCB, Toyota finance announced to start IrFM trials in Spring 2003.

c) IR/IrDA Mobile Payment Status - Korea

1. 3 major Korea cellphone operators; LG Telecom, SK Telecom, KTF, started large-scale cellphone/IR mobile payment programs in 2002.
2. For these programs, they teamed up with banks and credit card issuers (who controls 65% of credit card market share and 70% of debit card market), department stores,

manufacturers of vending machines, ATM, etc., taxi and parking companies, campuses as well as tunnel toll booth agency.

3. By end 2002, there will be 500,000 IR-payment ready cellphones shipped by LGT and KTF, and 2000 ATM machines, 1,000 department stores, 1,500 vending machines, 100 parking lots, 80,000 POS, and Hwang song Tunnel toll booth, with IR payment reader capability.
4. Visa joined with LGT, KTF and Credit card issuer (Koomin Bank) started IR payment pilot program at SMU (Sookmyung Women's Univ.), Seoul in Sept. 2002.

d) IR/IrDA Mobile Payment Status - USA

1. Visa joined with Verizon Wireless, Cross Check, Bank of America started IR payment pilot program at USC (Univ. of Southern California), L. A.

e) IrFM International Standards - Development Partner Companies

1. Steering Committee Co-Sponsors: IrDA, FSTC, NRF, FMI, CONS, ETSI
(These sponsoring organizations are the respective associations of POS manufacturers, banks, credit card issuers, financial services, ATM operators, and e-commerce).
2. Initial Working Group Members: Telecom (Nokia), Interface Adapter (ACTiSYS), Appliance (Palm, PSC), POS (Verifone, Ingenico), Security (SITI), Financial service (Glenview Bank, CrossCheck).