A Secure Exam Management System for M-Learning Environments

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Abstract- M-Learning has increased the E-learning by creating the learn method learner-centered. However, implementing communication security in open surroundings wherever every scholar has his/her own movable/tablet device joined to a Wi-Fi network through that or not it's any connected to the web will be one in all the foremost hard-to-please tasks. In such surroundings, student scan simply swap info in far more than the system throughout assessment time.

Keywords- Exam Engine, Learning Management System (LMS), SEMS.

I. INTRODUCTION

M-Learning has increased the e-learning by creating the educational method learner-centered. However, implementing test security in open environments wherever every student has his/her own mobile/ pill device connected to a Wi-Fi network through that it's any connected to the net is one in all the foremost difficult tasks. In such environments, students will simply exchange info over the network throughout test time.

This aims to spot numerous vulnerabilities which will violate test security in m-learning environments and to style the suitable security services and countermeasures which will be place in situ to make sure test security. It conjointly aims to integrate the ensuing secure test system with AN existing, open supply and wide accepted Learning Management System (LMS) and its service extension to the m-learning surroundings, particularly the Moodbile Project.

To design a secure test Management System (SEMS) that meets the distinct security needs of m-learning environments and to integrate it with the present Moodle/Moodbile platform. This can end in a whole LMS that's each equipped with secure test services and appropriate for m-learning. Our intention of integration SEMS with a well-known LMS like Moodle is therefore to urge the advantages of Moodles readymade services in different learning aspects like course material administration, documentation, etc. that are toughened and appreciated for the last fifteen years. However, the projected SEMS can even work as a standalone secure test management system for m-learning environments while not integration with Moodle.

II. LITERATURE SURVEY

A. The social & mobile learning experiences of students using mobile e-books [1]

Authors: Jeff S. Kissinger Florida State College

Merits: Students expressed feelings of competence, high self-efficacy, enhanced learning socially and within situated learning opportunities.

Demerits: There was an increased likelihood for competence and high self-efficiency that they were already "early adopters" of technology. The students who did not use e-books were not studied and interviewed.

B. A platform on the cloud for self-creation of mobile interactive learning trails [2]

Authors: Yiqun Li, Aiyuan Guo, Jimmy Addison Lee and Gede Putra Kusuma Negara

Merits:
1) Easy to use.
2) Users can access the web portal to create the learning trail anywhere using any platform.
3) The learning trail creation is independent on platforms and operating systems.

Demerits:
1) Highly costly.
2) Complex to implement as it required datasets.

C. Interoperability for LMS: The Missing Piece to Become the Common Place for Elearning Innovation [3]

Authors: M A Forment, M J C Guerrero, M Á Conde González, F J García Peñalvo, and Charles Severance

Merits:

1) The new generation of learning applications in the learning process.
2) New tasks may be done using an external application from the LMS interface.
3) The use of external applications from the LMS would be done from a consistent software interface that would not create confusion to students and teachers.

Demerits: Use of external application can cause security and privacy problems to students as well as teachers.

D. Security in the Online E-learning Environment [4]

Authors: Ruth Raitman, Leanne Ngo, Naomi Augar, Wanlei Zhou

Merits: Fostering a sense of security in the online e-learning environment.

Demerits: Security and privacy issues in online environments. Lot of effort to determine the significance of security from a student's perspective.

III. EXITING SYSTEM

The Quiz Engine embedded in Moodle isn't designed supported Service oriented design. It enforced as a bulk of PHP code that has got to be accessed through normal net browsers that are slightly slow on mobile devices and can't address the test security problems that exist in m-learning atmosphere. Moodbile services extension to Moodle doesn't bit the Moodle's Quiz Engine. Thus, we want to develop a brand new Quiz Engine that may be deployed as a service oriented application, so its services may be consumed by a mobile application designed to cater to m-learning specific security needs. As well, it ought to be integratable with Moodle/Moodbile so as to possess a whole LMS that suites the m-learning atmosphere and addresses all of its security problems.

A. Disadvantages of Existing System:

1. Slow services.
2. There is a security issues for exam.
3. Not Service Oriented

IV. PROPOSED SYSTEM

This aims to spot varied vulnerabilities which will violate communication security in m-learning environments

and to style the suitable security services and countermeasures which will be place in situ to confirm communication security. It additionally aims to integrate the ensuing secure communication system with associate existing, open supply and wide accepted Learning Management System (LMS) and its service extension to the m-learning setting, particularly "the Moodbile Project".

To design a scheme that encounters the different safety needs of m-learning environments and to integrate it with this Moodle/Moodbile platform. This may lead to an entire LMS that's each equipped with secure communication services and appropriate for m-learning. Our intention of group action SEMS with a widely known LMS like Moodle is thus to urge the advantages of Moodle's readymade services in different learning aspects like course material administration, documentation, etc. that are knowledgeable and appreciated for the last fifteen years. However, the planned SEMS can even work as a standalone secure communication management system for m-learning environments while not integration with Moodle.

A. Advantages of Proposed System:

1) It has a Service Oriented Architecture.
2) Provide better security.
3) Can be access more lightly.

V. MATHEMATICAL MODULE

Let 'S' be the set of whole system i.e. S = {input, process, output}.

Where,
- Input is the set of inputs given to the system.
- Process is step or techniques applied to the system.
- Output is outcome of the system.

1. Input:

Input = {U, QR, K, Q}.
Where,
- U be the user.
- QR be the QR generated from users details.
- K be the secret key to decrypt the encrypted QR code.
- Q be question paper.

2. Process:

- Step1: In this registration phase every candidate or user has to register themselves in order to give an exam.
- Step2: After registration the will get a QR code image which is encrypted information of user information. The same information will be stored at the server side for admin/ examiner record.
  The secret key K is send to admin record, which is used for decryption purpose.
- Step3: user will bring that QR code image while coming for exam then, admin. Examiner will scan that QR code image to check whether authenticated candidate has come for exam or not, the verification process done by that user information stored on server or examiner record, upon verified the admin will send the question paper 'Q' to user account.
- Step 4: User will login to system, to attempt an exam.

3. Output:

Secure Exam Management System (SEMS) to mitigate the unique exam security threats that exist in m-learning environments.
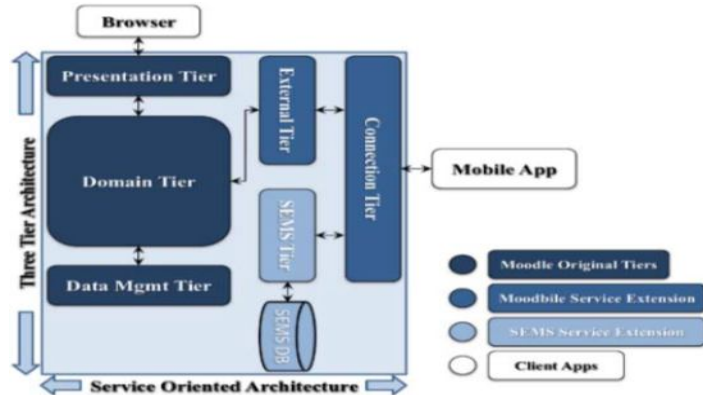
VI. SYSTEM ARCHITECTURE

Figure 1. System Architecture of Proposed System

VII. CONCLUSION AND FUTURE SCOPE

A. Conclusion:

Now within this the design of a safe and secure Exam Management System (SEMS) to mitigate the exam security threats available in m-learning environments. SEMS offers many exam services for example: secure and random distribution of exam questions, turbo-mode assessment, protection against the unattended exam issue, biometric-based authentication service for anti-impersonation, preventing students from exchanging their devices in an exam, conducting exam securely through offline or online strategies, and auditing.

B. Future Scope:

1. **Future expects of QR code Age verification:** For firms that are age restrictions (restaurant, bars, theaters, etc.) can use QR code on a customer's driver license that may be scanned to verify a person per age and steer clear of legal problems.
2. **Opening customer accounts:** By scanning QR code of a customer's driver license, a retailer can collect information to open up a client account or fill in a credit application quickly.
3. **Business Tracking:** QR code concept reduces manual data use of manage record through providing automatic means of data entry through machine.
4. **E-Learning:** QR code works extremely well sometimes of examination where students wouldn't like to carry hall ticket. They could carry only QR code instead of carry the hall ticket.

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