GeoTV: Navigating Geocoded RSS to Create an IPTV Experience

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ABSTRACT
The Web is rapidly moving towards a platform for mass collaboration in content production and consumption from three screens: computers, mobile phones, and TVs. While there has been a surge of interests in making Web content accessible from mobile devices, there is a significant lack of progress when it comes to making the web experience suitable for viewing on a television. Towards this end, we describe a novel concept, namely GeoTV, where we explore a framework by which web content can be presented or pushed in a meaningful manner to create an entertainment experience for the TV audience. Fresh content on a variety of topics, people, and places is being created and made available on the Web at breathtaking speed. Navigating fresh content effectively on TV demands a new browsing paradigm that requires fewer mouse clicks or user interactions from the remote control. Novel geospatial and temporal browsing techniques are provided in GeoTV that allow users the capability of aggregating and navigating RSS-enabled content in a timely, personalized and automatic manner for viewing in an IPTV environment. This poster is an extension of our previous work on GeoTracker that utilizes both a geospatial representation and a temporal (chronological) presentation to help users spot the most relevant updates quickly within the context of a Web-enabled environment. We demonstrate 1) the usability of such a tool that greatly enhances a user's ability in locating and browsing videos based on his or her geographical interests and 2) various innovative interface designs for showing RSS-enabled information in an IPTV environment.

Categories and Subject Descriptors
H.4.3 [**Communication Applications**]: Information Browsers.

General Terms
Experimentation, Human Factors, Languages.

Keywords
RSS, IPTV, geospatial tagging, blog, multimedia.

1. INTRODUCTION
RSS (Really Simple Syndication) [1] technologies and web logs (a.k.a. blogs) have helped transform the Web into a service platform that allows normal Web users to compete with traditional news media for timely content publication, aggregation, and delivery. However, there is a significant lack of progress when it comes to presenting similar information to TV viewers. Web users are equipped with various browsing capabilities, while TV users have traditionally been limited to a remote control and a fixed set of channels. This restriction is a significant barrier towards providing a seamless experience to access the same Web content on three screens: computers, mobile phones, and TVs. In general, the inquisitive nature of users point to the fact that they are not satisfied with simply finding out about X , but are also interested in finding out *what's new* about X, whether X is a person, a place, an event, a topic, or any entity. And users' intentions should not be restricted by the media they are using, whether it is a computer monitor or a TV screen.

In this poster, we present GeoTV, a framework for aggregating and visualizing RSS feeds in a *geospatia*l and *temporal* manner suited for a television experience, a major departure from the traditional text-based newspaper layout, which is still the dominant style on most web sites. Our contributions are specifically (a) Presenting innovative interfaces of geocoded RSS data along both geospatial and temporal dimensions for a TV experience and (b) Conducting usability studies for such interfaces.

2. RSS Navigation
Navigating RSS content is typically performed today on the Web using RSS-aware programs called *readers*. They are usually available as stand-alone programs or extensions to web browsers (plugins). The readers fetch recent updates periodically from a list of user-subscribed sites and alert the users accordingly. A user is typically notified of recent updates by means of a popup window showing a short textual description of the RSS item. By geolocating RSS, we mean associating RSS items on a world map where we perform reverse mapping of each story to one or more locations. The reader is referred to our previous work, GeoTracker [2], for more details. In this poster, we extend some of these ideas for the IPTV environment and show some innovative user interfaces specifically designed for the TV audience.

2.1 RSS Navigation on the Web
With a user profile that stores the user's interests, we can personalize a user's browsing or viewing experience by highlighting events and presenting associated multimedia items that match his or her geographic interests. For example, Figure 1 shows the locations that correspond to Yahoo top news items using the GeoTracker Web interface. Yahoo generates RSS feeds segmented by categories, one of which corresponds to breaking

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news items. The interface allows users to zoom in and out of any area and to pan from one side to the other easily. The zoom and pan features are capabilities that we inherit from Google Maps. Many such mashup websites using the same Google API [3] are now available. Clicking on the pin on Mexico leads a user to the recent Yahoo news page on Mexico, as shown in Figure 1. These traditional point and click operations are difficult to reproduce with a remote control for a TV.

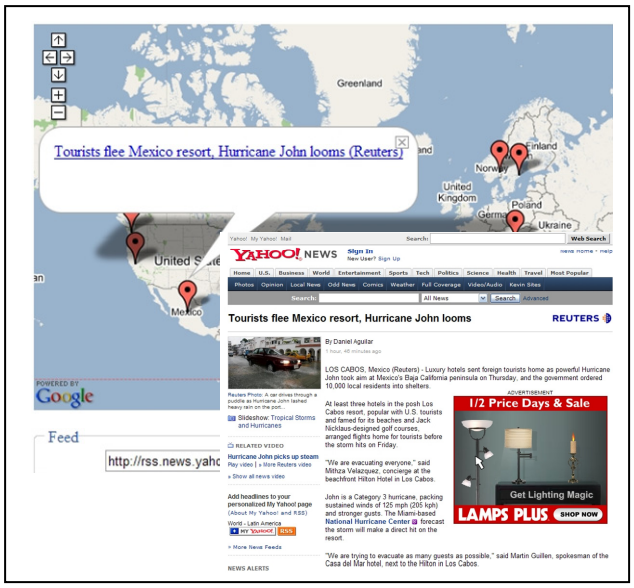

Figure 1 - Geolocation of international top stories from Yahoo RSS feeds using GeoTracker web interface

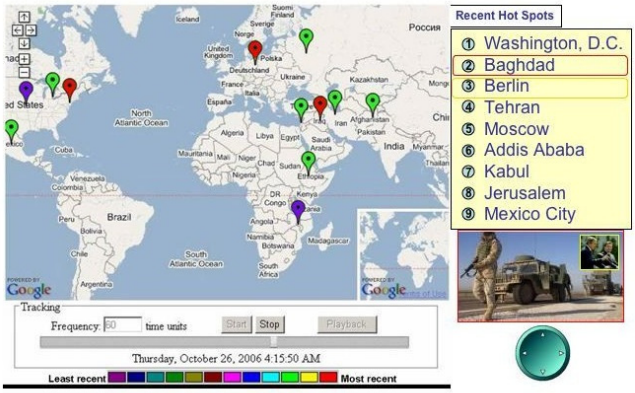

Figure 2 - Web content displayed on TV with varying importance

2.2 RSS Navigation on TV

Figure 2 shows an alternative representation by listing the *hot spots* ordered by freshness or frequency. As a TV user may not be able to point to a location with a mouse, this interface allows the user to simply select a number or scroll using his remote to obtain a video (if available) corresponding to that location and to obtain associated RSS text as a ticker on the bottom of that video feed (when available). We focus on the capability of allowing a user to browse hot spots by scrolling down the side bar locations listing. Navigation is enabled using either a remote control or a software control (see bottom right). The image shows a snapshot of a Baghdad story with an inset picture-in-picture of a news item from Berlin. U-Bar: Personalized Blogs and Map Integration

As another example, Figure 3 illustrates the concept of integrated blogs and geomapping. Often, as information is presented on a news site, the real time dynamics on how the event and public opinions evolved over time is lost. With the introduction of RSS, a dynamic presentation can offer the realism of experiencing a breaking news event. This example shows the geomap of the famous head butting incident of Zidane. As this incident was unfolding, blog sites were capturing comments from across the world. The integration is illustrated in the form of a U-shaped bar where the blog opinions (compiled based on the user's profile) are updated and aligned on the left of the geomap (after a user profile is selected) while the bottom shows the selected RSS feed being mapped. Relevant images from various blogs are also shown to the right of the map.

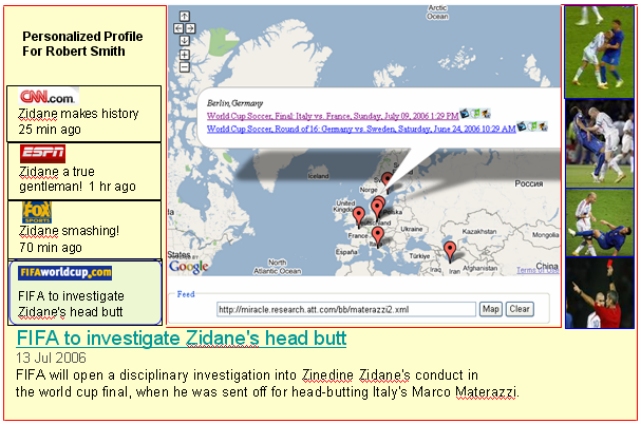

Figure 3 - The U-Bar concept – a personalized integrated blog and map

2.3 Usability Study of GeoTV

Finally, we have on-going usability studies on GeoTV and we will present results of those studies in the poster presentation. TV users are accustomed to motion in the interface, hence it is recommended to incorporate dynamic elements in the interface. WebTV used a proxy filtering architecture, which took care of cursor control and highlighting [4]. Unfortunately, the new generation, such as Microsoft's Media Center Edition/IPTV, does not provide this capability, thus requiring applications to take care of the complexity. We propose an automated panning and zooming effect (a two-dimensional translational mapping) to allow the user to view map regions of interest in detail in a lean-back consumption modality. This would be one way to overcome the low screen resolution limitations (e.g., 240 lines for interlaced standard definition NTSC).

3. REFERENCES

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