

Student-Teacher Online Booking Appointment System in Academic Institutions

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Abstract - *Web-based booking appointment systems are prevalent currently either online or using traditional queuing systems. Several businesses like hospitals use different Web-based appointment systems for their patients which make appointments process more efficient, thereby minimizing patient's waiting time and maximizing the total number of patients served. This study presents a web based appointment booking system through web or mobile devices that assists both students and lecturers to be acquainted with the time of appointment wherever they are. The system allows students and lecturers to simply gain access to the system by connecting to the Internet. It also enables students to drop any message which consists of the purpose and time of the appointment. The system was developed using Hypertext Markup Language (HTML5), Hypertext Pre-processor (PHP) as scripting language, Bootstrap framework and My Structured Query Language (MySQL) as database. This will enable the web application to be robust, cheap and capable of operating on various platforms. The system does not only fully automated, and perform excellently well, but also user-friendly, time effective and efficient.*

Keywords: *appointment, web based application, booking, academic institutions.*

I. INTRODUCTION

Web applications have abetted in restructuring most of the tasks performed everyday, which makes lives

simple and uncomplicated. [1] describes the importance of Information and Communication Technology (ICT) in improving and assisting teaching and learning processes [1]. These applications are most widely used in solving problems concerning student learning and scheduling appointments. Previously, these appointment schedulings were carried out manually thus, there were many cases of overbookings or making the same reservation for two or more people or failing to delete an appointment not needed to allow replacement. To eliminate these human errors due to manual appointments scheduling system, there is need to develop a web application that enables appointment processes easier.

A web-based appointment scheduling system within a university is a very good idea, as it minimize time usage not only for the students and lecturers, but the university staffers [2]. Information dissemination and teaching techniques employed in a course system will enhance efficiency of educational process. Education, according to [3] refers to the process of acquiring knowledge, attitudes, interests, abilities, cultural norms and skills of a society; and transmit these to the next generations so as to improve everlasting development of the society. Many lecturers have personal computer system, and also gain access to the internet via their academic institutions' servers. The lecturers used Web as avenue for accessing and delivering materials through online to the students.

An appointment is a particular time scheduled for something such as a business deal, doctor visit and much

like a reservation. Various aspects of appointment processes, such as confirmations, reservations and cancellations are controlled automatically [4].

Recently, there have been various trends in development of web application and it is a fast and ever growing field. Web applications have a user interface based on the browser that interacts with the user and can manage large amounts of data [7]. They are very popular because a new application can be released without needing to install a new version on the client computers. This is absolutely different from desktop applications like Microsoft Word in which a new or upgraded version of the application needs to be installed or the patch of the application has to be installed. Web application of an online appointment booking system within an academic institution is an area of fast growth because it is a more effective way of handling administrative issues. Online appointment systems are used extensively in hotels, hospitals, etc. for scheduling appointments and to keep track of patients' records. This appointment scheduling system for students should be able to aid the task of booking an appointment with lecturers. This web application programmed with Hypertext Pre-processor (PHP) and Javascript allow lecturers and students to relate with each other in real time [5]. The application set up on a multiple platforms from laptops to mobile devices enable the students and lecturers to interact with the system wherever they are [6]. The instructors, students and lecturers using the system also receive information in real-time. In order to keep up with growing technology, there is need to explore various avenues of making appointment processes less time consumption, easy to use and a user friendly interface with just a click. Therefore, development of this Web that needful to the people is very imperative.. The objective was to design student-teacher web-based booking appointment systems in tertiary institutions with the aim of making the appointments process more efficient thereby minimizing patient's waiting time and maximizing the total number of patients served.

II. METHODOLOGY

The application utilized 2-tier techniques of server/client architecture software. The client is described as the network application which applied the services of the server. The server proffers services to another host upon a network. In web system technology, web interface will be demanded by the client before necessary interaction can occur. Through the the system logic the servers administers the clients requests. Web server offers the services such as authentications, web pages generation on request and database operations.

The server/ client interaction occurs through Hyper – text – transfer protocol (HTTP), a protocols on the Transmission Control Protocol/ Internet Protocol (IP/TCP) suite.. The programming language employed were the Hypertext Markup Language (HTML), Javascript and Bootstrap Cascading Style Sheet (CSS) with Hypertext Preprocessor (PHP).

System Architecture and Use Case Diagrams

Students can access this system from any computer or mobile phone which are connected to the Internet for booking an appointment with the lecturer (Fig. 1 and 2). Then, the time and purpose of appointment is sent to lecturer's e-mail waiting for a response, either accepting or rejecting it. The lecturer receives the message as soon as he/she logs into his/her mail account and accept or cancel an appointment with the particular student by going through the system. The student can then be notified about the status of the appointment. The system architecture is described below in Fig. 3.

(i) Lecturers

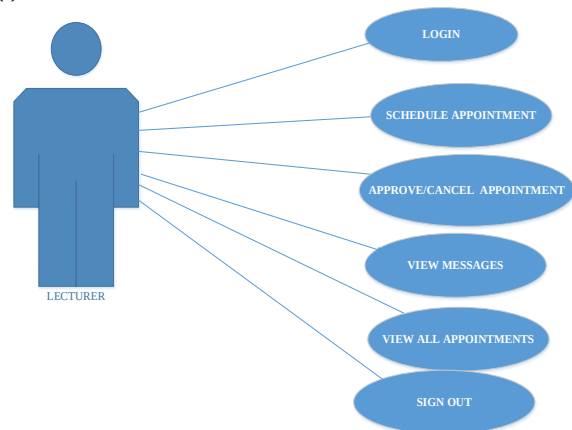


Fig. 1. Lecturer Use Case.

(ii) Students

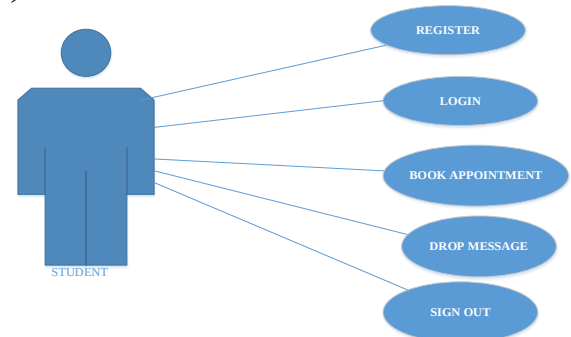


Fig. 2. Student Use Case.

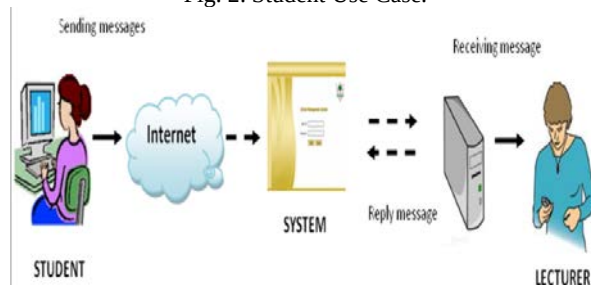


Fig. 3. System Architecture.

III. DESIGN AND IMPLEMENTATION

A. Graphical User Interface

Graphical User Interface design provides an interfacing between the user and systems. The

application is implemented on both mobile and windows platform. Thus, providing with an interactive interface determine the increasing number of user with interest to use the system. Fig. 4-10 demonstrate many screenshots to indicate a picture of how the interface of the system looks like which consists of the login form, registration form, Staff's schedule time page, booking page and message sent by individual student that shows the purpose of appointment.

B. Database Implementation

Database is a file structured specifically for efficient storage and easy retrieval of data. It is structured to data and enforces rules on how data should be stored or maintained. Database is widely considered as one of the essential part of most systems. My Structured Query Language (MySQL) server was used as the database. The Database Management System (DBMS) stores all data needed for the Web-based Online Appointment system which includes basic information of the teachers and students and the time and date of the appointment.

To gain access to the system, the students register with their personal information, thereby getting their username and password needed for logging into the system (Fig. 4 and 5). The student must log in with individual username and password before gaining access into the system (see Fig. 6).



Fig. 4. Student Register Page.



Fig. 5. Login Page.

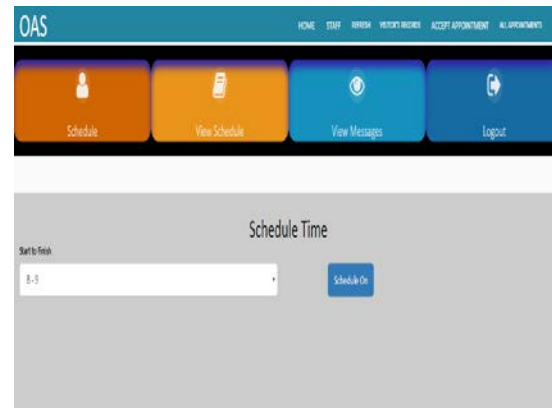


Fig. 6. Schedule Page.

Fig. 7 indicates the page that enables the Staff to schedule the time to be booked by the student daily. This Staff is going to schedule the time available which is going to appear on the student's panel.

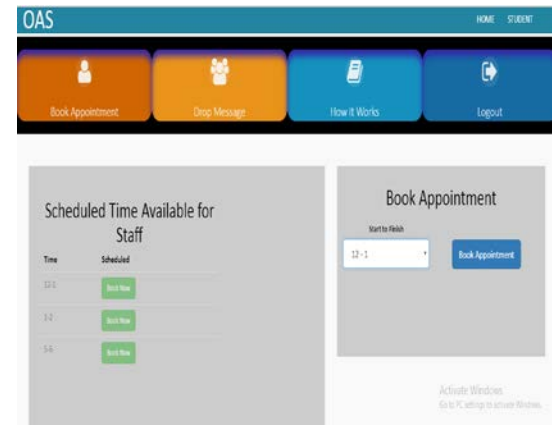


Fig. 7. Booking Page.

Fig. 8 reveals the page which permits the Staff to either accept or reject Appointment booked by the Student. The drop message page facilitates the student to fill in personal details and the purpose of appointment (see Fig. 9). The Staff can view all messages sent by the students and the purpose of their appointments.

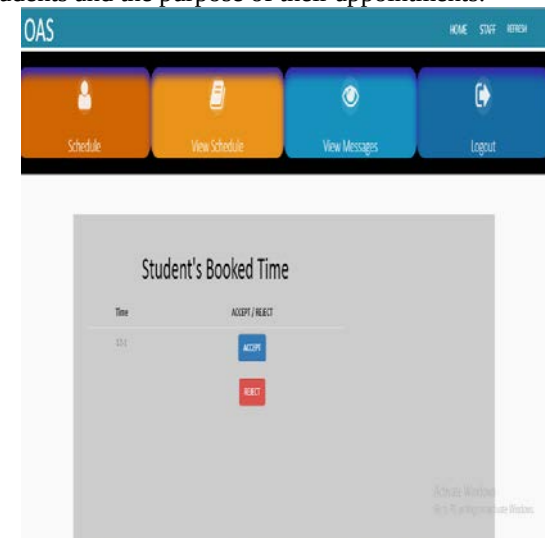


Fig. 8. Appointment Page.

Fig. 9. Drop Message Page.

IV. CONCLUSION

The student-teacher web-based booking appointment system developed for academic institutions provided a login menu and a registration form for new user. This comprises of an interface that is user-friendly to capture password, username and registration codes, for the student to log in unto the account. The appointment's page create a platform to book an appointment with the lecturer with an auto generated authentication which also helps prove that the user is not a robot. In each

student's account, data relating to the lecturer and student are inputted and appointment offered.

REFERENCES

- [1] N.D. Oye, S. Mazleena, and N.A. Iahad, "Challenges of E-learning in Nigerian University Education Based on the Experience of Developed Countries". International Journal of Managing Information Technology, Vol. 3, No. 2, pp. 39–48, 2011.
- [2] M. Landry, "There Are Good and Bad Ways To Set Up An Appointment System". CMA Journal Vol. 115, No. 2, pp. 160- 168, 1976.
- [3] O. L. Yekini, "Education as an Instrument for Effective National Development: Which Way Nigeria". Business and Entrepreneurship Journal, Vol. 2, No. 2, pp. 27– 8, 2013.
- [4] X. Dai Online Clinic Appointment Scheduling M.Sc. Thesis in Industrial and Systems Engineering, The Lehigh University, pp. 1467, 2013.
- [5] C. Alex. "What is a web application (or "webapp")"? <http://www.jguru.com/faq/view.jsp?EID=129328>
- [6] Z. Stern, "HowtoSetUpYourNetworkforPCsandMacs". <http://www.pcworld.com/article/230943/crossplatform.html>
- [7] M. Jazayeri, "Some Trends in Web Application Development". Conference: Future of Software Engineering, June 2007. FOSE '07, DOI: 10.1109/FOSE.2007.26 · Source: IEEE Xplore
- [8] "Zulekha Hospital Appointment System;". <http://zulekhaahospitals.com/unregistered>