

Group 7

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Observations

Scenario A

School guest/Visitor/Parent is on a self-guided tour of the school and wants to get to Ford Hall from Montag. Informational screens display some relevant information, but the guest is required to ask around and/or resort to online research to obtain the necessary information

Scenario B

New student has a class in Smullin, but doesn't know where the classroom is. Since there is no available resource to consult, the student resorts to passing by each room until they find the one they are looking for. This takes considerably longer and results in the student being late to their first class.

Scenario C

A visiting student from Japan who has limited understanding of campus signage is trying to find Goudy Commons from Kaneko, but has no directory and can't ask other students. Left without an accessible map, they end up wandering campus until they find the cafeteria.

Problem

Basic, unenhanced digital signage systems offer limited value to users walking past. If a digital sign is by coincidence showing information relevant to a user's interests, then the sign's content may be of use to them. Otherwise, the sign provides no value to the user. There's no feedback loop, no way to remove luck from the process of matching content to users. The interaction problem in this case is simply that there is no real interaction.

Proposed Solution

The addition of touch-based interactive features, such as wayfinding, building directories, and event calendars, would grant users the ability to view information or content specific to their needs of the moment. Whether users are visitors who need directions, long-term students looking for more information about upcoming events, or faculty in an unfamiliar building, an interactive information system would be of greater value than a repeating cycle of pre-scheduled informational images.

Rather than develop an entirely new interactive digital signage solution, we propose to render the touch-based interface signage content, and interactive features as a web page. That way it

can be shown via any digital signage hardware that can display a web page, and could be made available to other touch-capable devices, including phones and tablets.

To inform users that interactive features are available, a proximity sensor would be used to trigger an animated overlay. The standard digital signage content would continue to be displayed, but icons representing wayfinding and other informational tools would be displayed when a nearby user was detected, along with animated pointers illustrating that one can touch the icons to interact with them. These controls would also be displayed on page load to support use on mobile devices or other systems designed for an individual user.

Personas

There are two identifiable personas who would use/require wayfinding technologies:

The Visitor

This is the persona of a parent or relative to a student, or perhaps a prospective student who is visiting the school on a tour. This persona is at a severe disadvantage due to their limited knowledge of the school and campus, and would see the benefits of on-demand directions and information immediately.

The Student

This is the persona of a student who needs information about the building they are currently in. This may be a new student who needs directions to a classroom, or a legacy student who is in an unfamiliar building and needs to know where the department hearth is located. This could also include exchange/visiting students from TIU, who are in a foreign setting and are unaccustomed to English directories.

Use Case Scenario

With our project the student above would be easily able to find the classroom they are looking for. In a specific case, the student would be able to access an informative webpage or application that gives directions via either instructions or a map. Additional features could include alternative routes, classroom/office locations, etc. A fully refined version might even have a variety of language options.

Related Products

Our proposed solutions mixes elements of two existing categories of products, wayfinding apps and interactive digital signage systems that include wayfinding features.

22miles

<https://www.22miles.com/digital-signage-applications-2/mobile-web-wayfinder/>

22miles is a wayfinding app. It provides powerful interactive map features, but it's limited to mobile devices only and users must download and install it from the relevant appstore before they can use it.

Elo

<https://www.elotouch.com/touchscreen-signage>

Elo is a manufacturer of interactive digital signage devices. They bill their products as "touchscreen signage". Their solutions are tied to proprietary devices, and are sold for uses such as room scheduling devices and restaurant ordering kiosks, as well as more traditional digital signage. Developing wayfinding features and building information content for their product would require essentially the same development process as building a standalone web-page solution.

Brightsign

<https://www.brightsign.biz/>

Brightsign is a major vendor in the digital signage market, selling content management software and media player devices. They do offer some interactive signage solutions, but those are not their primary product. Their offerings provide interactive experiences by displaying a web page. Therefore, a companion product along the lines of our proposed solution is required to truly implement interactive features.

Concerto

<https://www.concerto-signage.org/>

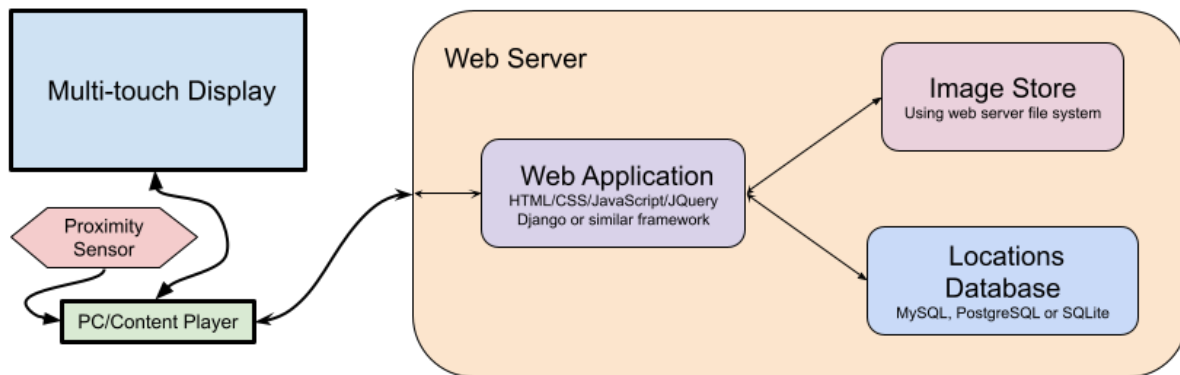
Concerto is Willamette's current digital signage solution. It's an open source project maintained by a consortium of higher-ed institutions. Concerto is a web application that manages graphical content and produces collections of that content as discrete web pages. Concerto content can be displayed by any device that can run a web browser. As with the other digital signage solutions listed above, Concerto can display a web page as well as still images, and doing so is the only way to include interactive features. However, rotation of content can not be disabled in Concerto, which would cause interruptions of interactive user sessions.

Comparing Products

Our proposed solution would fully combine wayfinding, content display, and an interactive interface, which none of the related products above achieve. Either they only address one part of the equation (22miles, Concerto), or they leave the wayfinding element to be handled or developed separately (Elo, Brightsign). Our approach is to center the system around

interactivity and wayfinding while retaining content display functionality as the background/default element.

Hi-Level Architecture of Proposed System



Feasibility

The majority of the work in support of this solution will be the development of a web application. We already have the necessary hardware on hand, with the exception of the proximity/approach sensor. On the web application development side, we'll have the following major tasks:

Database Design and Implementation

Our web application will need a database to store location, event, and building information. This should not require a complex schema, so this task should only require a few hours.

Web Server and Application Framework Implementation

We'll use standard open-source "off-the-shelf" solutions for the web server and application framework, so this task should also require only a few hours.

Graphic Design, Icons, and Animations

Only one of our team members has strengths in this area, but it will be one of their focuses. We estimate this part of the project will require ten hours. It could be done more quickly if necessary, but the approachability and usefulness of our solution rely on the graphic elements connecting with the users.

Core Application Development

The majority of our efforts will be in this area. We believe development of a rudimentary working version of our application will take roughly 60 person-hours. Of our team members, one has web design experience, another has previously developed web applications, and our third has programming experience and will act as a generalist.

Proximity Sensor Integration

We believe this will be our biggest challenge, as it's outside of the experience and comfort areas of any of our team members. All team members will work to research, identify, and implement a solution. We hope that process will not require more than 10 combined hours.