

GENERATION OF AUTOMATIC SECURE QR CODE ADMIT CARD USING OBJECT ORIENTED CONCEPTS

K. Arun kumar¹, K. Shilpa², K. Haritha³, I. Meghana⁴

¹Assistant professor, Department of IT, AITS Rajampet.

^{2,3,4}UG Candidate, Department of IT, AITS Rajampet.

ABSTRACT

Today digital technology has transformed much of our world, but if you look closely, you can already see the shape of its unavoidable descent into boring. Just as we still use heavy industry but no longer say we live in the Industrial Era, in the future, we'll still use digital technologies. To implement the use of digital technology in the generation of automatic secure qr code admit card and digitalize the way of conducting examination by getting the better way of the traditional examination method. The traditional way of conducting examination is time consuming and requires a lot of man power. The main aim of this project is to overcome the traditional way of conducting examination and to conduct an online automatic examination system with qr code using object oriented concepts.

Keywords: QRcode, admit card, digitalization

INTRODUCTION

As technology continues to evolve, the system of education cannot continue dedicated to traditional, outdated learning methods. In the field of training the word "educational-learning" turns out to be gradually normal. Tests are performed on the web on key aspect of educational-learning. Today, all are digitized in day-to-day life. The review is therefore designed to be digitalized by the generation of automatic secure QRcode admit card using object oriented concepts. Since the QRcode is secure in every aspects it is implemented in generating admit card. The evaluation of exam paper is generated by experts with knowledge, practice and design and at the same time we present a new trend in the automated examination system requiring less work, using this method to automatically process admit card generation of students with simple QRcode. Insight

Education is the concept of modern teaching development, which aims to combine internet with current education. We use the Internet, which is a quick and efficient sharing point, to enhance the quality of teaching, and difficulty on teachers and enhance students' desire for learning. The Intelligence education should be expressed in all aspects of the planning and evaluation of skills, since this is an integral part of the instruction process.

Throughout the field of intelligence education, the Intelligent Examination may be used to apply information technology to ensure a viable, fair and effective examination process, thus enhancing the standard of the test.

LITERATURE SURVEY

In the system of Pooja Shejwal, Amita Wankhede, Vivek Shimpi, Ajit Wale, Prof.A.D.Sawant discussed about the Existing Barcodes and BarcodeGeneration Techniques and demonstrates the different barcode strategies and verifies whether or not massive data encoding is necessary in the same dimension barcode, and this can be stated that the generation of high performance two dimensional barcode is necessary for massive data encoding in barcode.

In the system of Shi jun, Li hui, Gu hang and Zhou li dong promoted timely awareness of the examination state by examiners and administrative staff and address study irregularities, Test Maintenance and Control modules are introduced.

In the system of Hou A Lin, Feng Yuan and Geng Ying implemented a run length coding to detect a QRcode. They improved the image processing method to decode the QRcode and also accomplished image localization, image binarization and the effective error correction methods.

In the system of Md. Sanaul Haque, Richard Dybowski said that it is a great benefit for developing

countries to get new technology free, because they can apply the system to various educational systems and implemented the increase of efficiency in QRcode by generating student ID card containing QRcode

RELATED WORK

Each and every university is trying to implement digitalization in conducting examination. But, the generation of admit cards is as usual that is in physical form. The physical form means a paper containing list of details of the student through which an examination is attempted. It takes a lot of time to prepare admit cards for each student. To overcome this situation a qrcode based admit card is implemented. Instant admit card with student details will be advantageous during this process.

PROPOSED WORK

In this paper the generation of automatic secure QRcode admit card using object oriented concepts is implemented. A QR code (quick response code) is a type of 2D bar code that is used to provide easy access to information through a smartphone. The qrcode is mostly implemented on business cards, for online payments. To remove the barriers of the use of qrcode that are limited only to particular fields, we have implemented the use of qrcode in generation of admit card for the online examination. At first the admin login the system and add faculty. After the adding of questions by the faculty the admin release notification for the examination through a registration link. The student checks the link and apply for the exam available on the notification link.

The admin examine whether all the students have registered or not. Then admin releases admit cards in the form of QRcode. After this the student downloads the QRcode and uploads it to download the admit card for the examination and then attempts the exam.



Fig 1: QRcode

MODULES:

This system consists of 3 modules they are:

1. Admin module
2. Student module
3. Faculty module

ADMIN MODULE:

This admin module plays a significant role in developing automated online review. It is a central module managing all of the other modules. With correct credentials the admin access. Admin assign the experts and afterwards add the notification for the test, eventually admin show the total number of students registered. Then admin release secure QR code admit cards and create randomized question papers for students based on their subject which the experts add. The admin release the results after the student's exam is complete.

The Admin module undergoes the following phases. They are:

1. Login
2. Adding faculty
3. Adding notifications for exam
4. See listed students
5. Release qrcode for students
6. Release results of the exam

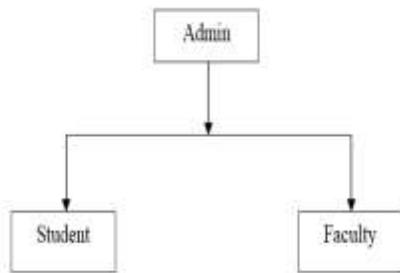


Fig 2: Flow of Admin module

STUDENT MODULE:

Firstly, student registers with the data. After signing in with email after password, Students verify the exam updates and register for the test. After registering for the examination the admin release the admit cards. Here, tickets for the hall are safely encoded with a QRcode so that only the registered student can display and access their admit cards. Afterward the student downloads the secure QRcode created by the admin and then uploads QRcode to download the admit card. This admit card includes the following data including the student details, exam hall, room number, specific username and password. Then the student downloads the QR Code admit card, the QR Code includes information about the student admit card such as room number, username, password and information about the student. The student then enters the exam hall and signs into the examination by authentic username and password provided in the admit card. The student then takes that examination.

The student module undergoes the following phases. They are:

1. Student Registration
2. Login
3. Lookout notifications
4. Download QRcode
5. Download admit card
6. Attempt exam

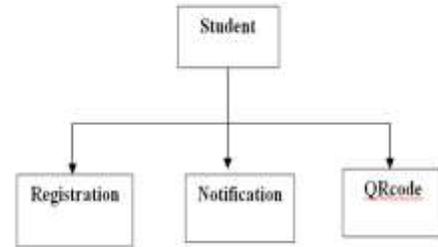


Fig 3: Flow of student module

FACULTY MODULE:

Faculties can access with valid given username and password, then the faculties add various question papers depending on the subjects available and include the answer sheet for the question papers simultaneously. That faculty then submits to the administrator these question papers along with answer sheets.

1. Login
2. Adding questions

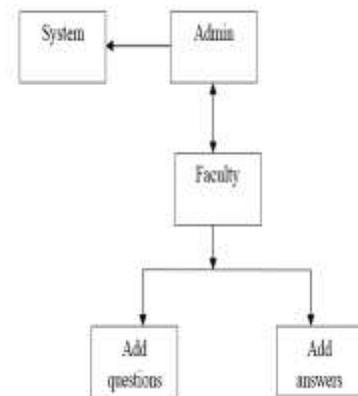


Fig 4: Flow of faculty module

WORK FLOW

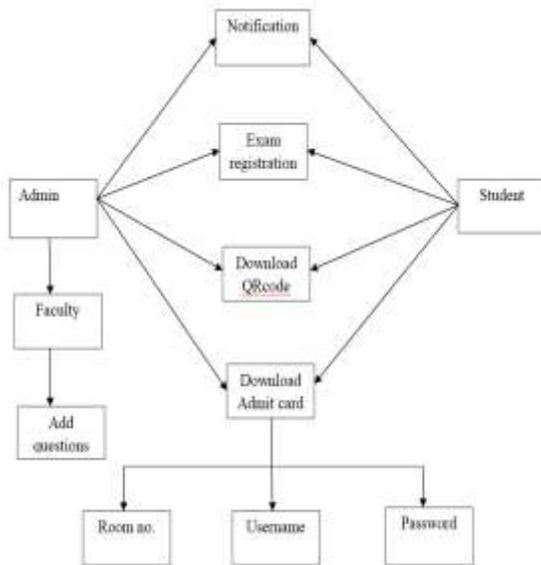


Fig 5: Represents the workflow

METHODOLOGY

In this process initially the admin login with given credentials and add faculty for preparing questions for the examination. The admin then generates a registration link for the students to apply for the examination. After seeing the notification link the students apply for the examination. Then admin verify whether all the students have registered for the examination or not and release the admit cards in the form of QRcode.

This is the main part of the process that is the student downloads the secure QRcode. Then the QRcode is uploaded so that the admit card can be downloaded securely without any leak of information of the student. After downloading the admit card the exam can be attempted by the student.

STRUCTURE AND ALGORITHM FOR ENCODING QR CODE

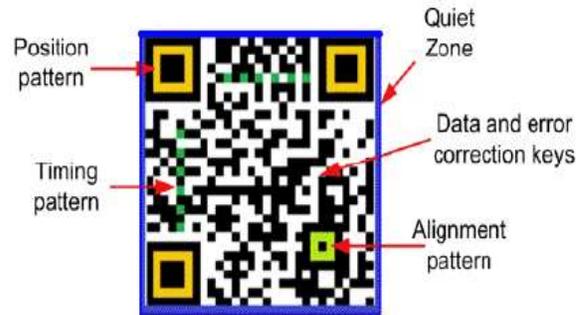


Fig 6: Structure of QRcode

Section 1- Position Pattern:

The position pattern consists of three identical structures that are located in all corners of the QR Code except the bottom right corner. Each pattern is based on a 3x3 matrix of black modules surrounded by white modules that are again surrounded by black modules. The Position Patterns enable the decoder software to recognize the QR Code and determine the correct orientation.

Section 2- Separators:

The white separators have a width of one pixel and improve the recognizability of the Position Patterns as they separate them from the actual data. They are generally always white.

Section 3 - Timing pattern:

Alternating black and white modules in the Timing Pattern enable the decoder software to determine the width of a single module.

Section 4 - Alignment pattern:

Alignment Patterns support the decoder software in compensating for moderate image distortions. Version 1 QR Codes do not have Alignment Patterns.

Section 5- Quite zone:

The quiet zone is an area that should be taken into account when calculating the print size of your QR code on any printed media.

Section 6 - Data:

Data is converted into a bit stream and then stored in 8 bit parts (called code words) in the data section.

Section 7 – Error correction:

Similar to the data section, error correction codes are stored in 8 bit long code- words in the error correction section.

The algorithm for error correction used here is reed Solomon error correction. Even if a portion of the code is damaged, to allow correct reading the reed Solomon error correction is used.

Here, the message $x=(x_1, \dots, x_k) \in F^k$ is mapped to the polynomial p_x with

$$p_x(a) = \sum_{i=1}^k x_i a^{i-1}$$

The codeword x is obtained by evaluating p_x at n different points (a_1, \dots, a_n) of the field F .

The classical encoding function $C:F^k \rightarrow F^n$ for the reed solomon code is defined as follows:

$$C(x) = (p_x(a_1), \dots, p_x(a_n))$$

Section 8 – Remainder bits:

This section consists of empty bits if data and error correction bits cannot be divided into 8 bit code words without remainder.

ADVANTAGES

1. QRcode is versatile and highly secured two dimensional barcode.
2. QRcode enabled admit card is easier to check the details of examination room.
3. A lot of manual work is reduced
4. It is very useful to avoid the malpractices during examination.

RESULTS



Fig 7: Registration of student



Fig 8 : Exam notification link



Fig 9: Generation of QRcode



Fig 10: Downloading admit card through QRcode

CONCLUSION

The generation of automatic secure QRcode admit card using object oriented concepts is developed for producing computerization in the field of online examination systems. In this project we have developed a QRcode encrypted admit card for every student individually for attempting the exam. This admit card consist of the student details, exam hall number and the unrepeated username and password for attempting the examination. It is very beneficial because it provides the details initially in the admit card such that the student need not worry for finding the examination hall during the exam. These admit cards are encrypted with QRcode to avoid the malpractices done by the students during the examination. Thus, this proposed system is secure and advantageous for the conduction of both online and offline examination.

REFERENCES

- [1] SHI Jun, LI Hui, GU Hang, ZHOU Li-dong, Research and Development of Intelligent Online Examination Monitoring System, the 12th international conference on Computer Science and education, August 2017.
- [2] Pooja Shejwal, Amita Wankhede, Vivek Shimpi, Ajit Wale , Prof.A.D.Sawant, A Survey on Existing Barcodes and Barcode Generation Techniques, International Journal of Computer Science and Information Technologies(IJCSIT), Vol. 7 (5) , 2016.
- [3] Hou A Lin, Feng Yuan, Geng Ying, QR code image detection using run-length coding,

International Conference on Computer Science and Network Technology,2011.

[4] Md. Sanaul Haque, Richard Dybowski, Advanced QR Code Based Identity Card: A New Era for Generating Student ID Card in Developing Countries, First International Conference on Systems Informatics, Modelling and Simulation, 2014.

[5] Partiksha Mitra, Nitin Rakesh, A Desktop Application of QR Code for Data Security and Authentication, International Conference on Inventive Computation Technologies (ICICT), 2016.