Mobile Barcode for Event Schedule using Android

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ABSTRACT

A new generation of barcodes was devised within the 2005's, sometimes said as 2nd or matrix codes. There are shaped by patterns of black and white organized on a (usually) square grid and might inscribe thousands of alphanumerical and different characters in nearly any language. Straight away the dimensions and capability downside was resolved, gap the means for applications that had ne'er been thought-about. the foremost common use of mobile barcodes is to request data or a service or content from computing device. It should be details f promotion, or a reduction vouchers via SMS or MMS or to activate a transfer like ringtone. Mobile phones will currently be enabled to browse a range of 2nd mobile barcodes. This barcode is written and stick on distinguished areas. as an example, you would possibly see a 2nd barcode during a traveler spot. Itinerant users can then simply have to be compelled to use their phones to capture the 2nd barcode. Their phones can then mechanically decrypt the barcode and use the contact data to update your phone book.

Keywords

QR code,

1. INTRODUCTION

In existing QR Code system there no any protocol which might ready to handles any event of organization. there's no storing or generating QR Code for event information. QR Code having protocols area unit electronic communication services, URL, contact sharing and traditional text storing. Each completely different protocols having own format and rules that facilitate to get QR Code. It additionally decrypts information from generated Image. However there no existing format to handle event formats. Thus we've got generated that event format which might facilitate to organization events. It saves time and cash. Event handling exploitation 2nd barcode smart all time of event promotional material.

Whenever user need show the data event at that point that person have show that generated code by our computing device. And different having mobile software package which can browse that bar and decipher that code show the data that hide within it. It saves time to browse notice boards. User have to be compelled to take image of that QR Code that mobile software shows all the data that within that code. That person will browse any time once ever he need additionally it save alarm within mobile as time and date of event.

2. RELATED WORK

Operating Systems have developed plenty in last fifteen years. Ranging from black and white phones to recent good phones or mini computers, mobile OS has return secluded. Particularly for good phones, Mobile OS has greatly evolved from Palm OS in 1996 to Windows pocket computer in 2000 then to Blackberry OS and Android.

Android consists of a kernel supported the UNIX kernel, with middleware, libraries and arthropod genus written in C and application software package running on an application framework which has Java-compatible libraries supported Apache Harmony. Android encompasses a massive community of developers writing applications ("apps") that reach the practicality of the devices.

One of the foremost wide used mobile OS lately is Android. Android will a software package bunch comprise not solely software however additionally middleware and key applications. Android Iraqi National Congress was supported in town of Calif., U.S. by Andy Rubin, Rich miner, Nick sears and Chris White in 2003.

The system kernel, digital computer, memory management and device driver's area unit situated within the "Base" software layer. The kernel manages system resources like memory and is accountable for time-slicing the applications and system tasks. Device drivers give the management and interface to specific things of hardware—the keyboard, display, infrared port then on. The higher layers of the system give communication and intensive computing services, like TCP/IP, IMAP4, SMS and direction. humanoid OS elements give information management, communications, graphics, multimedia, security, personal data management (PIM) application engines, electronic communication engine, Bluetooth, browser engines and support for information synchronization and group action.

Figure 2.1 Android OS structure

2.1 Different types of Barcodes

Numeric-only bar codes

Coda bar: Older code typically utilized in library systems, typically in blood banks. Coda bar will inscribe the digits zero through nine, six symbols (-:.$/+), and also the start/stop characters A, B, C, D, E, *, N, or T. The start/stop characters should be utilized in matching pairs and should not seem elsewhere within the barcode. Coda bar is employed in libraries, blood banks, the nightlong package delivery business, and a range of different science applications.

QR Code: Used for material management and order confirmation. The QR Code (Quick Response Code) may be a 2-dimensional matrix code. It will inscribe up to 2509 numeric or 1520 alphamerical characters and offers 3 levels of error detection. the tiniest QR Code measures twenty one X twenty one cells (each cell encodes one bit) and might grow in increments of four cells to a most size of one hundred and five X one hundred and five cells. The squares within the bottom left, top left, and prime right corners area unit locater patterns.

The QR Code was developed in Japan by the Nippondenso Company; it had been introduced in 1994 at the Japan Scan-Tech show and was submitted to AIM for thought as a customary in 1996.

• Data Code.

• Code 49

• 16K

Characters which can be encoded in QR Code: (Encode mode)

Numeric (0-9): three characters area unit encoded to 10bit length. In theory, 7089 characters or less is keep during a QR code.

Alphanumeric: (0-9A-Z $ %*+-./:) 45characters 2 characters area unit encoded to 11bit length. In theory, 4296 characters or less is keep during a QR code.

8bitbytedata: In theory, 2953 characters or less is keep during a QR code.

KANJI: A KANJI character (this is multi computer memory unit character) is encoded to 13bit length. In theory, 1817 characters or less is keep during a QR code.

Symbol Structure of QR Code

Each QR Code image shall be made of nominally sq. modules taken off (in a during in AN exceedingly in a very) regular sq. array and shall include an encryption region and performance patterns, particularly finder, separator, temporal arrangement patterns, and alignment patterns. Function patterns shall not be used for the encodation of knowledge. The image shall be enclosed on all.
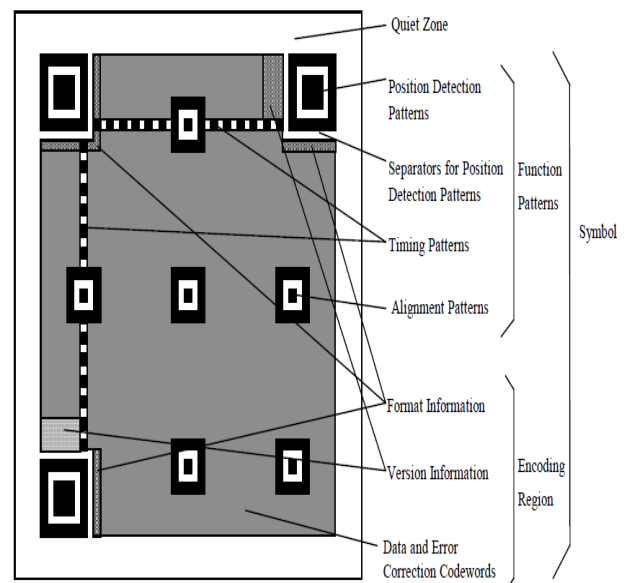

Figure 2.2 Symbol Versions and sizes

There are forty sizes of QR Code symbol referred to as Version 1, Version 2 ... Version 40. Version 1 measures 21 Modules _ 21 modules, Version 2 measures 25 modules _ 25 modules and so on increasing in steps of 4 modules Per side up to Version 40 which measures 177 modules _ 177 modules. Figures 3 to 8 illustrate the structure of Versions 2, 6, 7, 14, 21 and 40.
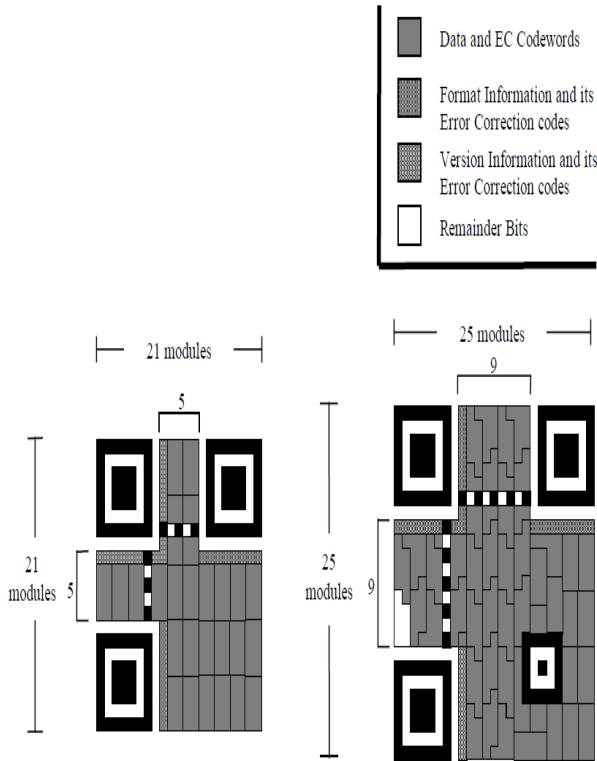

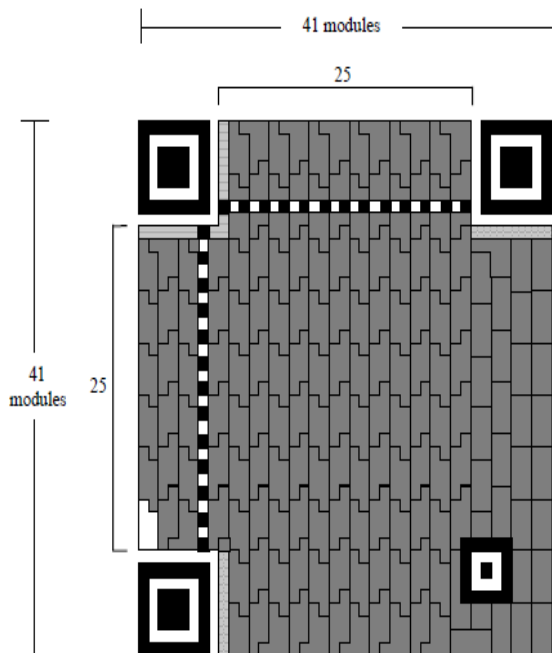**Figure 2.3 — Version 1 and 2 symbols**

Figure 2.4 Version 6

Finder Pattern

The finder pattern shall include 3 identical Position Detection Patterns situated at the higher left, higher right and lower left corners of the image severally as illustrated in Figure two. every Position Detection Pattern could also be viewed as 3 superimposed concentric squares and is made of dark seven nine seven modules, light-weight five nine five modules and dark three nine three modules. The magnitude relation of module widths in every Position Detection Pattern is 1:1:3:1:1 as illustrated in Figure nine. The image is preferentially encoded in order that similar patterns have a coffee chance of being encountered elsewhere within the image, sanctionative fast identification of a potential QR Code image within the field of read. Identification of the 3 Position Detection Patterns comprising the finder pattern then unambiguously defines the placement and orientation of the image within the field of read.
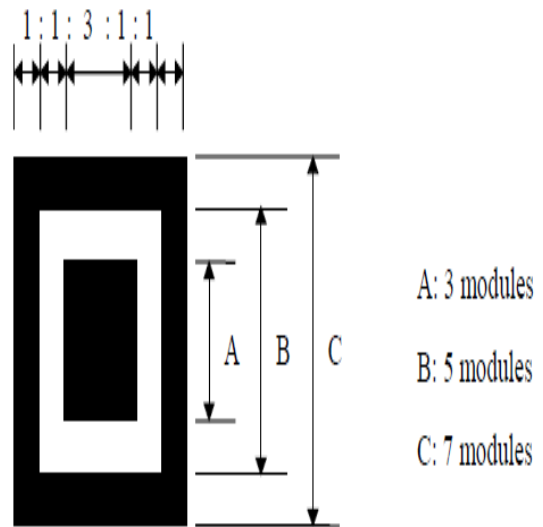

Figure 2.5 Finder Pattern of QR code

Separators

A one-module wide setup is placed between every Position Detection Pattern and encryption Region, as illustrated in Figure two, and is made of all light-weight modules.

Timing Pattern

The horizontal and vertical temporal arrangement Patterns severally include a 1 module wide row or column of alternating dark and light-weight modules, commencing and ending with a dark module. The horizontal temporal arrangement Pattern runs across row via of the image between the separators for the higher Position Detection Patterns; the vertical temporal arrangement Pattern equally runs down column vi of the image between the separators for the left-hand Position Detection Patterns. they allow the image density and version to be determined and supply data point positions for determinative module coordinates.

Alignment Patterns

Each Alignment Pattern could also be viewed as 3 superimposed concentric squares and is made of dark five nine five modules, light-weight three nine three modules and one central dark module. the amount of Alignment Patterns depends on the image version and that they shall be placed all told Model two symbols of Version two or larger in positions outlined in Annex

Encoding region

This region shall contain the image characters representing information, those representing error correction codeword's, the Version data and Format data. Refer to 8.7.1 for details of the image characters. Refer to 8.9 for details of the Format data. Refer to 8.10 for details of the Version data

Quiet zone

This is a region 4X wide which shall be free of all other markings, surrounding the symbol on all four sides. Its nominal reflectance value shall be equal to that of the light modules.
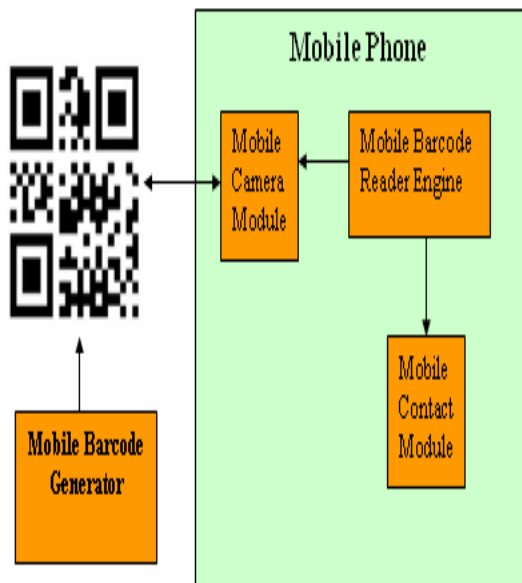
3. SYSTEM ARCHITECTURE

System architecture consists of two modules:

1.Mobile Barcode Generator i.e. QR code Generator

2. Mobile Barcode Reader i.e. QR code Reader

> System design

System architecture

First of all the web sites created are going to be won't to generate the QR code. Within which we've got to supply all the desired details for the protocol and enter the dimensions of QR code. From this web site we are able to directly transfer the image and paste it on the desired space. Now the users have to be compelled to ON the applying within the humanoid enabled itinerant and simply capture the image utterly within the space provided by the software package within the mobile. As shortly because the image is captured, it'll show the main points encoded in QR code. and also the user will save the info consequently. If the user captures a QR code the event are going to be mechanically regular within the itinerant. albeit the itinerant is changed at the time of reminder the alarm are going to be activated.

ADVANTAGES

• QR code is generated during a short time, thus, it's a time saving method.

• This kind of code provides fast Response.

• QR code doesn't need any information.

• The information that is encoded by the software package is saved at that point.

DISADVANTAGES

• The application developed will solely inscribe the info from the QR code.

• It is mandatory to own a mobile with a camera.

• Mobile phone used ought to be mobile enabled.

• QR code browser cannot read different languages like Hindi, Marathi etc.

4. MODULES DESCRIPTION

This project is predicated on Reed-Solomon rule. In committal to writing theory, Reed–Solomon (RS) codes area unit non-binary cyclic error-correcting codes made-up by Irving S. Reed and Gustavo male monarch. They delineated a scientific means of building codes that would observe and proper multiple random image errors. By adding t check symbols to the info, AN RS code will observe any combination of up to t incorrect symbols, and proper up to $\lfloor t/2 \rfloor$ symbols. As AN erasure code, it will correct up to t known erasures, or it will observe and proper combos of errors and erasures. moreover, RS codes area unit appropriate as multiple-burst bit-error correcting codes, since a sequence of b + one consecutive bit errors will have an effect on at the most 2 symbols of size b. the selection of t is up to the designer of the code, and should be elite among wide limits.

In Reed–Solomon committal to writing, supply symbols area unit viewed as coefficients of a polynomial p(x) over a finite field. the initial plan was to make n code symbols from k supply symbols by oversampling p(x) at n > k distinct points, transmit the sampled points, and use interpolation techniques at the receiver to recover the initial message. that's not however RS codes area unit used nowadays. Instead, RS codes area unit viewed as cyclic BCH codes, wherever encryption symbols area unit derived from the coefficients of a polynomial made by multiplying p(x) with a cyclic generator polynomial. this offers rise to economical secret writing algorithms (described below).

Encoder

The Reed-Solomon encoder reads in k information symbols, computes the n - k parity symbols, and appends the parity symbols to the k information symbols for a complete of n symbols. The encoder is basically a 2t faucet register wherever every register is m bits wide. The multiplier factor coefficients area unit the coefficients of the RS generator polynomial. the overall plan is that the construction of a polynomial; the coefficients created are going to be symbols specified the generator polynomial can specifically divide the data/parity polynomial.

Decoder

The Reed-Solomon decoder tries to correct errors and/or erasures by calculative the syndromes for every codeword. Based mostly upon the syndromes the decoder is ready to work out the amount of errors within the received block. If there is a unit errors gift, the decoder tries to seek out the locations of the errors exploitation the Berlekamp-Massey rule by making a mistake locater polynomial. The roots of this polynomial area unit found exploitation the Chien search rule. Exploitation Forney's rule, the image error values area unit found and corrected. For AN RS (n, k) code wherever n - k = 2T, the decoder will correct up to T image errors within the code word. as long as errors could solely be corrected in units of single symbols (typically eight information bits), Reed-male monarch coders work best for correcting burst errors.

Error correction example

The QRCODE 2nd barcode uses REED male monarch rule to feature error detection and correction data to supply information. the info is delineate series of values between zero and 225 (i.e. eight bit bytes). The encoder adds a series of parity bytes. The ISO commonplace (Annex one image encryption Examples page 94) shows AN example of 16*8 bit code words.

```
00010000   00100000   00001100   01010110   01100001
10000000   11101100   00010001   11101100   00010001
11101100   00010001   11101100   00010001   11101100
00010001
```

"Using the Reed-Solomon algorithm to produce the required number of code words"

```
00010000   00100000   00001100   01010110   01100001
10000000   11101100   00010001   11101100   00010001
11101100   00010001   11101100   00010001   11101100
00010001   10100101   00100100   11010100   11000001
11101101   00110110   11000111   10000111   00101100
01010101
```

5. CONCLUSION

Mobile barcode reader is today used for several proposes like for causing a typical message to range of individuals or causing a calling card. This technology of QR code reduces the work to user of causing information to every and each person. Event programming exploitation QR code includes of saving the event by simply scanning the image written over a distinguished space. the applying when scanning can raise to line the alarm and also the application can offer the reminder on the day. This technique reduces the work of setting alarm for range of events to be control.

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