

Web & Android Based Smart Attendance & Student Management Using QR

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ABSTRACT

Android smartphone are becoming more preferred companions to users than desktops or notebooks. Knowing that smartphones are most popular with users at the age around 26, using smartphones to speed up the process of taking attendance by different university instructors would save lecturing time and hence enhance the educational process. This paper has the a system that based on a QR code, which has being displayed for students during the beginning of each college lectures. The students will need to scan the code in order to confirm their attendance. The paper explains the high level implementation details of the qr code and attendance system. It also discusses how the system verifies student identity to eliminate false registrations in the classes.

Keywords: *Android smartphone,web-cam Server database,qr-code,attendance,student data.*

I. INTRODUCTION

The most important factor for students in schools and universities is regular attendance. Students who are absent from lectures will experience issues obtaining additional instruction and information from their teachers. As a result of significant absenteeism, students may more likely to be unemployed, homeless, or involved in justice system. Students with high rates of absenteeism can affect other students who have regular attendance in the same class. High rates of absenteeism may cause students to fail in a specific class and they may have to enroll another school or university. Therefore, universities should provide a system that helps students to improve attendance. Attendance systems are used in many universities. At the University of an Attendance system is widely used by both colleges and departments. Typically, the attendance system is managed by each teacher. Teachers record a list of students that are absent from class or lectures. Moreover, some teachers at the University of make attendance a part of a student's grade; therefore to obtain the best grades possible, students must attend classes. However, some students are not aware of how many classes they have missed because this information can be difficult to obtain. therefore, students with high rate of absenteeism may receive low grades or may fail a class. For example, the College of Science has mandated that all students be attends all lectures.

II QR CODE QUICK RESPONSE CODE

QR code (contracted from Brisk Reaction Code) is the trademark for a sort of network standardized tag (or two-dimensional scanner tag) first intended for the car business in Japan. Standardized tags are optical machine-coherent names connected to things that record data identified with the thing. It was at first licensed; in any case, its patent holder has picked not to practice those rights. As of late, the QR Code framework has turned out to be mainstream outside the car business because of its quick intelligibility and more prominent stockpiling limit contrasted with standard UPC standardized tags. The code comprises of dark modules (square specks) organized in a square lattice on a white foundation. The data encoded might be comprised of four institutionalized writes ("modes") of information (numeric, alphanumeric, byte/paired, Kanji) or, through bolstered expansions, for all intents and purposes any kind of information

A QR code, as appeared in Fig.1 is perused by an imaging gadget, for example, a camera, and arranged algorithmically by hidden programming utilizing Reed-Solomon blunder amendment until the point when the picture can be properly deciphered. Information is then separated from designs exhibit in both even and vertical segments of the picture. The QR highlights are test of a decoded QR code that will be required by the proposed

system. A QR code, as appeared in Fig.1 is perused by an imaging gadget, for example, a camera, and designed algorithmically by fundamental programming utilizing Reed-Solomon blunder rectification until the point that the picture can be fittingly deciphered. Information is then separated from designs exhibit in both level and



Fig.1 Quick response code

picture. The QR highlights are test of a decoded QR code that will be required by the proposed framework.

III THE PROPOSED SYSTEM

The framework requires a basic login process by the class educator through its Server Module to create a scrambled QR code with particular data. This should be possible whenever before the class. Amid the class, or at its starting, the educator shows a scrambled QR code to the understudies. The understudies would then be able to filter the showed QR code utilizing the framework Mobile Module, gave to them through the advanced cell showcase by the college. Alongside the understudy's facial picture caught by the portable application at the season of the sweep, the Mobile Module will then impart the data gathered to the Server Module to affirm participation. The entire procedure should take not as much as a moment for any understudy and in addition for the entire class to finish their participation affirmation. Advanced mobile phones may speak with the server by means of either the neighborhood Wi-Fi scope offered by the establishment or through the web. There are three principle frameworks for this venture: Admin Panel, Lecturer application and QR Student application. No one but teacher can utilize the application and view the participation list. At the point when understudy enter the class, teacher will put their telephone on a table. Understudy will take the instructor cell phone to examine their QR code for enroll their participation. The understudy will filter their QR code by convey the code nearest conceivable to the address telephone and the data will be recorded and store in database.

IV HOW THE NEW SYSTEM WILL WORK

The proposed system will replace the old system completely. All functions will be computerized. Each week, teachers place a QR code image on their doors that students can scan using a smart phone. This QR code contains a URL that links to a web page that displays the student's absentee rate. Using the QR codes from the system, students can regularly determine their absentee rate for each lectures in class and courses. If any student has a complaint about the reported absentee rate, they can contact the system administrator or their teacher to investigate the matter from the system.

QR code can hide large amount of data, numeric and alphanumeric. Thus, they have become popular all over the world. Moreover, QR codes are widely used in telecommunication due to increased popularity of smart phones, which typically contain software that can read QR-code images

A QR-code image comprises a functional pattern and an encoding region. The patterns included in a QR-code image are finder, alignment, timing, and separator patterns. Each of these patterns has its own functionality

Finder pattern

Nowadays it is required to stay aware of the most recent advancements, particularly in the field of instruction. Instructive foundations have been searching for approaches to improve the instructive procedure utilizing the most recent innovations. Taking a gander at the current circumstance, we have thought of utilizing the portable innovation to effectively profit by the entire doled out time allocated to a lecture. Time taken by teachers to take participation may saw now and again as a misuse of the address, particularly when classes are huge in more number of understudies. For that, we have proposed an approach to mechanize this procedure utilizing the understudies' gadgets as opposed to the educator's gadget. At the end of the day, the teacher require not do anything defferent amid the class past showing the slides of the subject to be educated to the understudies in class.

Alignment pattern

Similar to the finder, there is no data stored in the alignment pattern; however, it provides information scanner devices to correctly position the data stored in the encoded data region. The alignment pattern is positioned between encoded data and is usually in the center of the image. The structure of the pattern consists of a square in small with in a tiny dot inside. In addition to the number of alignment patterns can be differ for the different QR codes.

Timing pattern

This pattern lies between two finder patterns. Timing patterns are arranged both vertically and horizontally. There is a black dot inside each timing pattern. The main purpose of the timing pattern is to correct the central coordinate for each data cell when any distortion occurs during decoding of symbols or when an error is may found in any cell of pitch in the QR code module. No data is stored in the timing pattern

Encoded data

This pattern is located at the center of the image. Data is stored within this pattern. In addition, when data is inserted, it is converted to binary data. This binary data is converted back to the normal text when the image is decoded by a scanner.

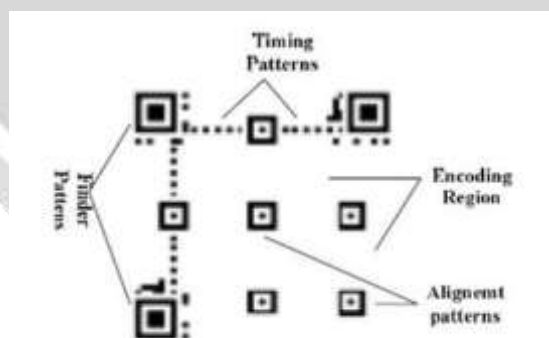


Fig. QR format

Masking

This procedure is utilized to stay away from highlights in the image where that can be might befuddle a scanner, for example, misrepresentative shapes that looks the locator examples and vast clear regions. Covering upsets certain modules of white winds up dark and dark ends up white, while separating only others. The veiling change is effectively connected or evacuates utilizing the selective or task. The unmasking of the arrangement data is demonstrated as follows. Perusing counter-clockwise around the upper-left locator design, we have the accompanying succession of bits. The white modules speak to a 0 and the dark modules speak to a 1 .

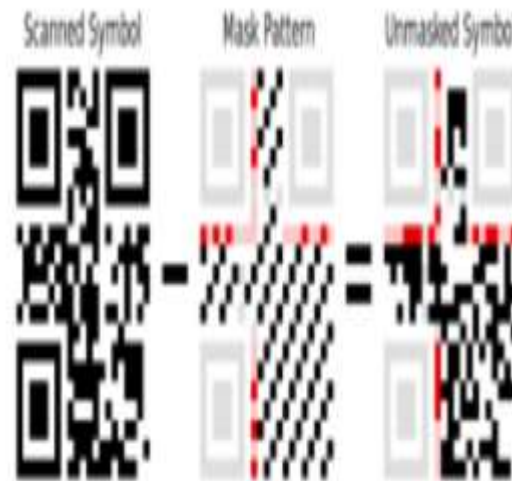


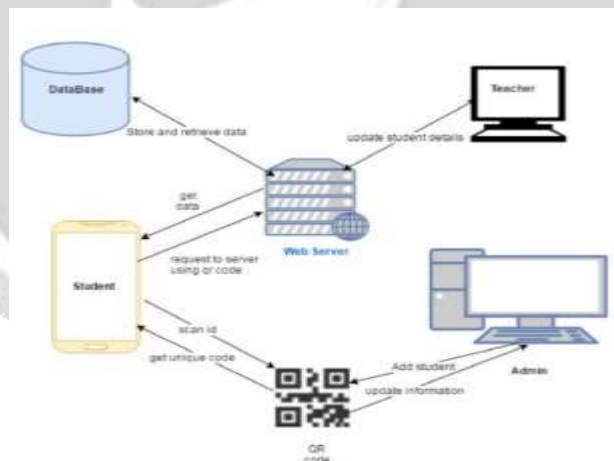
Fig. Masking transformation

Input 101101101001011

Mask ^ 101010000010010

Output 000111101011001

V ARCHITECTURE



VI. IMPLEMENTATION DETAILS

- Develop an android application for the Admin and User panel.
- In admin panel will maintain students attendance.
- Application provides services to the staff members to calculate defaulter list subject-wise.
- Application provides various services to the students to get their status (marks, progress)
- Attendance will be stored at server side, so can be accessible from remote location.
- Same QR code will be going to scan in following ways:
- you can easily render 2D bar codes, with the Google Chart API, along with pie charts and bar graphs.
- you can encode URLs, GR no., contact information etc., into a black and white image.
- A QR-Code-enabled device can scan the image and read back the original text.

- QR code decoder library: Zebra Crossing(ZXing).
- Admin will register Qr code of all students in the database. So each student will get his/her unique Qr code on I-Card.
- Then teacher go for lecture with camera enabled phone and attendance application installed in it.
- After successful login teacher will set lecture class to record attendance.
- Teacher passes mobile phone in class. Student will scan their QR code number from QR code. Android application will send QR code number to server. At server side student's attendance is recorded for that lecture
- At the end of lecture teacher will close the application. And mark absent for rest of the students.
- Later the teacher can generate default list of students directly
- Using the QR number of the student, teacher will declare the marks of the student. Scanning the QR code teacher will update the status of the student with respect to how much experiments assignments he had checked while correcting.

VII. CONCLUSION

The developed system presented in this paper has been successfully designed and tested. The student's attendance status will be analysed and exported. Attendance monitoring system is very important in our daily life. It is possesses of advance among the whole types of code scanning technology, QR Code Based Smart Attendance System is the most accurate. In this project report, we have given an introduction of Attendance monitoring system and its advantage. It is efficient method to store the attendance in the smart phone rather than the paper to waste it.

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