

ELECTRONIC MEDICAL RECORDING AND ANALYSIS SYSTEM

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ABSTRACT

We are acquainted with softwares in medical field but they serve the purpose of recording, they help to reduce the paper work but in this paper we are providing a new functionality along with that, it is diagnosis. Using a diagnosis part of the system we can analyse what the disease can be based on past history so that diagnosis becomes comparatively more accurate and in time.

Methodology:

we have conducted a mixed methods study. We have collected the actual patient records from hospital and compared it with the diagnosis done by our system and the one done by the doctor.

Results and discussion:

From the above study it can be said that the diagnosis part becomes less complex as we get the similar records and diagnosis from our system. The main limitation of the study is to address the all types of diseases that exist for the mankind.

Keywords: EMR, Electronic Diagnosis, KNN

INTRODUCTION

The use of computer applications has affected every aspect of our lives. Health Information Technology (HIT), Electronic Health Record (EHR), EMRs are being promoted around the world in order to reduce the workload of hospital management, to improve its efficiency, for quality of care.

There is a growing consensus among researchers and practitioners in health informatics that these systems are not used to their purpose. for this purpose a effort have been made to increase the

usability of the system by introducing additional features to it, that can contribute to full health analysis of a patient[1].

After brief findings it was found out that the analysis of a disease based on the symptoms is still not explored. We present the methodology and findings for our system by users. we end the paper with the limitations of the present study and directions for future research.

1. EMR (Electronic Medical Recording)

EMR is a part of medical information technology, it is not as simple as computerization of original patient records. it not only includes the storing of whole medical information of patients but it also includes all past medical history of patients, image data, which is reaction of integration of personal medical information and related care process.

2. Electronic Diagnosis

When health care providers have access to complete and accurate information, patients receive better medical care. Electronic health records (EHRs) can improve the ability to diagnose diseases and reduce—even prevent—medical errors, improving patient outcomes [2].

In our electronic diagnosis part of our system using the patient symptoms as input and its past medical history the immediate prediction can be made as what immediate treatment must be suggested for the concerned patient and what test he can undergo based on the above analysis.

- Our system will be a network integrated system. So doctors can log into the system through their respective labs.
- Then every patient will be having his unique id for the input purpose the patients symptoms will be considered.
- When the doctor will give the input, then by using algorithm analysis and clustering will be done to find out the actual predicted disease.
- Patients health details, medications provided, will all be stored in the system. So when next time input is given all back data will also be considered for analysis.
- If patient x-ray is taken then that will also be stored and report will be generated.

LITERATURE SURVEY

We have referred three papers for our project. These papers are related to the smart hospital management system, Design of EMR hospital management system, User manuals for a primary care electronic medical record system, in today's world many systems lack the full interoperability of an EMR and managed within one health care organization. Our search starts with empirical search on user generated guides for software applications and tutorials or user manuals in combination with user generated.

The main purpose of this search was to identify relevant frameworks that could guide our data analysis.

1. Architecture:

For the proposed system MVC architecture will be used.

M-Model

V-View

C-Controller

Controller model comes under server part. Remote Procedure Call Implementation is used between client and server for communication. There is no direct communication presents between both, model and view part come under the client part.

The model

The model is responsible for managing the data of the application. It responds to the request from the view and it also responds to instructions from the controller to update itself.

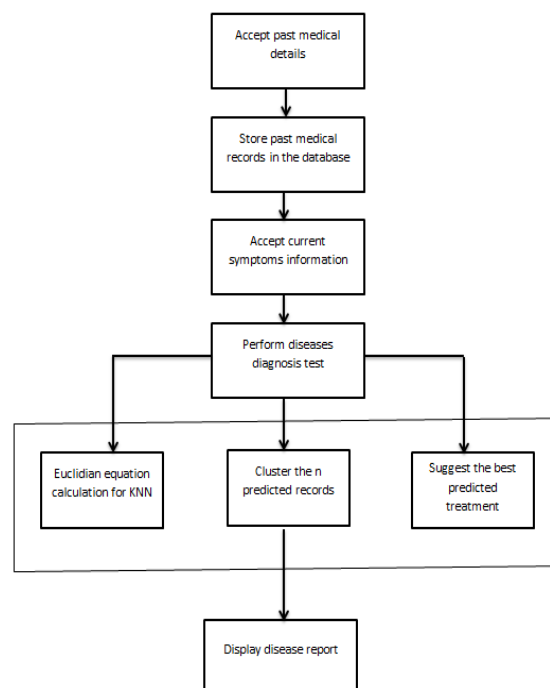
The view

A presentation of data in a particular format, triggered by a controller's decision to present the data. They are script based templating systems like JSP, ASP, PHP and very easy to integrate with AJAX technology.

The controller

The controller is responsible for responding to user input and perform interactions on the data model objects. The controller receives the input; it validates the input and then performs the business operation that modifies the state of the data model.

SYSTEM ANALYSIS



1. Algorithm used

KNN is one of the top 10 data mining algorithms. KNN assumes data as a feature space. Data points

are kept in metric space, the data can be scalars. Since points are in feature space, they have a notion of distance [5].

Each of the training data consists of a set of vectors and class label associated with each vector [6].

For the KNN algorithm Euclidian equation will be used to find the nearest (x,y) coordinate. i.e. (x,y) point belongs to which class. For a particular patient the input symptoms will be taken along with its scaling factor, then based on that Euclidian equation (x,y) point will be determined. In this x axis will represent criticality and y axis will represent treatment urgency [5].

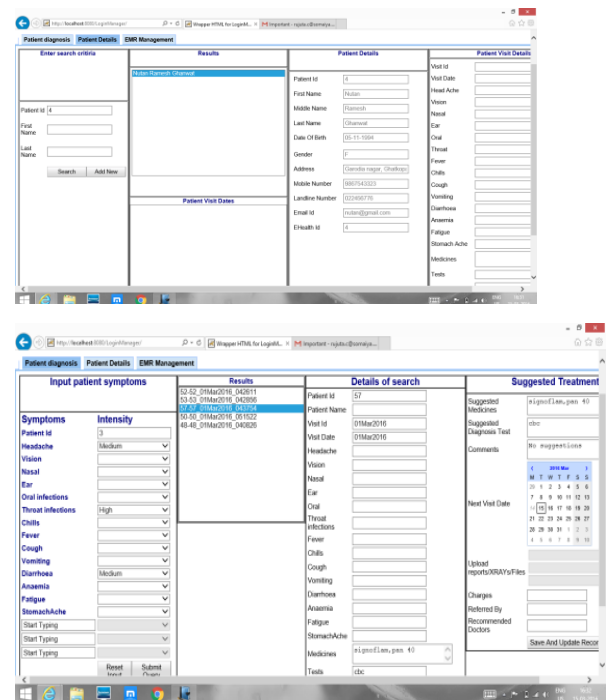
The main purpose of this project is to Detecting diseases at early stage, So that can enable to overcome and treat them appropriately. Identifying the treatment accurately depends on the method that is used in diagnosing the disease. APPLICATION can help a great deal in identifying those diseases and describing methods of treatment to be carried out taking into account the user capability in order to deal and interact with Application easily and clearly

It is based on data mining concept of classifying the data and then predicting the best cases nearby to it. The Aim of the present study is the development and evaluation of a Clinical Decision Support System for the treatment of patients with Heart Disease, diabetes and Hepatitis, food and water, air borne diseases.

Standard Euclidian Distance:

$$d(x_i, x_j) = \sqrt{\sum (x_{i,a} - x_{j,a})^2}$$

There are some interesting data structures where you can apply KNN algorithm i.e. Euclidian minimum spanning tree and nearest neighbour graph.



1. Limitations

The small sample size of tutorials and manuals, and the fact that they were all for the same EMR system, are the main limitations of our study [4]. This is typical of qualitative research which seeks to provide in-depth insight into phenomena but is often based on case studies or small samples. Even though our findings provides electronic recording and diagnosis it has limitations in its applicability. It does not cover all the scope of specialization of diseases.

CONCLUSION

The use of the EMR in a clinical setting is increasing throughout all fields of medicine and in clinical practices, private or academic, large or small. As more and more academic centers begin to implement electronic systems, the question of how to handle clinical research in the electronic environment becomes increasingly important. With the fast pacing technology it is needed to make a changes in the medical field as well ,to improve the diagnosis accuracy and speed.so we can conclude that EMR can be the trending technology in the future.

FUTURE WORK:**REFERENCES:**

So the future improvements for the above system can be developing a emr system having diagnosis part for different specializations instead of providing a generalized view.

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