

The In2Pay system is being tested in-house by two credit card firms, to determine if it can be used for sales transactions at NFC-enabled readers already installed at stores around the United States.

By Claire Swedberg

Nov. 25, 2009—Since early this summer, two credit-card companies have been conducting in-house tests of an RFID module that plugs into a mobile phone's microSD memory card slot, thereby turning a cell phone into a Near Field Communication (NFC) device that can make payments, act as a loyalty card and download information from RFID tags embedded in smart posters.

The microSD RFID module, which can function as an NFC passive tag and as a reader, is provided by Dallas, Texas, contactless payment company [DeviceFidelity](#), and is being named the In2Pay solution. The In2Pay microSD NFC card became commercially available this week, and the company hopes to see banks, wireless carriers and payment networks provide the technology to their customers. A similar microSD NFC card, provided by startup firm [RFinity](#), is currently being trialed on the campus of [Brigham Young University](#) by students using a college account (see [Idaho College to Test Secure NFC Phone Module](#)). The In2Pay solution, however, takes the technology to credit card companies and is compatible with existing NFC-enabled point-of-sale (POS) terminals already in use around the United States, using the encryption protocol accepted by major credit and debit card providers.

MicroSD Card Brings NFC to Phones for Credit Card Companies, Banks

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DeviceFidelity's microSD card contains a chip that functions as an NFC-based RFID reader and tag.

According to Deepak Jain, DeviceFidelity's president and CEO, most phones are already equipped to use In2Pay cards—approximately 65 percent, he says, have a microSD card slot for memory cards that are typically used to store photos. Currently, Jain estimates, there are at least 500,000 NFC-enabled POS terminals in use by 50,000 to 60,000 merchants in the United States. Few cellular phones currently contain NFC RFID modules, however, so the NFC-enabled point-of-sale terminals are commonly being used to process contactless transactions by consumers with NFC-enabled credit or debit cards or stickers.

After receiving an In2Pay microSD card from a credit card company or bank, a consumer can insert the card into his or her phone, then follow a few prompts on the phone's screen to enable it to link to the user's credit card or bank account, if so desired, in order to set up a payment system. Once that occurs, the user can then tap the phone against an NFC reader at a retail location, rather than having to take cash or a credit or debit card out of a wallet in order to complete a purchase.

This solution, Jain claims, is the first enabling mobile phone users to put NFC technology directly into their phone without embedding an integrated NFC chip into the phone itself, and that works with existing

NFC readers in stores. Other RFID technology firms provide an NFC sticker that attaches to the phone's exterior, but that has no direct link to the phone's cellular connection, so transaction data can only be communicated to other parties, such as a bank, through the NFC reader device located at the point of sale. In this case, however, users can access bank accounts, or receive updates via their phone's GPRS connection, which could then be stored on the chip.

Several other companies have developed solutions similar to In2Pay, though none are in the form of a microSD card. For example, [Twinlinx](#), in conjunction with [Inside Contactless](#), has created the Twinlinx MyMax, an NFC sticker that attaches to a phone and employs Bluetooth technology to communicate with that phone. On the other hand, start-up company [Zenius Solutions](#), located in Redding, Calif., has developed a way to enable mobile phones to conduct NFC transactions by means of a card that fits into the phone's SIM card slot, as well as a cable connecting it to an NFC chip and antenna that can be attached to the outside of the phone.

In the case of In2Pay, Jain says, the two companies trialing the system are testing how well they can use the technology in the phone to pay for purchases, by tapping their phones, rather than using an RFID-enabled plastic credit card, against the reader. "We can't disclose specific objectives for each pilot," he states, "but most issuers want to be comfortable that an In2Pay-enabled mobile device is capable of completing an end-to-end payment transaction, from merchant acceptance to payment authorization."

The In2Pay microSD card stores such data as bank account information, expiration date or loyalty points, written to the card's memory in encrypted form. The card can also store data written to it by an NFC device, such as the point-of-sale NFC terminal or a smart poster. That information could include coupons, schedules or promotions. The DeviceFidelity software that supports the In2Pay card would reside on the database of the finance company, bank or phone service provider, to interpret information from the microSD reads, as well as provide data to the card via a reader or smart poster. A third-party manufacturer, Jain notes, is making the microSD card itself.



DeviceFidelity's CEO,

Deepak Jain

Typically, a customer would receive the In2Pay microSD card—which measures 10 millimeters by 15 millimeters (0.4 inch to 0.6 inch)—in the mail, along with instructions regarding how it should be used. Once the card is inserted into the phone's memory slot, the In2Pay application is launched and the phone automatically calls the bank, at which point the phone's user can activate the card by following prompts on the phone's screen. The user then enters a store with NFC-enabled readers and begins making purchases. The card could also be utilized to receive coupons or discounts. In a loyalty program, for instance, after completing a predetermined amount of purchases, a person could be alerted, via a message over the phone, about a \$100 gift certificate that has been loaded on the card's memory and is ready to be redeemed.

Thus far, the pilots have taken place only with the credit card companies' employees. The next step for those businesses, Jain says, is to begin providing the cards to customers. The in-house pilots will

continue through the first half of 2010, and then expand to broader user trials in the second half of next year, with full deployment expected to occur in 2011. There are enough merchants with NFC-enabled POS devices, Jain says—especially in urban areas on the East Coast—that users will be able to utilize In2Pay to pay for items at convenience stores, movie theaters and restaurants. He expects young people to be the first to use the system.

In2Pay solves a problem that has delayed NFC payment deployment, Jain indicates—namely, the lack of NFC-enabled phones. "It's a chicken-and-egg situation," Jain says, "The merchants are looking for a good business case [for installing an NFC reader in their stores], but unfortunately, NFC-enabled mobile phones aren't showing up." With this technology, he states, "now we can address that problem with 65 percent of phones."

The In2Pay system could also be used for transportation applications, such as paying for train or bus travel, proving a person's identification, or providing access control. In the future, Jain says he expects that multiple organizations, such as financial institutions, transportation agencies and retailers, will all be able to use the In2Pay system, enabling a consumer to tap his or her phone against a reader, select an option on the phone's screen regarding which bank account or type of service he or she is accessing, and then complete the transaction.