

## Review of Student Profile Management System Using QR Code

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**Abstract**— The QR code has gained a lot of popularity these days. With the rapid growth in information technology, the QR code has made their way in to the world. The quick response code is a two dimensional barcode as it is evolved from barcode. They come in various shapes and size. They are multidimensional and can also come in coloured form. The main purposed of the QR code is directing the user to a particular link. Since the use of mobile has increased, they have become very popular among the mobile users. Presently, smart phones come at much affordable prices because of which almost every person on the planet has a mobile phone which also includes the student population. This facilitates the QR code in the educational system. In this paper, we are suggesting a way of management of student's record by creating a Student profile using his basic registration information. This profile can be simultaneously updated. The purpose of this system is to eliminate the gap between the student and the institutional management. This is not only an efficient profile management system but also reduces the problem of queue, wastage of time and reduction in paper consumption. This way, there is a smoother and systematic management at the student's side as well as the administration side.

**Keywords**-QR Codes,Quick Response Code,Academic Libraries,Smartphone.

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### I. INTRODUCTION

The QR code is the quick Response code which was developed by Masahiro Hara from Denso Wave a subsidiary of the Toyota<sup>1</sup>. car company in 1994. In 2000, the QR code was established as an international standard by the International Organization for Standardization (ISO). The 2D code was first used in automotive industry to track the inventory (parts of vehicles) throughout its delivery process. From then, it was slowly<sup>2</sup>, getting recognised in the industries. The QR code was mainly created to overcome the limitation of a traditional barcode. The 2 dimensional barcodes are much faster as compared to the barcode. The smart phones are used by every member in a family regardless of his/her age. Also in the places like India, from a rich business tycoon to a poor man living in a cottage every person has a mobile phone. Not only the working men<sup>3</sup>. and women but also the students studying in schools and colleges make use of an android phone. The purpose can be anything. It can be used for entertainment of communication or any other purpose. In consideration of that, the QR code started making its way in the field of education. The QR codes are very easy to scan as they can be captured from any angle. For scanning a QR code, a QR code scanner is required or they can be easily scanned by any mobile device containing a QR code scanning application. Nowadays, inbuilt QR code scanning applications are by various mobile companies. SO it is not always necessary to go to the play store and download the QR code scanner.

### II. LITERATURE SURVEY:-

#### EXISTING SYSTEM:-

There are many proposals for Automatic Monitoring Systems in the literature and in the market. Most of them do focus on applications to be installed on the lecturer device, whether a smartphone or a laptop. In the section, we will mention briefly few of these proposals.

Fadi et.al [2] proposes software to be installed in the instructor's mobile telephone. It enables it to query students' mobile telephone via Bluetooth connection and, through transfer of students' mobile telephones' Media Access Control (MAC) addresses to the instructor's mobile telephone; presence of the student can be confirmed.

Amar et.al [3] is another example on a proposal using real time face detection algorithms integrated on an existing Learning Management System (LMS). We noticed that most proposals do involve applications being used by the instructor during class. Hence, if the Monitoring system requires some action from the instructor, then the class time will be disturbed each time the instructor allows some late students into the class. On the other hand, our proposal does require the instructor to do nothing extra beyond presenting the slides of the course to the students. Hence, students may register their presence at any time they wish during the class, while having in mind that registration times are recorded.

### III. PROPOSED SYSTEM:-

1. The system lies between online learning and traditional learning as a facilitation for the Monitoring record-keeping process, in a way that enriches the lecture time so that it can better be utilized in giving useful materials rather than wasting the time taking Monitoring.
2. The system requires a simple login process by the class instructor through its Server Module to generate an encrypted QR code with specific information. This can be done at any time before the class. During the class, or at its beginning, the instructor displays an encrypted QR code to the students. The students can then scan the displayed QR code using the system Mobile Module, provided to them through the smartphone market by the university. Along with the student's facial image captured by the mobile application at the time of the scan, the Mobile Module will then communicate the information collected to the Server Module to confirm Monitoring. The whole process should take less than a minute for any student as well as for the whole class to complete their Monitoring confirmation. Smartphones may communicate with the server via either the local Wi-Fi coverage offered by the institution or through the internet.

3. QR Codes In Mobile Phone AlexandreAlapetite introduces a novel Web architecture that supports session migration in multi device Web applications, particularly the case when a user starts a Web session on a computer and wishes to continue on a mobile phone. This paper provide a solution for transferring the needed session identifiers across devices is to dynamically generate pictures of 2D-barcodes containing a Web address and a session ID in an encoded form mobile device to a computer (opposite direction), and between two or more mobile phones (possibly back and forth).

4. QR Code In Banking For Secure Transaction Normally in banking are using data base for maintaining the details about the client. But the possibility of attacks on the client details and transactions are day by day becomes more. So QR code is used to maintain client information securely.

5. QR Code In Way Finding One of the another usage of QR code is for finding the way by scanning the QR-code tag (which has Location information) through the user PDA that will be sent over Wi-Fi, followed by the navigation server using location information to decide which photos to send . The user then follows the direction or prompt displayed on device. The navigation server records the positions, time, and user ID for the tracking purpose. A user interface is provided for job coaches or family members to retrieve the tracking information then which is displayed on a map.

6. The above diagram is the system architecture diagram. The modules above the unified system architecture are the front end of the system which is accessed by the user on their smart phone devices. By calling the appropriate model and by authenticating the user, the output is displayed on his/her mobile phone. The modules below the unified system architecture are the backend of the system. Only Admin is authorized to access and update the database.

### IV. UNIFIED SYSTEM INTERFACE:-

The Unified system interface (USI) is used for connection which is formed between different databases. This service enables the administrator to access any database. XML data is used for communication

### V. CENTRAL REPOSITORY:-

A central repository is a collection of stored data from existing databases merged into one so that it may be shared, analyzed or updated throughout an organization. A central repository of data or a data warehouse is essentially created by integrating the data from all available sources. Having all information in a central location allows for the data tube easily organized, analyzed and secured.

System working Module:

The system containing five parts:-

1. Registration.
2. Authentication.
3. Verification.
4. Updating.

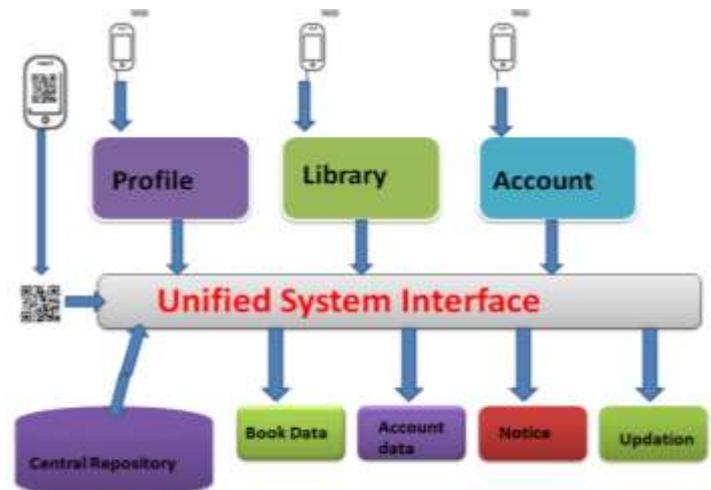


FIGURE ERROR! NO SEQUENCE SPECIFIED.. PROPOSED SYSTEM ARCHITETURE

Input used in Registration:

The first module is Registration:- In this modules user can register own Information generated by using QR code generation on database. Student Registration:- The Candidate is registered using the basic details that are required for the registration process. This process can also be called as the Student Enrolment Process.

In this content following inputs are:-

1. Student Name
2. Address
3. Contact details
4. Department
5. Year
6. Photo
7. Status

1. **Student Profile**:-After registration, the student is enrolled. And the Student Profile is created. This Profile can also work like ID-card.
2. **Assigning the code**:- After student enrolment, automatically, a QR code is assigned to the candidate (this QR code is unique for every individual).
3. **Registration Complete**: - After the code is assigned, the registration phase gets completed. And the Data is stored in the database
4. **Authentication**:-This module provides security to user and only authorized user is able to call the module and access the information.
5. **Verification**:-This module is used to verify student information from database.
6. **Updating**:-This module cannot be accessed by any student. Only the administrator has the authorization to update the database.

#### VI. WHAT DO YOU MEAN BY QR CODE?



FIGURE2. QR CODE

QR Code is basically Quick Response Code. They are developed in Black & white in square size but nowadays they can be multi-coloured also. They can be scanned from any angle that is 360 degree. They possess the characteristics of multidimensionality. The storage capacity of these codes is up to 7,089 numeric characters (without any spaces) Or 2,953 alphanumeric characters with spaces and punctuation. It can store up to 4,296 alphanumeric characters (with spaces and punctuation marks), which is more than the 20 digits that the traditional barcode can store. It is not difficult to read a QR code even if they are partially damaged and they are easy and fast to read with a camera-based device.

All sensitive information stored, secured and transmitted in an encrypted format and also is very easy, fully computerized and it is not possible to read QR codes by human eyes. They must be scanned from a QR code scanner only.

#### VII. HOW IS QR CODE DIFFERENT FROM BARCODE?

The barcode has a vertical bar like structure. They are black and white in colour. As the size of the information increases the number of bars in the barcode also increases. On the other hand, the QR code has square patterns in them. Usually they are black and white. But now these can be in coloured form also. They can be customized as per the users need and however the user likes. QR code has better storage capacity as takes up lesser space compared to a Barcode. Unlike barcodes, the QR codes can be scanned from any angle. Also, the QR codes can encode numeric, alphanumeric, binary and Kanji characters. Whereas, the barcodes can only encode numeric and alphanumeric characters. QR Codes remain scanable despite wear and tear (up to 30%).

#### VIII. HOW DOES QR CODES WORK?

The bigger squares found in three of the four corners of a QR code act as alignment targets, while the small square in the remaining corner allows the scanner to normalize the size and angle of the image. This is why the scanner doesn't care about the orientation. The squares at the corners help it determine the orientation of the QR code. The smaller squares aligned near the three larger squares provide information about the formatting being used in the image, which the scanner will use to interpret the code found in the rest of the image. QR code size is measured in pixels, which can range from 21x21 to 177x177 pixels; the more pixels, the more information a QR code can contain.

#### IX. SYSTEM MODULES:

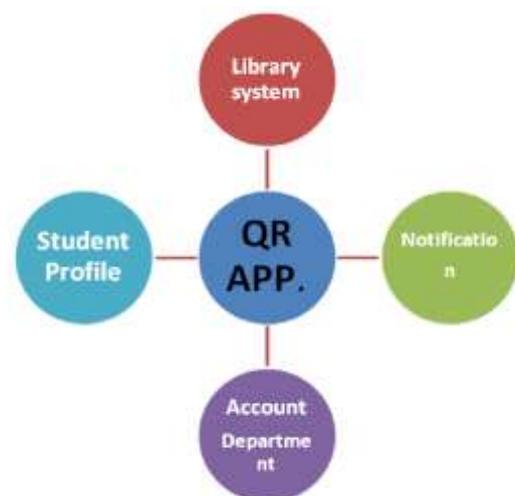


FIGURE3. SYSTEM MODEL OF QR CODE

## STUDENT PROFILE:-

The student profile is created using the registration process and a QR code is assigned to the user.

## LIBRARY:-

The Librarian scans the student's QR code using the Scanner. After scanning the code, the librarian checks the student's profile. The following data can be viewed:

Identify the student profile.

Book issued.

Book returned.

Student Account crosschecking (Clearances). Here, the librarian is provided with a QR code scanner. The students profile can be checked since the creation of the profile.

## ACCOUNTS:-

A separated QR code will be assigned to the accounts section which will be presented outside the accounts section. It will be huge in size which will tackle the problem of waiting in long queues. This way time can be saved. Students can check the QR code allocated to the accounts by using his/her App. This will allow the student to know his/her accounts details. This information is one time visible. The student will not be able to copy this information. As the database is updated, this information is updated simultaneously.

## NOTIFICATION:-

The notifications will be dynamic. The student will be notified about various activities/notices. The student is also notified about his/her individual account balance. The student profile is updated from the beginning of the registration. This system is Global.

We are proposing a new and improved way of managing educational system by using QR code. We are suggesting a system where the student profile is managed by the administrators. The resource and updates are updated dynamically. Here, we are not only using QR code in libraries but also in four different modules including libraries but also in accounts. In addition to that, we are using a student profile and notification.

## X. CONCLUSION

In this paper we have studied how to provide easy way to interact with our educational system using QR Code System.

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