Web-Based Learning System with Video Conference Service

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ABSTRACT

Web-based Learning System with video conference is to take an important role of developing of teaching and learning at Faculty of Computer Science and Information Technology (FSKTM), Universiti Tun Hussein Onn Malaysia. UTHM. First, the students should enroll the subjects in the semester so that the teaching and learning process can be done in video conference service. The aim to develop this system is to make student discussion with lecturer or among them through online by using video conference technology. Rapid Application Development methodology (RAD) is used to develop the system. However, it used Real-Time Messaging Protocol within the web technology to develop video conferencing service part. The system is available as long as internet connectivity is available. The system can accessed without limition of the time and place.

Key words: Real-Time Messaging Protocol, video conference, web-based Learning System, web technology.

1. BACKGROUND STUDY

Before that, the traditional style of teaching and learning in a class can have some problem with understanding more about the contents of the lecture by the students. This is happen especially for the students which are very shy or they have much problem with the time allocation to see the lecturer for discussion the content of lectures. So, web-based learning system with video conference is develop to minimize the problem of face-to-face an appointment for students to the lecturer by using video conferencing service [1].

The system is done to overcome the problems of students to see the lecture after the class. The system will minimize the time and will work in systematically. With that, the students shouldn't manually see to the lecturer or go lecturer rooms if they want to make a discussion. Students will get the consultation time in every week. However, the students should enrole the subject to communicate with lecturer and go through online to meet the lecturer by using video conference services.
Students no need to face the lecturer traditionally unless there is a big or complex problem.

2. RAD METHODOLOGY

For the development process, the methodology of RAD model is used as a guide and foundation. This model was built by James Martin, DuPont, where the model contains the phases of requirements planning, system design phase, the phase of system development and implementation phases [2]. Following is the phases in a RAD model within the system development:-

i) Requirements Planning Phase

In the planning phase requirement, the objectives of the each module in web-based learning system and the requirements of objective information that will be developed have been identified [3]. Involvement of a comprehensive approach to identify system requirements specifications, project analysis and project goals are determined to ensure the objectives of the system. Some of the activities involved are as follows:
1. Identifying problems
2. Explaining problem
3. Ensure the objectives and scope of the problem
4. Identify the system constraint

Much research has been done by using internet, journals, books, thesis, forums, discussions with the experts and professors.

ii) Design Phase

In the design of the Web-based Learning System, it is given the priority for the user needs and requirements

iii) System Development Phase
During working on the development of the Web-based Learning system with video conference was conducted in

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accordance with specification requirements, process system interfaces, and coding, multimedia elements and created a database. Development had been tested to ensure functionality of the system.

iv) Implementation Phase

Implementation phase has been made after the completion of system development phase. It needs of the users were identified and developed the updated. Activity of coding is done again when the transition occurs from the specification development system to system applications.

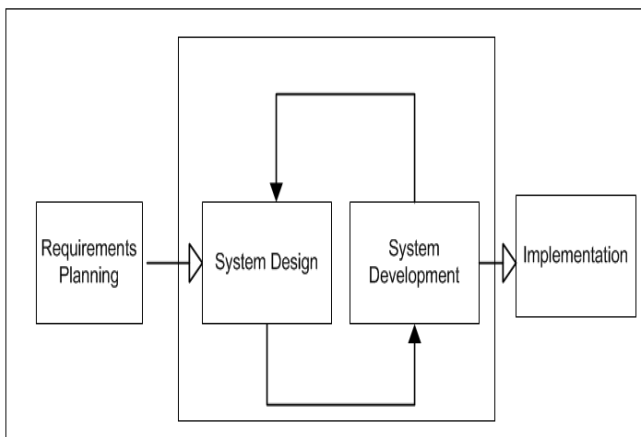In the following Figure 1, it show the overall work flow for all phases in RAD methodology.

Figure 1: RAD Methodology (James Martin, DuPont, et. 1980)

3. SYSTEM ANALYSIS AND DESIGN

The development of Web-based Learning System is to carry out the online learning system within the use of network services such as video conferencing, email notification technology and exchanging ideas with lecturer by using electronic forum.

With that, any academic activities like posting suggestions to lecturer and making subject discussions through video conferencing system can be done. All information and data will be analyzed after it collected to meet the objectives and scope of the system.

In the following Figure 2 is a context diagram for development of Web-based Learning System with Video Conference. It is describe about the data flow throughout the overall system [4]. There are three types of entities involved which are administrator, lecturer and student.

This system works by entering the user ID and password by accessing it from anywhere within the internet

connection. Each module can be attached to the route guide according to a user's access to the system. Users can change their password and administrator can remove information that is not active. Administrator can also update the modules information, information about lectures and student registration records.

For user as the lectures, they should do also login the system, change user information, change password and logout menu. In addition, online meetings can be made between the lecturers and the student as to make video conferencing for discussion about the subjects.
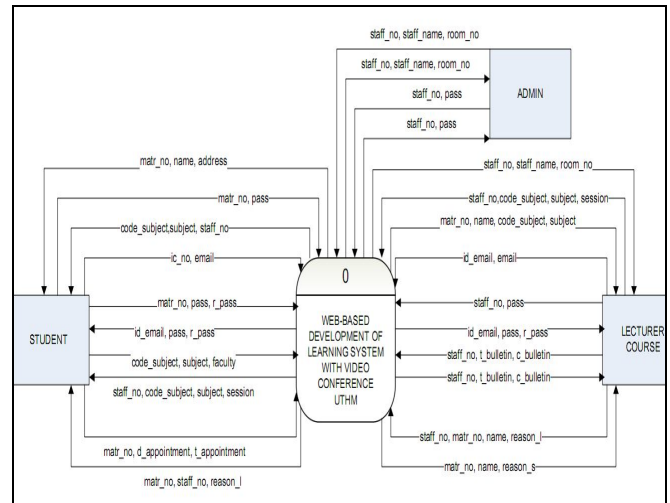

Figure 2: Context Diagram

In the following Figure 3 is a Zero-level data flow diagram that shows the details of the context diagram. It is used to describe the system in greater depth [5]. This figure takes the entities and data flows, such as in the context diagram.
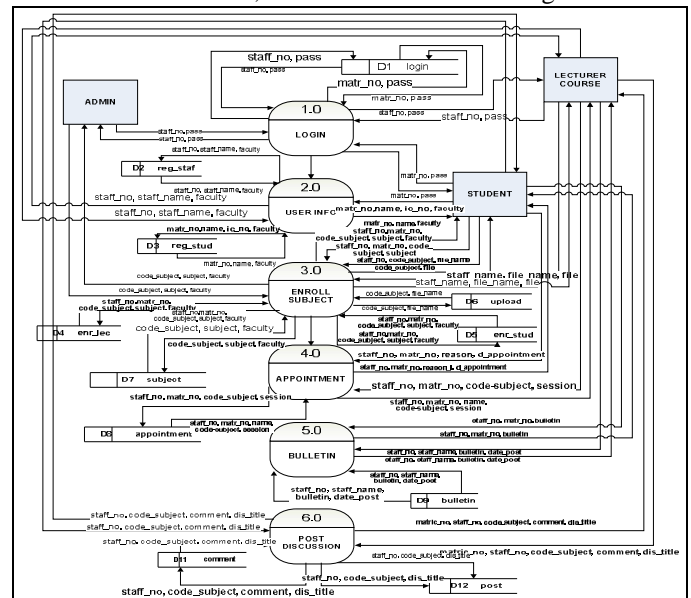

Figure 3: Data Flow Diagram

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4. IMPLEMENTATION

Web-based Learning System with video had two forms of user interfaces. This type of user interfaces is intended to guide the specified user and the usage of the system. The main system interface is show in Figure 4. In Figure 5, it shows the module for administrator user.

Figure 4: Main User Interface

Figure 5: Administrator Module

As shown in the Figure 5, the administrator module is well implement and it is implemented to attract the user to use the system comfortably. The module has functions for administrator such as add subjects to the system, assign ticket,

check student information, list of user information and deleting of users and also bulleting for system announcement
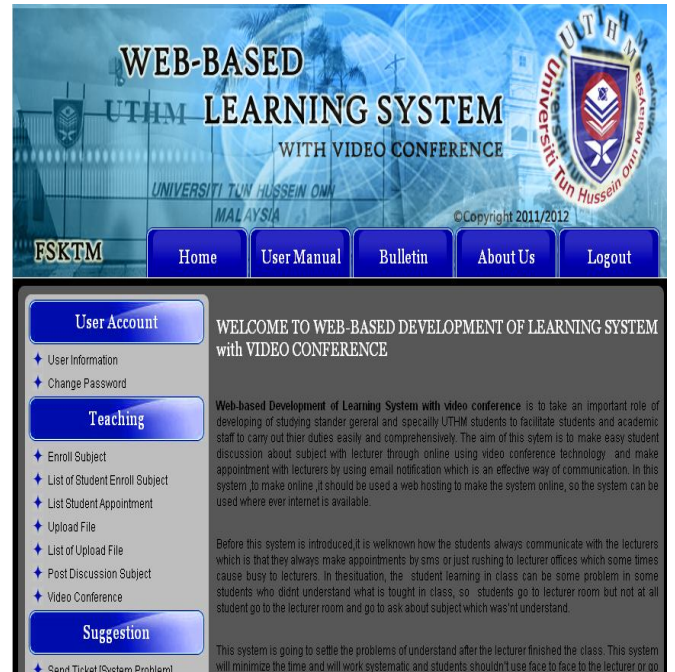

Figure 6: Lecturer Module

As shown in the Figure 6, the lecturer module has functions such as enroll subjects, list of appointment of students, post discussions, upload file and video conference and also the user manual and bulleting function which all the functions which this system provides.

Figure 7: Student Module

As shown in Figure 7, the student module has well designed module which has functions such as user account for student, basic information and other subject related functions such as enroll subject, appointment, list of download files post discussion and video conference and also the user manual and bulleting.

Figure 8 shows the interface for video conference function in this system. The students and lecturers can make the online video conference or by using Internet Protocol connection and real-time messaging protocol to use the video conference service [6]. First, the student should register and enroll the subjects. Then, after making an appointment through email notification with the lecturer, the lecturer can make a video conference with his/her students at the suitable time.
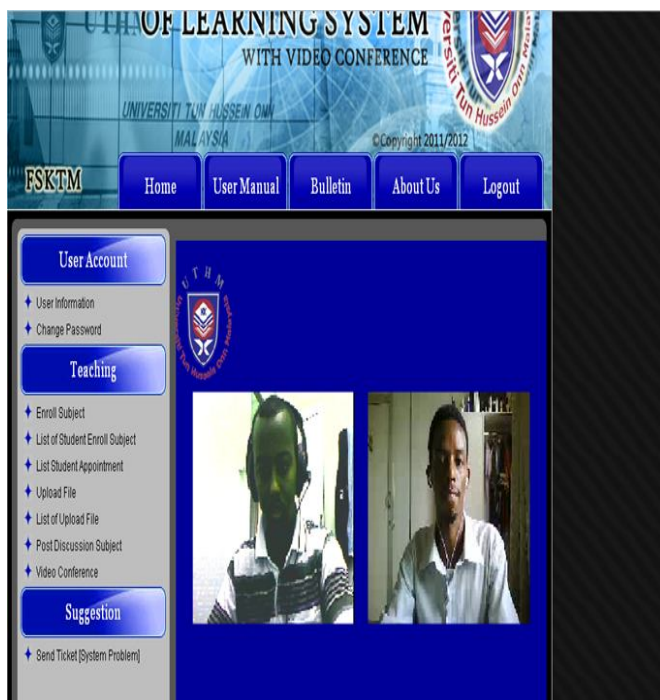

Figure 8: Video Conference Service

5. CONCLUSION

In overall implementation, the Web-based Learning System with Video Conference had successfully implemented. Then, a number of recommendations and improvement has been made for improvement the system in the future. So, that it is a better quality and meets the needs of target users or the user requirement.

The Web-based Learning System with Video conference technology is expected to help students and their academic lecturers of the university especially for online discussion and any academic affairs. Besides that, it will give a new idea that exposure to video-conferencing technology in education at the Institute of Higher Education in Malaysia.

REFERENCES

1. Thomson. **Data & Computer Communication,** 6th Ed. Prentice Hall, 2010.
2. Dennis, A.,Wixom, B. H., Tegarden, D. **System Analysis and Design**. 2005.
3. G.Marakas. **System Analysis and Design**, 2nd Ed. McGraw-Hill/Irwin, 2011.
4. Kalata, K. **Introduction to ASP.NET**, 2th ed .Canada: Thomson Course Technology, 2009.
5. Negrino, T., Smith, D. **Javascript& Ajax for the Web**, 6th ed. United States of America: Peachpit Press, 2010.
6. Moncur, M. **JavaScript in 24 hours**. United States of America: Sams Publishing, 2007.