From Print to Screen:
Redesigning the Penn State University Campus Map

In 1997, the Penn State Interactive Campus Map was described by Mark Harrower (co-designer of the UW-Madison Interactive Campus Map and Penn State alumnus) and colleagues as a prime example of "web-savvy design" (Harrower et al. 1997). However, in the twelve years since this statement, the Internet and web-based applications have gone through changes that are as numerous as they are profound. Like many web-based applications in existence since the late nineties, the Penn State Interactive Campus Map is in need of a facelift. The design team is currently in the process of completing a major overhaul to the cartographic design and the user interface of the map. This poster is a visual representation of that process—one that can be emulated by others when attempting a similar undertaking.

Project Overview

The current Penn State Interactive Campus Map (www.campusmaps.psu.edu/PennStateInteractiveMap.html) is a slight variation on the static map, containing the same highly-detailed cartographic design with an added ability to toggle static map layers on and off. Therefore, our task of redesigning the Penn State Interactive Campus Map is largely a problem of transitioning a map from the print to the screen medium. This past summer, the basemap was completely redesigned—new color scheme, extensive generalization, massive file size reduction—no detail was overlooked. The design team is now redesigning the user interface and implementing a wider array of cartographic interactions, with the hope of releasing a live prototype by 2010. Soon, users will be able to: locate features of interest through dynamic panning and zooming or smart search boxes; select campus buildings to view images and details about academic departments and campus faculty; check bus, library, and computer lab schedules that update in real-time; and many other options that all modern campus maps should offer.

3D to 2D buldings

The original map utilized artistic three-dimensional renderings of buildings which were interesting for the static map. For the dynamic version, however, they became unnecessary and actually cluttered the design. In the new version, building footprints, which were sharpened up linearly will become the clickable features instead. Upon selection of a particular building, a pop-up window will instead be used to display the 3D version.

Designing for Interactivity

The primary advantage of the digital medium over the print medium is the possibility of user interaction. Our first task was to place each static map layer into one of three categories: (1) layers including features that will be interactive, therefore remaining as vectors to be shown immediately upon entrance to the map, (2) layers including features that will be interactive, but will require the user to toggle their visibility, and (3) layers that will not be interactive, and therefore can be burned into a background raster image.

Color Scheme

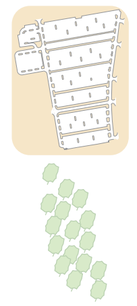
To help with the redesign, we solicited feedback from a dozen experts in cartographic design. One concern that was mentioned repeatedly was the lack of the map having a Penn State 'look and feel'. We challenged ourselves to incorporate and emphasize the blue and white colors of Penn State as much as possible while maintaining a natural-looking basemap representative of the heavily-forested, hillside campus. The end result is a design that is decidedly Penn State.

Labeling

Graphics are not the only aspect of the map that was considered during redesign-effective use of text was also very important. When zoomed out, the tight clustering of building and street labels on the print map masks many of the map features. As an alternative, we are implementing semantic labeling on the interactive map. With this approach, the density, position, and detail of the labeling is dependent upon the current map zoom level, providing legible text labeling at every scale.

Generalization

The print map required an extensive amount of cartographic generalization to allow for display on the lower resolution screen, for improved web delivery, and for instantaneous vector interaction. In many cases, superfluous detail was simply deleted (e.g., medians between parking rows, representations of individual trees). In others cases, existing polylines were smoothed and simplified (e.g., buildings, parking lots, walking paths), or, where prohibitively complex, were collapsed to simple line representations (e.g., roads, access roads).



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