Designing a Secure Exam Management System(SEMS) Using NPL

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ABSTRACT

Today there are two forms of training and education: Distance education and Conventional education. Mobile learning, or "M-Learning", offers modern ways to support learning process through mobile devices, such as handheld and tablet computers, smart phones and mobile phones, MP3 players. Mobile learning can be used to enhance the overall learning experience of our students and teachers. However, enforcing exam security in open environments where every student has her or his own tablet or mobile devices connected to a Wi-Fi network through which it is further connected to the Internet can be one of the most challenging tasks. The existing system was not based on Service oriented architecture and was using a bulk of PHP code which had been a bit slow and cannot address the exam security issues that exist in m-learning environment. The proposed system aims to recognize various vulnerabilities that may violate assessment safety in M-learning setting and to deal the security and countermeasures that can be put in to make sure exam safety by using a QR code generated for every student. It also aims to integrate the resultant secure exam system with an obtainable, open source and widely conventional Learning Management System (LMS). Further we are using NPL for verifying the answers which has reduced the overall efforts of human beings.

Keywords: M-Learning, Security.

I. INTRODUCTION

Mobile devices are rather more within your means than desktop computers, and have a less costly technique of net access. Currently, the pill PCs permits mobile net access with equal or a lot of practicality than desktop computers. The term mobile learning or briefly M-Learning refers to the utilization of mobile and hand-held IT devices, like mobile telephones, laptops, PDAs and pill computer technologies, in coaching, learning and teaching. The mobile learning is thought-about because the third wave of learning with mainframe and, desktop computers because the 1st and second waves. Some students could use their mobile devices in foreign language categories. Different students could use their mobile cameras to photograph blackboards, PowerPoint or the other vital documents.

Therefore, mobile devices are an efficient instructional platform, because of the actual fact that mobile devices are simply accessible by students and supply adequate support for normal net technologies. Victimization fashionable strategies and techniques integrated in M-learning, facilitate in creating the training of our student a lot of attention-grabbing, a lot of interactive, wide obtainable and versatile. M-learning is cost-effective that

helps students to be told a lot of while not ancient restrictions. What is more, the likelihood to integrate M-learning systems into existing E-learning systems makes it straightforward to remain involved with the latest advances created in teaching analysis.

Mobile and wireless technologies are used in M-learning technique for learning and education. M-learning help to learner to learn the experience which available in environment. The main target of the next generation of the learning systems is to use current and modern technologies to provide new techniques of learning, training and education that will be easy access and available to all. One of the main benefits of M-learning is its possibilities to improve students' productivity by making knowledge and learning available anytime and anywhere. It is also possible to enabling learners to participate in learning activities without the traditional place and time restrictions. Mobile technologies support available and generally available learning than the education that used in the existing E-learning environments. M-learning supports performance with easy access to information, which can immediately impact students' performance in a learning environment, facilitating their education. M-learning achieves different learning requirements, where it is ideally geared for permitting students to get knowledge at their own speed. M-learning enhances two-way interaction where it supports direct communication between students and their respective teachers.

II. LITERATURE SURVEY

Sr. No.	Paper Name	Author Name	Published Year	Advantages	Disadvantages
1.	Designing and implementing an adaptive online examination system [1]	Mustafa Yağci, Menderes Ünal	2013	Less time. Flexible in the exam management.	Required internet connectivity
2.	A Secure Mobile Payment Framework Based On Face Authentication [2]	Zhaomiao Xu,Tao Zhang,Yujun Zeng, Jia Wan, Wuyang Wu	2015	Detect the face authentication algorithm	Always required camera for capturing photos.
3.	Guest Editorial Special Issue on Biometric Spoofing and Countermeasures [3]	Nicholas Evans, Stan Z. Li, Sébastien Marcel, Arun Ross	2015	The number of biometric traits, the rigorous peer-review process involved 45 submissions covering	If any biometric can be hacked by any hacker then all the database will be hacked.

			almost the full spectrum of biometric modalities	
4.	A platform on the cloud for self-creation of mobile interactive learning trails [4]	Yiqun Li, Aiyuan Guo, Jimmy Addison Lee and Gede Putra Kusuma Negara	2013	The system is easy to use for people without special programming skills and computer vision expertise.	Required internet connectivity
5.	the social & mobile learning experiences of students using mobile e-books [5]	*Jeff S. Kissinger*	2013	As a measure that reduces textbook costs to students and makes college education more affordable and accessible, students receive course textbooks in an entirely electronic format that can be used online and on mobile e-book reading devices, with the current price per book set.	This is only designed to explore the mobile e-book learning experiences within its situated boundaries.

III. PROBLEM STATEMENT

The Quiz Engine embedded in Moodle is not built based on Service Oriented Architecture. enforcing exam security in open environments where each student has his/her own mobile/tablet device connected to a Wi-Fi network through which it is further connected to the Internet can be one of the most challenging tasks,to solve this problem we proposed an open source and widely accepted Learning Management System (LMS) and its service extension to the m-learning environment, namely "the Moodbile Project".

IV.GOALS AND OBJECTIVES

Goals:

1. Confidentiality: An adversary cannot gain any knowledge about data provenance by analyzing the contents of a packet. Only authorized parties (e.g., the BS) can process and check the integrity of provenance.

2. Integrity: An adversary, acting alone or colluding with others, cannot add or remove non-colluding nodes from the provenance of benign data (i.e. data generated by benign nodes) without being detected.

3. Freshness: An adversary cannot replay captured data and provenance without being detected by the BS.

Objectives:

1. Provide security to personal information.

2. To detect fake (dummy) person at exam hall.

3. We design efficient techniques for provenance decoding and verification at thebase station.

4. We perform a detailed security analysis and performance evaluation of the proposed technique.

V. EXISTING SYSTEM

The examiner Engine fixed in Moodle is not built based on Service Oriented Architecture. It is implemented as a bulk of PHP code which has to be access through standard web browsers that are a bit slow on mobile devices and cannot address the exam security issues that exist in m-learning environment. Mood bile services extension to Moodle does not touch the Moodle's Quiz Engine. Thus, we need to develop a new Quiz Engine that can be deployed as a service leaning application, so that its services can be consumed by a mobile application designed to cater to m-learning specific security requirements. As well, it should be Integra table with Moodle/Mood bile in order to have a complete LMS which suites the m-learning environment and addresses all of its security issues.

5.1 Disadvantages of Existing System

1. Does not provide security.

2. Not based on Service Oriented Architecture.

VI. PROPOSED SYSTEM

This aims to recognize various vulnerabilities that may violate assessment safety in M-learning setting and to deal the suitable security armed forces and countermeasures that can be put in put to make sure exam safety. It also aim to integrate the resultant secure exam system with an obtainable, open source and widely conventional Learning Management System (LMS) and its service extension to the m-learning environment, namely "the Mood bile Project". To inspiration a Safe Examination Organization Scheme that possibilities the different security supplies of m-learning environments and to contribute it with the present Moodle/Mobile stage. This will result in a complete LMS that is both equipped with secure exam services and suitable for m-learning. Our goal of incorporating SEMS with a well-known LMS such as Moodle is so to get the benefits of Moodle's readymade services in other learning aspects such as course material management, certification, etc. which contain been experience and valued for the last 15 years. However, the future SEMS can also effort as separate secure exam management system for m-learning setting without addition with Moodle. The system highpoints the benefits and future tasks of mobile learning in our instructive environments in both online and offline mode.

6.1 Advantages of Proposed System

1. It has a Service Oriented Architecture.

2. Provide better security.

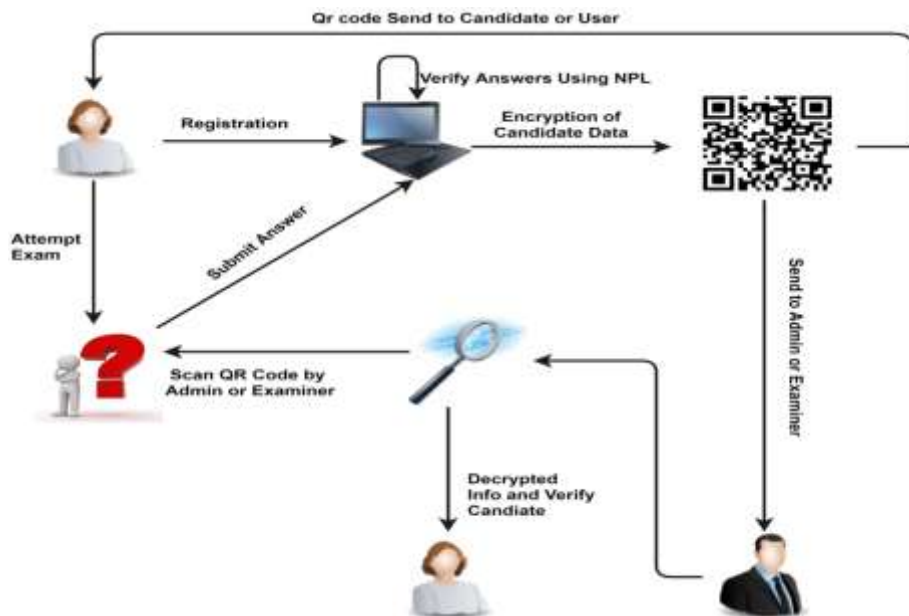3. Can be access more lightly

VII. SYSTEM ARCHITECTURE

Figure 1. Proposed System Architecture

VIII.ALGORITHM AND MATHEMATICAL MODEL

A. AES Algorithm:

The secret writing method uses a collection of specially derived keys referred to as spherical keys. These ar applied, beside different operations, on associate array of information that holds specifically one block of information the information to be encrypted. This array we tend to decision the state array.

Algorithm Take the subsequent AES steps of secret writing for a 128-bit block:

1) Derive the set of spherical keys from the cipher key.

2) Initialize the state array with the block information (plaintext).

3) Add the initial spherical key to the beginning state array.

4) Perform 9 rounds of state manipulation.

5) Perform the tenth and final spherical of state manipulation.

6) Copy the ultimate state array out because the encrypted information (QR code).

These algorithmic program ar wont to file content ar convert plain text to cipher text (QR code)

B. *Mathematical Model*

Let 'S' be the set of whole system i.e. S={IP, PRO, OP}.

Where,

- IPis the set of inputs given to the system.
- PRO is step or techniques applied to the system.
- OP is outcome of the system.

1. IP = {U, QR, K, Q}.

Where,

- U will be the user.
- QR will be the QR generated from users details.
- K will be the secret key to decrypt the encrypted QR code.
- Q will be question paper.

2. PRO ={R, C, QRCode, K, Q}

Where,

- R will be registration phase.
- C will be number of candidates.
- QRcode will be generated for every candidate and sent to candidate Mail ID.
- K will be secret key.
- Q will be question paper generated by administrator.

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. OP={Output}

Secure Exam ManagementSystem (SEMS) to mitigate the unique examsecurity threats that exist in m-learning environments.

IX. CONCLUSION AND FUTURE SCOPE

This paper has mentioned the improvement and want of the M-learning for the space education. The system highlights the benefits and future challenges of mobile learning in our educational environments in both online and offline mode. M-Learning produce the association between education and technology doable. The learner includes peregrine, institutional, home, kids and adult users and also the form of learning environments includes networked, internet-based, distance, cooperative, synchronous and asynchronous can arise the interest of the new generation of distance learning (M-learning). The paper has mentioned the background of M-Learning and the way it is wont to expand the full learning system utilized by varied students. The paper conjointly provides highlights of the advantages and also the future challenges of M-Learning in our instructional environments. Finally, our learners, students and academics ought to be ready for consecutive generation of coaching and learning. M-learning is wont to solve the standard learning system issues by the user. Each students and teacher would like a handy and correct system to act with one another and facilitate the teaching system. The M-learning systems don't seem to be specifically to switch ancient school rooms however they'll be helped to enrich the training method in our faculties, schools and universities. We used NPL for verifying the answers.

REFERENCES

[1]   Yağci, Mustafa, and Menderes Ünal. "Designing and implementing an adaptive online examination system." *Procedia-Social and Behavioral Sciences* 116 (2014): 3079-3083.

[2]   Li, Yiqun, et al. "A platform on the cloud for self-creation of mobile interactive learning trails." *International Journal of Mobile Learning and Organisation* 7.1 (2013): 66-80.

[3]   L. Johnson, S. A. Becker, V. Estrada, and A. Freeman, "NMC Horizon Report: 2015 Higher Education Edition," *The New Media Consortium,* https://net.educause.edu/ir/library/pdf/HR2015.pdf. 2015.

[4]   "Ericsson Mobility Report," *Ericsson Inc.*, http://www.ericsson.com/res/docs/2014/ericsson-mobility-report-june-2014.pdf.Jun. 2014.

[5]   N. Sclater, "Web 2.0, Personal Learning Environments, and the Future of Learning Management Systems," *Research Bulletin*,vol. 2008, no. 13, Jun. 2008.

[6]   S. Downes, "E-learning 2.0," *e-Learn Magazine*, http://elearnmag.acm.org/featured.cfm?aid=1104968. Oct. 2005.

[7]   J. S. Kissinger, "The Social & Mobile Learning Experiences Of Students Using Mobile E-Books," *J. Asynchronous Learning Networks*,vol. 17, no. 1, pp. 155-170, Jan. 2013.