Medical Information Storage and Retrieval System using QR code technology

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1. Abstract: -
Medical information are Associate in Nursing ever growing supply of data generated from hospitals consisting of patient records within the variety of onerous copies which may be created easier and convenient by victimisation QR code of the patient details. Our aim is to make a Health-care vascular system which is able to offer the options like clinical management, patient records, sickness prediction and generate QR code for each patient as per there updated sickness data. Key-logging or keyboard capturing is that the activity of recording (or logging) the keys affected on a keyboard, commonly in a very uncommunicative manner so the individual utilizing the keyboard is unconscious that their activities ar being ascertainted. It likewise has exceptionally authentic uses in investigations of human-computer interaction. There are varied Key-logging techniques, extending from hardware and computer code based mostly methodologies to acoustic examination. Together with human in authentication protocols, whereas guaranteeing, isn't easy in light-weight of their restricted capability of calculation and remembrance. we have a tendency to exhibit however careful image define will improve the protection additionally because the convenience of authentication, we have a tendency to propose 2 visual authentication protocols: one may be a one-time- word protocol, and also the alternative may be a password-based authentication protocol. Our approach for real arrangement: we have a tendency to had the capability attain to Associate in Nursing abnormal state of easy use whereas fulfilling rigorous security requirements.

3. TECHNICAL KEYWORDS: -
QR code, AES algorithm, KNN Algorithm, etc.

4. INTRODUCTION :-
Visual Associate in Nursing Secure Authentication System for Patient information Management medical information an ever growing supply of data generated from hospitals consisting of patient records within the variety of onerous copies which may be created easier and convenient by victimisation QR code of the patient details. Our aim is to make a Health-care vascular system which is able to offer the options like clinical management, patient records, sickness prediction and generate QR code for each patient as per there updated sickness data. Search sickness by victimisation Naïve Thomas Bayes rule and predict sickness of patient. Hospitals are terribly essential a part of our lives, providing best medical facilities to folks plagued by varied diseases. however keeping track of all the activities and records is incredibly error prone. it's conjointly terribly inefficient and time overwhelming method observant the continual increasing population and variety of individuals visiting the hospital. Recording and maintaining the records are extremely unreliable and error prone and inefficient. it's conjointly not economically and technically possible to take care of the records on paper. the most aim of project is to supply paperless up to ninetieth. It conjointly aims at providing low price reliable automation of the prevailing system. There ar varied Key-logging techniques, extending from hardware and computer code based mostly methodologies to acoustic examination, together with human in authentication protocols, whereas guaranteeing, isn't easy in light-weight of their restricted capability of calculation and remembrance. fast Response (QR) codes appear to look everyplace of late. victimisation the QR codes is one amongst the foremost intriguing ways that of digitally connecting customers to the net via mobile phones since the mobile phones became a basic necessity issue of everybody. For making QR codes, the admin can enter text into an internet browser and can get the QR code generated. Whereas QR codes have several benefits that build them highly regarded, there are many security problems and risks that are related to them. Running malicious code, stealing users’ sensitive data and violating their privacy and fraud are some typical security risks that a user may well be subject to within the background whereas he/she is simply reading the QR code within the foreground. A security system for QR codes that guarantees each users and generators security issues are enforced. The project exhibits however careful image define will improve the protection additionally because the convenience of authentication.

5. PREVIOUS WORK: -
To retrieve the data related to QR code from database Iceberg queries are used. It extract small
information from huge data set. This Approach is used in this system [3,8]

Practo Application:-
To find doctor and to book appointments.

DocsApp application:-
This app helps in online Consulting Doctor Online.

Lybrate:
Online medicine order and to consult a Doctor

6. PROBLEM STATEMENT:

In this system the health data is keep on the third party server. There is no cryptography and coding of health data thus there’s chance of non-public health data may be uncovered to unauthorized parties and third party servers. Single owner system, during which no policy management for file access. Adding the classes isn’t doable thus hint is additionally accessed by every type of users.

a. There are varied Key-logging techniques, extending from hardware and computer code based mostly methodologies to acoustic examination. together with human in authentication protocols, whereas guaranteeing, isn’t easy in light-weight of their restricted capability of calculation and remembrance.

b. Two approaches for authentication are used one is word-based authentication and one-time password based mostly authentication that uses image by technique for exaggerated reality to relinquish each high security and high convenience.

c. Model utilization as humanoid applications that demonstrate the convenience of our conventions in true organization settings.

7. OBJECTIVES

1. To store medical history of a patient into a single personal health record that can be accessed any time-and even shared with doctors, if we choose.
2. To get QR code for each patient anamnesis.
3. To look nearest Doctor according to the symptoms.
4. To retrieve medical information of patient by scanning QR code.

8. MOTIVATION

There are ample of applications in market for suggesting medicines, finding the nearest doctor however there’s no such application that helps to maintain medical record and consult the doctor according to the diseases of patients. To overcome this we have come with “Medical Information storage and retrieval Using QR Code.”

9. SYSTEM ARCHITECTURE:

10. PROPOSED SYSTEM

1. A novel QR code Strategy based on encryption technique which can challenge the existing QR code strategy.
2. The system implementations in the form of Android applications which demonstrate the usability of our protocols in real-world deployment settings.
3. To generate QR code for every patient as per there disease the system takes less time.
4. Every interaction between the user and an intermediate helping device is visualized using a Quick Response (QR) code.
5. It Support reasonable Image security and usability and appears to fit well with some practical applications for improving online security.
6. Patient no need to visit personally to the physician or at medical store.

11. IMPLEMENTATION OF SYSTEM

A) AES ALGORITHM

In the implementation of this AES-256 algorithm has a plaintext of 128 bits and key of 256bits size. The number of rounds of operations in AES- 256 is 14. The key generation process of AES 256 is different from other AES algorithms. The AES-256 algorithm is composed of three main parts: Cipher, Inverse Cipher and Key Expansion. Cipher converts data to an unintelligible form called cipher text while Inverse Cipher converts data back into its original form called plaintext. Key Expansion generates Key Schedule that is used in Cipher and Inverse Cipher procedure. Cipher and Inverse Cipher are composed of specific number of rounds. These rounds are:-

1) Byte substitution using a substitution table (S-box)
2) Shifting rows of the State array by different offsets
3) Mixing the data within each column of the State array
4) Adding around Key to the State

The Cipher transformations can be inverted and then implemented in reverse order to produce a straightforward Inverse Cipher for the AES algorithm. The individual transformations used in the Inverse Cipher:

1) Inverse Shift Rows
2) Inverse Sub Bytes
3) Inverse Mix Columns
4) Add Round Key

The AES inverse cipher core consists of a key expansion module, a key reversal buffer, an initial permutation module, a round permutation module and a final permutation module. The key reversal buffer first store keys for all rounds and the presents them in reverse order to the rounds. The round permutation module will loop maternally to perform 14 iterations (for 256 bit keys).

B) K-nearest neighbors (KNN) algorithm

Here is step by step on how to compute K-nearest neighbors KNN algorithm:
1. Determine parameter K = number of nearest neighbors
2. Calculate the distance between the query-instance and all the training samples
3. Sort the distance and determine nearest neighbors based on the K-th minimum distance
4. Gather the category Y of the nearest neighbors
5. Use simple majority of the category of nearest neighbors as the prediction value of the queryinstance Time complexity and optimality of kNN.

"K-nearest Neighbor
classify (X,Y,x)
for ! = 1 to m do
  Compute distance d(Xi,x)
end for
Compute set I containing indices for the k smallest distances d (Xi,x).
return majority label for { Yi where i belongs to I}"

**OUTCOME OF THE PROJECT:**

The outcome of our project is to easily store the Medical history of the patient and access it whenever we want. Doctor will get appropriate information about patient and it would be easy for him to treat the patient. Our system will recommend specialists doctor in our areas. Retrieve patient history using QR code technology.

**Patient Registration Page:**
Patient will store all his medical history

**Doctor Registration Page:**
Doctor will enter his information:
12. CONCLUSION

We planned health care system for hospital for this we tend to exploit AES and Naïve mathematician algorithms. Planned conventions that not solely improve the user expertise however jointly resist difficult attacks, like the key logger and malware attacks. Our protocols utilize straightforward technologies accessible in most out-of-the-box Smartphone devices. Additionally, we'll study strategies for rising his safety and user expertise by means that of mental image in different contexts, however not restricted to authentication like visual cryptography and visual signature verification.

REFERENCES


