Generation Of Two Level QR Code For Banking Systems

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Abstract -*As High-speed Internet technology is being built, citizens are being educated, financial tasks are also being dealt with in the internet. The new Internet banking network, though, was at danger of theft. Previously, a high-degree approach such as Phishing or Pharming has leaked sensitive details beyond snatching the user ID and Password. Being as much of the incidents that occurred in the domestic financial institutions is triggered by the theft of another's ID or Password, a protected user authentication program is even more important. In this work we proposed a secure distribution of banking data and an approach to data privacy using role based access control (RBAC). This approach basically deals with QR- code generation for individual account and using RBAC provide the secure data distribution to end user. Various authentication protocols have been implemented for distribution of the public as well as private data. This approach can gives assurance of data privacy and secure data distribution to end user for banking as well as other applications.*

Key Words : QR code Scanning, E-Banking, Data Privacy, QR code generation, Data security, secure transaction.

1.INTRODUCTION

The Web is an important part of our daily lives, and the percentage of people who plan to be able to access their financial balances everywhere is gradually growing. Online banking has as such been a key part of every financial institution. Online banking is one of the most delicate activities of general internet users. Safety of financial details received by a consumer is quite critical, which online banking will not be effective. Financial institutions have developed different protection protocols to minimize the possibility of unwanted electronic access to a customer's information, but there is not one specific approach that satisfies all the requirements. Many of the online banking attacks used today are focused on details regarding the steal account username and legitimate TANs. Phishing assault is one well-known case. Phishing is the operation that acquires personal information such as specifics of the credit card, passwords, user name etc. Cyber security becomes increasingly critical as computer technology gradually grows. During the past, the electronic financial purchase needed to request an identification token and a public key certificate that became the methods of conforming a customer, and OTP has been implemented throughout the last decade. One-time Password is a password scheme in which passwords can only be used once and the user needs to authenticate each time with a new password. It guarantees protection even though an intruder tapes password in a network or a user drops it. In fact, OTP provides confidentiality, portability and scale, which allows the details to be protected from leakage. Past banking service uses a protection card that doesn't suit new smartphone world so we don't know when and when to use online banking. Online banking cannot be achieved without protection cards in very emergency case. The current online banking program sends OTP to the smartphone customer that can be compromised during transmission. To address these protection card limitations and discomfort, our suggested authentication scheme uses two dimensional barcodes (2D Barcode) called QR code instead of protection cards. QR code stands for the acronym "Fast Answer." For better precision, data can be extracted very easily from QR code even though any of the data were compromised.

1.1 LITERATURE SURVEY

According to [1] QR Code can be a 2nd Universal Commodity Control matrix anywhere the data is stored in both horizontal and vertical dimensions. In a smaller region, QR Code can carry a greater amount of knowledge, conduct accurate error correction at higher speed and have lower latency.

According to [2] Mobile For many people, phones are an indivisible partner, representing far more than pure networking devices. In developed nations, the number of smartphone consumers who have bank accounts exceeds the sum of these. In addition, the poor penetration of banking facilities, and thus the large migrant populations, is another problem for using cell phones for payment functions. complicating the process or rendering it unwelcome for users.

According to [3] contributes to authentication strategy QR-TAN. QR-tans region unit enabling two-dimensional barcodes, a dealing verification strategy. Finally, QR-tans may also be used along with sensitive cards for offline purchases that do not need any server.

According to [4] Explains specifics of on-line banking authentication framework deployment. Safety is a critical connected problem for online banking applications that could be addressed by varied network technologies. We prefer to boost protection by exploiting only if countersign (OTP) is covered inside QR-code.

According to [5] Two-factor authentication (2FA) offers improved security, because consumers are asked to include one aspect that they recognize and one that they need. This approach offers a higher degree of authentication assurance which is essential for protection in online banking.Online Banking is one of the most delicate activities of general internet users.

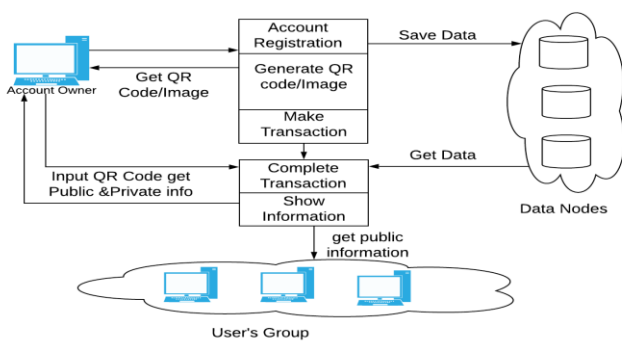## 2.DESIGN AND ARCHITECTURE

Fig 2. - Architecture Diagram

The above figure 2 shows the entire execution process of system, which carried out various methods as well as algorithmic process.

- Registration and Authentication: In that phase all entities can register. Account owner, and user can create profile.
- Profile Uploading: In first phase once Account owner upload the profile. In that module generate QR code done the same time send to account owner.
- Access Control : In access control any user can access the account owner get public information.
- Dynamic QR-code and unique id generation for each account owner in proposed system.
- Account owner can submit get public and private information the received QR code or id to bank

server. System can automatically manage data distribution according to user's role.

3.TECHNOLOGIES USED IN THE PROPOSED SYSTEM

3.1 ROLE BASED ACCESS CONTROL ALGORITHMS:

RBAC is nothing more than of assigning system acess to their role within organization.
RBAC is used to the security is managed at level corresponds to the organization's structure.

    Input: Attribute ID and QR code.
    Output: Rule set as policies or signatures.
    Step 1: Initialize the data string S[].
    Step 2: initialize a=0,k=0
    Step 3: Read QR Code Unique-id ← {QRCode
    [i. . . . . n]}
    Step : 4 for each (read a to S)
    If(Unique-id.equals(a))
    Then Public and Private information show
    Else
    Then Public information show
    End for
    Step 4: add S to D.
    Step 5: End Procedure

3.2 QR CODE WRITE

    Input: String data d from unique-id
    Output: QR code Image
    STEP 1: Start
    STEP 2: Input the source file (d)
    STEP 3: Convert string into byte and store in d
    STEP 4: Input the image format and resolution of
    the QR Code to be generated
    STEP 5: Input Error Correction Level
    STEP 6: Using zxing[1] library method convert 'd'
    into a BitMatrix object 'bitmatrix'
    STEP 7: Write bitmatrix to an image
    STEP 8: End
    N.B- BitMatrix represents a 2D matrix of bits.

3.3 QR CODE READ

    Input: Input QR Code image and charset.
    Output: show unique-id
    STEP 1: Start
    STEP 2: Input QR Code image
    STEP 3: Construct a Binary Bitmap object 'bitmap'
    from source image
    STEP 4: Using zxing library method decode the
    'bitmap' and store it in the object 'result'
STEP 5: Convert 'result' into string and write it to 'result'.

STEP 6: Extract result

STEP 7: If requested by user call readQRCode ('supek', 'sig', infile)

STEP 6: End

4. RESULT AND EVALUATION

All kind organization system where to save historical data into secure database. Proposed implemented system provides security to database and achieve data privacy base systems.

A web application is being developed Two level QR code using java. The backend of the system is java, MySQL and front end of system is of HTML5 and CSS 3.

Registration : In that phase all entities can register. Account

owner, and user can create profile.

fig: Registration Page

Profile Uploading: In first phase once Account owner upload the profile. In that module generate QR code done the same time send to account owner. Upload public and private information profiles to that owner. The owner can show the received QR code or ID on the dashboard.
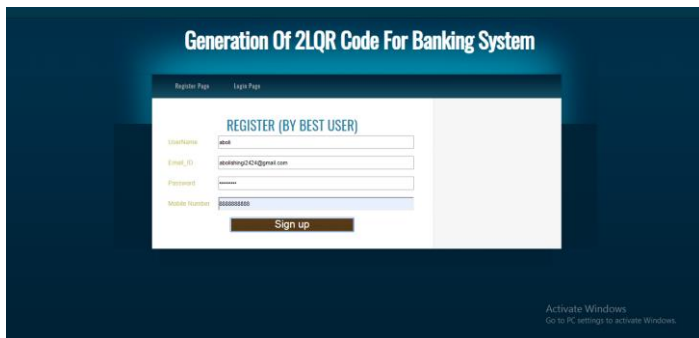

fig: Public information Page
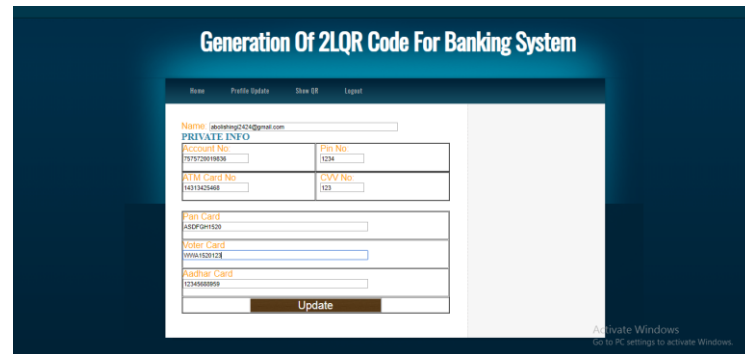
fig: Private information Page

Authentication : Once successfully validated through authentication it will store the data and at the same time generate a unique ID or QR code and return it to the owner.
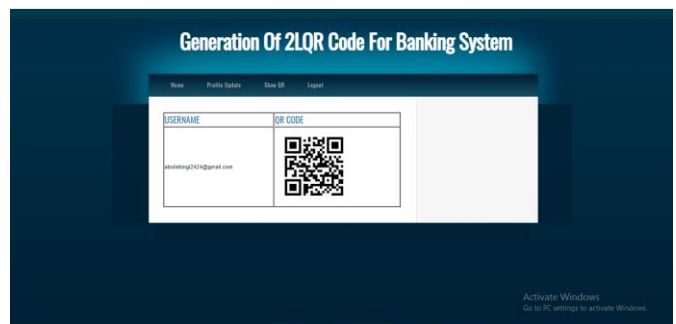

Fig: QR code page

Access Control: In access control any user can access the account owner get public information. Dynamic QR-code and unique id generation for each account owner in proposed system. Account owner can submit get public and private information the received QR code or id to bank server.
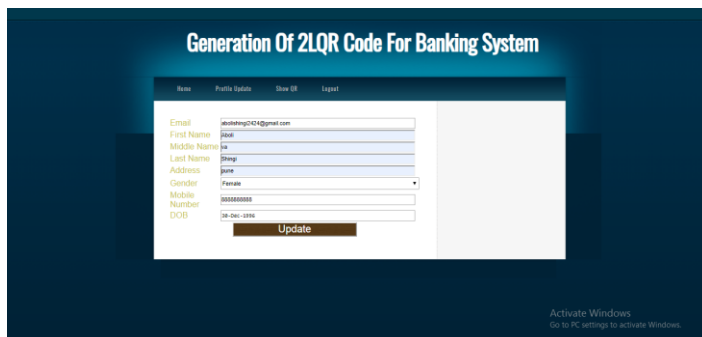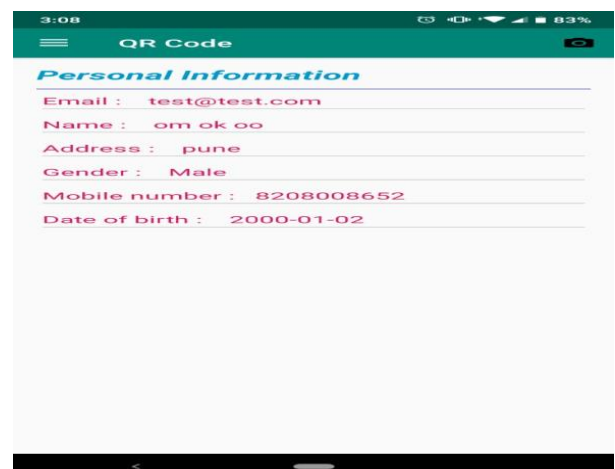
Advantages of system

- System provides sanative data privacy without any resource dependency.
- Quality assurance during the transaction
- Instant show using QR code all public and private information transactions is a click without any third party interface.
- System having a ability to eliminate different kind of network attacks like SQL injection, DOS etc.

5. CONCLUSION

The use of online banking services is increased gradually in daily life and existing online banking requires the usage of one time password which is send to customer's mobile. As mobile is a gateway, one can hack the OTP in between SMS transmission. In our project we do not use this technique instead of that we scan the QR code from mobile that will decode OTP and display it on the customer's mobile directly. In this project, we propose new authentication system for online banking which can provide greater security and convenience by using mobile OTP with the QR-code .The importance of security and ease of use is like two side of a coin. It cannot be provided considering that show up on one side. Therefore, we should always seek for safety devices to meet all ease and security of electronic financial services. System also able to protect users profile data using RBAC algorithm which ensure to eliminate the network database attacks.

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