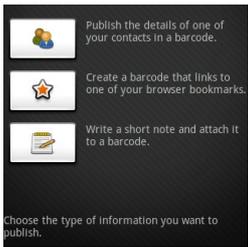
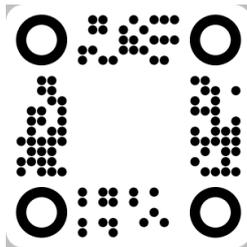


Moseycode

Introduction

Moseycode is a new barcode system for mobile devices. It was inspired by Android and began as a personal investigation¹ into multiple aspects of physical-digital interaction. It has since developed into a platform that is already being adopted by both enthusiasts and commercial organizations. Here's a brief overview of how the process works:

- 1 It is based on the idea of *portals* which are physical doorways into *chambers*. Chambers are digital repositories that can store a wide range of interactive digital content. Chambers need to be registered at the Moseycode website but registration is completely free for everyone.
- 2 Anyone can author their own chambers and fill them with photos, audio recordings and video. Information such as documents, web links and contact details can be included too. Publishing can be done directly from an Android phone.
- 3 They can then publish portals in the form of 2D barcodes. Others can view these barcodes using their Android phone and interact with them through a process known as *Augmented Reality* in which video imagery is combined with computer generated graphics in real-time.
- 4 Portals can be attached to anything, and provide the viewer with instant access to the chamber. In many cases they will contain 'live' data from the Internet. Obvious ideas include parcels (for delivery tracking), business cards (to supply contact details digitally), print adverts (for product information), but there are endless other possibilities.²
- 5 The original author can now track how often their portals are being opened and where it's happening. It's possible to obtain a live feed of this data for use with other applications.

				
Register a Chamber	Publish Content	Obtain a Portal	Print the Barcode	See who Scans It

Moseycode has been developed on the basis of providing a 'public good': all associated specifications may be freely implemented for any purpose and all key software components will eventually be released under a liberal open-source license.

As a result software developers are free to build applications around Moseycode in all sorts of ways. The Moseycode client application takes advantage of Android's model of activities and content providers to allow other developers to seamlessly integrate customized barcode scanning into their own applications. At the server end, the Moseycode server allows chambers to be dynamically populated by other author-delegated servers. These capabilities allow developers to build barcode-tracking applications in ways which (to my knowledge) have never before been possible.

¹ <http://www.tomgibara.com/android/moseycode/concept>

² I've already been contacted by people who are planning to use the system in ways I had never thought of.



Home

This is the opening screen of the application. From here the main actions of “Publish” and “Scan” are available. You can also review the barcodes you have scanned.



Settings

There are three groups of settings: Barcode (scanning and display) Camera (video sources) Network (web-service addresses) Consult the complete end-user help for full details.



Scan*

This is the activity that allows you to interact with any Moseycode portals you find. Activating a portal requires pressing the center of the direction pad.



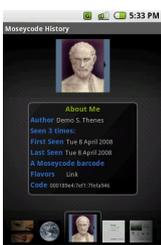
(Barcode)



(Camera)



(Network)



History

Allows you to review the barcodes you have previously scanned. Menu options are available for removing barcodes from the history and for clearing it entirely.



Associate/Disassociate

Enter valid credentials to associate this device with the Moseycode server. This must be done before you are permitted to publish or track any portals.



Publish (Options)**

Lists all of the sources of publishable information on the device. At present there are three; select one to publish a new portal. Click on the tab labeled “Browse” to list the existing portals.



Publish (Browse)

Displays a list of the all portals you have already published, ordered by date. Click on a portal for further details. Click on the tab labeled “Publish” to see the publishing options.



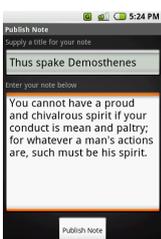
Publish Contact

Choose a contact to publish. Select the information to be included and then click “Publish Contact”. The new portal should appear in your list of published portals.



Publish Bookmark

Sort the list of bookmarks to help you find the one you want. Click on it, then optionally add a comment before clicking the “Publish Bookmark” button.



Publish Note

Simply type in a title followed by any text that you want to attach to a new portal before clicking the “Publish Note” button. The new portal will become available to browse.



Details

Shows the details of a published portal. From here you have the option to “Distribute” or “Track” the portal.



Distribute

Allows you to send images of your portal barcodes via email for printing or alternative transmission. *Absence of email support in the current SDK means that no emails are sent in this release.*



Tracking

Viewing statistics for the selected portal will be marked on the map. Scans with known coordinates will be overlaid onto the map which can be panned and zoomed.

* Initially, directs you to “Settings” ** If not associated, this will start the “Associate” activity

Known Issues

There are a number of known issues, this is after all a pre-release application running on a pre-release operating system. Nevertheless, every effort has been made to minimize the likelihood that any user will encounter an error.

The most pressing risk is that the web-based Moseycode service might suffer an interruption. At present there is no notification to you as the end-user that the server is unreachable. A fault like this will manifest itself as barcodes not appearing to scan, or errors occurring during any publishing related activities.

In addition, there are rare instances where packet loss or some other temporary glitch occurs in Internet transmission. If this occurs during publishing, then it may result in a 'lingering' progress meter. This is nothing more than an inconvenience, simply clicking the **Back** button should remedy the problem.

There are several other issues of less significance, including a number of documented shortcomings that arise from bugs in the current Android SDK. A full list can be obtained from the end-user help.

Further Information

As stated in the introduction, Moseycode aims to be an open and public system that empowers individuals to both publish and consume barcodes, and which gives software developers an effective platform for building collaborative, location-aware barcode applications. Consequently there is already a growing volume of resources available to Moseycode adopters, some of which may prove interesting:

YouTube hosts some early demonstration videos:

http://www.youtube.com/profile_videos?user=tomgibara

Documentation for Android developers using the Moseycode portal history:

<http://www.tomgibara.com/android/moseycode/releases/0.1.2/content-providers>

Documentation for Android developers integrating Moseycode scanning:

<http://www.tomgibara.com/android/moseycode/releases/0.1.2/intents>

The fundamental Moseycode symbology specification:

<http://www.tomgibara.com/android/moseycode/symbology>

A specification for the encoding of Moseycode data:

<http://www.tomgibara.com/android/moseycode/encoding>

Documentation for the web-services on which Moseycode relies:

<http://www.tomgibara.com/android/moseycode/webservices>

A URL form of the Moseycode data for compatibility with other barcode systems:

<http://www.tomgibara.com/android/moseycode/url-form>

Preliminary documentation for the chamber markup language:

<http://www.tomgibara.com/android/moseycode/markup>

Future development

This is just the beginning for the Moseycode Android application. Here are just some of the things planned for future releases.

Reinstating full 3D rendering of barcodes

This was disabled for Android M5 release due to changes in OpenGL support. Development is also awaiting the availability of standard model data formats for Android.

Cross-encoding Moseycode barcodes

This is to allow the information in Moseycode barcodes to be published in barcode systems which are broadly adopted but have simpler URL based semantics.

Exposing more content providers

Allowing other applications to publish barcodes on behalf of the user, and obtain all relevant details will enrich the integration opportunities for other applications.

Touch based barcode interaction

When any portal is being displayed on the device (within the History or Publish activities say), the user should be able to launch them and view them interactively using motion sensing and touch.

Publishing a wider range of information

This is awaiting the availability of more publicly available Android applications.

Time series tracking and fuller analytics

Making more barcode scanning statistics available will make the system more useful.

Scanning other barcode symbologies

Adding support for scanning a wide range of barcode types (using Google's ZXing project), will make Moseycode a more useful application for users and developers alike.

Fully scriptable barcode interactions

Authors will be able to control how their barcodes react to movement and to the adjacency of other barcodes. Requires scripting language support (eg. JavaScript) in Android.

Customizable Portal Designs

The Moseycode symbology was designed to be customizable by adding decals, messages and color. Users need the tools to make this easy.

Improving barcode detection

It is possible to improve several aspects of the current detection algorithms to provide more faster and more robust detection.

Tom Gibara April 2008