Better Health Care using Global Life Card

Ruksar Anjum,
PG Student,
BIT, Mangalore.

Mustafa Basthanikodi
Dept of CSE
BIT, Mangalore

Abstract: Health cards are the most widely used in field of IT as a portable integrated device for data storage as well as data processing. In this paper, a smart health card based information system is implemented. This paper also gives us the idea of designing such cards. We have also tried to give in brief the pros and cons of this system and used materials from different resources.

Keywords: e-health care, Global life card, Emergencies

I. INTRODUCTION

From the ancient times, health records of each and every patient in various hospitals were on a papers and ledgers and it was difficult to maintain the data and moreover it is time consuming. So the hospitals requires a computerized environment where it is easy for storing information about patient’s medical details like blood report, MRI, CT-SCAN, prescription and so on, which in turn reduces cost, work load and time. It can also be considered as an information management system appropriate to the up-to-date standards. A smart health card is a device which includes an embedded circuit chip (ICC) which can be either a microcontroller or any equivalent intelligence with some internal memory or with a memory chip alone. The card connects to the designed reader either with direct physical contact or by a remote contactless radio frequency interface (RF).

The important role of any health card is to provide storage and security. Storage plays a vital role as all the medical data of a particular patient is stored in it. Global life card consist of data such patient’s name, blood group, allergies, prescribed medication, present medical conditions and other information such as if the patient is an organ donor, necessary information for the insurance companies and medical test records such as X-rays, biochemical test and other health related records. Data to be stored on the health card depends on storage availability [2].

II. LITERATURE SURVEY

According to e-health care analysis, Healthcare is among the fastest-growing sectors in both developed and emerging economies[3]. The purpose of this system is to present the state-of-art and to identify key themes in research on e-healthcare. Design review of the literature in the marketing and management of e-healthcare was conducted to determine the major themes pertinent to e-healthcare research as well as the commonalities and differences within these themes. According to the literature survey, we have identified the major five aspects of e-healthcare research they are: cost savings; virtual networking; e-medical records; source credibility, security and relationship between physician and patient. Based on these five major subjects, managerial implications for e-healthcare systems are formulated. A lot of Suggestions are offered to assist healthcare service, organizations are attempting to further implement it and properly utilize e-healthcare system in their facilities. E-healthcare systems enable firms to improve efficiency, to reduce costs, and to facilitate the coordination of care across multiple facilities [4].

III. EXISTING SYSTEM

In existing system, every now and then we make use of papers especially in the medical field such as registration form, prescription list, test reports and so on. It is uneconomical and requires more manual work such as filling forms, storing and retrieving them whenever required. Emergencies can take place anywhere and anytime, and the patient may not always be carrying his medical records. Most of the times we may travel to different location, where medical emergencies may occur and has to be hospitalized where doctor will not be knowing past medical record of the patient, which in turn may lead the patient’s life in danger. Existing system is not so useful in times of emergencies. So in order to overcome this, we came up with a new technique by using a global life card. This card may be very useful especially in times of emergencies and may save someone’s life.

IV. PROPOSED SYSTEM

The basic idea of this health card comprises of a website that is designed for hospital for the welfare of patients. Patients who are attended by doctors for any kind of health issues may have to undergo several tests like blood sugar level, B.P. etc. And then the record of
every patient is stored in his profile which is uniquely identified by his patient ID. The medical prescriptions of the patient are also stored in same account. In cases of emergency, if any patient has to undergo urgent surgeries, then the medical treatment has to match his health status like the suitable blood group and other relevant factors. In such cases, the previously recorded patient’s details would be very helpful and it can become a savior to someone’s life.

V. IMPLEMENTATION

The use of Global life card in health sector became popular just due to its increased performance rate. They are easy to use and provide faster data access which leads to its implementation particularly in security systems. This card leads us to the patient’s health record in no time. Along with personal information, general health related information about the patient is also inserted in patient smart card. It is designed in C#, HTML and CSS languages.

Our Global life card involves different people such as doctors – to view patients history, add test and add prescription.

Patients – who can checkup their next appointment or prescription alerts.

Diagnostic center- to view test results, update test results.

Pharmacy – to view and give prescription.

We have briefly explained the process using designing tools such as Algorithm and Flowchart.

A. Algorithm: It is a step-by-step procedure to solve any problem.

Step 1: Patient, Doctor, Diagnostic Centre, Pharmacy and Hospital register themselves to avail the services of Global Life Card.

Step 2: Admitting clerk enters patient's medical history for future use.

Step 3: Cardholder visits healthcare facility.

Step 4: Doctor swipes the card and views the patient details.

Step 5: Based on the diagnosis, the doctor prescribes medications and tests.

Step 6: The pharmacists and diagnostic centre view the prescriptions and act accordingly.

Step 7: The Doctor views the test results uploaded by the diagnostic centre.

Step 8: Go to 3.

B. Flowchart: It is a graphical/pictorial representation of the above given algorithm. The flowchart shown in the Figure 1 visualizes the working of our system. The user of the system accesses the website using their username and password. Depending on the type of the user logged in, the functionalities change. If the user type is doctor he can view patient's medical history and reports, add tests and prescriptions. If the user type is patient, he can view his medical records, diabetic levels, place appointments and search for doctors, hospitals, pharmacies and diagnostic centers by city. If the user is a pharmacist, he can view the prescriptions given by doctor and give appropriate medications. If the user is diagnostic center he can view the tests suggested by doctor and upload the test results to patient's profile. Doctors, Diagnostic center and pharmacist should swipe patient's Global Life Card access the respective modules.

Fig. 1 flowchart of global life card

Smart cards are small-sized, plastic cards which includes IC( integrated circuits). In 1974, smart cards were first released and Since then, the use of smart card started expanded in various domains. People started using it for financial transactions, personnel monitoring and also in identification of tickets for public transit and in other important healthcare services [2]. Fig. below shows an sample of global life card.
VI. OVERALL DESIGN

The entire idea about using the card is been shown in the figure below, where the life card is placed in center and all other people who are going to use this system are surrounded around it. As we can see every individual has its own set to job to be done either it be a doctor for viewing patient medical history or it be a diagnostic center for viewing test and medical details or it be a pharmacist for view and provide prescriptions or the admitting clerk who plays a vital role that is to registering and editing details of the patients.

VII. PROS OF THE SYSTEM

The advantages of health cards are uncountable. It helps a lot of people not only the patients but also the doctor as what actions to be taken in times of emergencies just by having a glance at the history of patient. Few advantages of the system are listed below.

A. Patients health data consistency

Data Inconsistency of patients and incomplete medical records and also misplacing of medicals reports are major problems in healthcare system. Mostly aged Patients or senior citizens cannot be trusted fully when it comes to the accuracy and truthfulness pertaining to their medical history. In such cases, use of smart cards is very beneficial and most importantly it will be easy to access and get accurate information on a timely basis.

B. Data Availability

One of the most important reason for using this smart card is data availability. Data is available at any time with just a simple swipe of the card in the designed machine. In traditional system, there are more chances that the data will be unavailable in emergency situations as it is natural that we will not be carrying all our medical records along with us where ever we travel. So smarts cards make data available in such emergency situations.

C. Less Time consuming

Having a look at all your previous records on paper based system will be time consuming and it gets even more complicated when an important report has been missing. So in such situations, health cards will be useful as all our documents are kept in a same place so accessing it will definitely consume less time when compared to paper based records.

VIII. CONS OF THE SYSTEM

Along with so many pros of any health care system, there come few cons along with it. Few of the cons of the system are listed below.

A. Cost

Cost is one of the most important criteria of all time. A huge amount has to be invested in order to switch from existing system to new proposed systems. Still in most of the places, usage is of paper based system is going on as people are not ready to shift to the new system. Cost plays a vital role in such new inventions or creative ideas. Beside cost, once the system starts getting implemented then it will be of great use in emergencies.

B. Health data management

Problems occur when data is not consistent, no proper use of files and records and inaccurate filling of medical information of patients. Even the training should be given to the users of these system. Once data is collected it should also be maintained properly. Over all idea of our system is making health care information simpler and easier to use and also manage it.

C. Security

Next disadvantage is about data security. System should be designed in such a way by considering the factors such as data storage on the global life card or on the online servers, and what kind of data to be included in the global life card’s memory, and what
encryption technique we are going to be use, which all individuals will have the access to which data, and also the data ownership are some of the problems that come into light that needs to be handled regarding data security.

IX. FUTURE SCOPE

Our e-healthcare system currently focuses on the relationships between patients, doctors, pharmacists and diagnostic center. We can extend the features of our websites by adding options like Online Payment of Hospital Fees, Graphical representation for blood pressure and other vitalities, Health Tracker, prescription alerts and many more. The project with these enhancements allows people to use the Global Life Card conveniently across the nation.

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