

SECURE BANKING USING QR CODE

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Abstract - It describes implementation details of online banking identity structure. Security is an important concern for online banking application which can be implemented by various internet technologies. While executing online banking perturb, reliable data transfer need can be fulfilled by using https data transfer and database encryption techniques for secure storage of sensitive information. To eliminate threat of phishing and to confirm user identity we are going to use concept of QR-code with android feature. QR-code which would be inspect by user ambulatory tool which overcome the weakness of traditional password based system. We improve more security by using one time password (OTP) which hides inside QRcode.

Keywords— One Time Password (OTP), Quick Response Code (QR Code)

INTRODUCTION

The Internet is an integral part of our everyday life, and the section of humankind who predict to be able to manage their bank accounts anywhere, anytime is constantly increased. As such, Internet banking has come as a crucial component of any financial foundations. Online banking is one of the most sensitive tasks performed by general internet person. Certainty of a consumer capital statistics is very important, without which online banking couldn't be flourishing. Remunerative organization have put up diverse security processes to reduce the risk of unauthorized online access to a customer's details, but there is not a solitary one method that fulfills all the requirements. Almost all of the pounce on online banking used today are based on steal user login data and valid TANs. A well known example is phishing attack. Phishing is the act which acquires personal information such as

credit card characteristics, passwords, user name etc.

Cyber-security is very important because of gradually increased in information technology. The Online financial transaction in the past was required to apply a security card and public key certificate which were the methods to conforming a user, and in modern decade OTP was commence. One-Time Pass-word is a password apparatus where passwords can only be used once and the user has to be authenticated with a new password each time. This assurance the welfare even if an attacker is tapping password in network or a user misplace it. excluding, OTP features anonymity, portability, and extensity, and enables to keep the information from being leaked.

Previous banking service uses security card which does not suite modern Mobile environment because we do becomes not know when and where online banking will be worned. In very disaster locality online banking cannot be done without security cards. The contemporaneous online banking arrangement dispatch OTP on user's mobile which can be hack during conveyance. In order to conquer such fragility and disruption of security card, our proposed authentication system uses two dimensional barcodes (2D Barcode) called QR code instead of security cards. QR code stands for Quick Response code. From QR code statistics can be recapture exceedingly fast with greater accuracy even if some part of data is corrupted.

RELATED WORK

1. One Time Password

One-time passwords are a mechanism for logging on to a network or service using a unique password which can be used only once. This prevents various forms of identity theft by ensuring that a user name or password combination cannot be

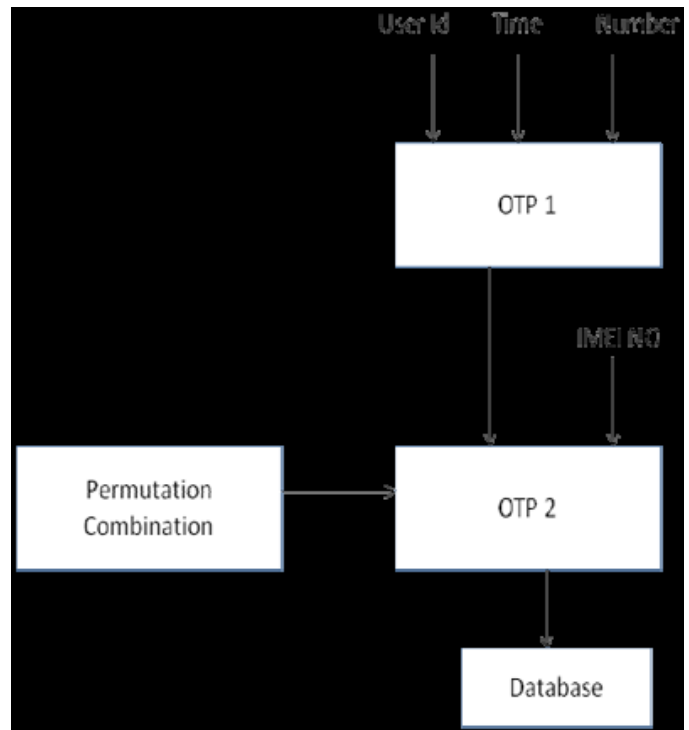
used a second time. Usually the user's login name remains the same, and the one-time password changes with each login. Hence for each session the user will be validated using new OTP. They are also useful in preventing replicate bound, phishing bound and other bounces on basic traditional passwords.

Also they offer other characteristics like anonymity, characteristic attributed, and system design and enable to keep the information from being leaked. Some of the OTP transmission techniques are text messages by gateway, propriety tokens, web-based methods Secure Code devices and Grid file. The most recent Grid file handles a hash type file to verify user's authentication request also increases the probability of hinder. But all of them grant with chronicle initiate scheme which could be identified in infinite time. One-time passwords are a form of strong authentication, and offer more effective security to corporate networks, on-line bank accounts and other systems containing sensitive data.

OTPs avoid a number of shortcomings that are associated with traditional passwords. The very important short coming that is addressed by one time passwords is that, in contrast to traditional passwords, they are not vulnerable to replicate bound, phishing bound. This means that a potential intruder who manages to record an OTP that was already used to log into a service or to conduct a transaction will not be accomplished to misapply it, since OTP will be no extent coherent. On the drawback, OTPs are resistant for human beings to keep. accordingly they entail supplementary technology to exertion.

There are 2 progress regarding to genesis an OTPs:

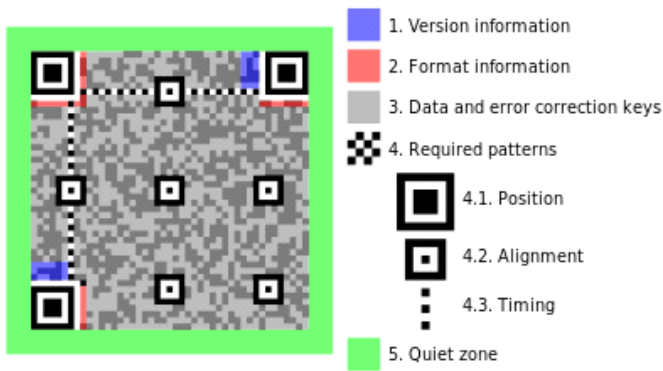
1. Time based OTP – the OTP changes at frequent intervals.
2. Event-based OTP – the OTP is generated by crucial a stud on the OTP device or token.



By using combination of 3 parameters- customer id ,current system time and Random number OTP1 is generated that is hide inside QR code image. Per-mutation combination logic is applied on 2 parameters- OTP1+IMEI NO and from that OTP2 is generated. So, OTP1 is 4 integer number that is implant in QR code and OTP2 is 8 integer number that is intentional from OTP1. The above process will done successfully only if customer uses our given QR code scanner. If customer uses QR code scanner which is available on internet then wrong OTP is generated and authentication process will failed.

2.QR Code

QR Code is a two-dimensional barcode introduced by the Japanese company Denso-Wave in 1994. This kind of barcode was initially used for tracking inventory in vehicle parts manufacturing and is now used in a variety of industries. QR stands for "Quick Response" because its contents are decoded at high speed.



A. Technology

A QR Code is a matrix code developed and released primarily to be a symbol that is easily interpreted by scanner equipment. It contains information in both vertical and horizontal directions, whereas a 1D barcode has only one direction of data (usually the vertical one). QR Code besides has misconception amendment potential. Data can be restored even when some parts of the code are distorted or damaged. Compared to a 1D Barcode, a QR Code can hold greater volume of information: 7,089 for numerals only, 4,296 for both letters and numerals data, 2,953 bytes of binary (8 bits) And 1,817 letters of Japanese Kanji/Kana symbols.

B. Usage

Without a machine, it's impossible for a human to manually decode QR Codes but they are easily processed by scanning equipment. Nowadays QR code scanner app is available on many app stores at free cost. Users can scan the QR Codes and the software integrated into their phones Decodes the messages and display the information on their mobile devices. Depending on the type of data hide inside QR code and the nature of the application, alternative actions can be taken that decoding stage: a phone number can be automatically dialed, a SMS can be sent, a web page to the URL can be displayed in a mobile, or a definite application can be executed.

3. Android

Android is a Linux-based operating system designed primarily for touch screen mobile devices such as smart phones and small portable computers. Android was originally developed by Android

Incorporation, which Google financially supported and later purchased in 2005.

At beginning android works on Linux kernel version 2.6, and from android 4.0 OS version onwards, it effort on version 3.x with libraries and APIs. Android exploit the Dalvik virtual machine compiler to run Dalvik 'dex-code' which is usually translated from Java byte code. Our QR code scanner supplication is developed in the Java language using the Android Software Development Kit. The SDK encompass a comprehensive position of extension device, counting a debugger, software periodicals, a handset emulator, documentation, sample code, and tutorials. The supported IDE is Eclipse using the Android Development Tools plug in.

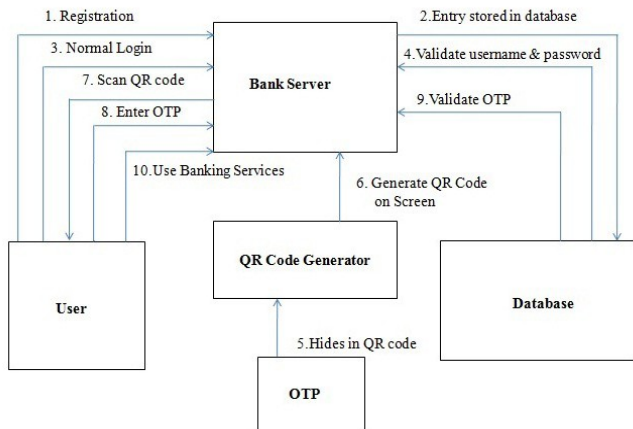
3.1 User Interface Overview

All user interface elements in an Android app are built using View and View Group entity. A perception is an entity that sweepstake something on the screen that the user can interact with. A vision classification is an object that clutches other View (and vision classification) objects in order to define the layout of the interface. Android supplies assembly of both vision and View Group subclasses that offer you common input controls (such as buttons and text fields) and various layout models (such as a linear or relative layout).



In our proposed system , we are going to develop two softwares for online banking system which provides more security to bank customer. First one is android based mobile software which will scan

the QR code generated by circumference server. We are progress another software that provides E-banking facility.



1. At first, Bank customer have to do registration and create his account.
2. Next step is normal login step in that customer have to provide username and password for login process.
3. Based on customer id, current system time and Random numeral (3 parameters) OTP1 is engender that is hide inside QR code image.
4. QR code image is generated by three parameters OTP1, image size and image format.
5. QR code image is displayed on computer screen (bank server).
 - a) Rearranging mixture argumentation is applied on OTP1 + IMEI number (of customer's mobile).
 - b) Succeeding that contemporary, OTP2 is conviction that is save in bank database.
6. Customer will scan the QR code by android QR code scanner application.
7. OTP1 is extracted from QR code and again same rearranging mixture argumentation is applied on OTP1 + IMEI number.
8. In this process OTP2 is generated which is displayed on customer's mobile. Customer have to enter that OTP2 in login process.
9. If newly generated OTP2 matches with the one which is store in database then Customer will get successfully login into banking system. Consumer can exploit the banking facility. Such as
 - Viewing account balances

- Viewing recent transactions
- Ordering cheque books
- Collections transport between different customer accounts
- Pay electricity bill facility

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 transference. In this forecast we does not exploit this proficiency 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.

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