An Extended Architecture from E-learning to Mobile learning

For Learners Assessment System using SMS

Principal Investigator

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Introduction

Information and Communication Technologies have tremendous potential to preserve and share indigenous knowledge. It will enhance people's opportunities and be a major source of empowerment — especially for the socially and economically backward. The term 'e-learning' means new styles of learning that have progressively emerged along with technologies. The term 'mobile learning' has lately emerged to be associated with the use of mobile technology in education. Assessment is an integral part of the teaching and learning process and requires careful planning and execution if it is to support the needs of both the student and the teacher.

Objective of the Research :

Today technology grows very fast. If you are not adopted the technology in the teaching learning process, you will be isolated. The new system should provide :

- A common architecture for both elearning and mlearning :
- Less design and development time :
- Anywhere and Anytime learning process:

Methodology

The project has divided into two parts:

Part I deals with the creation of new architecture. It provides overall view about the mlearing architecture like what are the different modules and how it has implemented using Object Oriented approach.

Part II deals with the Learners' Assessment system. After learning the subject, how a student's understand the subject or what knowledge the student has acquire with this lesson are to be evaluated. The evaluation process is carried out based on multiple choice questions.

Architecture of Mlearning

Basic Modules

The basic modules divided into several sub modules

Author module – this part of the system provides tools for the preparation of the study material. It includes online editor, library of multimedia courses.

Distribution module - this part of the system facilitates the content to the to the

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authorized users. It been dived into sub modules like Course generation, Course processing, Mapping of the course and Course statistics .

Administration module – this collection of sub modules responsible for ensuring functions, which are usually provided by LMS. The sub modules are Administration of users' roles, Library of styles and Evaluation of the course.

Communication and cooperation module – this group of applications creating the virtual learning environment. It further divided into modules like Assignments and tasks administration, Student's teams management, FAQ, additional Information sources, Glossary, examples, notices, calendar, news applications for support of course study, Email, chat, discussion boards, whiteboard synchronous and asynchronous tools for communication and information exchange between students and tutors.

Test module and evaluation module – this set of sub modules designated for the preparation of test questions, tests, statistics of tests, archive of tests and other functions with relations to tests. The important sub modules are Test, Administration of test questions, Random generating of the test, Archive of test and Test analyses.

Extending Architecture from E-learning to M-learning

To extend E-learning to mobile learning we, need a new system, which will take care the interoperability between different environment or different configuration of the systems. So new interface module has been incorporated in the existing system.

To extend the old one, it uses Object Oriented Approach. So the new system can inherited the facilities available from the existing elearning.
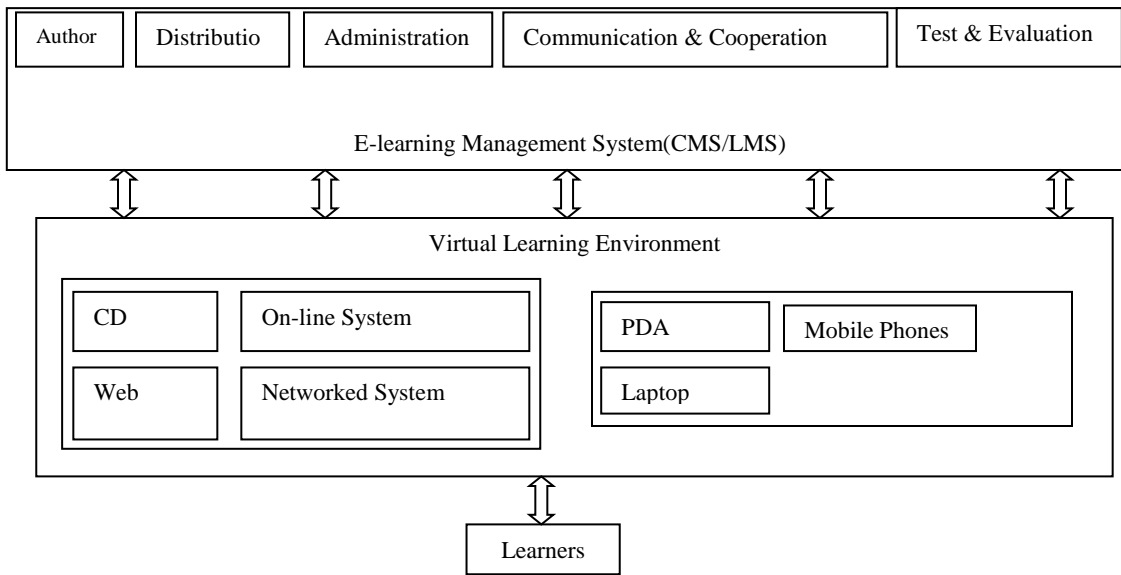
Figure 1 : Extending E-learning Architecture to M-learning

Learners assessment system using SMS

This part of the project has concentrate on Learners' Assessment through Mobile GSM. Among the entire modules, it has implemented the Test and Evaluation module. GSM mobile phones have the limitation of size, memory and display; it uses objective type questions for evaluating the learners. GSM SMS services won't provide graphical facilities. So this system has a filter mechanism which will the avoid the questions with image, audio and video facilities. If the text is too long then in divided the content and presented to the user with multiple SMS.

This module will test whether the learners is an E-learners or M-learners. If he/she is an E-learner then the E-learner interface will be invoked. If he/she is an M-learners then the M-learners interface will be invoke.

Among the M-learners interface, it incorporate GSM SMS gateway, which is taken care of the SMS message system. The following diagram shows the clear picture.
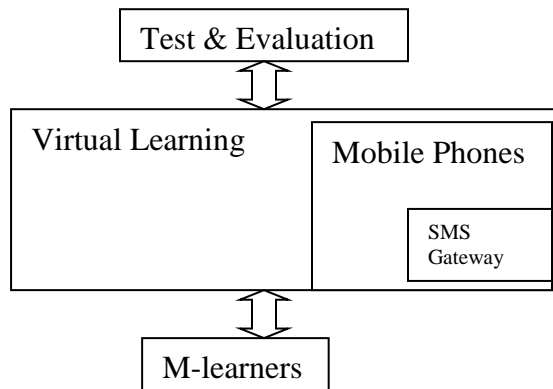
Figure 2 : SMS Assisted GSM Mobile Phone based Test and Evaluation system Architecture

Here, each basic module is an object. Here, each course, each subject, each chapter each question, choice of answer are treated as an object. Since it is an object this can be easily extended for new questions and new subjects.

Research Finding

The GSM based Learners Assessment system using SMS is an extension of elearning system. The original systems may be a web based or online systems. But the new system provides the following:

- It provides the framework for how to extend the elearning to mlearning without modifying the content of the elearning system.
- Common architecture for elearning and mlearning.
- It provides the facility of reusable of the learning object.
- Using this system a GSM mobile user can evaluate them at anytime and anywhere.
- Less development time for Elearning and Mlearning.

Future Expansion

The future system may be implemented with Java Message Services and provides MMS(Multimedia Message System) facilities. The future system may be implemented with XML so it can have more interoperability.