MEDREC ONLINE HEALTH CARE

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Abstract

Health care has played an important role in recent years, this sector has been evolving to produce a more efficient and computerized system. Online health care systems have also made a significant improvement in enhancing health care services over the years. This paper presents the development of a web application for the general public where they can store their own medical data and access it anytime, from anywhere. In the MEDREC-Online Health Care system, users can register as patients to store their medical data in the database. The system also consists of registered doctors under the enlisted hospitals, who can give free medical advice and prescribe necessary medications to the patients when requested for an appointment. The doctors can view their patient's data and issue prescriptions. The system has been developed using NetBeans IDE. The database has been designed using MySQL and Apache Tomcat as the server. It provides an efficient way of storing information electronically, a faster communication mechanism between patients and doctors, and also ensures better security for the users.

Keywords*:* Web Application, Medical Data.

I. INTRODUCTION

In today's world everything is becoming computerized and web based. Different organizations have already moved towards computerized systems which made lives easier and faster. One of the most important sectors of any nation is their health care sector. The organization of people, institutions and resources that deliver services related to health to meet the medical needs of the general public or any individual is referred to as Health Care System. **MEDREC** is the web based application which aims to provide services electronically to improve patient's medical needs. Using their profiles, doctors and patients can update and view the medical records, which reduces the need to carry around these sensitive information. The importance of health care is immense in a society and over the past years, this sector has been evolving to produce a more efficient and Computerized system. The system is composed of registered doctors and patients who can communicate regarding medications and appointments. Patients can securely store their own medical data and access it anytime, from anywhere.Medical data's are stored in an electronic form, which minimizes the risk of carrying around such subtle information.

II. RELATED WORK:

The developed system is capable of securely storing patient's health records, fix appointments with registered doctors when requested by the patients, secure communication between doctors and patient, prescribe medicines to patients, send prescription to the registered medical store.

Dr Thomas Scodellaro, Dr Wonie Uahwatanasakul, Professor Mike South and Dr Daryl Cheng introduced a system for an electronic medical record in pediatric medical. EMR gives access to patient information, and can submit clinical notes and place orders for a supervising clinician to review and complete their tasks. Medical students readily engaged with the Electronic Medical Record, recognised several advantages in clinical practice and did not believe their ability to interact with patients was impaired. There was widespread consensus that the EMR enhanced their learning and clinician's feedback, but not to the degree they had expected.

Md. Rakibul-Hoque, Md. Fahami Ahsan Mazmum and Yukun Baoproposed the paper E-Health. E-Health is the application of

advanced ICT, such as the Internet, wireless and other sophisticated devices to provide health care delivery to patients. It involves the use of information technologies to improve health in general and the healthcare system in particular. E-Health can be one solution to provide better access to healthcare facilities for patients, physician, nurses and other healthcare staffs, increase care quality and improve collaboration.

Stella Ouma and M. E. Herselman proposed the paper Rural E-Health. Rural E-health can also be described as any electronic exchange of health related data through an electronic connectivity for improving efficiency and effectiveness of health care delivery. In case of emergencies patients do not usually have medical records at hand. This is because IT can dramatically revolutionize the delivery of healthcare making it safer, efficient and effective.

Anwar Islam and Tuhin Biswas proposed the paper health system and opportunities. With the restructuring efforts led to much improvements in the overall health and social development as reflected in some of the key socio-economic and demographic indicators. Health is a fundamental human right, and regardless of their socio-economic status everybody has the right to enjoy optimal health status.

III.SYSTEM OVERVIEW:

1) NETBEANS:

NetBeans is an integrated development environment (IDE) for Java. NetBeans allows applications to be developed from a set of modular software components called modules. NetBeans runs on Windows, macOS, Linux and Solaris. In addition to Java development, it has extensions for other languages like PHP, C, C++, HTML5,and JavaScript. Applications based on NetBeans, including the NetBeans IDE, can be extended by third party developers.

2) SQLyog:

SQLyog is a GUI tool for the RDBMSMySQL.Programmed and developed in C++ using Win32 API. No dependencies on runtimes (.NET, Java etc.). Uses MySQL C API to communicate with MySQL servers. No dependencies on 'database abstraction layers' (like ODBC/JDBC). It uses SQLite to store internal data like Grid settings. Consequently,

these settings are persistent across sessions on a per-table basis.

IV. EXISTING SYSTEM

Health care system is also moving towards computerized based system like other industries. Many health organizations already use digital hospital management system. Hospitals have their own customized software to carry out the daily activities of the hospital such as - patient registration, scheduling appointments or diagnostic tests, medicine department, billing system and many others. But those operations are only handled by the hospital employees and are specific to their own hospitals. There are no scopes for the patients to use it personally and cannot access it from anywhere else. Retrieval of old medical records in case of emergency cannot be taken by the patient.

V. PROPOSED SYSTEM:

The proposed system of our paper is not only about a general hospital management software for one particular hospital. The proposed MEDREC is about a web application designed for the purpose of providing digital health care service to the general public, which can be accessed from anywhere. It is not only about giving basic health consultancy, but here the users, once registered as patients, can store their medical data in the database for future reference.

The main objective of our project is to create a web application on Health Care, where the users, registered as patients, can upload their own medical data in the system. These information is saved and updated in the database and the user can access these data anytime, from anywhere. The users can easily view their past medical records, both. There is also few registered doctors, who can give primary medication, when requested by a patient.

The patients will have their own profiles, under which there are options for taking input of medical data, viewing the previous records, taking online appointments of registered doctors and seeking online medications from the appointed doctors. The appointeddoctors can view the patient's data and listen to patient's health complain via message system, based on which they give the primary medication. This is a two way

communication between patients and doctors over the online health care system. The presence of online medical store where the doctors can send the prescriptions directly, is one of the major advantages of the system.
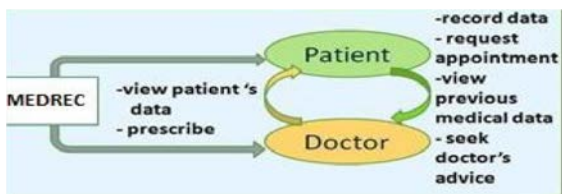

Fig: System overview

VI. IMPLEMENTATION:

1) PATIENTS REGISTERING AND ENTERING MEDICAL DETAILS

To create a profile in online health care the patient or the doctor needs to provide the necessary information. Three information fields such as username, password and email address are needed to be provided. Upon successful creation of profile, the user can login using username and password, as well as the doctors and the medical stores. All information are securely encrypted and decrypted using AES algorithm. The users who want to receive the facility of this Online Health Care service, first needs register as patients in our web application of OHC. On successful registration, a patient profile will be created. The patient needs to login to view their profile.

After login, they can update their own medical data in the database. Primarily, there options for four parameters- body temperature, blood pressure, blood sugar level and pulse rate. The entry will be sorted according to the date. The medical data will be stored in the database and the patient can access it from anywhere, anytime.

Fig: Patient registration form

2) REGISTERED DOCTORS MONITORING AND PRESCRIBING MEDICINES

The doctors of the MEDREC application are registered by the admin of the hospital enlisted in the system. Doctors cannot use the application without the admin approval. Only the registered doctors who have been appointed by a patient can view the patient's medical information on the specific date of appointment. After that time, the option will be expired. The appointed doctor can then prescribe necessary medicines or suggest medications to their respective patients. The registered doctors can even send the prescriptions of the patients directly to the registered medical store, which can be collected by the patient. Every registered doctors will be given a unique username and a password, which can only be used by them. The registered doctors can monitor their patient details daily and prescribe necessary medications. A two way communication is enabled between the doctors and the patients, so patients can clear their medical doubts regularly.

Fig: Doctor registration and appointment

3) FORWARDING PRESCRIPTIONS TO THE REGISTERED MEDICAL STORES

Medical stores can be registered using MEDREC-Online Health Care. Each medical store will be given a unique username and password to facilitate their login. The medical stores can even enlist the available medicines in the store. Details about each medicine and normal dosages will also be given by the medical stores. These medical stores receive medical prescriptions from the doctor and the patients can collect those prescribed medicines from the medical store.

Fig: Medicine details in store

VII. CONCLUSION:

Health care sector is a very important sector in every society. It is the basic right of every individual to get access to proper health care. This sector has been evolving to produce more efficient and computerized system. MEDREC can be used by the general public where they can store their own medical record and access it anytime from anywhere. The system will also consist of registered doctors under the enlisted hospitals, who can give free medical advice and prescribe necessary medications to the patient when requested for an appointment. MEDREC is an efficient and cost effective way of virtual communication between patients and doctors. The main challenge of this project was the time constrained and limited access to the resources.

In the future, the system plans to improve and incorporate other functionalities related to health care. The patient would be able to upload directly the picture of their report and save it in the database. There is also other scope to make this project into a complete health care solution, if we could incorporate these existing web applications to hardware devices. The users could directly take input from the device such as blood sugar machine, and record it in the database via mobile application. There would be an information directory about different kinds of medicines. Since health care is a huge sector, there are scopes for possible research in future.

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