DESIGN AND IMPLEMENTATION OF AN E_LEARNING PLATFORM FOR PROFESSIONAL COURSE TRAINING IN MOGADISHU UNIVERSITY

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ABSTRACT
The study intended to address standing issues of delayed feedback to students, lack of adequate personnel force, limited infrastructure that adversely affect the revenue base. Using information engineering with a joint application development approach, a web based training platform was designed and implemented for the professional course center in Mogadishu University. The study concluded by appraising the contribution the system made and is projected to make in future for the prosperity of the university.
Keywords: E-Learning, learning management system, information management, University

INTRODUCTION
The United Nations set Millennium Development Goals (MDGs) for 2015 in terms of education to implement free standardized education for every child on earth. Information and communication technology (ICT) has been pointed at as facilitating this noble cause of helping to unlock the door to education (Kofi Annan, 2005). In Somalia, despite the lack of a central government since 1990 and an economy in ruins, and to the surprise of its closest neighbors, Somalia's telecommunication sector boasts cutting-edge technologies and a mushrooming of wireless solutions. For several years, the country was, to all intents and purposes, disconnected from the rest of the world, but it now has the lowest calling rates in the region. With such a blessing in disguise, the same ICT infrastructure can be put to use to help Somali revamp its development plans. Due to the level of ICT infrastructure in Somalia, Staff with up-to-date technical skills, including basic computer use can be hard to find. However, the private sector has been active in increasing access to communication technology. According to ITU & World Bank indicators, internet users in Somalia in 2000 were only 0.2 per 100 inhabitants, whereas in 2009 the number became 1.2 per 100 inhabitants.

Providing flexible education for everyone, everywhere, has been one of the fundamental goals of distance learning. While traditional (i.e. pre- Internet) distance learning methods and materials have been around for many years, Somalia is experiencing an increasingly high switch to Internet-based course systems, with virtually every University offering on-line courses or degrees. The worldwide adoption of the Internet as a new medium and the rapid evolution of web-based systems and tools have provided new approaches towards solving some fundamental problems of traditional distance learning: mainly isolation and the lack of knowledge construction in a social way as it occurs in the classroom.

Professional courses and distance learning Center in Mogadishu University started in 2006 with a few courses such as : Cisco training , Computer Hardware hands-on training , Microsoft Office Package (Ms Word , Excel , Power Point , Access) , using computer labs and classroom lectures . In 2009, the center started offering high-school teachers' training courses, and English course. The current approach in Mogadishu University involves assigned textbook readings, instructor lectures, and end-of-chapter homework assignments followed by instructor review of homework assignments during class. Lectures typically result in a one-way exchange of information as large class sizes along with

time constraints often limit interactivity. Homework assignments typically involve multiple exercises and/or problems selected and assigned from each chapter and are typically completed by students in paper-and-pencil form. Instructors generally review homework solutions during normal class meeting times, but may or may not collect, grade, and provide individual feedback on student homework performance. As was pointed out by the Director of Professional Courses and Distance Learning Center in 2011, "the center is in need of a Web-based training system to solve the problems that arises from the current system teaching such as: i) Lack of immediate feedback; ii) limited physical infrastructure and iii) type of students that enroll with the center working from far end organisation.

Literature Review

According to Tavangarian et., al (2004) E-learning comprises all forms of electronically supported learning and teaching. The information and communication systems, whether networked learning or not, serves as specific media to implement the learning process. The term has been utilized to reference out-of-classroom and in-classroom educational experiences via technology, even as advances continue in regard to devices and curriculum. E-learning is essentially the computer and network-enabled transfer of skills and knowledge. E-learning applications and processes include Web-based learning, computer-based learning, virtual education opportunities and digital collaboration. Content is delivered via the Internet, intranet/extranet, audio or video tape, satellite TV, and CD-ROM. It can be self-paced or instructor-led and includes media in the form of text, image, animation, streaming video and audio. Computer-Based Training (CBT), Internet-Based Training (IBT) and Web-Based Training (WBT) have been used as synonyms to e-learning.

Learning Management System (LMS)

According to Ryann (2009) a learning management system (LMS) is a software application for the administration, documentation, tracking, and reporting of training programs, classroom and online events, e-learning programs, and training content. It allows for teachers and administrators to track attendance, time on task, and student progress; and so do parents and students as well. Parents can log on to the LMS to track grades. Students log on to the LMS to submit homework and to access the course syllabus and lessons. LMSs range from systems for managing training and educational records, to software for distributing courses over the Internet with features for online collaboration.

Corporate training uses LMSs to automate record-keeping and employee registration. Student self-service (e.g., self-registration on instructor-led training), training workflow (e.g., user notification, manager approval, wait-list management), the provision of on-line learning (e.g., computer-based training, read & understand), on-line assessment, management of continuous professional education (CPE), collaborative learning (e.g., application sharing, discussion threads), and training resource management (e.g., instructors, facilities, equipment), are dimensions to Learning Management Systems (Morter, 2000).

Gupta (2007) observed that examination results can make or destroy the career of the students. The entire future of the student depends on how they fare in their Examination. Hence the question of Examinations is of critical importance to them and also the parents, lecturers, teachers, school and actually the whole teaching —learning system. Morter, (2000) noted that the Learning Management System (LMS) has the following advantages : i) The LMS provides an effective and fast way of result processing. In case a student wants result documents it's just a matter of entering the primary identifier, the unique key; ii) institutions require huge stores for files this creates the risk of being burnt, getting spoilt by liquid or even destroyed by pests like rats and cockroaches. Electronic systems do not require huge rooms but are stored in small medium; iii) files can be kept using backup system that caters for eventualities in case disaster strikes files can always be restored; iv) information in electronic form can be easily printed at any time it is needed; v) the format of the document can easily be altered for presentation purposes to either the senate or any responsible board of the university. In case a mistake arises it can easily be corrected without destroying the original information. Other advantages include: vi) the system is very secure with multiple level security checks. User level and system level security makes the entire application very secure. Further, hardware based authentication is enabled in the system to avoid any possible hacking; and vii.) the system is based on open-ended architecture, enabling the solution to be implemented in phases and actualizing future upgrades without disturbing the existing implementation. Scalability implies that the solution can be implemented in any environment at any time.

Systems that run on networks require some administrative software for the management of the files and security of the documents (Robert, et., al 2004; Somerville, 2001). Networked systems obviously need software to run the network, and all of the major software packages, such as Novell and Apple Talk. In some single station systems, the various components are networked together, while others are simply an interface program in the computer. Wanyembi (2002) adds that the effects of emerging technologies, more so ICTs, are being felt across the world, in various business organizations including universities. Academic institutions are now automating core functions such as student admission process, estate management, fees payment, examination records management and library services among other functions.

Acosta (2004) asserts that the demand to automate university processes is becoming important in line with university quality assurance. However, with the high costs of Integrated Academic Management Systems (JAMS) on the market, Universities must find alternative ways of meeting their customers' expectations within their constrained budgets. In Student Information Systems, usually the registrar has the primary responsibility of maintaining the integrity of the examination records and safeguards them in accordance with institution, system, state, and regulations. Newton (2007) adds that when making this determination, an institution should consider which office has the responsibility for the administrative function that has the best understanding of the meaning and status of the data and in line with this should be knowledgeable about the data use, the regulations that apply to it, and their interrelationships with other databases or information management systems.

According to Looho and Gallegos, (2001), Students records management has three major goals: i) Responsibility of the data; ii) A written policy on information management and; iii) Process for controlling access to information. Most colleges and universities place responsibility for data ownership and electronic access to data with the managers of the information; the same offices have the responsibility for the administrative function and the paper version of the information (Phillip, 2001).

Therese and Berth (1997) add that authorizing access, educating users, determining standards of security, and ensuring compliance with the local, state and guidelines relating to the data would be most effective if ownership and responsibility for authorizing access to the information reside with the office that has the greatest interest in both using and protecting the data. In view of the review of related literature the researchers found that the authors fell short of the development approaches of such systems to give a return on investment which this study focused on.

RESEARH METHODOLOGY

The study employed information engineering (IE) with a joint application development (JAD) approach to system design. University stake holders (i.e. students, instructors, administrators and parents) were interviewed and some observations made by the researchers, being part of the system. The data collected formed the basis for requirement definition that gave rise to the design of a new system. The tools used to develop the system include C#, ASP.NET and MySQL Server. The dummy web based training platform was presented to students, instructors and administrators for their comments before training could ensue and ultimately get it implemented.
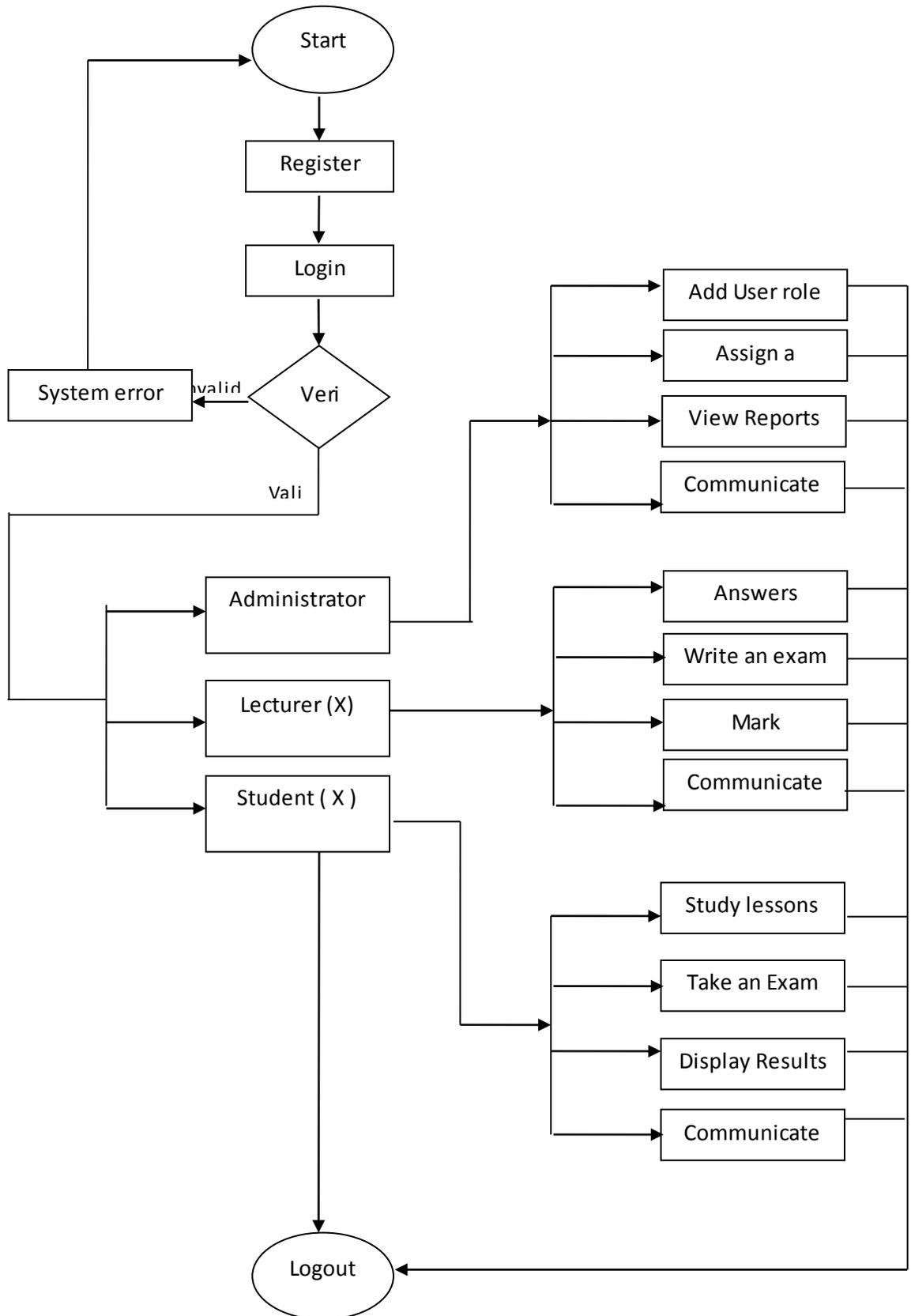
Log. Design

Figure 1: Data follow Algorithm of WBTS.

Figure 1 shows the logical design of the system where various users can log on and perform various tasks as seen. Key users of the system include students, instructors and administrator each of who has prescribed tasks. For one to reach out to his/her predetermined task one has to log on with correct details, else no access will be granted.
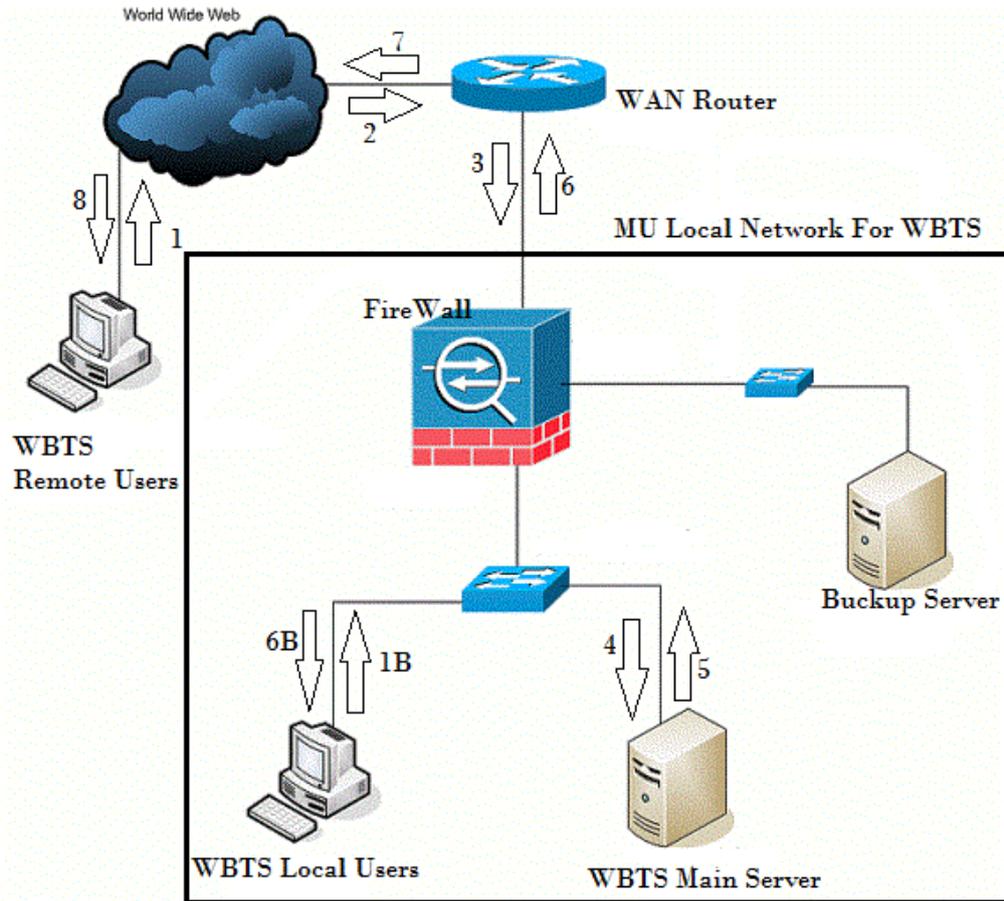
System Architecture

Figure 2: System Architecture (Deployment of WBTS)

The system architecture was divided into two Areas: first is "Remote Access" where users access to the system from outside of MU Network Architecture. While the second area is "Local Access" where users at the campus can access directly to the server. The arrows 1,2,3,4 indicate the requesting data from the main server, whereas 5,6,7,8 show the receiving data from the server.
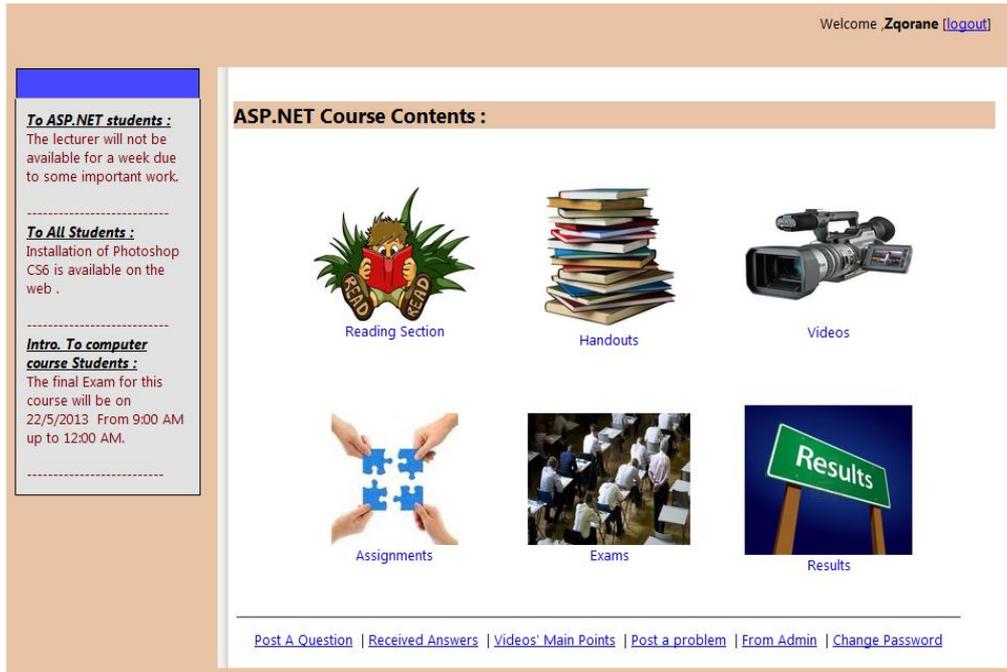
Figure 3: The Main Menu for One Course

The screen shown in figure 3 is displayed when the user is ASP.NET student for example because there are so many courses in the system. In this interface the user can do many tasks such as: reading , downloading handouts , watching tutorial videos , uploading Assignments, Taking an exam or Quiz , and displaying Results.

CONCLUSION

The following conclusions were reached after implementation: A web-based training system is an integral and necessary component in making appropriate and timely decisions. The new system has salient features that greatly improve Web-based training system at professional courses center. This enables students keep track of their examination record and their grades as soon as possible so as to improve it where necessary. The researchers recommend that; i) in future as need arises the system can be expanded to accommodate more than this; ii) A well trained Administrator ought to stand always to ensure proper management of the system; iii) the users need continuous training; and iv) period risk assessment should ensue to track early attempts to compromise the system functionalities.

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