

11-6-2013

Rapid Prototyping of a Map-Based Android App

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Flanagan, Nicholas M.; Theller, Eric; and Theller, Larry, "Rapid Prototyping of a Map-Based Android App" (2013). *GIS Day*. Paper 26.
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Rapid Prototyping of a map-based Android App

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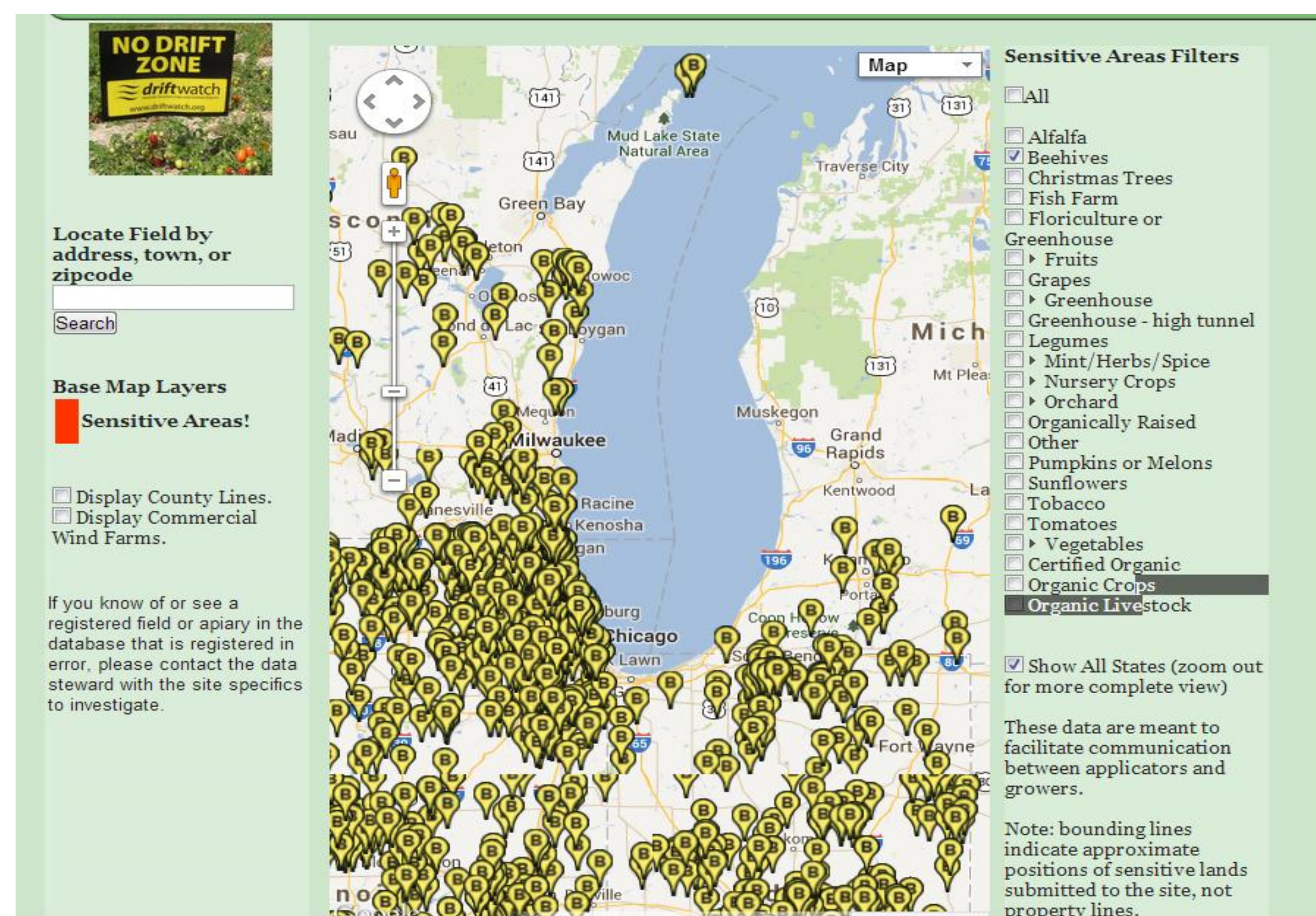
Problem Statement

- The task is to create an app that supports a complex mapping operation. The existing web site uses Google Maps to allow crowd-sourced data entry into a spatial database (Postgresql – POSTGIS). The result is streamed to the map using an open-source XML/image streamer named Geoserver.
- The constraints include a small budget, very limited programming team, and a short time to work.
- Other constraints include these: users need to have logins acceptable to the server for upload. The data is not public until approved, so is not held in common.
- First design will be Android, to reflect the equipment already purchased by ABE.
- Solution must be Low-Maintenance in the long term

Background

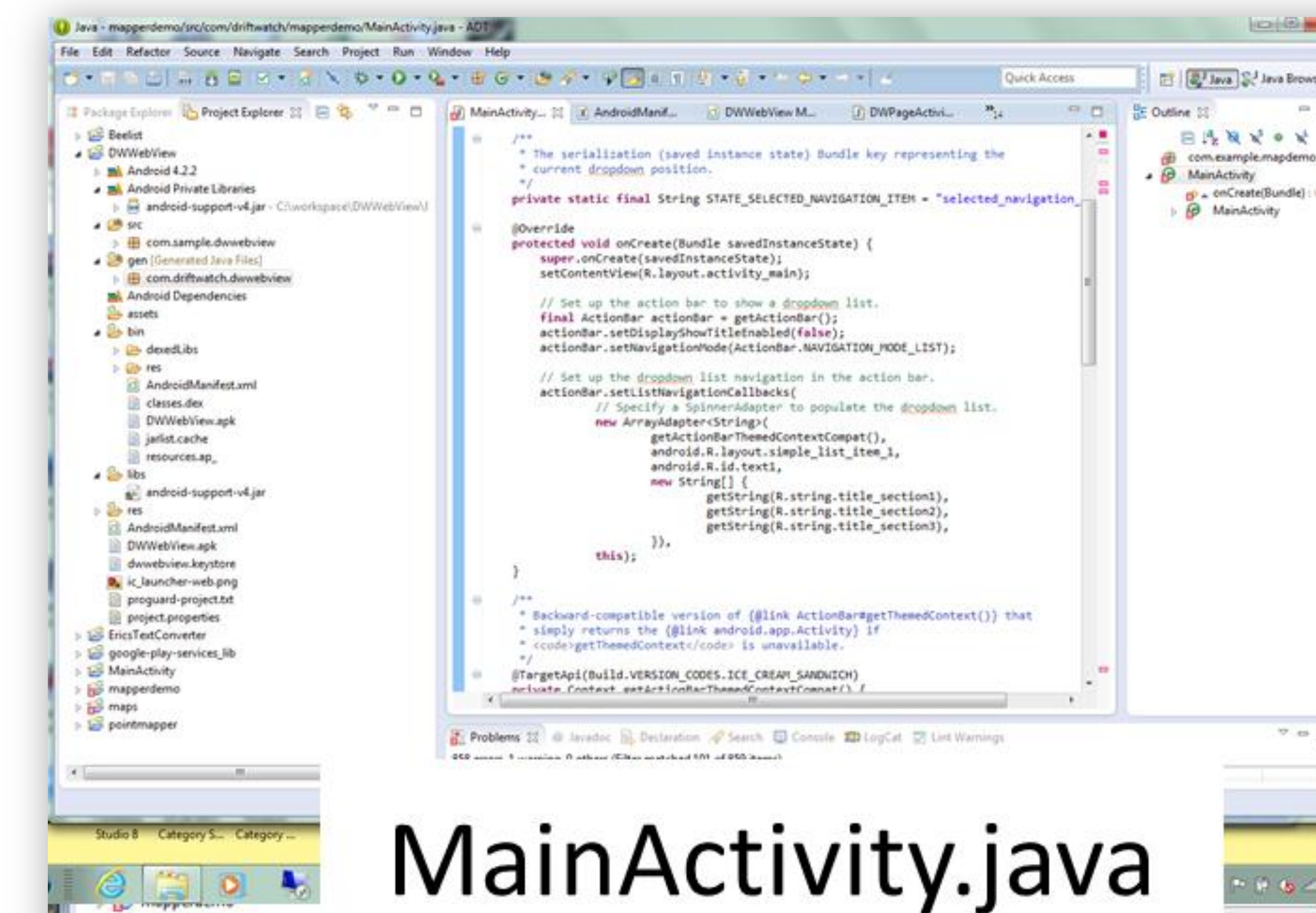
This project tries to provide a mobile phone-based solution app named “DriftWatch Pollinator Mapper” that will allow beekeepers, apiary inspectors, and association staff to easily register and map a hive into the Driftwatch system, where local pesticide applicators will notice it and be aware of the presence of pollinators.

The purpose of the mobile application is to speed the process of registering beekeepers within DriftWatch, since many beekeepers have significant trouble using only web-based tools for registering their hive locations, it is hoped a mobile solution is more efficient.

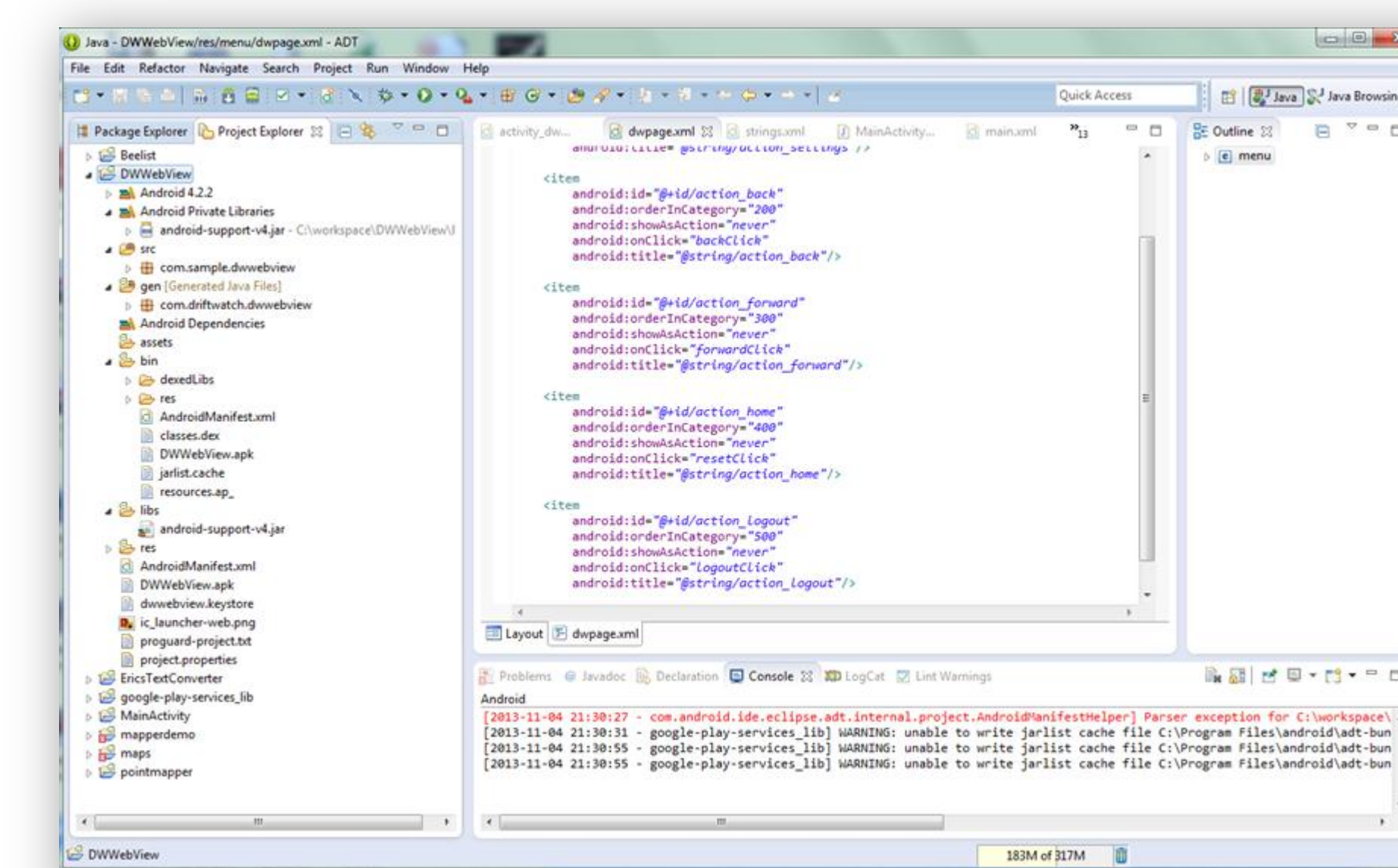


Design Steps

- The solution is to create a “WebView” app, which is an Android wrapper that opens HTML 5 content from a server. It is loaded on an Android tablet like a native app, but any upgrades or changes to the content are done in HTML 5 on the server and not in the app.
- This poster is about creating the Android wrapper, which required embedding the HTML 5 site location and password.
- The Android wrapper also included the addition of a back button, and more importantly from a user perspective, a “Logout” button.

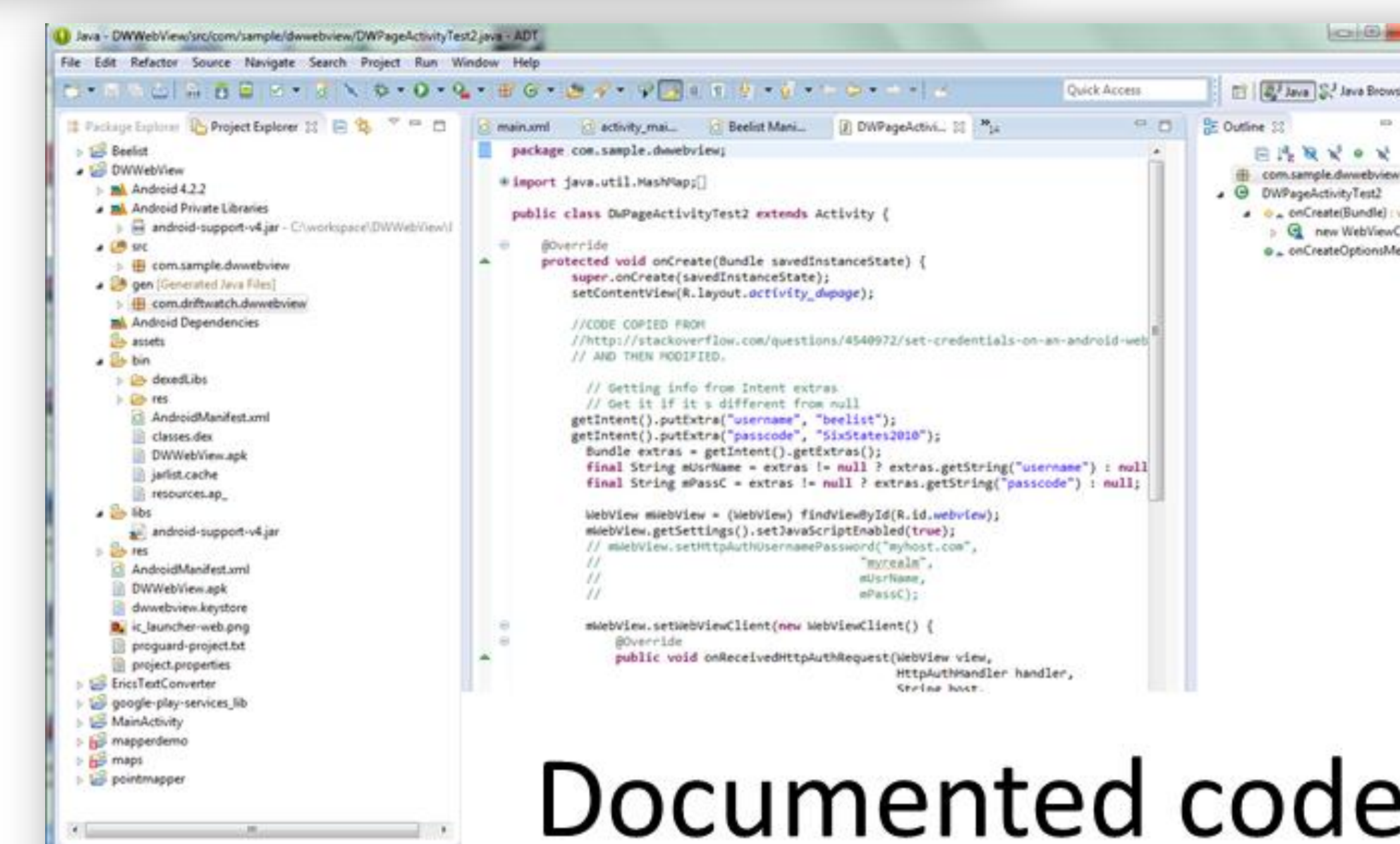


MainActivity.java



Addition of the action-bar navigation system required a few hours of programming, working in the app and in the xml.

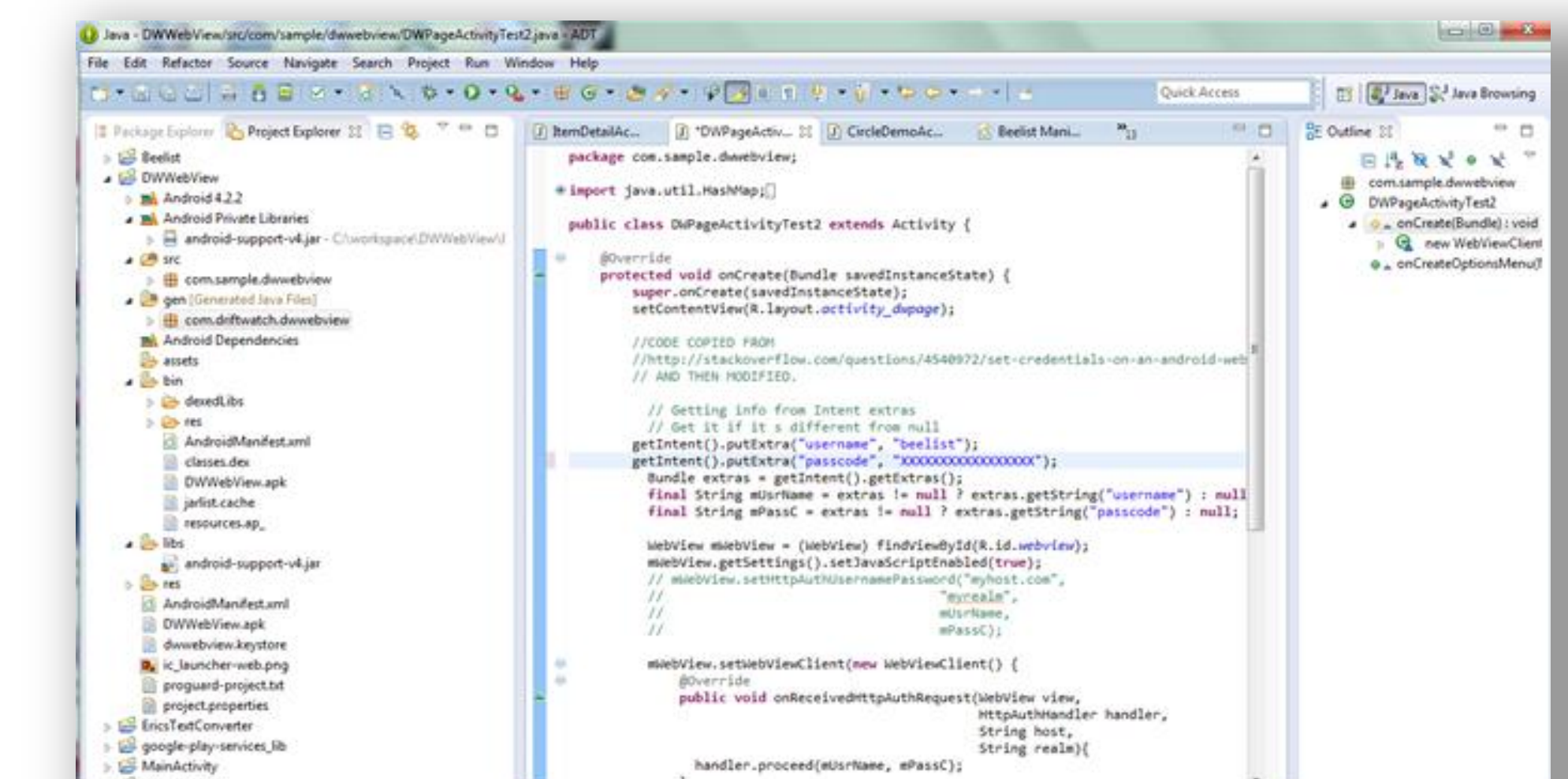
Navigation Bar controls added to wrapper in xml



Documented code

Authentication and Security

- The site location and site password are embedded in the code of the wrapper.



Embedded Authentication

One issue that had to be addressed was the creation of a “zoom-to-GPS” button that would enable the HTML 5 page to work the same way a native app on a phone or tablet would using the phone GPS.

Conclusion: given a complete server-side HTML 5 content package created by a different team, the Android app WebView wrapper was created in two days of work.

