A Project Report

On

e-Authentication System

Submitted by

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DECLARATION

We **Mandavi Singh**, Roll No. **2215001032**, **Tanya Maheshwari**, Roll No. **2215001840**, **Rama Singh**, Roll No. **2215001425**, **Nishu Adhana**, Roll No. **2215001177**, **Harshita**, Roll No. **2215000781** hereby declare that the work presented in this project report entitled **"e-Authentication System"** is an authentic record of our own work carried out under supervision of <Name and affiliation of Supervisor>.

Mandavi Singh, 2215001032 & Signature

Tanya Maheshwari, 2215001840 & Signature

Rama Singh, 2215001425 & Signature

Nishu Adhana, 2215001177 & Signature

Harshita, 2215000781 & Signature

CERTIFICATE

This is to certify that the above statement made by the students are correct to the best of my knowledge and belief.

Date:

Place: Mathura

Name and Signature with Affiliation of Supervisor

Content

e-Authentication System

What is e-Authentication System?

Electronic Authentication (“e-Authentication”) is the process of electronic verification of the identity of a user. It provides a simple, convenient and secure way for the users to access government services via internet/mobile.

Why e-Authentication System?

e-Authentication helps to build up confidence and trust in online transactions and encourages the use of the electronic environment as a channel for service delivery. In online transactions, data is communicated electronically through internet and mobile applications.

e-Authentication System Using QR Code

In this project we develop E-Authentication System using QR code and OTP. The use of QR code-based technologies and applications has become frequent in recent years where QR codes are accepted to be a practical and intriguing data representation / processing mechanism amongst worldwide users. The project has been designed in order to enable the verification and validation steps with several security and networking options during the logon process. The model has been implemented by developing a two-factor identity verification system where the second factor is the user's email ID which can be accessed from any device and a pseudo-randomly generated alphanumerical QR code which is used as the one-time password token sent to the user via e-mail. The proposed model has been developed using C Programming languages.

Introduction to QR Code

The QR Code stands for "**quick response**". They look simply but are very capable to store too much data in it. No Matter how much they store, when it scanned, the QR allow the user to access information instantly that's why it is called "**quick response code**".

QR Code is a Pattern of black and white squares grids that can be easily accessed or read by the smartphones, allow users to get more knowledge about anything by QR scanner. In fact, many smartphones like iPhone, Xiaomi, Motorola and Samsung now have in built QR Code scanning features in their camera applications. It is developed by Denso wave, a Japanese company in 1994 for tracking vehicles and high-speed components scanning in automobile industry.

Since 1994, QR code have come a long way. In the era of smartphones these QR Codes have found extensive applications. Some of them including marketing management, education, payments, security etc. Statistics shows how much QR Codes uses increases in 2018 across the world and will continue in 2022 to grow its uses. These 2D barcodes stores to much information such as webpages, URLS, texts, contacts etc. To view this information, you just need to scan the QR code using smartphones or QR scanner to see it. It is so simple more than that of clicking a picture. QR Codes are so easy to use that anybody can create and use them for their benefits.

The arrangement of QR Code depends upon the information it contains and that changes the arrangement of black squares. QR Code cannot be hacked, but a hacker can generate a QR Code that sends you to a fake website where they will steal your personal information data and can track your location. So always tried to verified where your QR Code originated from.

PRACTICAL QR CODE USES

- QR code-based payment system
- QR codes to ensure the product quality
- QR codes in education
- Make your products traceable
- Use QRs for promotions, games, competitions and loyalty programs
- Share contact details
- Collect feedback
- Promote app downloads
- Gain followers on social media
- Share Wi-Fi access
- Advertise with QR codes
- Print QR codes on tickets

Dominance Of QR code

- QR Code can be used anytime, anywhere.
- It reduces paper and material consumption.
- No need to type out a long universal resource locator could help serve students who are visually impaired.
- It stores a large amount of information and multiple uses of these codes.
- Due to error correction part, QR codes can be read easily even after some is not properly read by scanning device.
- It connects magazine or newspaper reader with advertiser website with click of a button.
- The Code can be decoded at high speed from any direction because of its square shaped structure. It can be scanned from vertically or horizontally.
- It does not require any light to be generated or to be received from the QR code as done during barcode scanning.
- Another main advantage is a quick response through QR codes.
- In addition, no licence required to create or use.

Barriers Of QR Code

- Having a mobile that has a camera.
- Having an Internet connection for online data saved in QR codes.
- The need for an application for QR code scanning.
- The limitations of storage associated with “QR codes”.
- QR codes on printed media cannot be updated or refreshed

Future of QR Code: 2022 and beyond

QR Codes are everywhere! Thanks to the pandemic, QR Code usage has seen a further rise from 2020 to 2021. In fact, reports suggest that one billion smartphones will have access to QR Codes by the end of 2022

The use of QR code is rising rapidly because of

- Ability to store a large amount of data and multimedia.
- It can be customized.
- Ease to accessibility: Most smartphone come within built QR code. To access do open camera and hold Infront of QR code and within 2 seconds it is scanned.
- Ability to track scans: QR code generator allow us to track exact GPS location of scans.
- Affordability:
  It didn't need a proper setup it can be scan by your smart phone.
  It can be beneficial in many sectors.
  1. Package food and beverage:
     Many foods and beverage company's give QR code in their item so customer can verify product.
  2. Automotive sector:
     Many companies forwarding to using QR code labels.
     Can help customers to verify which is true or fake.
  3. Healthcare industry:
     Verifying vaccine certificate.
     Easy to access patients' medical history.

From QR Code to Face recognition

Each passing year sees little progress to achieve excellence in the different human-generated systems. With new modules and features being added every now and then like QR codes in visitor management, the system has come a long way from where it had started.

A face analyser is software that identifies or confirms a person's identity using their face. It works by identifying and measuring facial features in an image. Facial recognition can identify human faces in images or videos, determine if the face in two images belongs to the same person, or search for a face among a large collection of existing images. Biometric security systems use facial recognition to uniquely identify individuals during user onboarding or logins as well as strengthen user authentication activity. Mobile and personal devices also commonly use face analyser technology for device security.

Facial recognition is a technology that can benefit society, including increasing safety and security, preventing crimes, and reducing human interaction. Here are some **pros** of facial recognition:

- Helps find missing people
- Protects businesses against theft
- Improves medical treatment
- Strengthens security measures
- Makes shopping more efficient
- Reduces the number of touchpoints
- Improves photo organization

However, like any innovation, some consequences and risks are involved when implementing this new system in society.

- Threatens privacy
- Imposes on personal freedom
- Violates personal rights
- Data vulnerabilities
- Misuse causing fraud and other crimes
- Technology is still new
- Errors can implicate innocent people
- Technology can be manipulated

Back-compatible Colour QR Codes for colorimetric applications

We want to achieve back-compatibility with the QR Code standard. This means that we must still be able to recover the encoded data message from the coloured QR Code using a standard readout process To create the pseudo- black and pseudo-white groups, our proposed implementation uses a procedure that resembles the QR Code readout process. First, a normalization of the colours (from integer to float data) is done, then the standard desaturation (from colour to grayscale data) is applied, later a binarization (from grayscale to binary data). Finally, we use these values to classify the colours and assign them to a certain area of the QR Code.

Advantages

- It creates the interest of customer to scan QR Code because of its attractive colours
- Coloured QR doesn't hacked easily by hackers
- It scans easily and quickly

Disadvantages

- If colour chosen is wrong it makes the complexity to scan it.
- If a user does not have QR Code on their smartphones, they will have to spend time on downloading it.
- More complex QR Code decrease the interest of customer to scan it they think it's a scam.

Geotagged Images of Students at the place of work

Geotagged Image 1	**Geotagged Image 2**
Geotagged Image 3	**Geotagged Image 4**

Conclusion

By this paper the conclusion is that QR code store the more information than BAR code. QR Code stores the information matrix form which stores the information on both axes horizontally or vertically. QR code has many advantages like, QR codes are free to generate and free to Scanned. More secure than the BAR code, It is store many types of information. In addition, on the basis of the characteristic description of QR Code, the applications of QR Code in WhatsApp Web, UID, and the benefits of using QR Code for companies are explored and analysed.

Bibliography/ References