Geo-Based Social Network Navigation

Anton BENČIČ, Roman MÉSZÁROŠ, Roman PANENKA, Márius ŠAJGALÍK*

Slovak University of Technology
Faculty of Informatics and Information Technologies
Ilkovičova 3, 842 16 Bratislava, Slovakia
icup_fiit2010@googlegroups.sk

Social networks have been around for some time, but it was only recently that they have gained their popularity. These social networks are mostly accessed within a web browser, they usually operate on the well-known hypertext basis and the links between individual nodes in the network are represented by hyperlinks in the web site. Users always start at their own node and this allows them to quickly interact with people who are directly connected to them. On the other side if we need the users to often create temporal connections, then the mentioned tree navigation is not the best choice.

Because our system requires such interaction we decided to provide a map interface, as support [1] for social networks visualization. In this system we are providing users the opportunity to give away or lend some of their items, or get something from others if they need it. We decided to use existing social networks instead of creating a new one for obvious reasons, but user interactions build a new network of temporal connections. These connections as well as the permanent ones are later used in our evaluation algorithms that decide what users see in the map, based on region-specific characteristics and their own preferences. An example of items visualization is in the Figure 1.

Our system implements two types of evaluation algorithms. The first one is for static view, while the second one deals with the time component as well. The algorithm for static evaluation calculates rating coefficient for people, offers, requests and collections. While the map shows either individual users, or offers and requests together, it also shows collections organized by charities in both of those views. This means that the evaluation algorithm has to decide whether to promote an offer or a collection if a collision occurs. This is certainly not as straightforward as deciding among a group of colliding offers.

The dynamic evaluation algorithm is used when the user is viewing activities from the past or watching them in real-time. If the user views activities in real-time, the algorithm maintains the frequency at which these actions occur by accommodating the frequency of shown actions to the real action flow. This means that with the rise of user-relevant actions over certain period of time, the percent of shown actions remains

* Supervisor: Mária Bieliková, Institute of Informatics and Software Engineering

Spring 2010 PeWe Workshop, April 18, 2010, pp. 13–14.

the same, thus increasing the number of shown actions over that time period. The percent coefficient is calculated from the frequency of actions over longer period of time, so it is adjusted to the current trend.

The aim of evaluation algorithms is to provide a view, where both the region and the user characteristics are relevant. Regional relevancy is achieved by analyzing trends of activities and preferences in the region, while user relevancy is evaluated using the active user's activities and preferences.

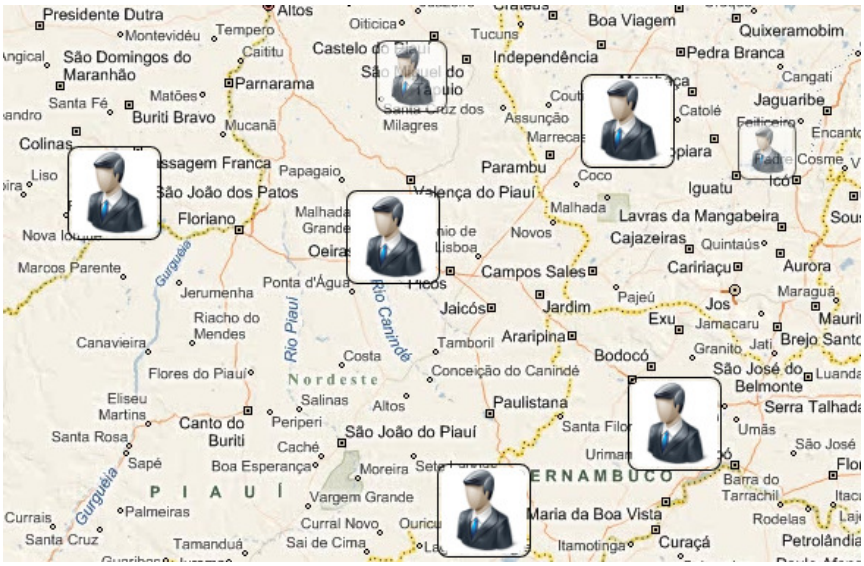

Figure 1. Visualizing of users and items on map

The system as a whole uses service-oriented architecture [2] using Windows Communication Foundation. We have chosen this architecture and technologies, because this way the client can abstract from the functionality that is provided by server and it allows us to implement both web and mobile clients using a single paradigm.

Present aims to address as many people as possible and to empower this we use existing social networks, where the information about Present and information from Present are spread. Social networks are also used for people to promote positive competition and to motivate them to help others and our planet.

Acknowledgement. This work was partially supported by the Scientific Grant Agency of Slovak Republic, grant No. VG1/0508/09.

References

[1] MacEachren, Alan M.: How maps work: representation, visualization, and design. The Guilford Press, (2004).
[2] Datz, T.: What you need to know about service-oriented architecture. CIO, (2004).