CPT the Second

Sprint Zero

Customer Product Transparency by SAP Research

For the purposes of the Sprint Zero phase, CPT the Second decided to implement a broad section of the mobile application as well as the full client-server stack. A breakdown of the implementation is described below, including justification for each individual component.

What Was Implemented

Client Side

For the purposes of the Sprint Zero development, the client was written in C# for Windows Phone 7. This platform was selected as it provides the quickest development when writing to communicate with Windows Server 2008 based web services, which forms the core of our server infrastructure. While our job quote recommends the development of Android and iOS applications, Windows Phone 7 demonstrates the proof-of-concept fundamentals of the application exceptionally well. Design and development tools that were used for the Sprint Zero include the following:

- Microsoft Visual Studio 2010
- Adobe Photoshop CS5.5
- Windows Phone 7 SDK
- NUnit Testing Framework
- Silverlight Toolkit (For Windows Phone)

To demonstrate the main functionality of the mobile application, it was necessary to implement the following modules:

- Barcode Scanning & Processing
    - The application uses camera activation and image processing to read a product's barcode into the system. This forms the primary data input method of the program.
- Database Lookup Module
    - Used to submit the input barcode to the web service to return information about the product. Code was also written to handle the returned product information and output it in a basic XML format for displaying on the user's device. The output was left unpolished with little graphic or layout design as the intention of this sprint was to demonstrate main functionality.
- Facebook Login Service
    - All API's were required to be partially or fully implemented as per Sprint Zero requirements. This module allows the user to authenticate and store their Facebook user token for the purposes of reviewing and rating products and manufacturers.
- Bing Map Service
    - All API's were required to be partially or fully implemented as per Sprint Zero requirements. This module allows the user to find out the origins of the product and its manufacturers.

Server Side

In order to demonstrate the phone application, it was necessary to implement a database-driven web service to facilitate information requests and retrievals. One of the major technical hurdles for the CPT application is providing real-time information access to potentially thousands of products. Naturally, storing a large database in the application itself is unfeasible so the development of a web

service capable of handling information requests was pertinent even at the Sprint Zero stage of development. The web service consists of the following:

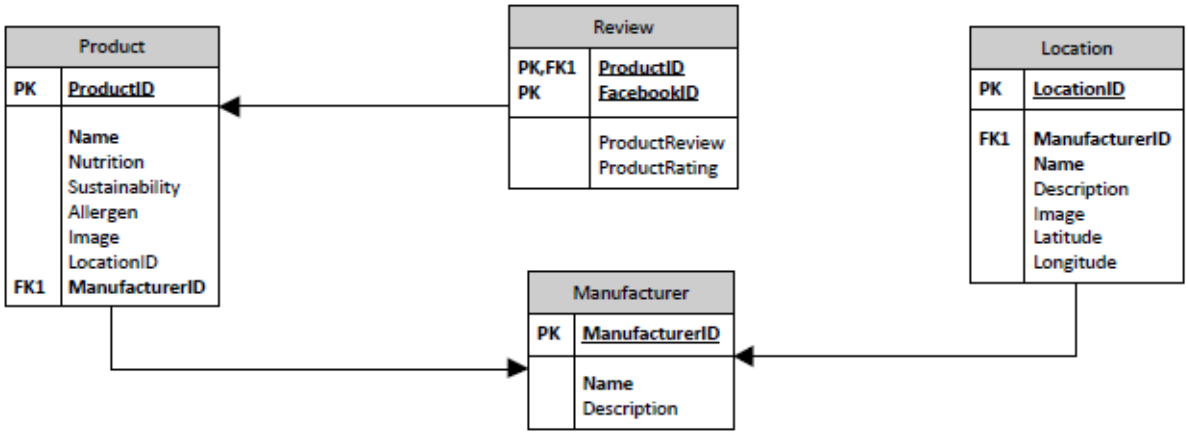
- Server
  - HP ProLiant ML110 Xeon E3 with 16GB RAM running Windows Server 2008 R2 Standard Edition. The domain http://cpt.cerdata.sg was directed to point to this machine, storing a public API which serves the information requests.
- Database
  - The first information request handled by the public API constructs a database on Microsoft SQL Server 2012 Express Edition. The database implemented in the Sprint Zero is identical to the final database design, with a few small simplifications. An ER diagram is attached in Appendix A for reference.

What Wasn't Implemented

All user interaction and communication deemed to represent the core functionality of the application, i.e. what was necessary to satisfy the requirements of SAP, was implemented. The implementation demonstrates the ability for a customer to scan in a product barcode, a request sent to the server (including the barcode), and information returned displaying all pertinent sustainability, nutrition, corporate social responsibility, and product origin information. This information is not aesthetically formatted at the Sprint Zero stage of development.

In addition the ability for a user to review a product or manufacturer was implemented in the web service only, as formatting the XML display to show a list of reviews underneath the product information is also considered a level of polish not necessary in the Sprint Zero. For proof-of-concept it was decided that setting up the required API calls was enough at this stage.

Appendix A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Sustainability
Allergen
Image
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FK1 ManufacturerID
Review
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ProductRating
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Longitude
Manufacturer
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