

Healthcare Record Security System using QR Code

Resham Rokade¹, Kiran Karbhari², Jyoti Waditake³

¹ Student of Department of Information Technology, PREC Loni, Maharashtra, India

² Student of Department of Information Technology, PREC Loni, Maharashtra, India

³ Student of Department of Information Technology, PREC Loni, Maharashtra, India

ABSTRACT

Abstract— Medical information square measure associate degree ever growing offer of knowledge generated from hospitals consisting of patient records inside the type of exhausting copies which could be created easier and convenient by exploitation QR code of the patient details. Our aim is to make a Health-care system which may provide the choices like clinical management, patient records, and un-wellness prediction and generate QR code for every patient as per there updated un-wellness information. Our system consists of QR-codes placed in varied places of the hospital and QR-code reader applications, place in on smartphones or tablets that scan the QR-codes thus on get Brobdingnagian amount of knowledge. Moreover, several copies of the QR-code square measure created for patients admitted into the hospital. The QR-code is utilized wherever the identification of the patient is required. Currently days every product contain a bar-code nothing but the information of the merchandise. Bar-code and quick response code square measure accustomed provide the information regarding the merchandise. If any user wants information then it should be rewrite. Throughout this paper we have a tendency to tend to square measure use this bar-code ad quick response codes for encrypting and decrypting the patient's Personal Health Record. For this we have a tendency to tend to use a secure rule technique that is AES rule. AES stands for Asynchronous secret writing customary. Paper contains three modules healthcare-P, healthcare-L, healthcare-D where P stands for Patient and L stands for Laboratory and D stands for Doctor. Patient gets the most points in JSON (JavaScript Object Notation) format. Throughout this Patient's medical information is exchange between itinerant and Electronic Health Records (EHR).

Keywords—Medical data, Encryption, Decryption, JSON, EHR, Bar-Code, QR-Code, AES.

I. INTRODUCTION

Medical knowledge area unit associate degree ever growing supply of data generated from hospitals consisting of patient records within the variety of exhausting copies which may be created easier and convenient by victimization QR code of the patient details. Our aim is to create a Health-care vascular system which can give the options like clinical management, patient records, generate QR code for each patient as per there updated sickness data. Search doctor by victimization k-NN algorithmic program.

Hospitals area unit terribly essential a part of our lives, providing best medical facilities to individuals full of numerous diseases. However keeping track of all the activities and records is incredibly error prone. It's additionally terribly inefficient and time intense method observant the continual increasing population and range of individuals visiting the hospital. Recording and maintaining the records area unit extremely unreliable, error prone and inefficient. It's additionally not economically and technically possible to keep up the records on paper. The most aim of project is to supply paper-less up to ninety eight. It additionally aims at providing low value reliable automation of the present system. There area unit numerous techniques, extending from hardware and package based mostly methodologies to acoustic examination. Together with human in authentication protocols, whereas guaranteeing, isn't straightforward in light-weight of their restricted capability of calculation and remembrance. Fast Response (QR) codes appear to seem all over currently. victimization the QR codes is one amongst the foremost intriguing ways in which of digitally connecting shoppers to the web via mobile phones since the mobile phones became a basic necessity issue of everybody.

II. PROBLEM STATEMENT

Medical knowledge area unit associate degree ever growing supply of data generated from hospitals consisting of patient records within the variety of exhausting copies which may be created easier and convenient by victimization QR code of the patient details. Our aim is to create a Health-care vascular system which can give the options like clinical management, patient records, doctor prediction as per symptoms and generate QR code for each patient as per there updated sickness data and prescription.

In this system the health data is hold on the third party server. There's no coding and secret writing of health data thence there's chance of non-public health data may well be uncovered to unauthorized parties and third party servers. Single owner system, within which no policy management for file access. Adding the classes aren't attainable thence hint is additionally accessed by every kind of users.

III. BACKGROUND

This exchange of medical information victimization QR-code is also a fundamental quantity technique. First, the laboratory report is formed by victimization QR-code with the help of laboratory take a glance at results. Laboratory reports among the QR-Code are also gift in secret writing. Then patient having the movable scans the QR-code and store in native data. New additional information is combining with previous information. Finally, entire information inside the native data can transfer to the information system of the eye mean person's victimization JSON format. This whole technique can incorporate attention system and is printed in following sections.

Whenever a user choice in her watchword throughout a bank's sign in box, the key feller intercepts the watchword. The threat of such key loggers is pervasive and will be gift each in personal pc's and public kiosks; there square measure a unit a unit perpetually cases wherever it's necessary to perform money transactions employing a public laptop computer though the foremost important concern is that a user's watchword is probably reaching to be taken in these computers. Even worse, key loggers typically root kitted, unit of measuring arduous to sight since they're going to not show up among the task manager methodology list.

DISADVANTAGOUS

- It is non-Security for stored data.
- Security level is low.
- QR code is not encrypted which is less secure.
- It doesn't challenges the paperless work.

IV. AIM AND OBJECTIVES

A. Aim:

The aim of the paper is to determine the ability of the QR code to secure patient medical data throughout transit maintaining confidentiality, integrity and convenience at the meant destination among the ranked arrangement of the health delivery system in Rhodesia. We tend to tend to collectively advocate a secure and low cost data transmission methodology that ensures the delivery of complete, correct and well documented patient medical records.

B. Objectives:

1. To show how visualization can improve security as well as convenience by proposing two visual verification conventions.
2. Our techniques are safe to a number of the testing attacks like shoulder surfing attack at the time of login authentication.
3. Prototype implementations in the form of Android applications which demonstrate the usability of our protocols in real-world deployment settings.
4. To generate QR code for every patient as per there disease.

5. To search disease by using Naïve Bayes Algorithm.
6. To predict the disease of patient.
7. To scan the QR code of every patient by using scanner which will be operated on Android phone and the QR code will be scanned by doctor and pharmacist people.

V. PROPOSED SYSTEM

The present invention provides, in at least one representation, a medical quick response code comprising a barcode. The code is configured to be read by a barcode reader. The barcode reader can be an app on a mobile device such as an iPhone or Blackberry app. By scanning the code using the app, the mobile device displays critical person medical data. The critical person medical data can include emergency information such as the person's name, emergency contacts, allergies, and insurance information.

We developed Android application of a prototype of our protocol and demonstrate its feasibility and potential in real-world deployment and operational settings for user authentication.

The scope of this Project can be extended to any type of documents that require high confidentiality and security. A QR Code being small in size can store data of large capacities by making less use of the digital space with encrypted format.

VI. BLOCK DEIAGRAM OF SYSTEM

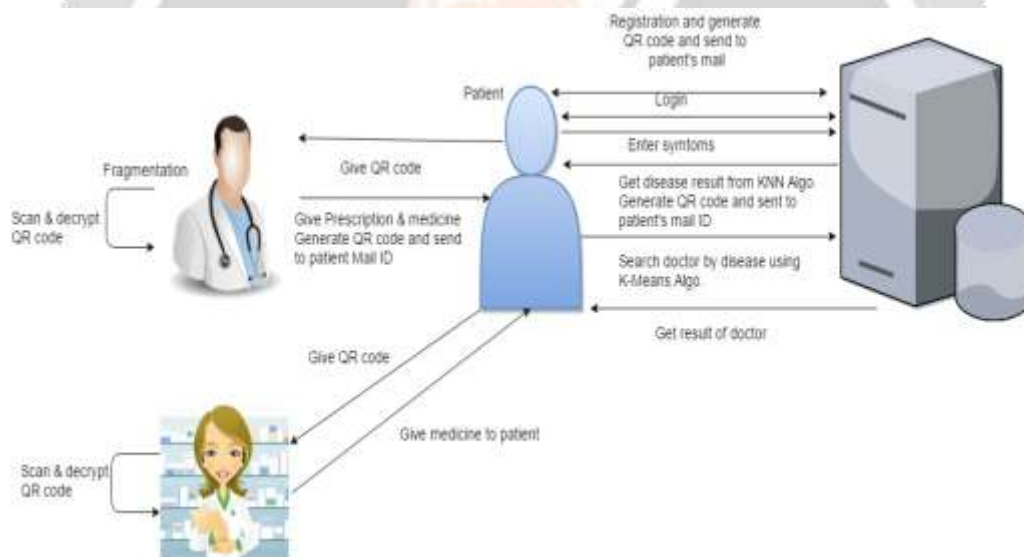


Figure 1: Block diagram of system

A. ADVANTAGEOUS OF 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 needs to visit personally to the physician or at medical store.

A. QR CODE REPRESENTATION

QR codes, abbreviated from fast Response and it square measure very hip and it's began to be used from the year 2011. The most objective is to transfer the information from documents to sensible phone. Our sensible phones square measure equipped with camera, and therefore to convey the message through QR code has become a lot of standard. The QR code could be a 2 dimensional barcode that's designed to be scanned by a sensible phone camera.

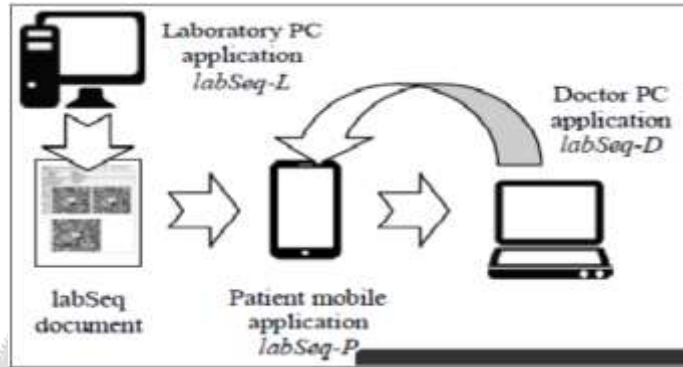


Fig.2. QR Code Representation

B. AES ENCRYPTION

AES algorithmic program encrypts the medical information up to 128bits. Patient United Nations agency wish their laboratory report initial of all he should take the private key throughout its initial visit within the laboratory. Therefore at that point patient having healthcare-p application to cipher and decode the information and cargo into in info.

VII. RESULTS

Parameter	Existing	Proposed
A	10	4
B	10	5
C	8	8
D	10	3
E	8	2

Fig.3: Result Table

- A = Computation Cost.
- B = Time Consumption.
- C = Scalable.
- D = Waiting Time.
- E = User Friendly.

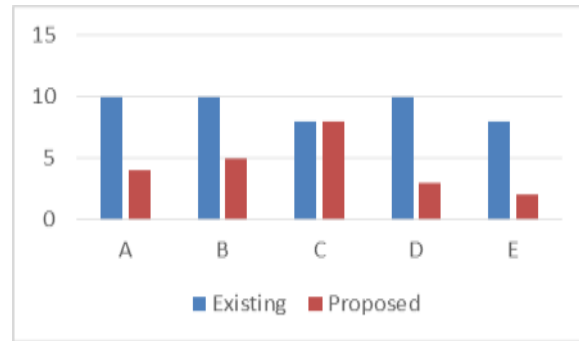


Fig.4: Time line chart of Result Analysis

VIII. CONCLUSION AND FUTURE SCOPE

Though we've an inclination to conclude that the care system offers patients to know the data of their Personal Health Record. So patient will get their laboratory reports quick and in secure sort. it will helpful for them to reducing their time to travel the laboratory for taking the reports and in addition maintaining all history of reports. Patients will definitely get advantage of this method and every patient that having smart phone can merely transfer the app and use it

We planned health care system for hospital for this we've an inclination to unit of measurement victimization K-NN algorithms. We've an inclination to come up with QR code for every patient. We've an inclination to in addition arrange and analyzed the use of user driven visual image to boost security and user-friendliness of authentication protocols. Planned a pair of protocols that not exclusively improve the user experience but in addition resist tough attacks, just like the key-logger and malware attacks. Our protocols utilize straightforward technologies on the market in most out-of-the box Smartphone devices. In addition, we have a tendency to square measure planning to study methods for raising the protection and user experience by implies that of visual image in numerous contexts, but not restricted to authentication like visual cryptography and visual signature verification.

ACKNOWLEDGMENT

Authors want to acknowledge Principal, Head of department and guide of their project for all the support and help rendered. To express profound feeling of appreciation to their regarded guardians for giving the motivation required to the finishing of paper.

REFERENCES

- [1] Krzysztof Czuszyński, Jacek Ruminski, "Interaction with medical data using QR codes", Department of Biomedical Engineering Gdansk University of Technology Gdansk, Poland.
- [2] Mayur Sanjay Potdar, Ishwar Babu Pawar, "A Ubiquitous M-health Application Using Android Appliances", Sandip Institute of Technology and Research Center, Mahiravni, Triyambak Road, Nashik-422213, Maharashtra, India.
- [3] Prof. S. B. Choudhari, Chaitanya Kusurkar, Rucha Sonje Parag Mahajan, Joanna Vaz, "Android Application for Doctor's Appointment", International Journal of Innovative Research in Computer and Communication Engineering (An ISO 3297: 2007 Certified Organization) Vol. 2, Issue 1, January 2014.
- [4] Tanu Mirpuri, Akshay Bhisikar, Ajay Karare, "Emergency Medical Services (Ems)", International Journal of Engineering Research and Applications (IJERA) ISSN 2248-9622.

- [5] R. Pemmaraju Methods and apparatus for securing keystrokes from being intercepted between the keyboard and a browser. Patent 182, 714.
- [6] N. Hopper and M. Blum. Secure human identification protocols. In Proc. of ASIACRYPT, 2001
- [7] DaeHunNyang, Member, IEEE, Aziz Mohaisen, Member, IEEE, Jeonil Kang, Member, IEEE, Keylogging-resistant Visual Authentication Protocols-IEEE TRANSACTIONS ON MOBILE COMPUTING, VOL. 13, NO. 11, NOVEMBER 2014
- [8] J. Bonneau, C. Herley, P.C. Van Oorschot, and F. Stajano, The Quest to Replace Passwords: A Framework for Comparative Evaluation of Web Authentication Schemes, Proc. IEEE Symp. Security and Privacy (SP), pp. 553-567, 2012.
- [9] M. Farb, M. Burman, G. Chandok, and J. McCune, "A. Perrig, "SafeSlinger: An Easy-to-Use and Secure Approach for Human Trust Establishment," Technical Report CMU-CyLab-11-021, Carnegie Mellon Univ., 2011.
- [10] M. Mannan and P.C. van Oorschot, "Leveraging Personal Devices for Stronger Password Authentication from Untrusted Computers," J. Computer Security, vol. 19, no. 4, pp. 703-750, 2011.

