Student Profile Management System Using QR Code

Bansode Mugdha P.1 Maid Madhuri D.2 Dhole Vivek R.3 Dhokane Dhiraj V.4 Prof.Salve Veenaya P.5

1,2,3,4,5B.E. Student Assistant Professor
1,2,3,4Department of Computer Engineering
1,2,3,4,5Shabadi Institute of Engineering & Research Nashik, India

Abstract—QR codes have recently been expanding throughout the world targeting all aspects of marketing. With this, the use of the QR Code spread globally. This quick response code is a simply 2D barcode as it is evolved from barcode. The sole purpose of the QR code is to direct the user to a particular link. Since the use of mobile phones has increased and also they come at much affordable prices which facilitates the use of mobile phones among variety of user including student population. In this paper, 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. Basically, a student profile is 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.

Key words: QR code, Scanner, Academic Libraries, mobile phone

I. INTRODUCTION

The QR code is the quick Response code which was developed by Masahiro Hara from Denso Wave a subsidiary of the Toyota 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 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 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 QR CODE created which acts like identity card. This profile can be simultaneously updated. 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. 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 smoother and systematic management at the student’s side as well as the administration side.

II. LITERATURE SURVEY

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. Maneesh Kumar Bajpai[1] used the QR code in libraries. Fadie.al[2] proposes software to be installed in The instructor's mobile telephone. It enables it to query student’s 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. Amare.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 Alexandre Alapetite 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.

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.

VI. SYSTEM WORKING MODULE

The system containing five parts:-
1) Registration.
2) Authentication.
3) Verification.
4) Updating.

VII. 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 Enrollment 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.

Fig. 1: Proposed System Architecture

Fig. 2: Registration Complete: - After the code is assigned, the registration phase gets completed. And the Data is stored in the database.
B. 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.

C. 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.

D. 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.

IX. COMPARE BETWEEN EXISTING AND PROPOSED SYSTEM:

<table>
<thead>
<tr>
<th></th>
<th>SPRIS</th>
<th>EXISTING SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extra Hardware required</td>
<td>Possible</td>
<td>Yes</td>
</tr>
<tr>
<td>Data Storage</td>
<td>On cloud server</td>
<td>Local Computer or server</td>
</tr>
<tr>
<td>End user oriented</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Data Security</td>
<td>Maintain</td>
<td>Not maintain</td>
</tr>
<tr>
<td>Required employee training</td>
<td>Not required</td>
<td>Required</td>
</tr>
<tr>
<td>Student reservation</td>
<td>Possible</td>
<td>Not possible</td>
</tr>
<tr>
<td>No of employee required</td>
<td>Less</td>
<td>More</td>
</tr>
<tr>
<td>Internet connectivity</td>
<td>Required</td>
<td>Not required</td>
</tr>
</tbody>
</table>

Table 1:

VIII. SYSTEM MODULES

A. Student Profile:

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

A. MD5:
The MD5 message digest algorithm is a widely used cryptographic hash function. It produces a 128 bit (16-byte) hash value, typically expressed in text format as a 32 digit hexadecimal number. MD5 can be used to store a one way hash of a password often with key stretching.

MD5 Algorithm Description:

MD5 takes input message of arbitrary length and generates 128-bit long output hash. MD5 hash algorithm consist of 5 steps (described in detail in Internet RFC 1321):

1. Append Padding Bits
2. Append Length
3. Initialize MD Buffer
4. Process Message in 16-Word Blocks
5. Output

MD5 Algorithm Uses:

MD5 is commonly used hash algorithm. It can be found in many implementations (available on some unix-based system as utility md5; class MD5CryptoServiceProvider in Microsoft’s .NET Framework (namespace System.Security.Cryptography); example implementation in Visual C++ or JavaScript, etc). It is used sometimes as file CRC function (Napster...) or one-way cipher in authentication operations (for storing user password hash).

MD5 is also used in conjunction with other cryptographic methods in digital signature applications or in protocols like SSL and others

B. K-Nn:
The K-nearest neighbor algorithm is amongst the simplest of all machine learning algorithms. An object is classified by a majority vote of its neighbors, with the object being assigned to the class most common amongst its K nearest neighbors. K is a positive integer, typically small.

In k-NN classification, the output is a class membership. An object is classified by a majority vote of its neighbors, with the object being assigned to the class most common among its k nearest neighbors (k is a positive integer, typically small). If k = 1, then the object is simply assigned to the class of that single nearest neighbor.

In this subsection, we describe the problem of classification and notation used to model the dataset. The problem of classification is to estimate the value of the class variable based on the values of one or more independent variables (known as feature variables). We model the tuple as x, y where x is an ordered set of attribute values like x1, x2, . . . , xd and y is the class variable to be predicted. Here xi is the value of the ith attribute and there are d attributes overall corresponding to a d-dimensional space. Formally, the problem has the following inputs:

A set of n tuples called the training dataset, D = (x1, y1), (x2, y2), . . . , (xn, yn).

A query tuple xt. The output is an estimated value of the class variable for the given query xt, mathematically it can be expressed as:

yt = f(xt, D, parameters), (1.2) Where parameters are the arguments that the function f() takes. These are generally set by the user or are learned by some method.

XI. HARDWARE REQUIREMENT

- 1GB RAM
- 40 GB HDD
- Smart Phone
- Laptop
- Android Phone
- QR code Scanner
- Processor: Dual core

XII. SOFTWARE REQUIREMENTS

- Windows 2007/2010
- Development Tools: Visual Studio 2010, Eclipse
- Technologies: asp.net 4.0 and android SDK (14-21)
- Front End: C#.net, java (Android SDK)
- Back End: WCF Web services, MSSQL Data Base

XIII. APPLICATION

- Event Management
- School/Colleges Administration

XIV. ADVANTAGES

- The main advantage is its versatility.
- User-friendly.
- Huge amount of data can be stored in a single QR code.
- Data Security

XV. FUTURE SCOPE

By introducing the bank payment facility, the transactions will become more easy and secure. Student can make their payment online by the means of net-banking. This system is also applicable in event management for ticket booking. For instance, if there an event conducted in the college, the student can book the tickets through this system. This way, the students from the same college and the student from the different college can easily be identified and differentiated. And the event can be managed smoothly.

Also, student’s attendance can be linked to his/her profile. This way, there won’t be any issue of proxy or false registrations.

XVI. CONCLUSION

In this paper we have studied how to provide easy way to interact with our educational system using QR Code System. Now-a-days it is required to keep up with the latest technologies, especially in the field of education. Educational institutions have been looking for ways to enhance the educational process using the latest technologies. Looking at the existing situation, we have thought of using the mobile technology to efficiently benefit from the management system. The management is done by creating the student profile and keeping this dynamic throughout the student’s educational course. The student has to simply log-in to check his status. We have presented that random notifications can be sent to the student. Along with that, the student’s library status and account details are shown.

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, the
The intent of this system is smoother and systematic management at the student’s side as well as the administration side. Here, we have studied how to provide easy way to interact with our educational system using QR Code System.

REFERENCES


