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Mobile Secure Examination System

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Abstract: The increasing features of Internet Technologies in all application domains have changed life styles and interactions. With the rapid development of Mobile Learning, collaborative technologies is an important for teaching, learning methods and schemes.Interaction between the students also student with the teacher is important for student to gain knowledge.In this paper, we introduce an effective queries and answers Q&A system for collaborative technologies, which can act not just like a virtual teacher, but also virtual discussion for student. With the proposed system, brings a new Questions and Answering system, student can attach their question when they want collaborate using collaborative technologies capitalize on one another's resources and skills. Students can ask their questions to the related collaborative Group when they want to collaborate with others, asking one another for information, evaluating one another's ideas, then each of the answer will compare with data base. These systems are based on cognitive learning theory which is a learning theory interested in how information organizes in human's memory. ITSs are intelligent programs which know whom they will teach so computers play an important part in education and instruction aims are performed and suggested in this work. In this project described and reviewed some of ITSs in educational application and demonstrate used modules in ITSs.

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I. INTRODUCTION

The extension of android devices, meanwhile, isproviding new ways to learn (mobile learning)The 2017 Horizon Report mentions that Bring Your Own Device learning technology is expected to be increasingly adopted by institutions take one year's time or less to make use of mobile and online processing.Forecast of the number of smartphone users for 2019is 6.0 billion globally which is three times that for 2015 Thus, LMSs must modify to adapt to new user needs and technologies. For example, interaction with external android applications, such as social networks and mobile android applications, must be incorporated in the mobile exam management system to facilitate personal learning demands that happen anywhere and at any time.Mobile learning puts the control of the learning process to communicate with external applications; they are usually Designed as monolithic or layered systems. The secure exam management system Architecture Design below show as briefly the system design

Wheeler[3] proposed The opensource software movement has already had a significant impact in the business world , and is now drawing the attention of educators around the globe. Distance education plays the important role of using and creating opensource applications in education. Current advances in open source online learning environments are a response to the shortcomings of commercial products. Another one disadvantage is a lack of flexibility in designing and adding customized learning modules. With commercial products one can only include elements that the software designers deemed necessary when they developed the program. With an open source learning environment it is possible to download and use any learning module one might find on any opensource softwarewebsite. This maximum providesunlimitd capacity for the user to customize the applicationby choosing from a variety ofoptions for email,discussion boards, chat, onlinequizzes. Any of the other elements one must want to include. Further, as the opensource definition suggests, the actual code can be modified and improved to meet individual needs. So, if the user decides that an opensource module then we found is almost correct, the code can be modified to meet his or her needs. Look, feel and functionality can all be changed since the code can be easily accessed and modified.

II. DESIGN ARCHITECTURE

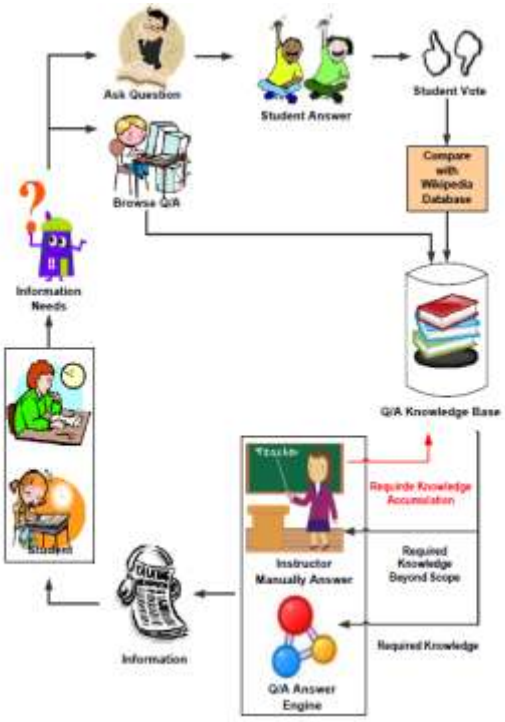

Fig.1Diagram of secure examinations system architecture

An External Tier where the actual services for mobile integration are defined. This layer cansbasicallyaccess methods from the standard LMS API.A Connectors Tier consisting of connectors for supported web services communication protocols like SOAP and JSON-RPC. Each connector implementsthe translation of the services defined in theExternal Tier to the specific protocol. At the same time, this tier provides additional web services protocols and authentication methods more suitable for mobile devices, such as OAuth privacy issues related to conducting exams in m-learning environment, and neither does the Moodle Quiz Engine

which emphasizes only on the learning process not on securing the examination process. The "Secure Exam Environment" described in [35] supports exams based on Moodle to be taken by students on laptops. The system denies access to local files and Internet, but allows the use of certain programs like Excel and Java applications. Students have to connect their laptops to the wired LAN and boot from a USB drive or DVD.

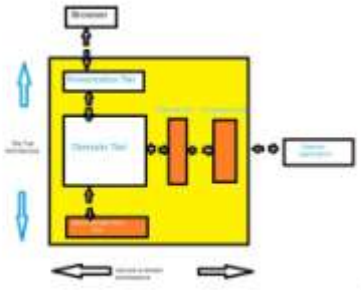

Fig.2 Diagram of web service Architecture

III. RANDOM DISTRIBUTION OF EXAMINATION QUESTIONS

This service provides the following functionalities: Enabling the teacher to define a bank of exam questions and to link them to his/her subject via an appropriate interface. In case the objective kind of questions, each question may have a set of options. The teacher has to provide those options via the same interface and specify the correct choices among them to start the exam engine to auto evaluate students' answers. In case of optional kind of questions, a text box (or probably a sketching canvas) will appear below each question at the student android mobile device to allow him/her to write/draw the question's answer; those answers will be saved at server side. And it can be further reviewed and valuated by the teacher. In addition, each question will have a property to specify its diffrent "level" (let's say: A, B, C, D, and E).

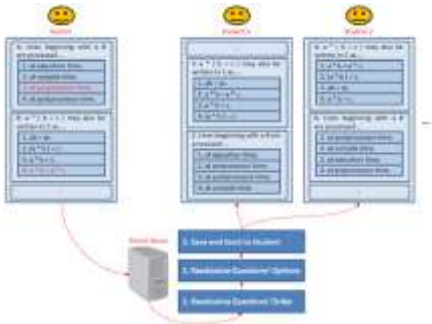

Fig .3 Diagram of random questions distribution

IV. Turbo-Model

This service can be useful for conducting arbitrary quizzes during class time rapidly. It increases or decreases the level of the questions in a reactive manner. Assuming we design the question which contain one to five levels those are (I, II,III, IV, and V), the Exam Server starts asking each student questions of level III. According to the answers from the users, it increases or decreases the level of the questions in a reactive manner. As a result, student's level can be found using fewer questions and in a shorter time by implement th binary search algorithm.

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4.1 QR Code Based

This strategy is suitable for medium or large number of Students where the proctor may not be familiar with all examinees. In this strategy the Exam Server has to generate a QR-code based exam access token for every student according to the following procedure.

The Exam Server generates the QR-Code of the signed access string to get the exam access token as shown in diagram 4

Fig.4 Diagram of QR Code

All accessable tokens can be ordered by student numbers, are printed on a special paper which can be tired easily from the dash-line as depicted in Fig. 3. The proctor is given the access token list in the exam center before the exam.

Fig 5 Access token for QR code

When a student enters the exam room, he/she willpass his/her NFC-enabled mobile/tablet device over the NFC tag. Then, ECS has to send the value read to get valuate by the Exam Server before it allows the userto log in. If it is a bottleneck to ask all the students to swipe over a single tag, the Exam Server can generate 3-5 types of Question papers which can be distributed to various places in the dedicated exam room for simultaneous enrollment process

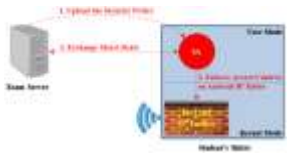
3 SEMS SECURITY AGENT

Students' mobile/tablet devices are connected to the College's and industries Wireless Network through which they may illegally exchange information during an exam. Applying simple policies, such as turning the network down during exams to terminate any possible communication between students, is not a practical solution as students in different classes may not take their exams at the same time. Moreover, the network has to be available during exams in order to be able to submit students' answers to the Exam Server. A dynamic network access policy has to be generated and applied on each student's device according to already existing conditions. Employing an identity based Gateway with dynamic access policy seems to be a perfect solution to be adopted in such a scenario. However, it has the following advantages:

1. It is a centralized software application which cannot block adhocBluetooth communications between users'
Android devices, neither can it block the regular
cellular communications.It cannot prevent the user from offline PDF files, which have been previously downloaded into users' mobile devices and can be accessed offline without the need for a network approval. Gateway can be prevailed by advanced VPN technologies such as those depending on StealthVPN [55] techniques.

3.1Security Policy on the Students' Devices

Another issue that has to be discussed is how the Security Agent is going to enforce the Dynamic Security Policy on the student's mobile devices. Below figure Illustrates a high level view of a possible solution for mobile devices .Android is built based on Linux kernel where it can be used as an effective and light weight firewall.*iptables4A* is an interface developed to interact with Linux on Android [58]. We have tested the iptables script on Samsung Galaxy with Android 4.0.4 installed. The script has succeeded in blocking any network communication going out of the



4 Using a Wi-Fi Jammer to Bring the WI Fi

An intruder might attempt to use a portable Wireless Network jammer that can effectively disable the Wireless Network signal in an exam environment during Exam. In Existing there is no well-known approach
Available to countermeasure such attack apart from that
Used in some important places, such as national secret agencies where interupt of the network is a important issue of national security. The procedure followed usually isAll Wireless Network access points are recommended to be wire connected to the central switch. To identify the problematic region very easily and quickly by Avoiding wireless bridging . Use a

spectrum analyzer to detect the source of disturbance in the problematic region. Small attachable Hardware units that turn off-the-shelf smartphone devices into low-cost, but effective RF spectrum sensors also exist. Enforce deterrent and strict laws to prevent someone from doing so. As far as SEMS is prepared to tackle network failures by the procedure, an exam can be pursued after detecting the jam source and dealing with it.

CONCLUSION

In this project, We proposes the design of a Secure Examination System to defect the unique exam security threats that exist in m-learning environments. SEMS offers many exam services such as: secure and random apportion of exam Questions, turbo-mode assessment, prevention from "unattended exam" issue, The user have minimum knowledge about the computer is enough to operate the system easily. The system also produces brief result required by the management.

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