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ONLINE VOTING SYSTEM BASED ON QR CODE

Hasheer Peerzade, Rajrushi Tatipamul, Rajesh Dixit, Akshay Pawadshetty, S M Mane
Student, Dept of Computer Science & Engineering, BMIT"s, Solapur, India 1
Student, Dept of Computer Science & Engineering, BMIT"s, Solapur, India 2
Student, Dept of Computer Science & Engineering, BMIT"s, Solapur, India 3
Student, Dept of Computer Science & Engineering, BMIT"s, Solapur, India 4
Professor, Dept of Computer Science & Engineering, BMIT"s, Solapur, India 5

Abstract: Electronic voting (also known as e-voting) is often viewed as a tool for making the electoral process more efficient and for increasing trust in its management system. Proper implementation of e-voting solution can increase the security of the ballot, speed up the processing of result and make voting easier. Sometimes, the challenges are considerable. If not carefully planned and designed, e-voting can undermine the confidence in the whole electoral process. This paper outlines contextual factors that can influence the success of e-voting solution and highlights the importance of taking these fully into account before choosing to introduce new voting technologies. The development in mobile devices, wireless, android technologies and data communication results in new Application that will make voting process easier and efficient. E-voting system can cast and count votes with higher convenience and efficiency which even reduces mistake rate of ballot examination. In this paper, Network, Short Message System (SMS) and e-mail provides 3 factor authentications to voters.

Keyword
Techniques: - **e-voting, Quick Response (QR) Code, Session Password**

I. INTRODUCTION

E-voting greatly reduces direct human control and influence in voting process. This provides an opportunity for solving some old electoral problems but also introducing whole range of new concern. The e-voting system provides a voting service that allows people to vote from any poll site in the country electronically. This system includes legal, regulatory, sociological and behavioral aspects of the current voting system, while adding additional convenience and more secure to the growing environment of voting process. Technology upgrades in election are always challenging projects that require careful, deliberation and planning. Introducing e-voting is probably most difficult upgrade as this technology touches the core of the entire electoral process -the casting and counting of votes.

This paper design and implement an e-voting system using QR codes and Mobile OTP for authentication of user with the maximum security. This can not only make sure voter's identity but also ensure the registration of the verifying candidate who is eligible for voting. The Quick Response (QR) code is generated from Session password. The Visual Cryptography (VC) is performed on QR code. Thus, voters are provided with utmost security.

The platform of this system is Android, today's most popular operating system and well known to users.Android is a mobile operating system (OS) based on Monolithic (Modified Linux kernel) and currently developed by Google. It is available in Multi-lingual (46 languages). It uses 32 Bit and 64 Bit ARM, MIPS, x86, x86-64 as its platform.

I. "Quick Response(QR) codes"

Fig. QR CODE

QR Code QR code (abbreviated from Quick Response Code) is the trademark for a type of matrix barcode (or two-dimensional barcode) first designed for the automotive industry in Japan. A barcode is a machine-readable optical label that contains information about the item to which it is attached. A QR code uses four standardized encoding modes (numeric, alphanumeric, byte / binary, and kanji) to efficiently store data extensions may also be used. The QR Code system has become popular outside the automotive industry due to its fast readability and greater storage capacity compared to standard UPC barcode. Applications include product tracking, item identification, time tracking, document management, general marketing, and much more.
For the security purpose, we will generate the shares of this QR code. Out of these two shares, one share will send by the network and another will be send by user's e-mail ID. To view the encrypted data we perform de-cryptography, then the password for login is obtain by scanning this QR code using smart phone. To avoid hackers to find both the shares and session password proper use of QR technique is provided so that there will be secure environment for voter to cast his vote.

II. LITERATURE REVIEW

Functional Requirements:

1. Admin can See the Users.
2. Administrator has privilege to edit user's profile.
3. Administrator, can generate reports
4. Users must have valid User ID and password to login thus creating their individual profiles.
5. Admin enters his or her user id and password.
6. Customer enters his or her user id and password.
7. Maintain data.
8. Registration required authenticating the user.

Non-Functional Requirements:

1. Secure access of confidential data (user's details).
2. 24 X 7 availability
3. Better component design to get better performance at peak time
4. Flexible service based architecture will be highly desirable for future extension

Main Modules Includes:

- ADMIN(Doctor`s Module)
- User-Portal

The modules involved are:

ACTUAL RESOURCE USED

Software Requirement:
1) HTML5
2) CSS3
3) PDO
4) AJAX
5) Jscript
6) JQuery
7) Google API
8) MySQL
9) XAMPP (Apache server)
10) Web services

Hardware Requirement:
1) I3 Computer
2) RAM 1GB
3) Number Plate
4) Mobile
5) Scanner to scan QR

Admin:

C is able to monitor and maintain all the modules of the portal. In addition to that module also manages patient clients records. Example Doctor`s (admin) has right to create or provide privileges to other user, he can create records with filling all details about patient with. Logged in user's Doctor (admin) module are capable of handling all the features listed along with the module.

- **User management:**

- Admin users can final selection process.

- **Role management**
  - Admin User can handle all details of all modules.
  - Admin can assign the Access Rights of different Menus/modules to different types of users.

Software Requirement

Software requirements deal with defining software resource requirements and prerequisites that need to be installed on a computer to provide optimal functioning of an application. These requirements or prerequisites are generally not included in the software installation package and need to be installed separately before the software is installed.

Tools used in Project are:-

Programming Language: PHP data object

Server: XAMPP

Database: MySQL

III. SCOPE AND OBJECTIVE

The E-Voting is a process can be done through the E-voting application. The voter should register first and if a voter is already registered means then perform login process for that voter QR-Code can be generated if the voter is a new to the process he\she had should register and the database will generate the QR-Code for the voter, before QR code generation the admin validate the user. Then the voter should download the scanning application to his\her mobile to scan the generated QR-Code for the voter. The authentication is done through the scanning of QR code

IV. PROPOSED WORK

System resides in the new concept of QR-Code and Scanner Application. Candidate details made to hide in the QR-Code. Through scanner application the QR-Code is scanned and details are retrieved. Then the voting is performed. In the proposed system, we are using QR code for recognizes image codes using smart phones to provide various services that can recognize the authenticity of any voter details. So QR code verifies voter_id no by capturing it through the smart phone, then decodes and sends it to the server for authentication. The customer forwards the selected voter_id number list to the server and the response received from the server enables the consumer to decide based on the voter authenticity.

V. METHODOLOGY TO BE USED

I. DESIGN AND IMPLEMENTATION

The E-Voting is a process that can perform in two ways that are SMS voting and via internet voting. The voter should register first and if a voter is already registered means for that voter QR-Code can be generated if the voter is new to the process he/she had should register and the database will generate the QR-Code for the voter. Then the voter should download the scanning application to his/her mobile to scan the generated QR-Code for the voter. After the scanning process the database ask the password for an authentication. Then the voter should perform the operation for process to vote.

After the authentication the voter is proceed to vote by selecting candidate post standing. After the selecting candidate then select the district and then select the ward then voter should select the candidate and proceed to vote.

Then vote is added on the database. The database sends the conformation message to voter your vote has been successfully registered.

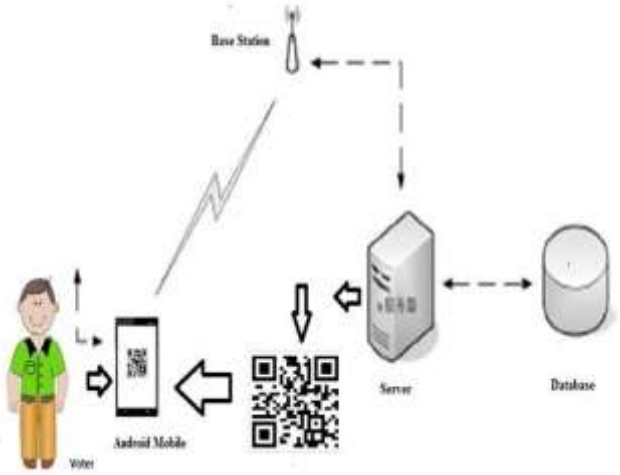

Figure – 1: Overview of Architecture Diagram

ii. Session Password:

Session password can be generated once and used only once. This is the specialty of the session password. By using this session password, voter will login in for only one session until some error has been occurred. QR code of this session password will be made which the voter will scan and cast vote.

iii. Generating QR-Code Image

In this module we are creating QR Code for encoding the information about the voter. The voter details contains voter_id no, voter name, DOB, Address. Each pattern is encoded and represented each module in QR Code with black and white special symbols.QR-Code can hold information more than other bar codes. The format of QR Code includes unique Finder Pattern (Position Detection Patterns) located at three corners of the symbol and can be used to locate the positioning of the symbol, size and inclination.

iv. Mobile Authentication Module

This module represents the authentication, which is used for the voter to login their details for the voting processes. Logged voter is redirected to the scanner module. Authentication is used as the basis or authorization determining whether a privilege will be granted to a particular user or process. The validation processes are done on the web server.

- **QR - Code Scanner Module**

This module is used to scan the QR-Code and read the value of the QR-Code inside the mobile. QRCode is a matrix bar code designed to be read by Smartphone. The code contains of black modules arranged in a square pattern on a white background. The information encoded may be text, a URL, or other data. If the voter selects the candidates, the details will directly forward to the server.

- **Web Service Client Module**

This module has the process of storing the selected candidate information from the client, which are send through the web service. All these information's will be stored in the database. We are maintaining a centralized server to receive the selected voter list from the database through internet. In this module the candidate see they data retrieved from the database. The Voter will use this list to perform the voting.

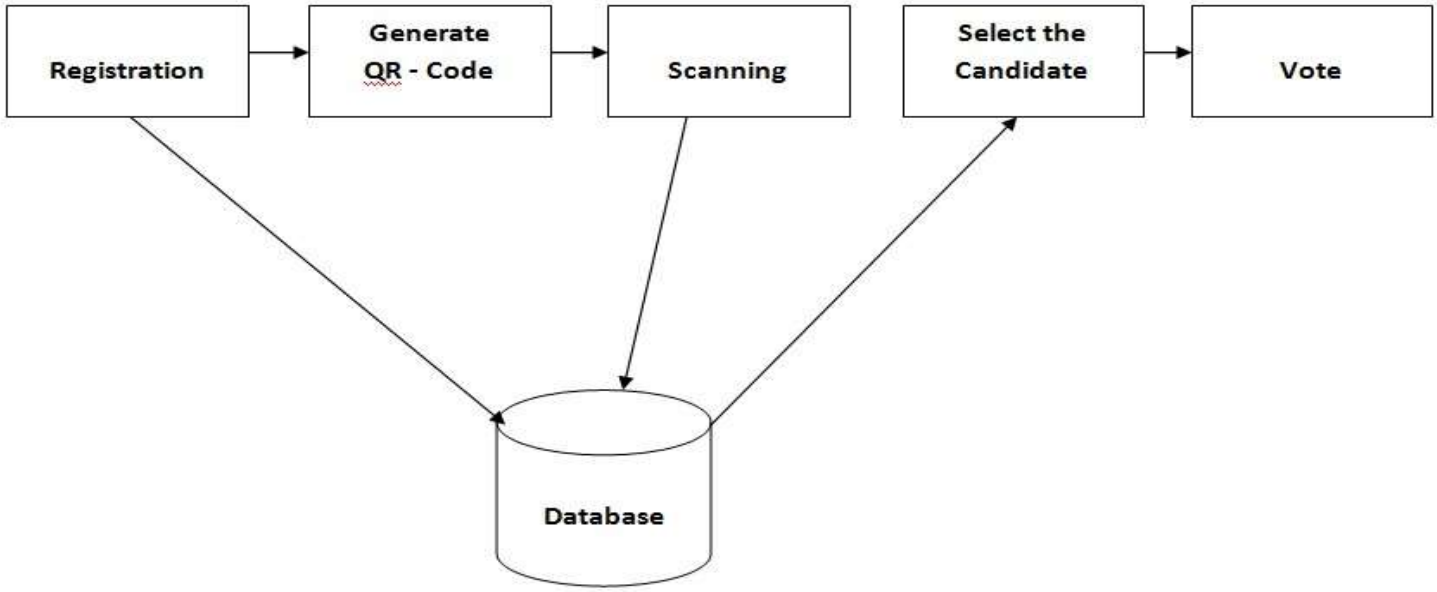

Figure – 2: Data Flow Diagram for E-Voting System

VI. RESULTS AND DISCUSSION

The system resides the new concept of QR code and scanner application.The user should download the e-voting application then perform registration and login process. After the process is completed the admin accept or reject the voter based on their voter details. The QR code will be generated for the voter then scan the QR code through the mobile scanner application. In the scanning process the voter will be authenticated. Then perform voting the server producing a result to the voter.

- **HOME PAGE DESIGN:**

Fig. HOME PAGE

- **VOTES COUNTING :**

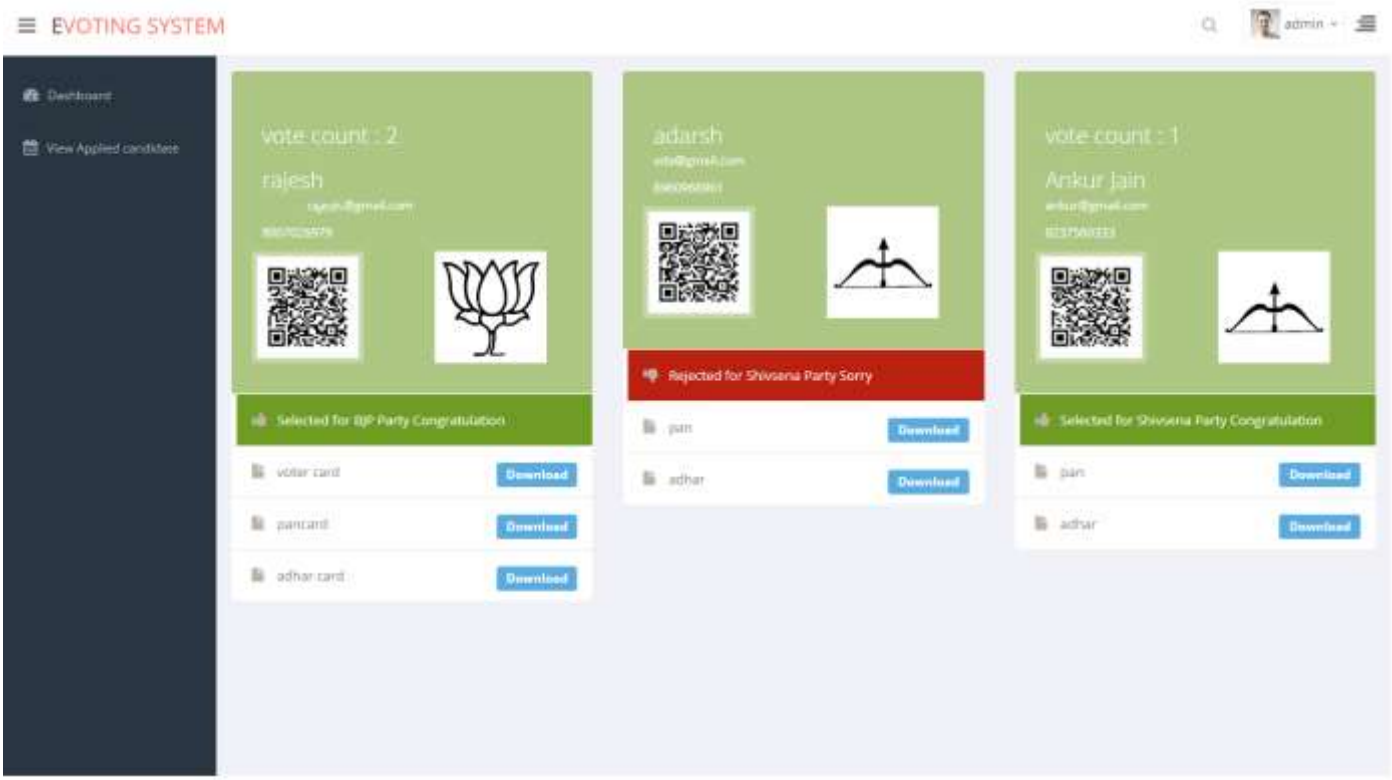

Fig. FINAL RESULT

VII. CONCLUSION

Context QR codes can provide great value when used in situations that dynamically change depending on the context. Augmented reality is an interesting field for the application of this concept, as it enables user interaction with different technologies. Depending on the context, the characteristics of contextual QR codes assist users to bring them closer into augmented reality and enable content access from different experiences immediately and transparently by taking advantage of the features provided by contextual QR codes. This paper has presented a system that uses contextual QR Codes to activate different actions to deal with different devices and user situations. Our system will demonstrate that it is possible to implement different augmented reality technologies under different contexts.

VIII. FUTURE WORK

Online voting system done on the QR code Based can be extended to a One Time Password (OTP) and Visual Cryptography.

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