

IOT Based Advanced Online Examination Using Raspberry Pi With Open CV

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Abstract: Education is one of the main needs for man to develop socially and intellectually. Today need of exams in universities, schools, colleges and even companies for recruitment process. Online Examination is a great opportunity for exponential Growth. Online Exam system fulfils the requirements of the institutes to conduct the exams online. Today all online examination system is based on the browser structure or server structure and for these system required the computer to every student. As the number of student increases cost of examination also increases. In this paper we propose a system which provides more security to improve online Examination using IOT technology. To develop modern education, and considering the shortcoming of current online exam system, a new projection of online exam system based on Raspberry pi IOT is proposed, and the key implementation techniques and methods are also described. Internet of Things (IoT) has provided a promising opportunity to build powerful Examination systems.

Key Words: —Automatic online examination, internet of things, PIR sensor, Python, Raspberry pi.

1. INTRODUCTION

As engineering is continually evolving, education systems cannot stay firmly dedicated to the previous ancient ways that of learning. The standard examination procedure needs a good variety of human resources, stationery, and investment of your time in composing examination queries. In distinction, the new models of on-line examinations have varied edges for each the professional person and also the students. With on-line examination, the professors supervise additional simply the students' progress and set examinations fluently. Some courses have four examinations per semester, so while not new technology developments, the work of the testier would be skyrocketed. Besides, students will take the test from a distance once they square measure ready. The main purpose of this project was the event of associate integrated system that generates examination papers with random questions about the programmed of digital circuits courses. This method consists of an information, a web site and a questions program generator.

Every examination becomes distinctive, because of the various random queries provided by an info of queries, that is created by a tool program. Moreover, it ought to be mentioned that associate extension of the web site is that the anonymous free exams construct of the examination tests for college students to apply often and check the obtained data. Online learning mechanism could be a newer and improved version of distance learning. it's a way of delivering

education data through the web. it's not like the traditional education system wherever time and site matter slot. Through this, a student has the pliability of not being physically in a tutorial institute continuously. The student will set his/her own pace and select the foremost convenient time and place to check. Students around everywhere the globe will learn from these on-line courses since they are doing not ought to physically go to those instructional institutes.

Once it involves pedagogy, most of the institutes use Learning Management Systems (LMS) to deliver their course materials to the scholars. once the scholars square measure engaged in on-line learning, the prospect of obtaining the feedback from a teacher won't be effective, since the teacher doesn't grasp the emotional state/behavior of the scholar. Not just for on-line education systems, once it involves Game based mostly learning or Gasification, there's no thanks to get the teachers' feedback betting on the student's emotional condition/behavior. According to Goleman, associate skilled teacher is ready to acknowledge the emotion of a student associated reply to student in an acceptable approach so it'll completely impact on the student's learning method. Once it involves on-line education, there's nobody to observe the scholar, and it's essentially supported student focused learning mechanism. Therefore, the student is unable to induce the feedback per his/her emotional state/behavior. Rather than that the scholar can get a general feedback from the course organizer

or from the trainer. However, that ought to not be the proper approach. Thence there ought to be how to spot the emotional state/behavior and give the feedback to the scholar. The opposite drawback is that the chase of the emotional states/behavior of the scholars. Since this is often for on-line education systems, the emotional states cannot be detected by victimization physical devices. This literature review is distributed to seek out the way to learn to learn and to spot the present ways that and suggests that of evaluating the performance of the scholars once they square measure engaged in ancient learning and on-line learning.

Finally, there'll be a comparison of every and each mechanism. An examination is used to apply for the important one and therefore it's taken before a political candidate examination. In such a mock test the marks don't count, i.e. this trial examination does not count for credit. A mock examination is usually given to an equivalent standard and below an equivalent controlled conditions because the official examination. Hence, it offers students the chance to apply for the later, vital examination, to urge a plan of the kinds of queries asked, and to induce accustomed laws and locations of the official examination. Furthermore, students will apply to figure below time pressure with solely those aids allowed to be employed in the official examination. Another, even additional vital aim of mock examinations. is to supply the scholars with info on their actual learning progress. Students get a plan of what they still ought to learn. Thanks to the time gap of typically a number of days to a number of weeks between mock and official examination, there's still the chance to fill these data gaps. It's up to the scholar to use this chance.

An electronic mock examination, i.e. on-line mock test is a variant that differs considerably from those taken on paper. Electronic mock examinations are performed unattended. Students will take them reception at a time of their alternative. Additionally, it's approach easier to permit students to require electronic mock exams over once than for the paper-based version. Students profit of this chance, for example, to apply solely bound components, e.g. theory queries, of the exam. Altogether cases of electronic mock examinations, feedback is sometimes additionally given electronically. During this work, we have a tendency to describe the setup for associate mechanically marked electronic mock examination for the course Basics of pc Science. we have a tendency to discuss question sorts apart from multiple-choice queries that allow machine controlled marking. In this paper we tend to propose the internet of things is thought to be the third wave of knowledge technology once web and mobile communication network, that is characterized by

additional recognition, additional comprehensive ability and intelligence and conjointly we tend to introduce new issue of open CV primarily based face recognition.

2. LITERATURE SURVEY

Now a day all the examination conducted is manual or online examination. The need of exams today in universities, schools, colleges and even companies for recruitment purposes. The general paper-pen tests/exams are now slowly being replaced by the online internet based testing system. Online Exams System is a web application that establishes a network between the institutes and the students. This Web Application provides facility to conduct online examination worldwide. It saves time as it allows number of students to give the exam at a time and displays the results as the test gets over, so no need to wait for the result. It is automatically generated by the server. Administrator has a privilege to create, modify and delete the test papers and its particular questions.

All the methods commonly used for these type of examinations are follows this method first authenticates the candidate and gives the interface to him. Then an interface is given to him. So that he can answer the questions .after the stipulated time it automatically submits the data. This method uses a secured communication based cryptography and group communications, so that It won't affect the performance of the student. This method deals with the framework that gives the enhanced line of examination by using concept in firewall. This method enhances the security framework to satisfy the online exam framework. This method proposes secure computer based exams to facilitate the exam process and support Multilanguage question and solutions to cheating problems. This method proposes keypad based embedded device which reduces the usage number of computers used by students and this method is based on browser. This method proposes a system of implementation of a web based examination system .this method uses unified modeling language and html and SQL server as database.

This method concludes the improvement of security that incorporates the proposed system to fulfill the need of online examination and it needs username and password. This method integrates the web technology to online exams and the ability to detect cheating behaviors and this method improves the examinees participation in online examination. This method uses an IP camera which makes reliable online examinations which has strict security and true candidate authentication. Here an control room is placed to authorize the candidates and govern them keenly. In Biometric authentication is used for

enhanced secured online exam. It support formulas and graph input in non-choice based examination. Enhanced security using data visualization for conducting online exam. The combination of face authentication and password will give multi model technique. In the model quiz tool as used to design the online exam. The results were compared with

similar design paper based exam. Existing system is a manual one in which users are maintaining books to store the information like Student Details, Instructor Details, Schedule Details and feedbacks about students who attempted exam as per schedule. It is very difficult to maintain historical data.

3. PROPOSED SYSTEM

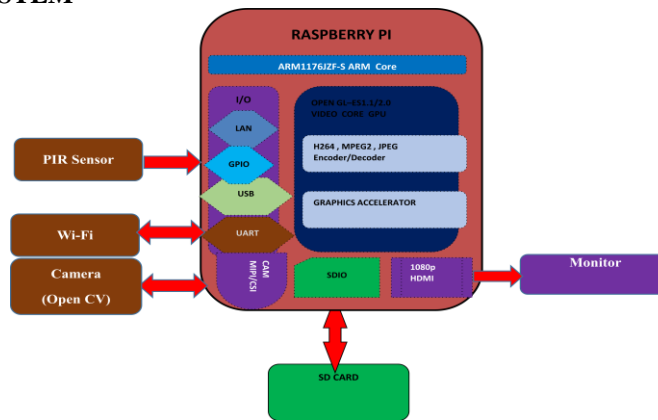


Fig. 1: PROPOSED SYSTEM

The above figure (1) shows the architecture of proposed system. In this we use camera, monitor, raspberry, PIR sensor, wifi, ARM. IOT (internet of things) was simple but powerful. If all objects in daily life were equipped with identifiers and wireless connectivity these objects could be communicate with each other. Sensors can also have wide area connectivity such as GSM, GPRS, 3G, and LTE. The data can be small in size and frequent in transmission. The numbers of devices or nodes that are connecting to the network are also greater in IoT than in traditional PC computing. The previous all examination system is depend on browser server structure or client server structure. Also the online examination system used the different authentication for identification of every student. The identification can be done with different authentication. Here we initially all the examine details are stored in the server. Then if someone wants to starts online examination, first they should apply face recognition (in Open CV based) technique. Because some time unwanted person also enter to Wright the exam, so this is the best way to identified any culprits are found or not. Then examine enter to exam, here also I am apply some security. Now a days already questions are stored in the online or any paper printed copy. But here not like that, if you entered to Wright the exam, that time only teachers are start to Wright questions on server. This will be printed automatically to the examiner browser window. So

easy avoid the question paper leakage before the exam.

In this method Passive Infrareads sensors (IRs) are used to detect the motion of examiner. PIR sensors are electronic devices .this sensor that measures infrared light radiating from objects, usually a human body. Which can detect levels of infrared radiation everything emits some level of radiation. This sensor split in two halves. For reason we are used to detect motion not average IR levels. The two halves are wired up so that they can cancel each other out. One halves sees more (or) lesser radiation than other, the output will swing high or low. Open CV (Open Source Computer Vision Library) is mainly used in the project for face recognition technique a library of programming functions mainly aimed at real time computer vision, developed by Intel and now. It is free for use under the open source BSD license. The library is cross-platform. It focuses mainly on real-time image processing. If the library finds Intel's Integrated Performance Primitives on the system the library was originally written in C and this C interface makes Open CV portable to some specific platforms such as digital signal processors. Wrappers for languages such as C#, Python, Ruby and Java (using Java CV) have been developed. In this project python language was used. Python is an easiest language to learn when compared c and c++, powerful programming language. It has efficient in both high-level data structures and object-oriented

programming. Python fine syntax and most powerful typing, together with its detailed nature.

The Raspberry Pi is a credit card sized single-board computer with an open-source platform that has a thriving community of its own, similar to that of the Arduino. It can be used in various types of projects from beginners learning how to code to hobbyists designing home automation systems. The Raspberry Pi is a series of credit card sized single-board computers developed in the United Kingdom by the Raspberry Pi Foundation to promote the teaching of basic computer science in schools and developing countries.

4. CONCLUSION

Online Examination System provides more effective and efficient examination environment with low cost and small size device. Each Slave unit communicate with master computer and after the exam finished the result can be display on slave unit and store in master computer. Using this we able to reduce the requirement of computers and hence the cost is reduce. This is very useful in school, Institute, and companies for examination purpose.

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