MEDICARD AND FINGERPRINT DETECTOR

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Abstract

The advancement of technology in medical has been rapidly growing. In this project we intend to introduce an efficient medical management. Ever since a child is born, the chances of knowing that person's medical details are a few. It is important to a doctor to know all the medical treatments that a patient has undergone or any sort of other health related issues. For this we propose a card known as MEDI-CARD. This card is meant to include all the health related issues of a patient. Similar to an Aadhar card, it will hold personal details as well as details such as hair, fingerprints etc. If a person met with an accident, the doctor can refer the patient's previous medical records and find the appropriate treatment using the medi-card. Medi-card is also intended to expand further to Forensic department as it will fasten the process of finding the culprit. This Medi-card can also find application in many other fields. Index Terms: Registration, Password, Patient Record, Biometric Identification.

I. INTRODUCTION

Now-a-days lot e-cards are being carried around by a person, which is definitely not very convenient. Mostly, everyone wishes to carry things lighter and efficient manner. Be it bag, be it a book, everything has now been changed into digital. The digital era is vast and a fast growing system and so does the medical field has to be digitalized. In many instances, as mentioned before, a person has to carry around a lot e-cards. When a person goes to the hospital, the patient often has to carry a unique card around. The database of the patient is often restricted to a particular hospital. Here comes the need of an e-card that gives access as well as stores all the medical records of the patient into a single entity.

This Medi-card holds all the records such as basic details, personal details, biometric passwords etc. of the patient. Smart cards are used in information technologies as portable integrated devices with data storage and data processing capabilities. As in other fields, smart card used in health systems is also popular due to their increased capacity and performance. Their efficient use with easy and fast data access facilities leads to implementation particularly widespread in security systems. In this paper, a smart card based information system in healthcare is developed.

In addition to personal information, general health information about the patient is also loaded to patient smart card. Health care providers use their own smart cards to be authenticated on the system and to access data of patient.

Privacy in the health sector is improving these days, even when most computer networks are vulnerable to attack or intrusion. More so, incomplete or misunderstood healthcare records can lead to wrong medication that may eventually cause the death of patient. It is built to eliminate the bulky paper work in hospitals and to address the shortage of health care personnel.

Biometric identification authenticates secure entry, data or access via human biological information. Conventional methods of biometrical identification include ear shape, fingerprints, facial feature recognition, signature dynamics, voice verification, skin patterns, retinal and iris scans, hand geometry, body odor, and a lot more. Conventionally, biometrics works with specialized devices such as infrared cameras that are used for acquisition of images [1]. Fingerprint technology is one of the most popular biometrics technology used for authentication by several people globally because of its low cost.

II. EXISTING TECHNIQUE

In most cases, information is restricted to authorized users like chairman and directors of hospitals and few registered users. Medical cards were used in order for automating the hospital or a specific organization where the medical reports can be only viewed by corresponding hospital authorities and been restricted for others. This restricts the patient to know about his medical treatment and thus, encouraging all sorts of malpractices and illegal medical practices that of the people become unaware of.

The hospitals will be entering data on the card that only contains the list of doctors that has been visited by the patient. Note that they do not contain the prescriptions. Hence the person would not have a continuous record of his medical record as the practice of prescribing medicines on sheets still is going on in many parts of the country.

Main idea is to implement a web application for hospitals or analyzing medical insurance information and statistics of hospitals by integrating this application into viewed by corresponding hospital authorities and been restricted for others.

All over the world, governments, corporations, military establishments and others are using biometric technology for identification process across many different countries. Retail point-of-sale establishments use biometric identification to reduce false returns, helping improve loss prevention strategies.

Patient safety continues to be one of healthcare's most key challenges, although there are many ways from which patient safety can be addressed, the prevention of duplicate medical records and the elimination of medical identity theft stand out as two of the main culprits jeopardizing the integrity of the healthcare industry [1]. Costing the industry millions of rupees per year in administrative costs, legal expenses and liabilities, in addition to placing patient safety at risk, the root cause of these problems are generally improper patient identification, a problem that can be refined through the adoption of biometric technology. The hospital detention of following no charge hospitalization (In-Patient) services will apply when Medi-card physicians prescribe the hospitalization of members in any Medi-card Hospitals or Medi-card centers: Non-emergency confinement or surgery (elective cases) shall be subjected to prior review and approval by the Medi-card review board. Medi-card reserves the right to direct the members to other physicians or specialist for further opinions as needed so as to protect the interest of both the member and Medi-card.

III. THE PROPOSED WORK

The information contained in the medical record allows health care providers to determine the patient's medical summary and provide care. From the birth of a child, the card will contain their iris as well as their finger prints as identification. If by chance they met with an accident, this card will be very useful as doctors can refer the previous medical records and give necessary treatment.

In this system, there will be a unique ID for all the people. Here, there are mainly 4 kinds of users i.e.; the User himself for knowing about their personal as well as a summary of the medical details by entering user ID and password; the Police enters in their specifically designed Medi-card website with their user ID and password and they could get the information regarding the personal details as they can cross check to identify the person by using fingerprint detector; the Doctors also do have a unique ID and password which allows them to have access on complete medical records of the patients details and only a doctor could enter the details or could edit the database; and the last category is the Admin who is responsible for verification, update and maintenance of the system.

This project is proposing a system which could ensure everyone's medical history and other identifications related to individuals. As an extension this project intends on proposing a fingerprint detector. Medi-card holds all the details about an individual which includes cases of some theft, rape or attacks as well as medical records. This aids in identifying the culprit from the database within new minutes. The main objective of the project is to collect the medical details of each individual so that it will be helpful for the future needs and the results couldn't be manipulated.

IV. DESIGN AND DEVELOPMENT

1. DESIGN PHASE:

System design is the solution to the creation of a new system. This phase is composed of several systems. This phase focuses on detailed implementation of the feasible system. It emphasizes on translating design specifications to performance specification. System design has two phases of development logical and physical design.

During logical design phase the analyst describes inputs, outputs, databases all in a format to meet up the users' requirements. The almost also specifies the user needs and at a level that virtually determines the information flow into and out of the system and the data resources. Here the logical design is done through data flow diagrams and database design.

The physical design is followed by physical design or coding. Physical design shows the working system by defining the design specifications, which tell the programmers exactly what the candidate system must do. The programmers write the necessary procedure on accepted data and the required report on a hard copy or display it on the screen.

The design of a system is essentially a plan for a solution of the system. The design process for software has two levels. At the first level, the focus is on how system need modules, the specification of these modules and how the modules are interconnected. This is know as system design or top level design. In the second level the internal design of the modules or how the specification of the modules can be satisfied. This design level is called detailed design or logic design.

During the design phase, the system is designed to satisfy the requirements identified in the previous phases. The requirements known in the Requirement Analysis phases are transformed into a System Design Document that accurately describes the design of the system and that can be used as an input to system development in the next phase.

The system is designed keeping in mind the following key requirements: i Clients should easily connect and disconnect from the system. ii Encryption should be very secured. iii User interface should be user friendly on the client side. iv Server should run in the background without disturbing regular activities on the desktop PC.

The aim or purpose of the design phase is to transform the requirements into complete and detailed system design specifications. Once the design is approved, the Development phase begins.

The Design phase result in one of the key elements to the project: the design. Without detailed design, the system, cannot be constructed, implemented, trained upon, or operated. The decisions made in this phase regarding technology, frameworks, implementation, and configuration and change management ensure a good foundation for the project. While equivocal requirements are the greatest source of project failure, a poor requirements are the greatest source of project failure, a poor design ranks second. The approval of the Design Phase deliverables, the completion of the design project status review, the approval to the next phase, signifies the end of the Design Phase.

V. MODULE

A) CREATION OF UNIQUE ID:

In this module, if the user is new to Medi-card system, he/she has to first fill the key form manually regarding all the information of his/her respective different fields and submit it to registrar to be at a later stage. This stage is an internal process and will not be shown anywhere in the Interface. Next after the verification by the online registration the data form is given to the admin. Admin generates or allots a Medi-card no for the user who register validate and acknowledges [2].

B) USER:

In this module, the user login to the webserver using its unique id and password and he/she can view his/her personal details and medical details.

C) DOCTOR:

In this module, doctors are given unique id to login and using that they can enter the medical prescription of the patient.

D) POLICE:

In this module, the police can view the person's details and using that he can match the fingerprint as the Medi-card already includes the identification marks and fingerprints.

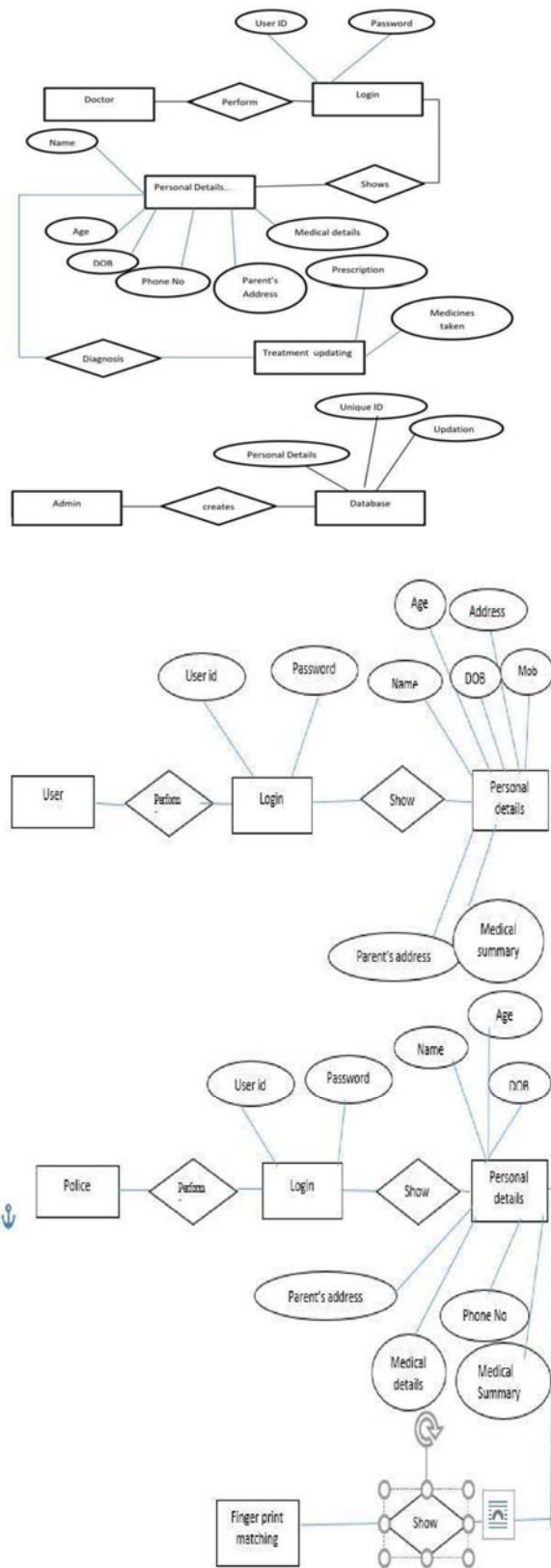The E-R diagram of the system is given in fig.1

The flowchart of the system given in fig2
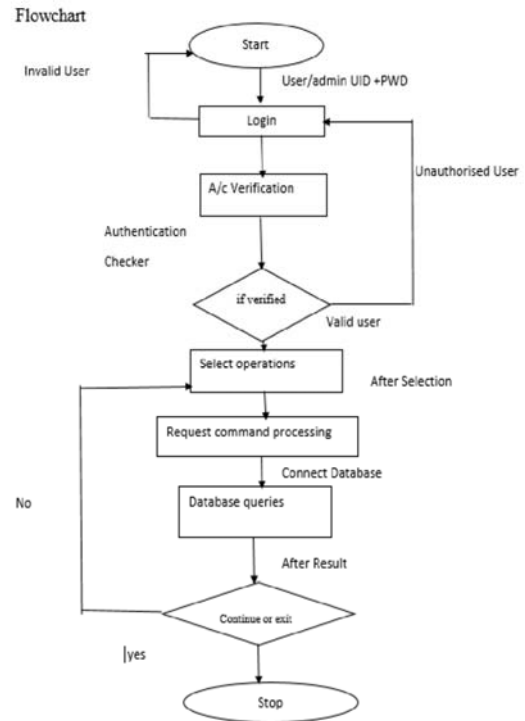

Fig2. The flowchart of the system

VI. DEVELOPING TOOLS

1. HARDWARE REQUIREMENTS

a) OPERATING SYSTEM

An Operating System (OS) is an interface between computer user and computer hardware. An operating system is software which performs all the basic tasks like file management, memory management, process management, handling input and output, and controlling peripheral devices such as disk drives and printers.

Some popular Operating Systems include Linux, Windows, OS X, VMS, OS/400, AIX, z/OS, etc.

In this project, we are using windows.

b) RFID

Radio-frequency identification (RFID) uses electromagnetic fields to automatically identify and track tags attached to objects. The tags contain electronically stored information. Active tags have a local power source (such as a battery) and may operate hundreds of meters from the RFID reader. RFID is one method for Automatic Identification or to get details and these tags are used in many industries, for example, an RFID

Fig.1 The E-R diagram of a system

tag attached to an automobile during production can be used to track its progress through the assembly line; RFID-tagged pharmaceuticals can be tracked through warehouses; and implanting RFID microchips in livestock and pets allows for positive identification of animals.

Fig. 3. RFID Reader

c) CONFIGURATION CARD

Fig.4. Configuration cards

d) FINGERPRINT SCANNER

A fingerprint scanner typically works by recording fingerprint scans of all authorized individuals for a particular system or facility. These scans are saved within a database. The user requiring access puts their finger on a hardware scanner, which scans and copies the input from the individual and looks for any similarity within the already-stored scans. If there is a positive match, the individual is granted access.

2 SOFTWARE REQUIREMENTS

a) JAVA

Java is a programming language and computing platform first released by Sun Microsystems in 1995. There are lots of applications and websites that will not work unless you have Java installed, and more are created every day. Java is fast, secure, and reliable. Java is everywhere! from laptops to data centres, game consoles to scientific supercomputers, cell phones to the Internet. The Java Runtime Environment (JRE) is what you get when you download Java software. The Java Runtime Environment consists of the Java Virtual Machine (JVM), Java platform core classes, and supporting Java platform libraries. The JRE is the runtime portion of Java software, which is all you need to run it in your Web browser.

b) ANDROID

Android is a mobile OS developed by Google, based on the Linux kernel and designed firstly for touchscreen mobile devices such as smartphones and tablets. Android's user interface is mainly based on Direct manipulation, using touch gestures that loosely correspond to real-world actions, such as swiping, tapping and pinching, to manipulate on-screen objects, along with a virtual keyboard for text input.

It's source code is being released by Google under an open source license. Android is popular with technology companies that require a ready-made, low-cost and customizable operating system for high-tech devices. Its nature has encouraged a wide community of developers and enthusiasts to use the open-source code as a foundation for community-driven projects, which deliver updates to older devices, add new features for advanced users or bring Android to devices originally shipped with other operating systems. The variation of hardware in Android devices causes significant delays for software upgrades, with new versions of the operating system for security patches typically taking lot of time before reaching consumers, or sometimes not at all. The success of Android has made it a target for patent and copyright litigation between technology companies.

V.DISCUSSION

The inclusion of security into the healthcare industry increases safety measures for the doctors and patients however there are notable challenges such as passwords that are to protect computer systems from unauthorized users and also provide a false judgment of security. Some use easily guessed passwords, thus allowing for

unauthorized access. Patient records are viable for patient care, but incomplete patient records or wrong information or muddled up of patient's record can lead to wrong prescription. And the provision provided for the police play a major role in the field of identification of person, this will help to identify the culprit in the fastest way. When the card become globally valid, the data can give the statistics of the diseases occurring in a particular time period.

VI.RESULT AND CONCLUSION

In this article, the design and implementation of a Medicard and fingerprint detector was presented. Authentication were used to ensure the security and protection of the system. The system can be used by healthcare providers to keep records and secure patient health record. It is important to a doctor to know all the medical treatments that a patient has undergone or any sort of other health related issues. For this we propose a card known as MEDI-CARD. This card is meant to include all the health related issues of a patient. Similar to an Aadhar card, it will hold personal details as well as details such as fingerprints. If a person met with an accident, the doctor can refer the patient's previous medical records and find the appropriate treatment using the medi-card. Medi-card is also intended to expand further to Forensic department as it will fasten the process of finding the culprit*.* The software is expected to improve the efficiency of hospital management The integration of biometrics is to increase the users' confidence in the system. Future works on biometrics technology will include DNA (Deoxyribose Nucleic Acid) analysis. We have provided a website and mobile application.
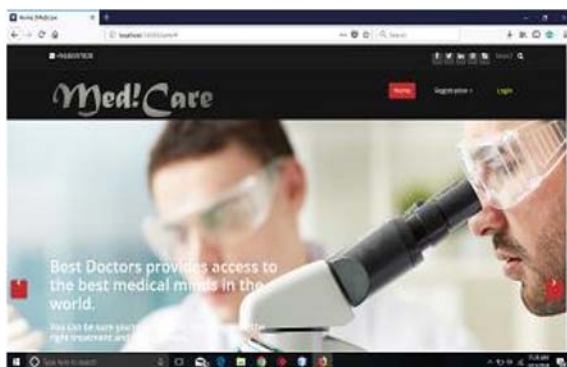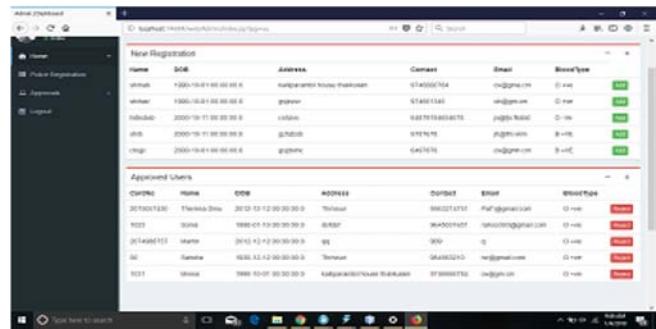
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Fig 5.medicare website

Fig 6. Admin approval

Fig 7. Mobile Application

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