A User Interaction Model for NFC Enabled Applications

The Primer

Near field communication (NFC) is a short-range wireless technology similar to RFID. NFC allows users to access content and invoke services by holding devices near each other.

The Promise

NFC is being added to mobile devices in order to support "natural" interactions for applications. Some of these are authorization, payment, data sharing and service discovery and invocation.

The Problem

Many of planned applications don't have an encompassing user interaction model. Without an interaction model or clear metaphor for users, NFC enabled phones may never be adopted.

The Idea

When a mobile device scans an item, the device takes on the properties (objects, actions, context) of the item scanned.

Users can then retrieve this information and use the mobile device as a replacement for the item originally scanned.

This model leverages the user's existing cognitive model of the item. Everything you can do with the original item, you can do with the mobile device.

For example, a user can touch a movie poster with their phone and get a list that includes reviews, trailers and actions like 'buy ticket' or 'download trailer' .

The Implementation

Our system is built on a Motorola E680 phone with an 300Mhz processor, 50MB RAM, 2GB SD card and Bluetooth.

We add a board with an MSP430, an accelerometer, an 802.15.4 radio and a SD slot. We then add our NFC board.

A Linux device driver moves tag data from the hardware to user space. Once there, an app moves the data to the J2ME layer or triggers other events.

In our demo app, a scanned phone sends a list of shareable objects to the initiating phone. The initiator selects the objects it wants and transfers them.

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