Low-cost, Highly-flexible Alternative to Proprietary Digital Sign Systems

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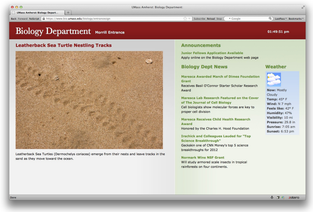
Abstract

In 2010, in response to unsatisfactory experiences with commercial solutions for digital signage, we created a system for digital signage that repurposes existing web content and displays it using inexpensive hardware and Free Software. The content is maintained in a Drupal website and themed for presentation at a particular size depending on the monitor. A computer configured as a "player" shows the page in a web-browser running in full-screen mode. We created an initial prototype for Biology using Macintosh computers as the player using inexpensive large-screen displays. Subsequently, we refined the system for CNS, which has displays deployed in four buildings. The newest version of the system uses Raspberry Pi computers, further cutting costs and making the entire system based on Free Software.

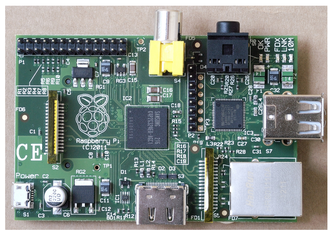
Biology Website

Department Theme



Sign Theme (via Theme Key Module)

Raspberry Pi



Credit-card-sized player computer ($35) uses two PHP scripts to (1) run radmind to install/maintain operating system and software and (2) download configuration and launch web-browser in full-screen mode to display sign content.

Version 1: Prototype

Slide-show (via Views-Slideshow module) show all Digital Sign content and draws selected items from Gallery of Biological Imagery and Action Pictures.

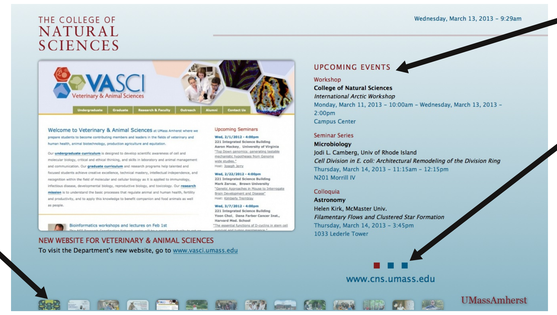
Digital Clock (via Clock Module)

Headlines from current announcements always visible.

Current Weather (via Yahoo Weather Forecast module)

Slide-show of headlines drawn from current News Items

Version 2: Enhanced Design



Visual indicator of currently displayed slide of sign content

Events pulled from CNS calendar

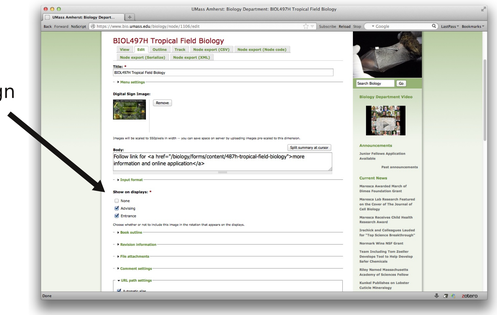
Visual indicator of currently displayed slide for news items.

Typical Deployments

Morrill Science Center Lobby

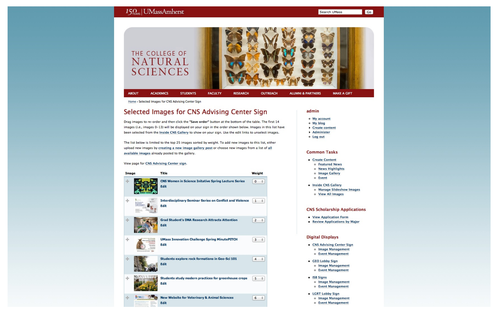
Morrill Science Center Microbiology Office

Managing Content



Digital Sign Selection

Editing Digital Sign Content



Version 2: Ordering Slides in Show

Conclusions

Digital signage built using inexpensive hardware and Free Software allows us to: (1) significantly reduce costs; (2) create new content for both the website and digital signs as part of the regular workflow of staff, saving time and allowing for more frequent updates; and (3) give technical staff nearly total control over sign functionality, allowing focus on customizing features, rather than trying to work around bugs.

FREE SOFTWARE

Raspberry Pi

Debian gnu/linux

radmind

PHP

Apache

Drupal

Firefox