PROTOTYPE OF A MOBILE SOCIAL NETWORK FOR EDUCATION USING DYNAMIC WEB SERVICE

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ABSTRACT

This article presents the proposal of a social network site SocialNetLab that belongs to the Department of Computing - Federal University of Sergipe and which aims to locate and notify users of a nearby friend independently of the location technology available in the equipment through dynamic Web Service; to serve as a laboratory for research in social networks and to promote collaborative learning and integration among students, teachers and researchers, providing the institution's services and educational resources in full time.

1. INTRODUCTION

The increasing use of mobile devices, especially cellular and its derivatives such as smartphones, have favored the expansion of available services through the Internet. The site of the ComputerWord published in February of 2011 that more than half of computing devices sold in the coming years will not be computers but smartphone, tablets and netbooks (Fonseca, 2011).

According to the magazine Época, published in May of 2010, the world-wide average of virtual friends is 195 persons per user, when in Brazil is 365, being that more than 80% of the Internet users are registered in at least one social network, classifying Brazil as the country most sociable of the world (Ferrari, 2010).

After these considerations we realize the importance of conducting research on social networks. The objective of this article is to present the mobile social network SocialNetLab (Social Network Laboratory) that will serve of laboratory for researches on social networks, will allow users to find friends and be notified of the proximity of them according to configuration of distance defined by the user, through a movable device independent of the technology of location available in the equipment, may also provide tools to the academic community. Besides this introduction, the article is divided in more four sections described below. In section 2 we conceptualize and describe some social network sites and present the advantages of SocialNetLab in relation to other social network sites. In section 3 we present the social network site SocialNetLab as well as the functionalities and applications that will make up the site. In Section 4 we show the progress of implementation of SocialNetLab. In section 5 we present the final considerations and the future works.

2. MOBILE SOCIAL NETWORKS

The social network sites or SNS are web-based services that allow individuals to: 1) construct a public or semi-public profile within a bounded system; 2) articulate a list of other users with whom they share a connection; and 3) view and traverse their list of connections and those made by others within the system (Boyd, 2011).

There are online social networks (Web-based), mobile social networks and hybrid social networks. A hybrid social network is initially being developed as online, and migrates or extends to mobile platforms later (Tong, 2008). What differentiate an online social network of a mobile social network are the technological facilities of the new mobile devices combined with the features of the social networks online.

The idea of implementing a mobile social network own arose because of the non-existence of a mobile social network non-commercial and open source to accomplish the researches of the institution.

3. SOCIALNETLAB

The SocialNetLab is an SNS that will allow a user to have access to educational tools and also enable the user to locate and be notified of the proximity of a friend regardless of location technology available in they equipment and according with the configuration of distance established by the user, making the SNS more attractive.

To do the location of the mobile device we will use initially the API of Geolocation that is already incorporated to the HTML 5 (Meyer, 2011). This API is a hybrid positioning technology proposed by the working group Ubiquitous Web Applications of the W3C (World Wide Web) consortium. The idea is that getting the coordinates (latitude and longitude) will occurs when the user accesses the SocialNetLab site.

As the Geolocation API serves only for four types of location technologies, we realized the need to implement another solution that will serve the higher number of location technologies available in the market. In an attempt to guarantee the independence of location technology in mobile device is that the idea appeared of using the Web Service Dynamic (Murray et al, 2006), so that the system will go automatically search for the appropriate service for the technology of available location in the equipment. In the figure 1 we can see the architecture of the SocialNetLab SNS.

Figure 1. Architecture of the SocialNetLab

In this environment will be provided educational tools that will serve as manager of educational contents, will function as remote laboratory in electronics, will serve as a judge online and as a tool for learning through play. These tools are detailed below. Besides these features, SocialNetLab will also serve as a laboratory for research on social networks.

The figure 2 shows a prototype of the website's homepage of the SocialNetLab. The site of the SocialNetLab will have the Tools's link in which will be available the tools directed to education as the LEW (Laboratory Engineering Web), the ERLab (Electronic Remote Laboratory), the ProgWeb and the JOnline. These tools are already implemented and will be incorporated in future to the SocialNetLab.

The LEW is a tool that is already in use through a portal and which provides an environment for the managing information related to teaching, research and extension. (Ribeiro et al, 2011). The JOnline is a online judge which seeks to support the programming learning (Santos et al, 2011). The ProgWeb is a tool whose purpose is to build an environment for teaching programming through games using the programming language Python. (Ribeiro et al, 2011).

Figure 2. Prototype of the initial web page of SocialNetLab

The ERLab is a middleware for remote access laboratories (Ribeiro et al, 2012). It allows users to access various resources (oscilloscopes, signal generators, multimeters, reprogrammable hardware, among others) at a distance, through Internet. (Feistauer et al, 2010). In figure 3 we can see the homepage of the ERLab and an oscilloscope in functioning through the ERLab.

Figure 3. ERLab and oscilloscope

4. PRELIMINARY RESULTS

The social network SocialNetLab is being implemented and was divided into three scenarios as shown in figure 4.
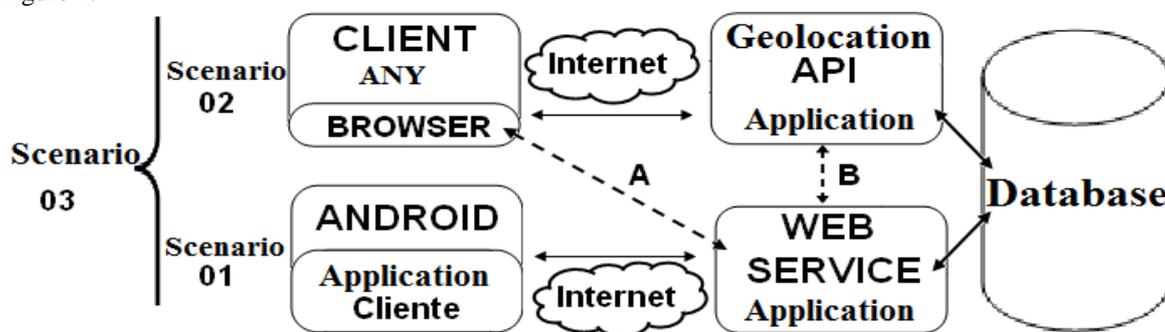

Figure 4. Implementation Scenarios of the SocialNetLab

The scenario 02 is in the final phase of the implementation and is being developed for any device (mobile or desktop) with Internet access can run the software, find friends and be located, without this being necessary to install and run any application at the client.

The ultimate objective is to implement successfully the scenario 03, allowing, in addition to mobile devices with Android, all other devices with Internet access have access to dynamic localization. For this we are studying and researching the best solution to integrate the Dynamic Web Service application (scenario 01) with the API Geolocation application (scenario 02). Such integration could be done by connection A, where access to the Web service would be made while accessing the browser, or through connection B, where access would be made when the application accessing the server.

5. FINAL CONSIDERATIONS

The mobile social network SocialNetLab is functioning with the location system via Web Service for mobile devices that use Android. As for the other types of devices (mobile or desktop) the application is in the final phase of development, so that the main objective of the implementation is the integration between the solutions of location Web Service dynamic and API Geolocation making the application always available to the user and can be run on any device with Internet access. Finally we will take the integration of educational tools, the tests and the analysis of results found.

As future work we will be integrating all the tools that will compose the educational environment, as well as adding new features that add value to the SNS. Issues of privacy and security will be also covered in more detail later.

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