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Simulated Educational Exam System using IoT

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Abstract-*The Internet of Things(IOT) is the inter-networking of physical devices and it provides the ability to transfer a data over a network.In general examination system,there are more chances to get paper hacked i.e. security issues as well as unauthorized access to exam module.to overcome this problems,we are going to provide an efficient education system which helps to avoid the security issues. We erase also generating certificates.*

Keywords*-Learning Management System(LMS),Cryptography, Quick Response(QR) Code, Advance Encryption Standard(AES) Algorithm, Service Oriented, Master Shared Key(MSK).*

I. INTRODUCTION

This aims to identify various vulnerabilities that may violate exam security in m-learning environments and to design the appropriate securityservices and countermeasures that can be put in place to ensure examsecurity. It also aims to integrate the resulting Simulated Educational exam system with an existing, open source and widelyaccepted Learning Management System (LMS) and its service extension to the m-learning environment, namely the Moodbile Project. To design a Simulated Educational Exam System (SEES) that meets the distinct security requirements of m-learning environments and to integrate it with the current Moodle/Moodbile platform. This will result in a complete LMS that is both equipped with secure exam services and suitable for m-learning. Our intention of integrating SEES with a well-known LMS such as Moodle is so to get the benefits of Moodles readymade services in other learning aspects such as course material administration, documentation, etc. which have been experienced and appreciated for the last 15 years. However, the proposed SEES can also work as a standalone Simulated Educational Exam System for m-learning environments without integration with Moodle.

II. LITERATURE SURVEY

1. Accelerating Computer Vision Algorithms Using OpenCL Framework On The Mobile GPU ACase Study
This system proposes to accelerate an exemplar-based inpainting algorithm for object removal on a mobile GPU using OpenCL the methodology of exploring the parallelism in the algorithm as well as severaloptimization techniques. Experimental results demonstrate that optimization strategies for mobile GPUs have significantly reduced theprocessing time and make computationally intensive computer visionalgorithms feasible for a mobile device.Mobile computing technologyhas grown significantly over the past decade. As mobile processors aregaining more computing capability, They are witnessing a rapid growthof computer vision applications on mobile devices, such as image editing, augmented reality, object recognition and so on.[1]

2. Mobile learning in review: Opportunities and challenges forlearners, teachers, and institutions Rachel Cobcroft, StephenTowers, Judith Smith Axel BrunsCreative Industries FacultyQueensland University of Technology, AUSTRALIA
Rapid developments in information and communications technologies(ICT) and evolving learner behaviors require learning institutions tocontinuously reevaluate their approaches to pedagogy, both in the physical and virtual classroom spaces. The increasing availability of low cost mobile and wireless devices and associated infrastructure heraldsboth opportunities and challenges foreducational institutions and theirteachers and learners.This system advocates the development of a best practice framework to guide future action and thinking.[2]

3. A platform on the cloud for self-creation of mobile interactive learning trails Yiqun Li*, AiyuanGuo, Jimmy AddisonLeeandGede Putra KusumaNegara(2013)
a system to create mobile interactive learning trails. The system includes a web portal running on the Amazon cloud server for peoplewithout programming skill to create trails for outdoor fieldtrip learning, and two universal apps for iOS and Android phones respectively to run different learning trails. It enables rapid and easy creation oflearning trails within 15 minutes without mobile app development. Thelearning contents can be customized by teachers, and activated by snapping

pictures from physical Objects of Interest (OOI) or entering a geographic area. Image recognition technology is used to identify whichOOI that the picture is captured from, and return relevant contents
pre-associated with the OOIs.[3]

4. Interoperability for LMS: The Missing Piece to Become theCommon Place for ElearningInnovationMarcAlier Forment1,Mara Jos Casa Guerrero1, Miguel ngelConde Gonzlez2,FranciscoJos Garca Pealvo2, and Charles Severance3

This paper speculates about the future of LMSs considering the upcoming new learning applications and technologies, and the differentattitudes of learners and teachers, given their technological backgrounddescribed using the digital natives and immigrants metaphor. Interoperability is not just a nice to have feature, but a must have features forLMS if these systems are going to be the common place where the ICTempowered learning innovation happens. After analyzing some standards and initiatives related to interoperability on LMS,the authorspresent an overview of the architecture for interoperability they propose. This architecture is being implemented for the well known OpenSource LMS Moodle.[4]

5. Mobile Learning in Mobile Cloud Computing EnvironmentAuthor: StojanKitanov,DancoDavcev

This paper presents a new model of mobile distance learning system(MDL) in an extended Mobile Cloud Computing (MCC) by using HighPerformance Computing (HPC) Cluster Infrastructure, as well as someexisting videoconferencing technologies enriched with mobile and wireless devices. This MCC model can be applied everywhere where thereis need of fast and intensive computing and analysis of huge amount ofdata, such as modeling of 3D graphics visualization and animation inecology, global climate solutions, financial risks, healthcare and medicallearning, decoding genome projects, etc. After the MCC model presentation, the experimental system architecture will be provided, as wellas its possibilities, with particular reference to mobile learning environment and its potential issues. In this architecture the mobile devicemay optionally use the open source e-learning course management system platform Moodle,to access the learning material and the relevantdata that needs to be transferred to the HPC Cluster Infrastructurefor further computing. In order to provide higher quality of presenting
the learning material, the Cisco WebEx application will be used to test the distance learning in both fixed and mobile environment.[5]

6. "Extending Moodle Services to Mobile Devices: The Moodbile Project" Author: Mara Jos Casany, Marc Alier, EnricMayol, Jord

Learning Management Systems (LMS) are widespreadamong most education and training institutions.Even though LMS area mature technology, they have left the vanguard of innovation in e-learning to mobile devices and tablets. Mobile Learning (M-learning)may enhance e-learning by increasing communication and conversation opportunities to convents the learning process more collaborativeand learner centered. This paper describes a way to integrate mobiledevices and educational applications with a LMS asMoodle throughweb services: The Moodbile Project. Rather than just creating mobileapps that replicates LMSfunctionalities on a mobile device, Moodbileprovides to m- learning developers with the necessary tools to allowmobiledevices to interact with the LMS. In this paper, we describeour proposal of an open specification of web services to support the integration of mobile external applications with Moodle.[6]

7. "THE SOCIAL MOBILE LEARNING EXPERIENCES OFSTUDENTS USING MOBILE E-BOOKS" Author: Jeff S.Kissinger,Florida State College

This research was designed to explore the learning experiences of statecollege students using mobile lectronic textbook (e-book) readers. Thepurpose of the study was to build a rich description of how studentsused e-books delivered on mobile computing devices for college-level,introductory sociology courses at a public state college in the southeastern United States. This research employed a multiple case studydesign that investigated and documented student experiences with thisinstructional technology. The bounding frame was comprised of theliterature on mobile technology, mobile learning theories, and e-books.A theoretical lens of learning theories commonly found in the literatureon mobile learning (constructivism, social cognitive theory, self-efficacytheory, expectancy x value theory, self-determination theory, and situated cognition) was situated within the mobile learning framework.The theoretical lens was used to provide insight to the students learning experiences.[7]

8. Face Recognition onConsumer Devices: Reections on ReplayAttacks (2015)Authors: D.F. Smith, A. Wiliem, and B.C. Lovell

This paper proposes an approach to counter replay attacks for facerecognition on smart consumer devices using a noninvasive challengeand response technique. The image on the screen creates the challenge,and the dynamic reection from the person's face as they look at thescreen forms the response. The sequence of screen images and theirassociated reections digitally watermarks the video. By extracting the features from the reection region, it is possible to determine ifthe reection matches

the sequence of images that were displayed onthe screen. Experiments indicate that the face reection sequences can be classified under ideal conditions with a high degree of confidence.
These encouraging results may pave the way for further studies in theuse of video analysis for defeating biometric replay attacks on consumerdevices.[8]

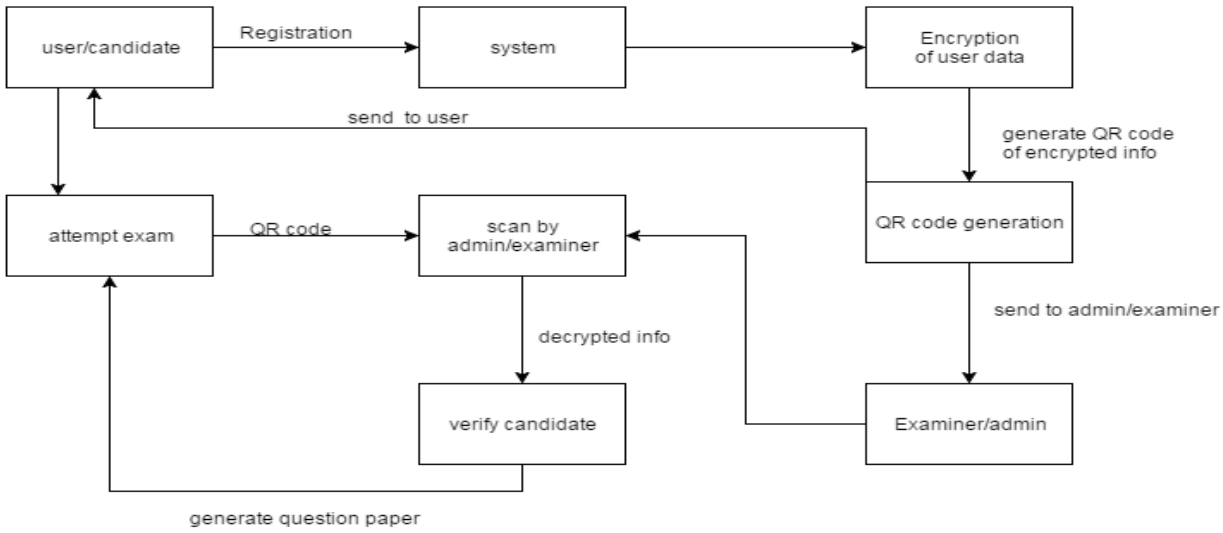
9. Secure Online Exams Using Students Devices (2012)Authors: G. Frankl, P. Schartner, and G. Zebedin
With the augmented use of Learning Management Systems (LMS) likeMoodle, the demand to perform exams online is higher than ever. Providing a dedicated exam room with up to hundreds of computers is apossible but very expensive solution. However, performing exams onstudent laptops increases the number of simultaneous exams but alsothe possibility for cheating. This paper describes the Secure Exam Environment (SEE) implemented at the AAUK to support exams basedon Moodle to be held on student laptops without access to local files orthe Internet. Additional programs like Excel or Java applications canbe installed and used during the exams.[9]

10. Security in the Online E-learning Environment (2005) Authors: R. Raitman, L. Ngo, N. Augar, and W. Zhou
This paper addresses the role of security in the collaborative e-learningenvironment, and in particular, the social aspects of security and theimportance of identity. It represents a case study, completed in Nov2004, which was conducted to test the sense of security that studentsexperienced whilst using the wiki platform as a means of online collaboration in the tertiary education environment. Wikis, fully editable Websites, are easily accessible, require no software and allow its contributors(in this case students) to feel a sense of responsibility and ownership. Acomparison between two wiki studies will be made whereby one groupemployed user login and the other maintained anonymity throughoutthe course of the study. The results consider the democratic participation and evolution of the work requirements over time, which in factascertains the non-validity of administrative identification.[10]

III. PROPOSED SYSTEM

Data security represents a key factor in evaluating the trustworthiness ofsensor data. Privacy management for networks introduces several challenging requirements, such as low energy and bandwidth consumption, efficientstorage and secure transmission. In this project, we are proposing a securem-learning scheme to securely transmit the data.The proposed system will generate question paper automatically based onuser time of attempt. This system will overcome the traditional manual workof faculty to produce a new question paper in few amount of time.

IV. ARCHITECTURE



V. MATHEMATICAL MODEL

*S*be the set of system i.e.

S = {f; s; e; I;O;DD;NDD; Success; Failure}

Where,

s =Initial state of the system.

e =End state of the system.
I=Input given to the system
I= {I1; I2; I3}

Where,

I1=Student Details
I2=Question Bank
I3=Generated QR code
O=Output of the system
O= {O1;O2;O3}

where,

O1=QR code is generated.
O2=Student Detail on mobile
O3=Question paper generated
DD= Deterministic data
It contain the database which consist of student details and questionbank that helps to generate question paper.
NDD= Non-deterministic data
If the generated QR code does not match with the existing studentdetails then that is Non-deterministic data.
Success= Desired outcome is generated.
Failure= Desired outcome is not generated.

VI. CONCLUSION

In this the design of a Simulated Educational Exam System (SEES) to mitigate the unique exam security threats that exist in m-learning environments.SEES offers many exam services such as: secure and random distribution ofexam questions, turbo-mode assessment, prevention of the unattended examissue, biometric-based authentication service for anti-impersonation, preventing students from exchanging their devices during an exam, conducting examsecurely through online or offline strategies, and auditing.

VII. REFERANCE

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