MIZAN TEPI UNIVERSITY

TEPI CAMPUS

SCHOOL OF COMPUTING AND INFORMATICS

DEPARTMENT OF: INFORMATION SYSTEMS

TITLE: INDUSTRIAL PROJECT PROPOSAL ON VIRTUAL CLASSROOM AND CHATTING SYSTEM FOR MTU STUDENTS

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LMS - learning management system

UK – United Kingdom

OOSAD - Object Oriented System Analysis and Design

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1. INTRODUCTION

A virtual classroom is an online learning environment. The environment can be web-based and accessed through a portal or software-based and require a downloadable executable file. Many schools and businesses have rolled out virtual classrooms to provide synchronous distance education. Virtual classroom software applications often employ multiple synchronous technologies, such as web conferencing, video conferencing, live streaming, and web-based VoIP to provide remote students with the ability to collaborate in real time. To enhance the educational process, applications may also provide students with asynchronous communication tools, such as message boards and chat capabilities. "A virtual classroom is a learning environment created in the virtual space. Such type of learning is very less expensive in comparison to other type of learning in higher education.

Developing a virtual classroom system to promote a greater count of students to splurge into the field of education. It integrates the benefits of a physical classroom with the convenience of a 'no-physical-bar' virtual learning environment, minus the commuting hazards and expenses. It will usher in the immense flexibility and sophistication in the existing learning platform structures, with the perfect blend of synchronous and asynchronous interaction. It provides a means of collaborative learning for the students. Our objective is not to merely duplicate the characteristics and effectiveness of the face to face class. Rather, we can use the powers of the computer to actually do better than what normally occur in the face to face class.

Generally, a virtual classroom is a learning environment created in the virtual space. The objectives of a virtual classroom are to improve access to advanced educational experiences by allowing students and instructors to participate in remote learning communities using personal computers; and to improve the quality and effectiveness of education by using the computer to support a collaborative learning process. The explosion of the knowledge age has changed the context of what is learnt and how it is learnt – the concept of virtual classrooms is a manifestation of this knowledge revolution.

It also has difference from E-learning the difference between eLearning and virtual learning is the amount of interaction involved. Virtual learning has more interaction between students and instructors while eLearning is more self-paced.

1.1 Background Introduction

Due to high advancement in area of Science and Technology, particularly information technology, many alternate of learning came into existence in global differentiae. Advancement in computer's differ modems, different style of mainframes the best facilities of internet, comprehensive software programming's, cables and telephone lines help to develop virtual classroom in developed and developing countries.

Beginning in 1986, the Virtual Classroom, a teaching and learning environment constructed in software and available via the Internet, has been developed with funding from the Corporation for Public Broadcasting, the Sloan Foundation, the state of New Jersey, and industrial partners including IBM and Apple. As part of this project, it is offering an entire degree program, the B.A. in Information Systems, via videotapes plus the Virtual Classroom. An increasing number of graduate courses are also offered remotely.

Most of the virtual learning programs use an e-learning stage (learning management system – LMS) to set a mind of students, administer courses and to give learning materials. Examples of such systems are WebCT, Moodle, eFront and A Tutor; there are also proprietary e-learning platforms like Tooling University. Second Life has presently become a virtual classroom for big colleges and universities, including Princeton, Rice University, University of Derby (UK), Vassar, and the Open University (UK). In 2007 Second Life started to be used for foreign language tuition. Both Second Life and actual life language educators have begun to use the virtual world for language tuition. English (as a foreign language) has obtained an existence through many schools, including the British Council], which has concentrated on the Teen Grid. Spain's language and cultural institute, the Institution Cervantes has an island on Second Life.

A list of educational projects (including some language schools) in Second Life can be found on the Impeach site. WebEx is largely utilized as an online learning stage and classroom for a different set of education givers such as Fox School of Business for Templers University, Grades Grow, Minnesota State Colleges and Universities, and Sachem.

WebEx is a Cisco Web Meetings and Collaboration Solution. The learning stage has worked for academic institutions because of actual time collaboration using an interactive whiteboard, chat, and VOIP technology that allows audio and video sharing. In distance mode of learning, while

replacing the classroom with features, academic institutions have also looked for security features which are inherently strong in a Cisco powered collaboration environment. The downside is that WebEx is not a free learning stage.

In actual classroom teaching learning process micro and macro methods, techniques models and other various procedures are being utilized for the sake of obtaining behavioral objectives as set beforehand for the behavioral changes among the learners through diversified and specialized disciplines taught by the teacher with well-equipped teaching skills in conducive and dynamic classroom social setting. The methods like Lecture Method Textbook method, project method, problem solving method etc. are not used in virtual classroom teaching learning process but one of the Socratic Technique i.e. a question and answer technique is used. It is quite natural the learners are required to make an in-depth reading of several text- books, self-learning material and other learning assignments related to their subject before appearing in virtual classroom situation for the sake of providing the answers of the questions. In addition to this, several articles, notes related to the course are pasted on the computer. The learners download and get print copies of these learning materials before interning into virtual classroom. With the help of this procedure, not only learn best possible level but there would be more chances of interaction between the learners and the teachers.

In virtual classroom situation there is no face to face actual classroom teaching-learning process no physical presence of teacher and the students as it happens in formal system of education. In formal system of education, higher education is imported in actual classroom situation where the teacher and the students interact in their physical presence but on the other hand, in virtual classroom situation we do not get the physical presence of the teachers and the students. The students don't go to the school. They do not attend the classes. The students can sit anywhere all over the world according to their need and interest.

We use to say virtual classroom is a class without walls, boundaries; the students and the teacher meet with each other at "Cyberspace". A virtual classroom is an online learning environment. The environment can be web-based and accessed through a portal or software-based and require a downloadable executable file. Just like in a real-world classroom, a student in a virtual classroom participates in synchronous instruction, which means that the teacher and students are logged into the virtual learning environment at the same time. Many schools and businesses have rolled out

virtual classrooms to provide synchronous distance education. Virtual classroom software applications often employ multiple synchronous technologies, such as web conferencing, video conferencing, live streaming, and web-based VoIP to provide remote students with the ability to collaborate in real time.

To enhance the educational process, applications may also provide students with asynchronous communication tools, such as message boards and chat capabilities. "A virtual classroom is a learning environment created in the virtual space.

Since our project is on Mizan Tepi University Information Systems the current system lacks a lot of things and the new proposed system will be able to solve a lot of things.

1.2 The Problems with Current System

Nowadays the era of information technology is changing the social aspect of the society. From the most important aspects, the teaching and learning process is the major one. The Traditional which is more obvious way of teaching learning process is replaced by easy, flexible, more interactive and advanced technology like the virtual class rooms.

The problem that exist in the current system are: -

- Its costly to prepare handout and some other things for students
- Its time consuming when we try to find some data
- Students lack many resource which is essential to their course
- Less communication and co-operation work between students
- The means to acquire knowledge for students is limited to the knowledge of the instructor and its time dependent
- According to nowadays technology era and computer students using manual system makes us traditional.

1.3 Objectives

1.3.1 General objective

The general objectives of this project is to design and build easily accessible Virtual classroom and chatting system for MTU Students.

1.3.2 Specific objectives

The specific objectives of the system are:

- To analyses the existing system in order to identify gaps and come up with a new system.
- To make Requirement gathering, analysis and determination.
- To model and implement using object-oriented Unified Modelling Language
- To design Virtual Classroom and chatting system interface for the users
- To develop interface using difference methodology.
- To implement the system
- To test and validate
- To make the teaching learning process more efficient.
- To make Cost minimization for the learners and for Resources used for class room like furniture, blackboard, and whiteboard and alike.
- To provide a 24/7 accessibility (Time and location flexibility)
- To motivate the teaching learning environment in a more automated and easy to use way.
- To Provide Sustainable quality of teaching learning process when number of student's increase.
- To provide updated learning materials and settlements for the students.

1.4. Scope and Limitation

1.4.1. Scope

The virtual class room system is an online web based teaching learning environment to improve access to advanced educational experiences by allowing users to participate in teaching learning communities using personal computers, and to improve the quality and effectiveness of education by using the computer to support a collaborative learning process only for MTU Information systems students. This virtual system provides not only online teaching also chatting function to the students. The system mainly focuses on the following points and it will provide:

- Since the project is for MTU Student there will be fixed user id and password The user id cannot be chanced but the password given to user changes in the first login and can be changed any time.
- The registered users can Follow up for the course that the curriculum gave him/her to Follow.
- Many available resource for different course.
- Reminding message via email for all user.

- Sends weekly assignments for the user via user account or user email and then post exam or assignment result.
- Chat between users.
- The student with withdrawal request and re-admission form.
- Approve or reject request from different user.
- Generate report.
- Post news.
- Grade report of every semester.
- Finally, a valid certificate for the completed year course and then send to the user via email.

1.4.2. Limitation

The major limitation or difficulty that is not going to be included in the system is:

- **Video Conferencing**

Due to some reasons such as hardware and video devices integration, we cannot include the video conferencing or online video class in our system.

- **Online Examination**

Due to lack of some hardware we were not able to perform this application. Lack of this hardware will limit us whether to know the exact person is taking the test or other people are taking for him.

1.5 Feasibility Analysis

A feasibility study decides whether or not the proposed system is worthwhile in different dimensions. It measures how much the proposed system is beneficial or practical at development of the system. The feasibility factors of our project are: -

- Economic feasibility
- Operational feasibility
- Technical feasibility
- Schedule feasibility

1.5.1 Operational Feasibility

Measure how much the proposed system solves the existing system problems. This project is surely operationally feasible because the proposed system (the project) is a good solution maker of the

problem and create a good environment towards the user of our application by providing easy, user interactive and everywhere access for those who cannot attend a normal class.

1.5.2 Economic Feasibility

Economic feasibility attempts to weigh the costs of developing and implementing a new system, against the benefits that would accrue from having the new system in place. This feasibility study outlines the economic justification for the new system.

A simple economic analysis which gives the actual comparison of costs and benefits are much more meaningful in this case. In addition, this proves to be a useful point of reference to compare actual costs as the project progresses. There could be various types of intangible benefits on account of automation. These could include

- increased customer satisfaction
- Improvement in quality
- better decision making timeliness of information
- expediting activities
- improved accuracy of operations
- Better documentation and record keeping
- Faster retrieval of information

1.5.3 Technical Feasibility

Technical feasibility is the measure of the practicality of a specific technical solution and the availability of technical resources. In technical feasibility we should notify that our proposed system can implement with current technology and also the system user has enough experience using that technology.

Technical feasibility addresses three main things:

- Is the technology practical?
- Do we currently pass the necessary technology?
- The ability to do on the technologies.

So we can say that our system is technically feasible because of three main reasons. The first one is our project is compatible with the era that we are living in, that is information era. The second

reason is we can implement our system using current technology that is by using notepad++ for PHP development and also for organizing our data we have MySQL data base and for system design we have EdrawMaxv5.1 and Visio 2013.

The last reason is users cannot face additional burdens to be familiar with the system.

1.5.4 Schedule feasibility

Project activity can be shown by pert chart or Gantt chart which is calendar based the expected elapsed time, and when the activity is scheduled to begin and end.

Our team is working as the following project plan or schedule which is given by Gantt chart to develop the proposed system. We used Gantt chart because it is simple to create and it is clear to read or understand Within the time duration, we have identified the activities of the project in order to accomplish the project objective within their schedule requirement which is on the table below.

1.6 Work plan

1.6.1 Budget plan

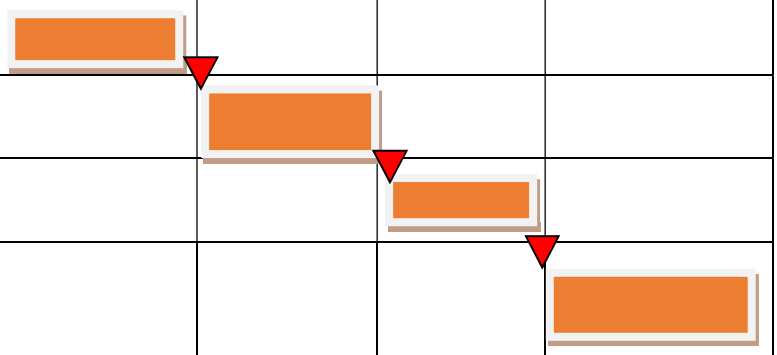
Table 1: economic feasibility

No.	Item Description	Quantity	Unit	Unit Price	Total price
1	Desktop	-	Birr	free	free
2	Removable flash disk(32 GB)	1	Birr	450.00	450.00
3	Paper	1/2 pack	Birr	70.00	70.00
4	Pencil	2	Birr	15.00	30
5	Pen	2	Birr	20.00	40
6	Printing	-	Birr	100.00	100
TOTAL					690.00

1.6.2 Time schedule

Table 2: schedule feasibility

No.	Activities	Submission date			
		December 5-18 2022	January 1-15 2022	January 16-25 2022	February -June 2022
1	System proposal				
2	Requirement analysis				
3	System design				
4	Testing and Implementation				



1.7 Methodology

1.7.1 Data collection methodology

In order to gather the relevant data, we use both primary and secondary way of data collection.

Primary Data Collection:

- Practical Observation- enables us to understand and list out the manual system problems via observing the limitations.
- Interview
- Questionnaire

Secondary Data Collection: Referencing- For having sufficient information for our system we will use different documents as a reference for developing this system.

1.7.2 Data analysis method

The team plan to use the Object Oriented System Analysis and Design (OOSAD) for the development of the system among the different methodologies. Because it is better way to

construct, manage and assemble objects that are implemented in our system. We used OOSAD because of the following important features:

- **Increased extensibility**: -when you to need to add new feature to the system you only need to make changes in one part of the applicable class.
- **Improved quality**: - quality of our system must be on time, on budget and meet our exceeded the expectation of the users of our system, improved quality comes from increased participation of users in the system development.

For our project we will use agile project management methodology It focuses on breaking down large projects into more manageable tasks, which are completed in short iterations throughout the project life cycle. the Agile methodology allows teams to re-evaluate the work they are doing and adjust in given increments to make sure that as the work and customer landscape changes, the focus also changes for the team.

1.7.3 Implementation Tools

We use the following hardware and software tools to develop our system. Some of these are listed as follows:

Table 3: Hardware requirements

Tools	Descriptions
Papers	Used for Training, printing
Pen	For Writing generated ideas on paper
Computer (Desktop or Laptop)	To Write Document ,PowerPoint
Printer	For Printing document
Flash	For File storing and Transferring
Pencil	For drawing diagrams on paper

Table 4: Software requirements

Programs	Descriptions
Sublime(version 3.0), Notepad++(v7.8)	For editing HTML,PHP codes
XAMMP, Version 8.0.17 / PHP 8.0.17	It is a platform that furnishes a suitable environment to test and verify the working of projects based on Apache, MySQL database.
Browsers such as Google Chrome, internet explorer	for searching information regarding the proposed project
MS Word 2016	For writing document
MS PowerPoint 2016	To prepare PowerPoint for presentation
Edraw, Draw.io, Version 13.9.9	For drawing UML diagrams and other system diagrams

1.8 Significance of the work

The proposed virtual class room system is expected to bring the remarkable change in the teaching learning environment over the existing or traditional system in the following major significant

- The system is cost effective because the teaching learning materials such as paper, blackboard or whiteboard are not necessarily required.
- The system will be functional independent of time and place. (24/7 accessibility)
- Teaching learning resources availability (the system will provide sufficient materials for the user)
- Reduce labor power (man power)
- Inspire and motivate users at different level to learn and gain knowledge

Reference

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