DEVELOPMENT AND EVALUATION OF A SOCIAL NETWORKING SYSTEM FOR STUDENTS INTERACTION

Ambrose A. Azeta[1], Nicholas A. Omoregbe[1], Adewole Adewumi[1], Peace Uzowulu[1], Michael C. Agarana[2]

[1] Department of Computer and Information Sciences, Covenant University (NIGERIA)
[2] Department of Mathematics, Covenant University (NIGERIA)

Abstract

Socialization in the society without doubt aids in boosting the effectiveness of communication. It has indeed strengthened ties between persons. This fact has led to the idea of social network, which has been used to strengthen relationships between members of social systems. It is observed in some higher institutions that dissemination of information between students is usually restricted to the use of mobile communication devices and emails. There may be need to improve the information dissemination strategies in the department which will in turn enhance the flow of communication using additional platforms. This study presents a web-based social networking system for universities, which would support the effectiveness of communication between students within academic department. In developing the system, PHP, HTML and JAVA Script were used to create the web pages dynamically. MySQL database was used as the backend. The web server used was Apache. The system was evaluated using cognitive walkthrough strategy. This system delivers a platform for students to interact, share ideas, transmit important departmental announcements and develop ties and relationships. Activities to boost these include status update, mailing, photo uploads, instant messaging and voice chat. The full deployment of the application in the department would yield desired communication feedback and could even be adapted in different departments of the institution in the nearest future.

Keywords: Social Networks, flow of information, communication and Collaboration.

1 INTRODUCTION

Socializing in the society aids in boosting the effectiveness of communication and strengthening the ties between persons [1]. This fact has led to the idea of social network, which has been used to imply complex sets of relationships between members of social systems at all scales, from interpersonal to academic to family relationship. A social network services such as Facebook and Twitter are online service platforms, introduced to focus on building and reflecting the social relations between people [2]. These people usually share interests and/or activities. Social network services essentially consists of a user's profile and provide means for users to interact over the Internet, such as instant messaging [3]. In a broader sense, social network service usually means an individual-centred service.

The main types of social networking services are those, which contain category places (such as former school year or classmates), means to connect with friends (usually with self-description pages) and a recommendation system linked to trust [4]. Facebook and Twitter are among the widely used social networks worldwide. These social networking tools are increasingly the objects of scholarly research. Scholars in many fields have begun to investigate the impact of social networking sites, investigating how such sites may play into issues of identity, privacy, social capital, youth culture, and education [5][6][7][8][9][10][11].

The aim of this paper is to develop a social networking system for students' interaction. The rest of this paper is structured as follows: Section 2 examines related works. In Section 3, the system design and modelling are presented. Section 4 and 5 contains system implementation and evaluation. Section 5 concludes the paper.

2 RELATED WORKS

Social networks have been applied to a number of domains including: government, business, dating, medical and education. In the governmental domain, it is used by agencies as a quick and easy way for government to get the opinion of the public and to keep the public updated on their activities. In the

business domain, it connects people at low cost [12]. This can be beneficial for entrepreneurs and small businesses looking to expand their contact bases. Social networks also often act as customer relationship management tool for companies selling products and services [13]. In the dating domain, social networks assist to provide an automated environment for persons to communicate and exchange information for the purpose of dating [14]. In the medical domain, healthcare professionals are adopting social networks as a means to manage institutional knowledge, disseminate peer-to-peer knowledge and highlight individual physicians and institutions [15]. In the educational sector, some built sites include communication such as chats, discussion threads and synchronous learning and educational blogs, e-portfolios, and a lot more [16][17].

3 SYSTEMS DESIGN AND MODELLING

The system was designed and modelled using unified modelling language (UML). The UML diagram contained in Figure 1 presents the operational activities of the user using a use case diagram.

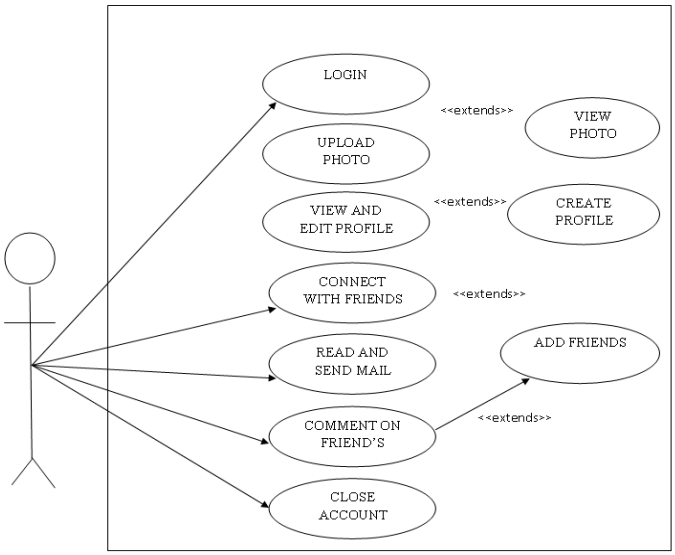

Figure 1: User's Activities Use Case.

In Figure 1, the user interact with the system by first to login. Thereafter, decides to upload photos, view/edit profile, connect with friends, read and send mail, comment on friend's discussions or close account. Figure 2 describes the operations that can be perform in the system using an activity diagram.

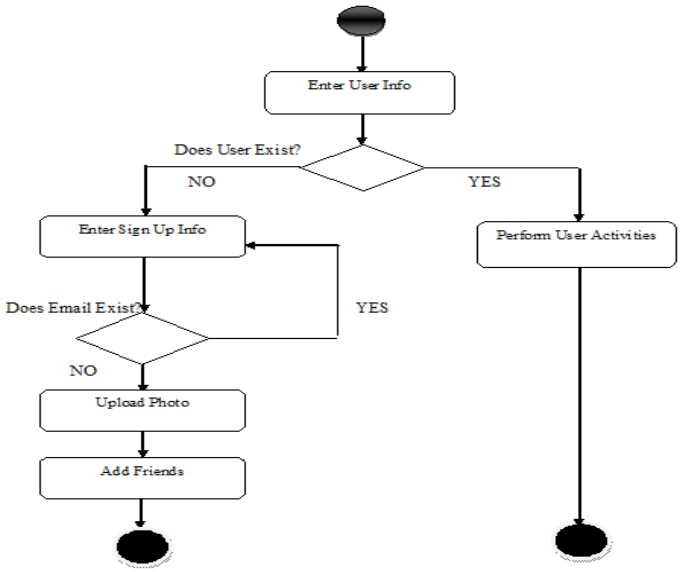

Figure 2: Activity Diagram for user's information.

4 SYSTEMS IMPLEMENTATION

The data collection technique used for this study was oral interview. Students of an academic department were questioned for their choice preferences on the systems functionalities. In developing the system, HTML, CSS (Cascading Style Sheet) and Macromedia Dreamweaver were the tools engaged in the users interface. PHP and Java script were used to make the web pages dynamic and interactive. MySQL serves as the database. The web server used was Apache. These tools were used to implement the system due to their efficiency and ease of use for web-based applications.

To access the system, a user (student) must login with his/her matriculation number and password. The system then redirects the user to his/her home page. This is where the user's wall and updates on friends are displayed as depicted in Figure 3.

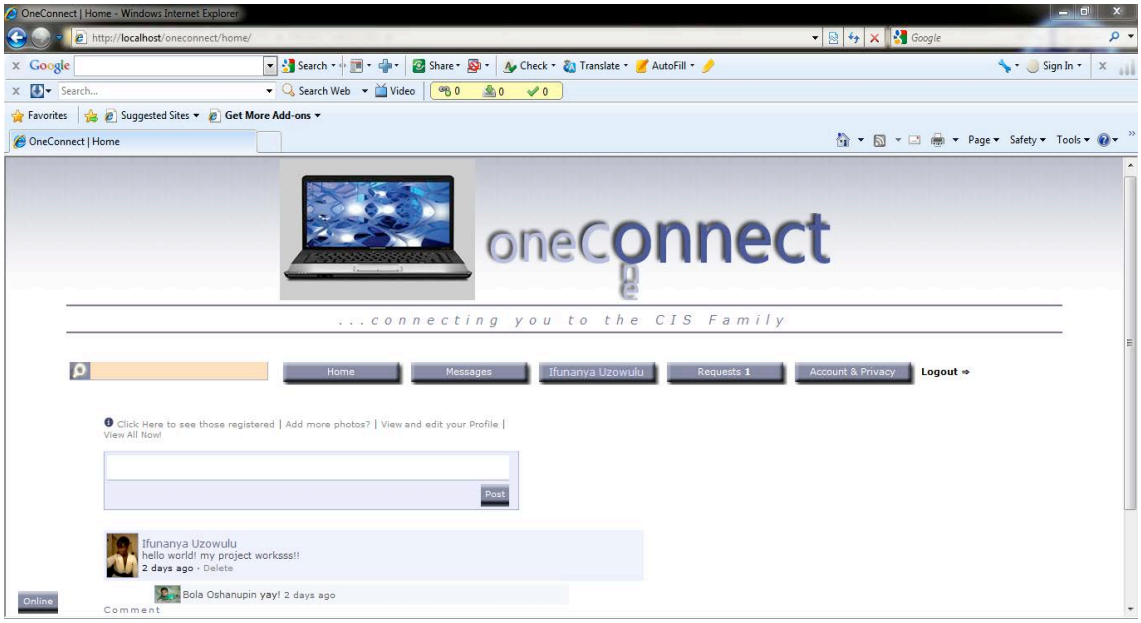

Figure 3: User's Homepage.

A user can also comment on posts, search for other users, add new photos as well as edit profile information in this page. Figures 4 displays the profile information of an existing user. Figure 5 shows the list of friends of the user, while Figure 6 is the page that allows for the upload of photos.

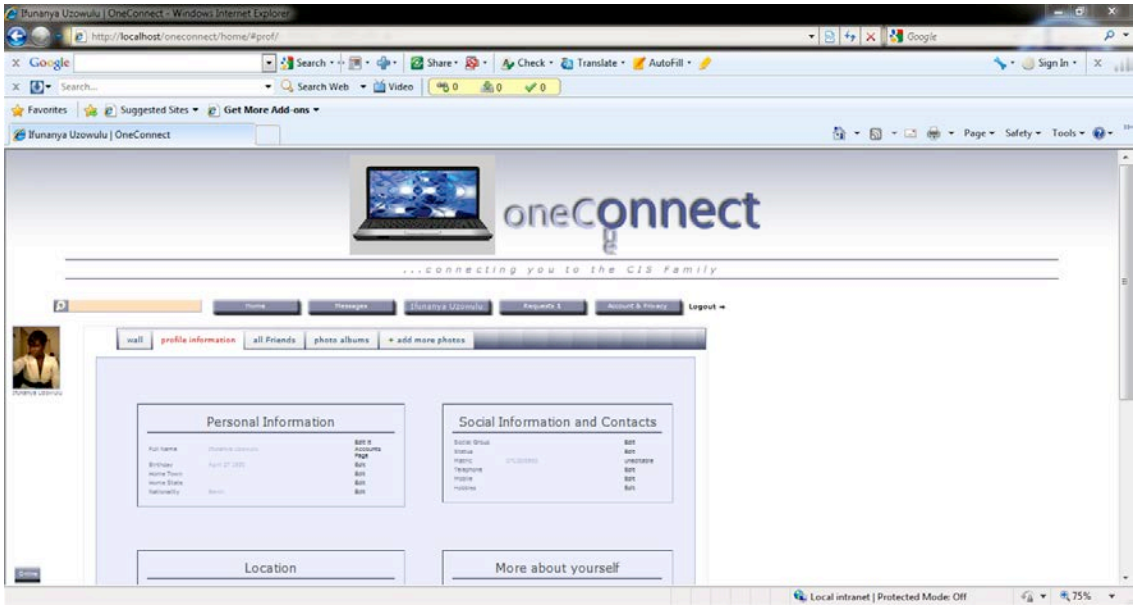

Figure 4: Profile Information.

The relationship between Figure 4 and 5 is that the contact information in Figure 4 is used by the system to identify the list of friends through a matching criteria of school attended, state of origin and residence and place of work.

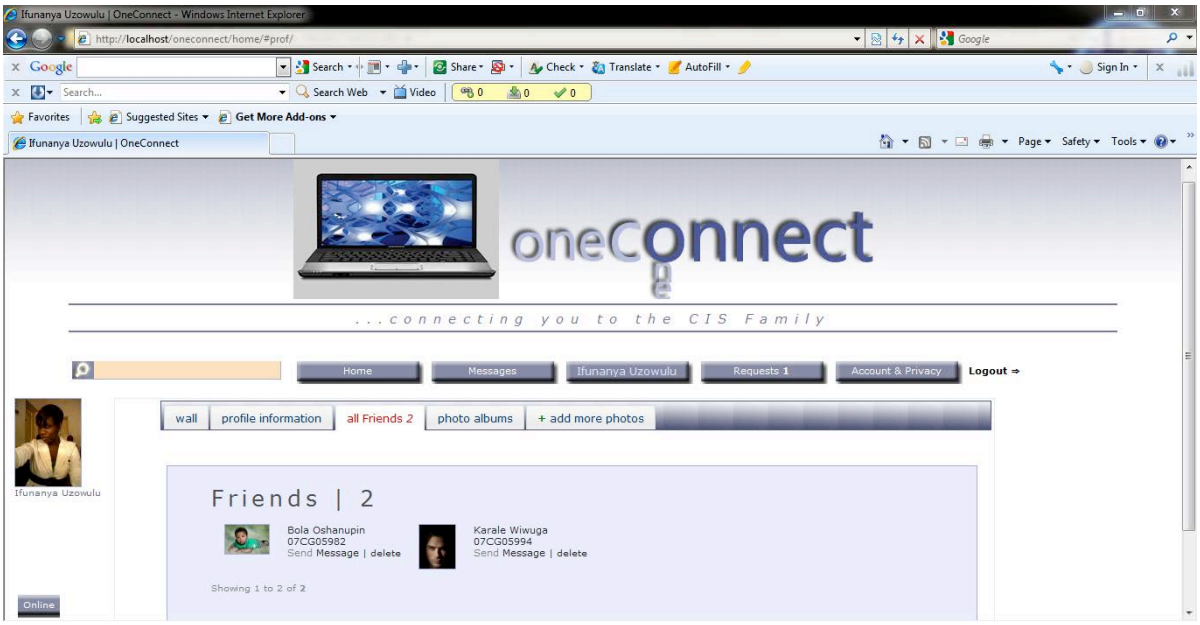

Figure 5: Friends list.

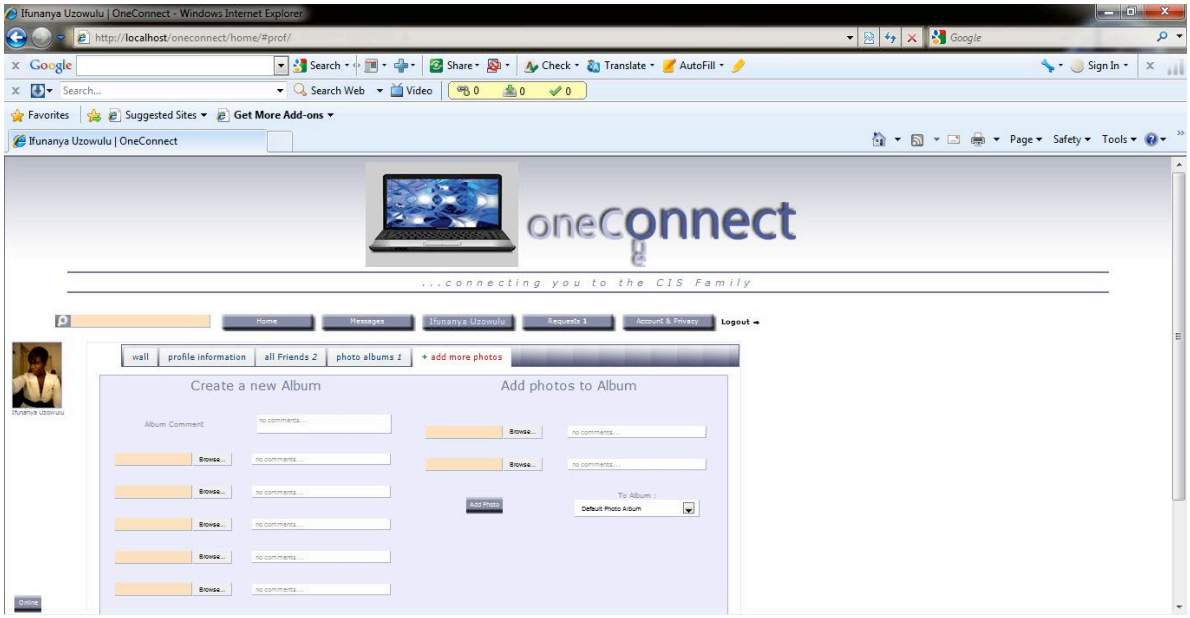

Figure 6: Photo Uploads.

Chat functionality was also implemented to enable users communicate via instant messaging and audio chat with other users as depicted in Figure 8.

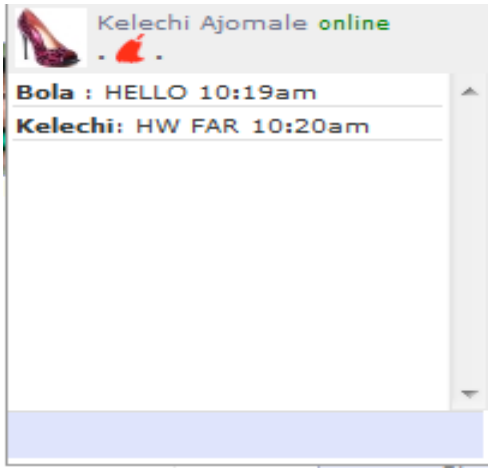

Figure 8: Chat Interface.

5 SYSTEMS EVALUATION

The social networking application was evaluated to determine the usability of the system. Several usability approaches exist, but the technique known as Cognitive walkthrough strategy [18] was engaged in this study. The survey instrument used was questionnaire. It has five sections namely: background information, task completion speed, ease of use and interface navigation with the system. A total of 89 questionnaires were administered to students but only 78 responses were received. The questions were designed using five point likert-scale where 1= strongly disagree, 2=disagree, 3=undecided, 4=agree and 5=strongly agree.

As shown in Figure 9, the analysis of the main survey question attributes reported the following mean scores: Task Completion Success (4.18), Task Completion Speed (3.90), Ease of Use (4.21) and Interface Navigation (4.01). The resultant total average score for all attribute elements gave 4.08. Several usability studies suggest that system with “Very Bad Usability” would have 1 as mean rating, “2 as Bad Usability”, 3 as Average Usability, “4 as Good Usability” and “5 as Excellent Usability”. It was proposed in [19] that “Good Usability” should have a mean rating of 4 on a 1-5 scale and 5.6 on a 1-7 scale. It can therefore be concluded that the prototype system presented in this paper has “Good Usability” based on the average total rating of 4.08.

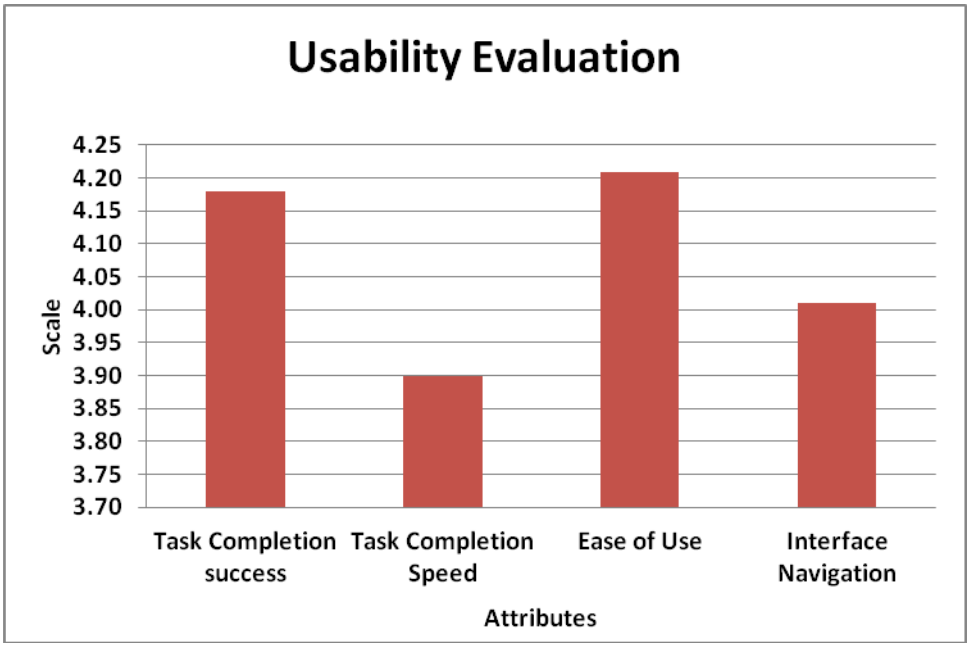

Figure 9: Analysis of Usability Attributes.

This implies from the analysis that the application is easy to use and has a high success of task completion rate. However, the speed of task completion has the lowest rate, which presupposes that improvement on the application will be required to enhance the speed of information processing.

6 CONCLUSION

This paper aimed at developing a social networking system that delivers a means through which students can interact, share ideas, transmit important announcements within a closed setting as well as develop ties and relationships among members of the closed setting – which can include an academic department. The features that makes this possible include: status update, mailing, photo uploads, instant messaging and voice chat. The benefit of this system includes among others interaction and learning among student and teachers in academic environment.

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