IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Implementation of Healthcare System using QR Code

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***Abstract*—Nowadays, we can see each and every details of every person are stored centrally in database. For Example Bank details, Aadhar card details. But we cannot see this type of thing implemented or used in healthcare system. The main problem in today's date is we are not having any centralize database of individual person, and because of that it's impossible to require proper precaution for prevention of any viral disease. Next is when Dr. give any prescription to patient do not have any record of that prescription. So next time if Dr. wants to take any past reference of same patient than it is not possible. So when we have this system , there are two type of users 1st is Admin which will be any authority of health ministry and another one is doctors or any laboratory. Admin have all the access to the system. Doctor can record every minor details of every case of patient which can be refer any time. Users All people, Doctors, Medical Store, Laboratory. People can do registration with basic details and get unique health id. Doctors can do registration with valid proof. Same medical store and lab will do sign up with proper valid proof. Patient doesn't have any records of their past health history , which can be now stored online so patient can access it anytime for reference. In any personals lifetime , he/she visits to many different doctors and one Dr is unaware about another doctor's past treatment. But now after this project every thing is synchronized and well managed. Potential Impact Potential Impact(is very huge) of this definition is that now after development of this project, Doctors can keep record of every patient's health, Patient can manage all cases of his/her lifetime. Concern authorities can analyse the info and take appropriate action from stored data. One Dr. can easily understand past doctor's treatment and thus patient will get accurate treatment Gradually this leads to decrease death ratio of people because of unknown data of past. And if in case the patients causes death then the health ministry authorities can take appropriate actions like they can delete the data of the patient from database or arrange the data and update the data.**

***Index Terms*—Keywords: Healthcare, Smart card, Medical record, Computer Networks, Security, Unauthorized access, Keylogging, QR Code**

I. INTRODUCTION

Hospitals continuously generate tons of data which is related to the patients. This data contains the general diagnosis of the patients. Managing these hard copies of data is a lot tedious and time consuming process. Even the retrieval of the data is also a hectic process. We propose a paperless scheme to replace the convectional way of storing the data in the wellness centres. We propose a system that accepts the data from the user using a customised graphical interface. The interface requires the user to enter his/her details which include name, dob, email (mandatory), insurance policy number, username, password etc. Once the user submits his information the corresponding QR-Code for his profile is sent to him on his email. The user then can enter the symptoms which bother him. The generated report is also sent to his email. Using an encrypted scanner the doctor scans the patients QR Code and suggests a prescription to the user. The prescription is again sent to the user. This encoded prescription can be shown to the pharmacist who again scans using his scanner and ultimately gives the medicine.

QR or Quick Response Codes are a kind of two-dimensional barcode that can be read using Smartphone's and dedicated QR reading devices, that link directly to text, emails, websites, phone numbers and more. We see QR codes on product packaging, shop displays, printed and billboard advertisements as well as in emails and on websites. Soon enough we will be seeing it in hospitals also. Keeping results of medical, laboratory investigations in a hospital for a patient using traditional, paper form is complicated. Therefore it becomes difficult to take care of or search the history of knowledge in the integrated form. It is of vital importance when a patient uses health services from different providers. In such situations a complete Electronic Health Records are often not available. Patients, who regularly obtain new laboratory results, are required to keep them ordered and to bring them for every visit in a consulting room. Without the right solution, hospital materials management can be extremely time consuming and prone to human error from manual data entry. Various solutions like World medical card by Norway through which users have the ability to download their full record, in electronic form, at any time but its significance hasn't yet realised India[2]. Recently, EHR related applications for Smartphone's have become widely popular. Each of them offers various health data storage and management capabilities. So our proposed system could also be an effort in bringing an equivalent in third world countries.

II. MOTIVATION

To storing current data of patients is to simplify and automate the process of fetching for data , information of patients in case of emergency. To maintain the records of

patients, updating in the records will make the system more reliable.

III. OBJECTIVES

1.To maintain records of patients online. 2.Maintain Security between details of patients. 3. To support requesting for required data within less time. 4. To prevent patients from carrying reports file physically as we are store the records online.

IV. PROBLEM STATEMENT

: Health card that is a smartcard same like Aadhar card, pan card, voter-id card that will store all the details of patient's medical reports.

V. LITERATURE REVIEW

Healthcare model based on smart cards. The purpose of the proposed model is to facilitate information exchange and integration across medical organizations. Currently, all medical centers have their own healthcare system. Each time a patient visits a clinic; a replacement file is made for him. Clinical information history related to the previous consultations is not available. Prescriptions provided by doctors are signed manually and not efficiently authenticated by pharmacies. Claims are transmitted to the insurance companies by fax which makes them subject to falsification. The existing approach of the ministry of health in maintaining information about patients is not efficient, because healthcare institutions are not linked to a central system. In the proposed solution, the cloud will be used to store medical history of a patient that contains all diagnosis and drug prescriptions done in different medical centers. The medical institutions should adhere to the government healthcare organization system managed by the ministry of health. The information exchanged by the medical institutions should be protected and secured.

VI. EXISTING APPROACH

In India majority of hospitals follow the manual paperwork method for keeping records. In first world countries the proposed system has already been implemented and is a success, but this concept is still alien to third world countries. An application has been developed that uses Qr code to exchange laboratory results with the encapsulated, encrypted medical data]. In 2010, PPH, which includes two hospitals in the San Diego area and is that the largest hospital district in California, began a project to create its own mobile healthcare platform called MIAA (Medical Information Anytime Anywhere). Sterling Hospitals have launched an application in Ahmedabad, which is compatible for android and iPhone, allows a user to book an appointment. With a doctor, or a diagnostic test, view the pathology reports directly on mobile, get information about all doctors at the hospital, as well contact in case of emergency situations[5]. As Smartphone's are growing too mainstream these days so the proposed system which is based on Smartphone's can be worthwhile. The system not only enhances process efficiency and cut costs, but also save lives by preventing harmful medical errors. Thus there is a need for automation and elimination of manual work.

VII. PROPOSED APPROACH

The proposed system has various modules integrated that will be easy to use and can contribute as a useful tool for the personnel of any healthcare facility. Also precious time will be dedicated to patient's healthcare rather than keeping records. We aim at facilitating doctors, nurses and involved staff throughout the hospital, regardless of the existence of network connection in the area, using a typical Smartphone.

The Main content for health care system they are there module. Admin, patient, doctor. This is 3 module , first is patient create account and fill up all details after creating account to generate a unique id. Patient only can give a read access. this healthcare system advantage is a get a doctor appointment. Second is doctor create account that's time verify admin module(health ministry) after they can granted access to successfully create account. Patient go to a doctor in health related issue so doctor are open a patient id in your account and check the history of patient or write current dieses and write medicines. Main important doctor can only read and write access. any of wrong report to add the patient account and after modify the report that's time doctor send the request to admin to modify purpose for this patient. And admin module are read , write , modify and authentication access.

A. Architecture of proposed system

The system basically consists of client side and server side. On client side, there can be mobile device as well as computer. Mobile device will be used by the doctors or patient and the medical store. Server side use to Admin (Health Ministry) they are control all access. A proper network connectivity will be provided between client and the server through internet. The server consists of database which will store information of the patients and will be cross matched with the scanned QR code. Mobile device will contain a local database to store temporary data.

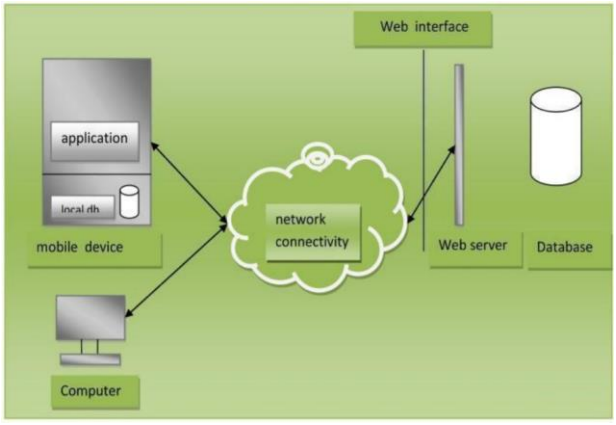

Fig. 1. Block Diagram

B. System Flow

Our proposed solution involves an android application based solution. Whenever a new patient is admitted the IPD department which currently maintains all patients details, date of admittance and discharge date manually will instead and add medicines use our App to store that crucial data without much hassling. Medical personnel has to be able to be updated for details that might be of interest to him while visiting like new information is invoked, on the reaction of a patient to a specific medication, dosage or some history allergies. This will enable better arrangement of time. Finally, the medical personnel responsible are going to be ready to record vital signs i.e. temperature, blood pressure, weight, bowel movements directly after the measurement, thus reducing the clerical work involved in the process. The backend system of the App supports access to patient's medical history. Even authentication is given to confidential reports of the patient. QR codes are used so that the consultant can directly view the patients details without any personnel to brief him. They also include some personal information about the patient like surgeries, regular medications taken, emergency numbers, regular physician etc. QR codes also include a link for the patients to view their reports, medicines etc. So patient are view report so patient are login account manually and QR-code Scanned. After open account and see all details and report for patient. Doctor are see all history and prefer best solution. That's way to all are easy to handle patient and much more save time.The diagrammatic representation of the above discussion is shown in the adjacent figure 2.

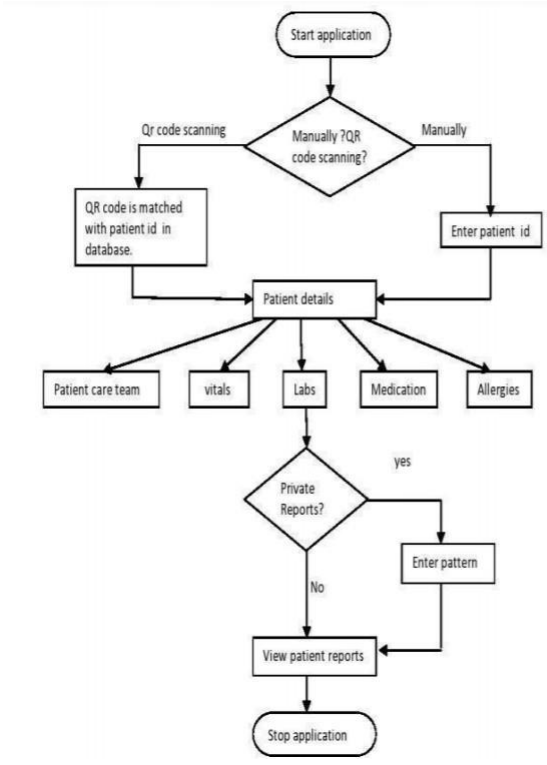

Fig. 2. Flow of the system

VIII. System Diagram

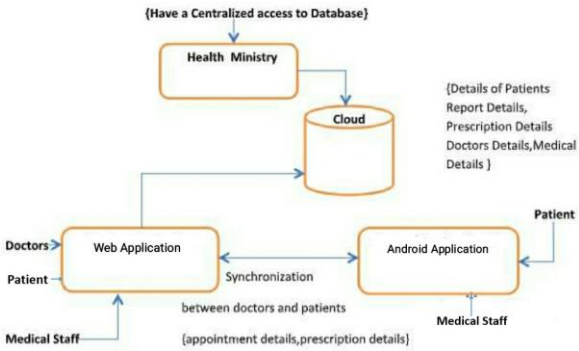

Fig. 3. System Architecture

IX. Algorithm

A. Unique Key Generation Algorithm:

- STEP 1 :Start
- STEP 2 : Provide the Input.
- STEP 3 : Submit all Details.
- STEP 4 : Registration can Done.
- STEP 5 : Create a Unique Key.
- STEP 6 : Initialize the Key and store in cloud.
- STEP 7 : End.

B. QR code Generation Algorithm:

- STEP 1 : Start
- STEP 2 : Input the Source File.(Login)
- STEP 3 : Login can Done.
- STEP 4 : Use the Unique Key. (Generated in 1.1)
- STEP 5 : Processes the Unique Key for QR code Generation.
- STEP 6 : QR code is Generated.
- STEP 7 : End.

C. QR code Decoding Algorithm:

- STEP 1 : Start
- STEP 2 : Input QR code.
- STEP 3 : Scanned the Input QR code.
- STEP 4 : Decoding can Done When scanning of QR code is Done.
- STEP 5 : Then Display the Unique Key.
- STEP 6 : Access all the Details Through Unique Key.
- STEP 7 : Detail Information of user can be show.
- STEP 8 : End.

X. CONCLUSION

We proposed health care system for hospital for this we are using health care system. We generate QR code for every patient. We proposed and analysed the use of user driven visualization to improve security and user-friendliness of authentication approaches. The proposed system uses two conventions that not only improve the user experience but also resist challenging attacks, such as the malware attacks. Our protocols utilize simple technologies available in most out-of-the box Smartphone devices. This Health Care System are is Simple to use and all Correct history are see.

XI. ACKNOWLEDGMENT

It gives us great pleasure in presenting the preliminary project report on Implementation of Healthcare system using QR code. I would like to take this opportunity to thank my guide Prof. Khatri A.A. for giving me all the help and guidance we needed. we really grateful to them for their kind support. His valuable suggestions were very helpful. we also grateful to Prof. Wavhal D.N., Head of Computer Engineering Department, Jaihind college of engineering, Kuran for his in-dispensable support, suggestions. In the end our special thanks to Prof. Khatri A. A. for providing various resources such as laboratory with all needed software platforms, continuous Internet connection, for Our Project.

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