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A Method for Encrypting QR Codes for the Protection of Government Research Data

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Abstract:

A significant part of the country's economy may be the government sector. Both for trade coherence and for sustaining the country's economy as a whole, security of government inquiry concerning substance against all types of risks is fundamental. Problems with government capability and access are among the government problems that arise with the digitalization of traditional documents. When it comes to government substance subtle element investigations, the research office spends a lot of time querying the required information, but the results aren't always accurate, and there are times when their access is restricted. Based on this concept, this thought presents a research substance that controls record subtle aspects and guarantees information privacy via the use of ciphertext-based encryption. In order to provide access control and keep information safe, the investigate head may encrypt the stored data. The AES Rijndael algorithm is used for encryption in this way. This enables Protection and ensures data security.

I. Introduction

Scrambling the message to be delivered using a key that the meddler does not have allows the message to be securely sent, making cryptography a potential approach to secure communication or exchange messages between two clients. One possible application of encryption is to transform readable communications (plain content) into unintelligible cipher messages. In symmetric encryption, the decryption key is identical to the encryption key, and in topsy-turvy encryption, the reverse is true; in this case, the two types of encryption are incompatible. A client application may then instantiate and use this question as if it were a local question thanks to the.NET Remoteing, which references a detachable protest. Additionally, the server-side is where the actual code execution takes place. Actuation URLs are able to identify protests, and when associated with the URL, a protest is instantiated. When the server registers the channel used to send through this inquiry, the remoting runtime establishes an audience for it. In order to simulate the protest, the framework creates a middleman on the client side. Thus, the remote foundation should already be aware of the protest's open interface.

A beneficiary intermediary question is composed at the server side by writing to the Channel's transport sink. The strategy calls made against the protest, including the strategy's personality and any passed parameters, are serialized to a byte stream and exchanged over a communication protocol-dependent channel. The first kind of cipher transforms data into a coded frame known as cipher content, while the second type, known as reverse cipher, transforms data back into its original, unencrypted form, known as plaintext. A key plan, consisting of a certain number of rounds, is generated by the Key extension and is used in cipher and reversecipher strategies. The key



length is more important than the number of rounds. Rijndael analysis reveals three possible encryption strengths: 128-bit, 192-bit, and 256-bit.

The word count and key length (N_k) determine the total number of rounds (N_r). All forms have N_b that is constant. Modern computer systems rely heavily on cryptography, a branch of science concerned with data security, to encrypt data during transmission and storage. With the widespread use of personal communication devices, security has emerged as a critical concern. There are two main components to cryptographic calculations that result from the exchange of sophisticated information: symmetric keys, which use the same key for both encryption and decoding, and topsy-turvy keys, which are more complicated and time-consuming to implement.

II. LITERATURE SURVEY

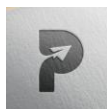
“Dynamic 2D-barcodes for multi-device Web session migration including mobile phones”

This article introduces a novel Web architecture that supports session migration in multi-device Web applications, particularly the case when a user starts a Web session on a computer and wishes to continue on a mobile phone. The proposed solution for transferring the needed session identifiers across devices is to dynamically generate pictures of 2D-barcodes containing a Web address and a session ID in an encoded form. 2D-barcodes are a cheap, fast and robust approach to the problem. They are widely known and used in Japan, and are spreading in other countries. Variations on the topic are covered in the article, including a possible migration from a mobile device to a computer (opposite direction), and between two or more mobile phones (possibly back and forth). The results show that this HCI approach is inexpensive, efficient, and works with most camera-phones on the market; the author does see any other mature technique with such assets

“Influencing the Online consumer’s behavior: The web experiences”

We examined the relationships between the determinants that affect consumer’s use of food delivery apps. Using an extended flow theory model, we explored consumers’ experiences in purchasing delivery food through mobile apps. We distributed a self-administered questionnaire online and used structural equation modeling to test the hypotheses. We found that consumer experience (web and digital) had a significant effect on buying intention behavior. The empirical findings show that consumers’ experience has significant effect on buying behavior when using the application. Consumer experience in term of the usability, interactivity and aesthetic of the web positively affects food delivery apps buying intention behavior. Further, this study finds that consumers had experience buying from the website are based on the functionality rather than psychology and content factors. Furthermore, digital experience demonstrates a stronger effect on buying behavior with more experience using the food delivery application. This study is one of the early studies to investigate the role of consumer experience. In addition, we find that in user’s first interaction with food delivery apps, web experience (usability, interactivity, aesthetic) and digital experience has a larger impact on their buying intention behavior.

Bar code reading from images captured by Camera Phones



Bar codes are being widely used in many fields for applications of great commercial value. By encoding a series of characters or symbols, bar codes are able to both carry explicit information and a database key. Nowadays, The availability of imaging phones provides people a mobile platform for decoding bar code rather than the use of the conventional scanner which is lack of mobility. However, the short- distance capture of bar codes using an imaging phone inevitably makes bar code images blurred, meanwhile, these images are contaminated heavily with noises. Hence, it is a challenge for automatic bar code reading by imaging phones in such applications. In this paper, research effort on the algorithms of bar code reading by real NOKIA imaging phone products is proposed and EAN-13, a widely used 1-D bar code standard, is taken as an example to show the efficiency of the method. The method, of course, can be extended to other bar code standards without much effort. A wavelet-based bar code area location and knowledge-based bar code character segmentation scheme is applied to extract bar code characters under poor image quality of real conditions. Then the waveforms of the 12 marked divisions are input to the decoding engine, which is called statistical recognition block, and final decoding decision is made. Training of the statistical classifiers is based on the modified GLVQ (generalized learning vector quantization) method and the initial feature extraction is based on LDA (linear discriminant analysis). Training samples are from the database contains over 1,100 bar code images taken by an imaging phone and the sample set is extended by manually shifting (distortion) of the original samples to cover more possibilities of occurrence. Nearly 300 EAN-13 bar code images taken by imaging phone (NOKIA 3650) without micro-lens are tested to prove the effectiveness of the proposed method. The entire symbol recognition rate is 85.62%, which is desirable for the first kick-off - - of the attempt to implement bar code reading applications in the camera phone products. Bar code images taken with micro-lens or optical zoom functionality are also tested and the entire symbol recognition rate is nearly hundred percent

“Robust Recognition of 1-D Bar codes using Camera Phones”

In this paper we present an algorithm for the recognition of 1D barcodes using camera phones, which is highly robust regarding the typical image distortions. We have created a database of barcode images, which covers typical distortions, such as inhomogeneous illumination, reflections, or blurriness due to camera movement. We present results from experiments with over 1,000 images from this database using a MATLAB implementation of our algorithm, as well as experiments on the go, where a Symbian C++ implementation running on a camera phone is used to recognize barcodes in daily life situations. The proposed algorithm shows a close to 100% accuracy in real life situations and yields a very good resolution dependent performance on our database, ranging from 90.5% (640 × 480) up to 99.2% (2592 × 1944). The database is freely available for other researchers.

III.SYSTEM ANALYSIS

3.1. EXISTING SYSTEM

The discipline of cryptography encompasses a number of techniques for encryption and decryption, the most common of which fall into one of two broad categories. Regular and Unlock key The use of a single key for encryption and decryption is a hallmark of routine encryption, in contrast to the use of separated keys in open key cryptography. Because it does not trigger any chaos inside the crucial key, our proposed solutions mitigate some of the drawbacks of current tactics that involve key use.The suggested concept's key measure may also evolve from 4-character or 32-bits to 64-bits, 128-bits, etc., in contrast to the DES, AES, and triple-DES, Blowfish, which have established key structures [9].When it comes to encryption, the key's unstable viewpoint may be a good thing. Time



complexity shows how changes to a large amount of content information in the file might affect the output cipher content.

If a safe calculation has to be made, this change that occurs at the yield should be sufficient. Time and space complexity, which should be easily measurable, must be considered while evaluating a single computation. There is no exponential growth in the number of evaluation tests in relation to the input scale, and the article suggests that it is possible to simulate the era of plaintexts and keys that occur in presence.

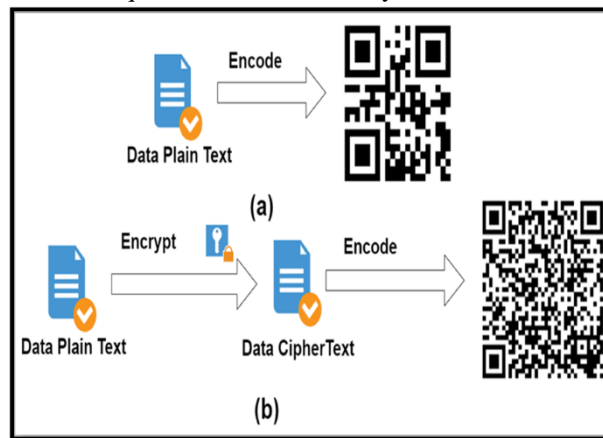
3.2. PROPOSED SYSTEM

We propose a framework to create a windows application which can offer assistance to secure the government investigate substance record within the government segment. The research division of government collects investigate substance and stores it within the database. Each investigate content is scrambled by utilizing AES Rijndael calculation and is put away as QR code picture within the database. Arbitrary key is produced, and the key is part up utilizing Shamir’s calculation. In arrange to see the inquire about substance, at that point Get to key is sent to the individual staff mail for confirmation. Once Get to Key confirm, modify key, extract scrambled from QR code picture decode information utilizing key. This empowers security and security and avoids from third- party get to.

IV.SYSTEM DESIGN

4.1 SYSTEM ARCHITECTURE

Below diagram depicts the whole system architecture of Comparative Evaluation for Traditional Machine Learning and Deep Learning Classification Techniques for Sentiment Analysis.



4.1. System Architecture

V. SYSTEM IMPLEMENTATION

5.1. MODULES



There are 2 modules:

1. User
2. Admin

User: -

- Register
- Login
- Confidential Data
- Request Record
- Approved Request Record
- Logout

Admin: -

- Register
- Login
- User Management
- Add staff
- Manage Staff
- Content Management
- Published Content
- All Content
- Logout.

VI. RESULTS

The screenshot displays a web application interface for 'Defence'. At the top, there is a dark green header with contact information: '+912-345 6789' and 'info@example.com'. Below the header, the word 'Defence' is prominently displayed on the left, and navigation links for 'Home', 'Confidential Data', 'Request Record', and 'Approved Record Request' are on the right. The main content area features a 'Request Record' section with a search bar containing 'Search Record' and a blue 'Search' button. Below the search bar is a table with the following data:

Name	Profile	Department	Action
vasu		DRDO	Request
Rajesh		DRDO	Request
Sivaji		DESW	Request

At the bottom of the table, there is a blue 'Next' button and the text 'Page 1 of 2'.



Fig. 6.Request Record Page

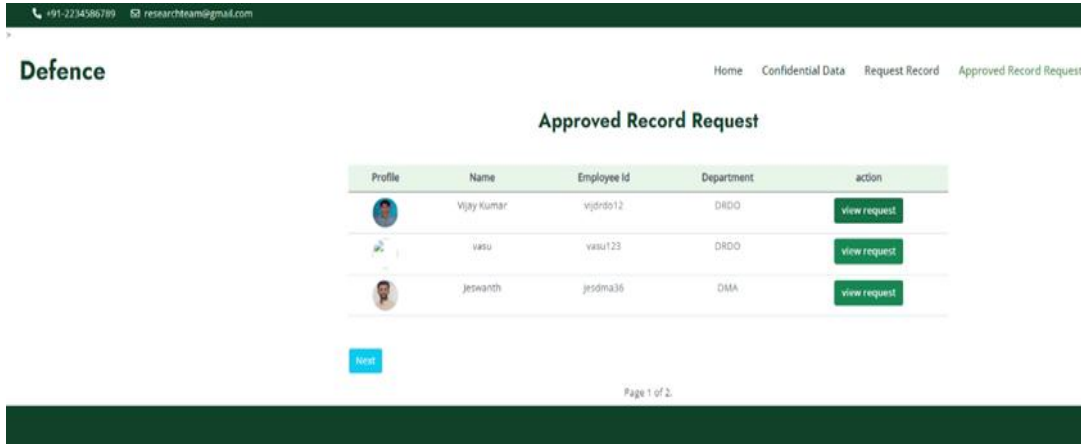


Fig 6.1 Approved Record Request page

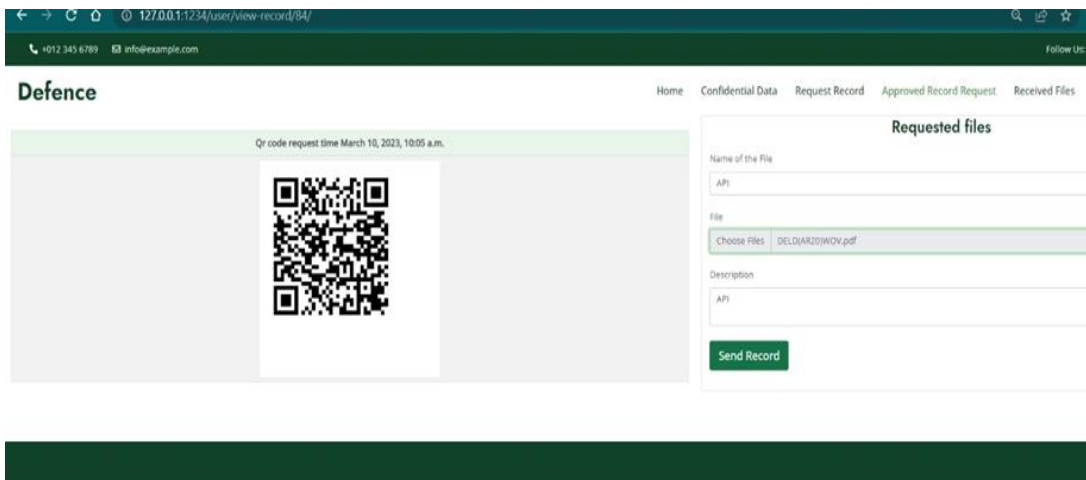


Fig. 6.2 Received files page

VII.CONCLUSION AND FUTURE WORK



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Going forward, the government sector could play a pivotal role in the country's GDP. Both the development of commercial activity and the health of the national economy depend on the assurance of government research substance from various threats. Problems with government capability and access are among the government problems that arise with the digitalization of traditional documents. Although the research division devotes a lot of effort to gathering the necessary data for government inquiries into substance delicate aspects, the data they acquire isn't always accurate, and their access is sometimes restricted. On top of that, this concept suggests a research material that uses ciphertext-based encryption to secure data and get control over record-level details. If the inquiry head wants to get access control and keep information secure, they may scramble the stored data. Encryption is now done using AES Rijndael computation. This ensures that the data is secure and gives Security more authority.

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