

Telemedicine Database Management System

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ABSTRACT

The transfer of the medical care services to the patient, rather than the transport of the patient to the medical services providers is aim of the project. This is achieved by using web-based applications including. Modern Medical Informatics Services which is easier, faster and less expensive. The required system implements the suitable informatics and electronics solutions efficiently for the Tele-medicine care. We proposed an approach to manage different multimedia medical databases in the telemedicine system. In order to be efficiently and effectively manage, search, and display database information, we define an information package for both of doctor and patient as a concise data set of their medical information from each visit. The methodology for accessing various types of medical records will be provided, also we will design two web-based interfaces, high-quality data and display for many medical service purposes.

Keywords- *Medical Database, Teleconferencing, Teleconsultation, Telediagnosis, Web-Based Medicals Applications*

I. INTRODUCTION

There are shortages of medical resources in rural areas or geographically isolated regions, so many physicians may be reluctant to serve in these areas. Therefore, people who live there will receive lower medical care than those who live in urban areas. There is an important need to develop a telemedicine system to improve the quality of medical services there and provide more educational opportunities to the physicians in these areas [1]– [4]. Telemedicine can be defined as the providing of medical services over a distance. The Archiving and Communication System (PACS) will be used in the telemedicine process as this service requires patient history, medical images, and related information. By using PACS [5]– [11], we can find that the integrated Telemedicine system consists of the following five subsystems:

- 1) Acquisition subsystem;
- 2) Viewing subsystem;
- 3) Teleconferencing subsystem;
- 4) Communication subsystem;
- 5) Database management subsystem.

The first subsystem is the acquisition subsystem which collects multimedia information [12] then converts it to a standard format (e.g., DICOM 3.0 [13]). The second one is the viewing subsystem which displays and manipulates the images and other medical information [14]– [15]. The third one is the teleconferencing subsystem which allows face-to-face interactive conference between International Journal of Advanced Information Technology (IJAIT) Vol. 4, No. 1, February 201 2physicians in rural areas and medical centers [16]– [18], this subsystem is not included in a PACS. The forth one is the communication subsystem which includes the connectivity method; local area networks (LAN's)and a wide area network (WAN) to transmit and receive data [19]– [21]. The patient medical record consists of the patient complaint, history of illness, results of physical examination, laboratory tests, and diagnostic images. The medical information may be of the following types: text, voice, image [e.g., x-ray, computed tomography (CT), or magnetic resonance imaging (MRI)], and dynamic video (e.g., videosophagogram and endoscopy). Thus, it is essential to design a medical information database for managing a huge amount of heterogeneous data. In some studies However, this approach may complicate archiving operations and introduce an inconsistency problem while concurrently accessing the image data. This management approach may make it difficult to access the videotapes and share them simultaneously. Moreover, the integration of video with text and images in a telemedicine system is a problem. To solve these problems, a data management methodology is proposed which is the fifth subsystem, by which medical information can be organized based on the patient's complaint as well as the medical history. This will support unified interface for manipulating and accessing the different types of all medical information mentioned above. The management of medical databases and the user interface has been implemented as major components of a telemedicine system through A in Medical. Com web-Portal.

II. PROJECT SCOPE

Study an existing medical system schemes and concern on recognition base type. Study the usability features of the existing Medical System methods from the general and ISO features.

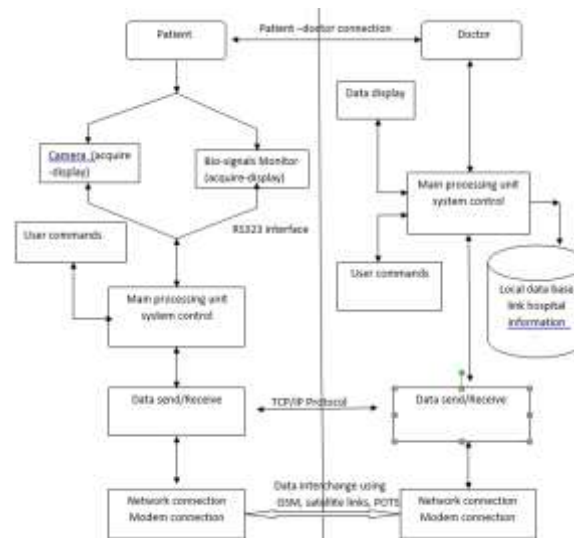
Mapping between the recognition base graphical password methods and the usability features and extract a collection of usability features to be built in the new prototype. Design and Develop a telemedicine system which carries the most usability features to give a usable telemedicine database system by using java programming language. Implement the usability features in Telemedicine System.

III. PROJECT IDEA

In recent year new methods of Telemedicine has been developed, such as interaction with patient, doctor, medical using Telemedicine System. The aim of Telemedicine System is to improve the interactions between Doctors and patients by making communication more easily.

IV. SYSTEM ARCHITECTURE

In the proposed system we introduce a high speed clustering service technique that groups the web telemedicine database sites into sets of clusters according to their communications cost. Integrate telemedicine database fragmentation, websites clustering, and data fragments allocation into one scenario to accomplish ultimate web telemedicine system throughput in terms of concurrency, reliability and data availability.



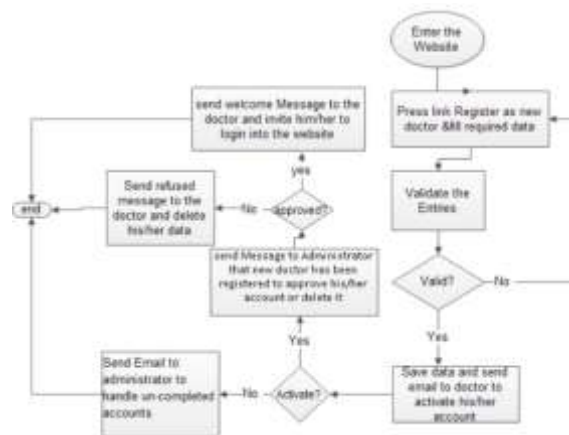
V. MAIN MODULES

V.1 Telemedicine services Activation

From Doctor side, the requirements of telemedicine services activation need to manage doctor's account, the doctor already activated this service for his account then user press "Add/Manage Telemedicine service" link to activate it for the first time or manage his data in it respectively.

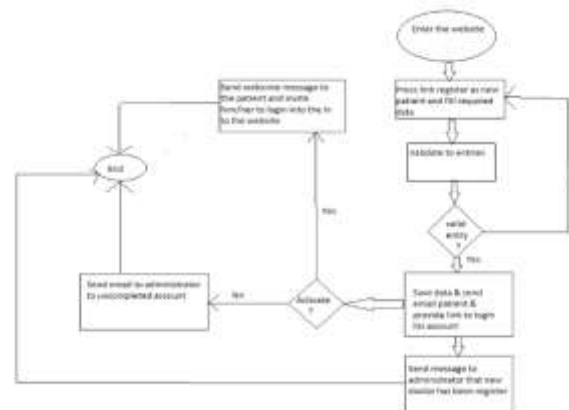
V.2 Doctor registration – Sign Up process

For a registration of a new user as Doctor which allows him to access the AinMedical.com web- portal different services. The Doctor who uses website with Pre-condition having a valid mail address to complete registration. A in Medical portal sends message to new doctor to activate his account. Also a message will be sent to A in Medical's Administrator to approve the new doctor account or delete it. If A in Medical's Administrator approved the doctor registration , in Medical presents welcome page for New Doctor and provide link to login his account.



V.3 Patient registration- Sign Up process

For the patient to become a member of the AinMedical.com web-portal, the system requires a registration of a new user as Patient which allows him to access the A in Medical portal different services. The Use Case describes the Actors as: Patient who uses website with Pre-condition having a valid email address to complete registration. An in Medical portal sends message to new doctor to activate his/her account. Also a message will be sent to A in Medical .com's Administrator (new Patient has been registered), AinMedical.com presents welcome page for New Patient and provide link to login his account.



VI. CONCLUSION

This paper describes a telemedicine system used to provide medical services to a rural healthcare center. Three operational modes of the telemedicine system are explored through the system developed. In order to fulfill the requirements of medical practice, we define a PIP that functions as a database processing element encapsulating medical information obtained during one patient visit. A PIP-based data structure can reduce the complexity of accessing medical information. In this study, we also integrate multimedia patient information within the same database system and provide two kinds of user interfaces for different medical service purposes. The medical

services provided by the telemedicine system at the rural site are eagerly needed by the elderly. The system allows the elderly to avoid traveling a long distance to get better care.

VII. ACKNOWLEDGEMENTS

This is to great pleasure & immense satisfaction to express our deepest sense of Gratitude & thanks to everyone who has directly or indirectly helped using Completing Project work successfully.

It gives us great pleasure in presenting the preliminary project report on 'TELEMEDICINE DATABASE MANAGEMENT SYSTEM'.

I would like to take this opportunity to thank my guide **Prof.Prashant Alkunte** for giving me all the help and guidance I needed. I am really grateful to them for their kind support. Their valuable suggestions were very helpful.

I am also grateful to **Ms. Suvarna Bahir**, Head of Computer Engineering Department, and Genba Polytechnic for his in dispensable support, suggestions.

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