What can you do with Android and NFC?

by Danika Suggs ’14

What is Android?
• an open source, Linux-based mobile OS
• allows you to make use of some neat hardware, including an NFC chip
• apps are written in Java, and really easy to put onto a mobile device for testing

What is NFC?
• stands for “near field communication” (near = about 4cm)
• uses magnetic induction to create a radio-wave field that the target can detect and access, allowing small amounts of data to be transferred wirelessly over a relatively short distance
• evolved from RFID
  • compatible with existing RFID terminals
  • unlike RFID, NFC is a two-way street
• Android devices support 3 main modes of operation:
  • read/write – an active device reads/writes to a passive tag
  • P2P – two active devices swap data
  • card emulation – an active device emulates a passive tag, to be read by another active device

NFC Projects I’ve Worked On
• Summer 2012
  • Tag Organizer, an experimental Android app
    • allows the user to keep a collection of the NFC tags they’ve scanned, retransmit collected tags, and view the information they contain
  • HP Recipe Box, the Android companion to a Win8 app
    • allows the user to scan tags containing shopping list data, incorporate it into their existing list, and view it all in a meaningful and interactive format
• Summer 2013
  • Harmony, a music player for Android
    • allows the user to set up a Bluetooth connection between their mobile device and a set of NFC-enabled speakers just by setting the device on the speakers
    • the user can then control the music from their mobile device
  • Tag Organizer for Fitbit, an Android + Win8 project
    • collect information about foods and activities from NFC tags and store them until they can be uploaded to the Fitbit website
  • Profile Switcher, a Win8 project
    • change the theme of your computer, open up a set of links, or start playing a certain playlist using NFC tags
  • Password Manager, an Android + Win8 project
    • login to accounts on your computer using your NFC-enabled mobile device

The Future of NFC
• Coming to a device near you! (as long as you aren’t surrounded by Apple products)
• Store your entire wallet on your phone!
  • coupons
  • credit cards
  • membership cards
  • bus passes
  • tickets
  • okay maybe not your driver’s license…
• Automate everything* with tags!
  • turn on your lights, your computer, the A/C, etc. with tags in your house
  • start up navigation apps with a tag on your laptop
  • share hideously long, but oh-so-secure Wi-Fi passwords with guests
• Sign in, login, check in, tap in with NFC!
  • your computer
  • your dorm building
  • your car
  • help room hours
  • events
• Succeed where QR codes failed!
  • Grab more data, faster

*well, not everything