Near Field Communication Business Card
Report #2: Refined/Redefined (new) Concept

Overview

Near field communication (NFC) is an emerging technology which enables devices in close proximity to send and receive small amounts of data wirelessly. While most current applications of NFC focus on wireless payment systems for mobile phones and credit cards, one possible application of NFC is business cards.

Today whenever a business pitch is made, or people want to quickly exchange contact information, it is not uncommon for the parties involved to exchange business cards – however, this is predicated on both parties buying an adequate number of business cards ahead of time, as well as having them on hand, which is not always the case.

Many of today's mobile technology companies are beginning to implement NFC technology in their devices, which also function as a digital rolodex for most of their users. With the technology becoming increasingly prevalent in the market, it may be time to replace the traditional business card with a more convenient, less wasteful, more futuristic counterpart.

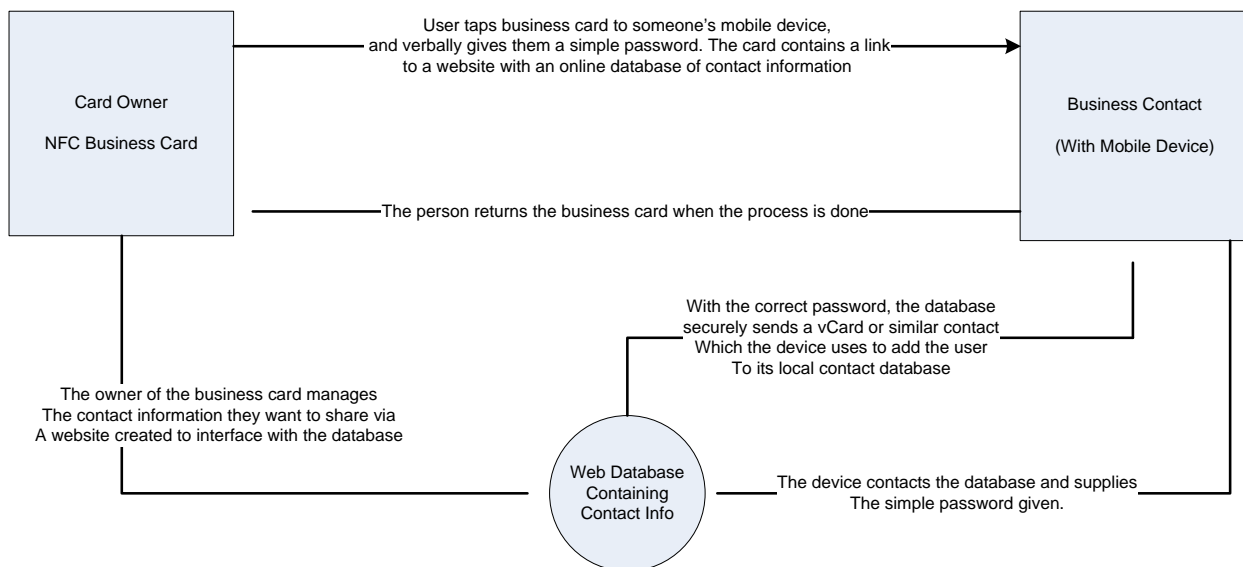The following shows a basic overview of the system concept:

Figure 1: A basic context diagram

Strengths/Opportunities

The NFC business card concept does have quite a bit of entrepreneurial strength. NFC is an emerging technology with quite a bit of new investment and potential for growth in the future. The world of business requires that users are constantly connected, able to get in touch quickly, and able to share information quickly – functions which drawers and rolodexes full of business cards do not facilitate.

Improvements of the NFC business card concept over the traditional business card are as follows:

- It eliminates the need for paper business cards, users can purchase one, lend it to a new acquaintance for a few seconds, and get it back when the process is complete.
- It eliminates the need for company branding/designing of business cards
- Most people receive a business card, and either discard it, or add its information to their mobile phone anyway – the NFC business card automates the process, thereby making it more likely that someone will retain contact information (as it will require more effort to delete information from contacts than leave it there), faster and easier to obtain someone's contact information, as well as eliminating the need for people to print and carry business cards.
- Traditional business cards can get lost – the online database could be made capable of retaining business cards for users, and re-sending them in the event that a mobile device failure occurs.
- Traditional business cards can also become out-dated. The NFC business card software could also be made to notify people via email, SMS, etc… with a link to re-send the information to selected users.
- Possible social network integration – the software could also enable to create a link on their personal website, Facebook account etc… that would send contact information to a specified phone number.
- Future business opportunities: NFC is still gaining acceptance and marketshare in mobile devices, which necessitates the standalone business card. In the future, when NFC has sufficient market penetration, the card concept could be done away with completely. Two people could just set their phone next to each other on a tabletop, and exchange contact information without the need for a card at all.
- Email client integration – an extension for Mozilla Thunderbird, or even a Gmail connector could be simply developed to unify the different catalogues of contact information that most people do not have in sync.

The NFC business card is a very strong concept because of the possibility it has to integrate with existing services, save people time and money, attract a large user base, and eventually attract advertisement revenue.

Weaknesses/Threats

As with any entrepreneurial venture, there are a few holes in the NFC business card concept that need to outweigh its strengths.

Probably most critical to the success of the NFC business card project as a business venture is the widespread acceptance of NFC in mobile devices, as well as standard interfaces to it. The fact of the matter is that not everyone (even in high-tech industries) will immediately adopt NFC, or use NFC business cards to share contact information, until its use becomes widespread. Market penetration for this kind of product presents for it a barrier to entry – a sort of catch 22 – it will not be widely adopted until it is popular and widely adopted. In order to popularize it, it may first be necessary to develop demo units, advertise, or even sell the idea to an established force in the mobile/social markets. This process could cost money, and lead to quagmire business conditions.

Also potentially problematic is cost: there will probably not be much revenue to be earned in the early post-launch days of the project – and without popularization and media hype it could be doomed to fail like many small devices that are unable to gain market share. The business cards must be able to be sold cheaply enough for early adopters, and the mobile apps to accept them must be free. Ironically, being free is probably the most important element to the project's commercial success.

To combat a very serious concern, privacy, a type of encryption must be used. Nobody will find it desirable to risk their contact information every time they bump into someone on the street. While it does present an interesting avenue for advertisement – wherein posters could change their contents based on who is in close proximity – ultimately this benefits people much less than it does advertising companies.

Toward Realization

Feasibility: Given the timeframe, and complexity of the project, it will be a bit of a stretch time-wise to design, create, debug and polish the different hardware, and software utilities. It should not, however, be impossible. Given the talented students of the ECE department at Stevens Institute of Technology, as well as the expertise of its advisors, the project should be completely doable in the given amount of time. In the event that time becomes a factor, certain elements of the software development could even be prioritized over others: for instance, at least initially it is far more important that a device be able to contact the database and add a contact based on information from it, than it is for there to be a Mozilla Thunderbird extension that imports contacts from the database.

Skills Required: Skills/learning necessary to complete the project include:
- Knowledge of NFC standards, implementation, design, and communication
- Knowledge of mobile device development (i.e. iPhone SDK/Android SDK)
- Knowledge of SQL databases and web development
- Knowledge of encryption schemes, pertaining to mobile communication and web
- Knowledge of Linux/BSD operating systems (for web server, mobile devices)
- User experience minded design, logo, and artwork design
- Project/time management
- Presentation and technical writing skills

Components Needed:
- NFC hardware: transponders, NFC capable IC, microprocessor for a reader/demo unit, or NFC enabled mobile phone
- Web server hardware: LAMP stack capable hardware (cheap)
- Software Development Kits for Android/iPhone/etc….

Costs/Budgetary Considerations: Excepting the cost of NFC hardware, and possibly web hosting (which is very cheap) there are relatively few monetary costs to this project. Most of the software can be easily developed using free and open source technologies. It is not expected to exceed the budget of $250.

References

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