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Comparative Analysis and Design of Cloud Based Mobile Learning Model

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ABSTRACT
The two important aspects i.e. "always connective" and "always available" of mobile phone enables the mobile learning is important factor which give advantage over other learning paradigm. It gives always available e-infrastructure, e-content, e-assignments which give a good framework to provide the teachers to deliver their content. Also it motivates the learner for self-directed, self-dependent, technically strong and easily adaptable technique to provide good learning environment. As the learning paradigm is changing rapidly, m-learning can be an effective technique which can bring a revolution in the field of learning. With the help of cloud based m-learning model, it can give easily accessible and cost effective learning module
Keywords - Cloud computing, m-learning, mobile services, m-learning tool.

I. INTRODUCTION

M-learning is a method which give the use of mobile phone or portable devices for learning purpose. In this technique any portable or mobile device is deployed for learning purpose. It can be reading a book, scheduling your daily learning module in any calendar app, performing any assignment on portable device. There are many m-learning forms i.e. e-book, videos, documents and flash cards. Many organization tend their employees with the help of mobile based technology. M-learning can be effective in learning of any age group people. It can resolve many educational problems. Portable device are very easy form to provide educational content to teacher, student and parent. The availability of new 4G/3G wireless connectivity provides easy accessibility of e-content to the needy population. The outcome of this paper is that how the mobile devices are very easy to provide e-content to the student and give a good framework for educational purpose.

It is an effective and self-motivating aspects that help the student to learn when they use mobile and access their educational content on multiple locations. This paper includes an m-learning model which shows how the students can be engaged in all form of leaning environments. Cellular technology is an effective and efficient way to engage the students in accessing any information. It provide information accessible for the student that are dispersed in multiple location. It is unfortunate that not every person have personal computer and internet that are now days an important tool to access information. However, in present scenario most of the person have mobile phones that provides a strong tool to access the information.

This paper presents an m-learning tool based on cloud computing. Section II provides a brief overview of related work. Section III present a novel m-learning model. Then, Section IV presents a comparative analysis of m-learning models. Finally, we summarize and conclude the paper in Section V.

I. RELATED WORK

Cellular devices is an important tool in present scenario that are now become an effective information access tool that are "always connective" and "always available". There are various services available on the mobile devices which run on the remote server through wireless network. Now days mobile computing MC [1] playing an important role that make information easily accessible to everyone. But there are some draw back such as battery life, storage, bandwidth, network availability and communication (easy location and security) [2]. In present scenario cloud computing technology is widely acceptable for future generation information gathering tool that enable the user to use the full potential of cloud computing (Software as a service-SaaS, Platform as a Service -PaaS) provided by the cloud provider at cost efficient way. It is a technology that provide the resources and utilize their services by the demand of the users. However, the old m-learning model have several limitation that limit the use of powerful mobile tool [3], [4], [5]. Cloud based m-learning application solve these limitations in many ways. By utilizing the cloud with wide range of services, information, faster processing speed and longer battery life [6] present a bland of m-learning with cloud coputing technology which provide an effective and efficient way to provide the educational content to both the teacher and learner. With this the teacher examine the

mental level of their students with periodic assignments which are online and have a fix time submit them. Also the student can check their progress by getting the grades from the assignments. This model also help in the rapid growth of online education. These trend include rapid growth in online learning [8], [9]; the wide adaptability of information communication technology (ICT) that assist the teacher; the emerging modes of learning [10]; the student with a dispersed location [11]; mature age student [12] who are working and up skilling and the wide spread of higher education [13].

II. DESIGN OF PROPOSED M-LEARNING MODEL

M-LEARNING MODEL
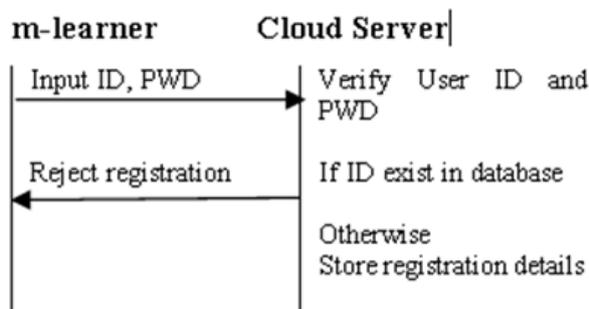
In this paper we have designed an m-learning tool which consist of the following components-
1. Registration phase
2. Login phase
3. Learning phase
    a. Text based tutorial
    b. Audio tutorial
    c. Video tutorial
4. Assignment phase
5. Teacher/Student Interaction phase
6. Assessment phase

A. Registration phase:
In this phase student or m-learner has to register in m-learning tool.
Step 1: Input user data using app screen
Step 2: Connect on Cloud Online Certification Service
Step 3: Verify user ID, if ID exist then reject registration otherwise accept registration details

III. FIGURES AND TABLES

To ensure a high-quality product, diagrams and lettering MUST be either computer-drafted or drawn using India ink.

B. Login phase:
In this phase m-learner has to provide login credentials in m-learning tool.
Step 1: Input user ID and password
Step 2: Verify user from student cloud database.

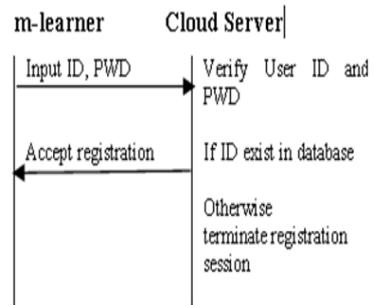Step 3: If matched then provide main screen, otherwise reject login session.

C. Learning phase
In this phase a user can access resources from Cloud Online Certification Service.
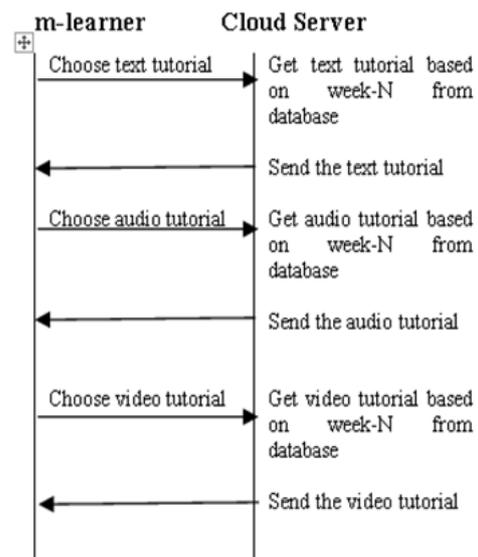Step 1: Choose Week-N text tutorial and read them.
Step 2: Choose Week-N audio tutorial and listen them.
Step 3: Choose Week-N Video tutorial and watch and listen them.
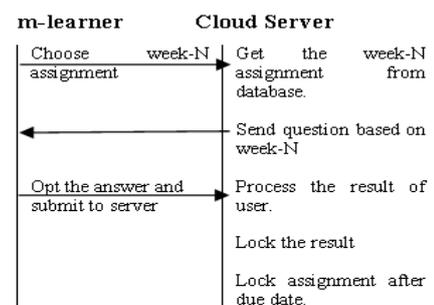

listen them.

D. Assignment phase:
In this phase user has to solve weekly assignments based on various tutorials.
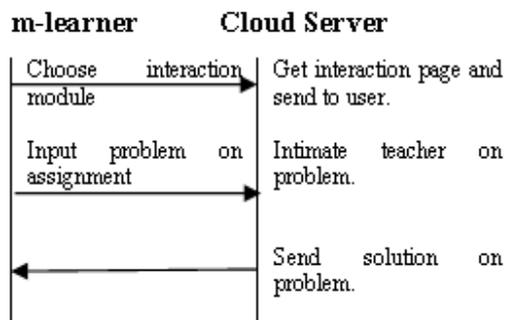Step 1:

Show question based on week-N

Step 2: Opt a choice out of 4.
Step 3: repeat step 1 until mth question
Step 4: Lock the assignment on submission date.
Step 5: Show result
Step 6: Show answer key for week-N

E.   Teacher/Student Interaction phase:
Step 1: Interact with teacher of course.
Step 2: Discuss problem based on assignments
Step 3: Discuss in student group.

F.   Assessment phase:
In this phase m-learner has to solve questions based on overall study.
Step 1: Show question based on overall study
Step 2: Opt a choice out of 4.
Step 3: repeat step 1 until mth question
Step 4: Lock the assessment on submission date.
Step 5: Show result
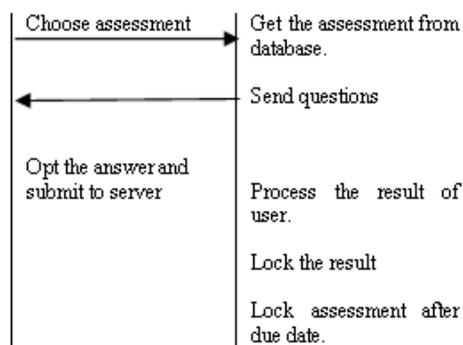Step 6: Show answer key for assessment

Table captions appear centered above the table in upper and lower case letters. When referring to a table in the text, no abbreviation is used and "Table" is capitalized.

IV. COMPARATIVE ANALYSIS

We have compared our proposed m-learning model with existing e-model National Programme on Technology Enhanced Learning (NPTEL). The comparative analysis is shown in table 1.

TABLE I.   Comparative analysis of e-learning model and proposed m-learning model

Features	NPTEL	Our proposed model
Digital device	PC	Smart phone
Tutorial	On-line	On-line
Assignment type	On-line	On-line
Assesment type	On paper	On-line
Physical verification	Yes	No
Learning with mobility	NO	Yes
Cost effective	NO	Yes
Live Interaction	NO	Yes
Text study material	NO	Yes
Audio study material	NO	Yes
Video study material	Yes	Yes

V. CONCLUSIONS

In this paper we have identified various flaws in NPTEL e-learning scheme. However, it has been found that e-learning scheme are good on fixed infrastructure while it is inefficient on mobile infrastructure. Moreover e-learning uses costly infrastructure for learning environment. We have shown that our proposed model provide live interaction with instructor, no need of physical verification, on-line assessment and cost effective learning environment

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