

An Architecture For Centralizing And Modernizing The Classical Medical System

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Abstract - In India the medical system are paper based traditional even presence of the internet and other web oriented technologies. In the classical medical history system (CMS).It is not easy to get the Medical History (MH) of the patient easily in case of emergency. so, there is a delay in treatment. Such delays lends patient to serious condition or death.

In CMS blood bank, hospital, diagnostic centers are not integrated. So it cannot be easily communicated i.e., dates not reached in time. In our proposed system overcomes those disadvantages by creating architecture for integrating hospitals, diagnostic centers, users and government bodies for effective and cheap data transfer among them. In this system all the data's are centralized. So any of the above categories can access their data and share it by logging in into their id.

I. INTRODUCTION

In India even though the presence of the internet and web oriented and other technologies medical system are too traditional. i.e., Paper based and disease tracking is tough and in efficient. In our proposed project doctor system we integrate the needed departments of medical system. such as doctors, patient, blood bank, diagnostic center, pharmacy and government bodies to provide

Handwritten and paper based. so in some times it is not understandable by pharmacy pupils which result providing of wrong medicines . Blood bank in TMS is in efficient. It is tough to communicate with the donors. Sometimes doctors also face critically to check blood availability in blood banks In our system we provides the SMS and e-mail based services for sending blood requirements to the donors by the blood bank. So message can be easily reached to the donors.

In the TMS the diagnostic center provides the copy of the scan reports only after 2 to 3 days or after a day . Due to the delay treatments are paused. In TMS it is tough to eliminate the unauthorized pharmacy, doctors, diagnostic centers.

II.RELATED WORKS

A. Servlets

Java Servlets are programs that run on a Web or Application server and act as a middle layer between a request coming from a Web browser or other HTTP client and databases or applications on the HTTP server and Servlets are platform-independent

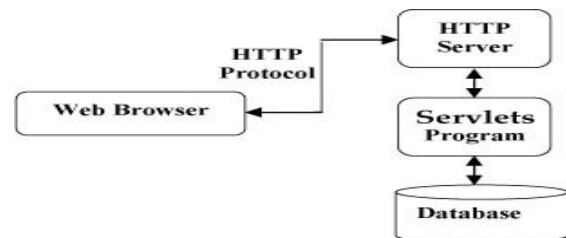


Fig-II.A. Servlet Architecture

B. Java Server Pages

Java Server Pages (JSP) technology provides a fast way to create dynamic web content. which helps developers insert java code in HTML pages by making use of special JSP tags, most of which start with `<%` and end with `%>`. JSP are platform-independent.JSP files are stored at server.JSP is an server side programming language.

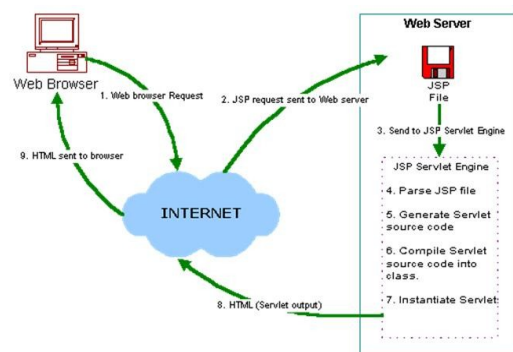


Fig-II.B. JSP Architecture

C. Weka Tool

The Weka workbench contains a collection of visualization tools and algorithms for analyzing the data and predictive modeling. This tool is furnished with graphical user interfaces so it is easy access it. Weka is GNU (General Public License) tool implemented using java programming language and it includes collection of data preprocessing and modeling techniques. It supports data mining, tasks, data preprocessing, clustering and classification. We can connect this tool to database using java database connectivity.

III. Existing System

Current Indian Medical system is paper based and stand alone systems. Many hospitals are not enough to handle the emergency cases. In emergency cases basic needs such as Pulse rate, Blood Pressure can be collected easily. But to provide treatment it is need to have a clear medical history of a Victim it may present in another hospital till that first aid is provided and rest of the treatments are paused. In emergency cases such as accidents sometimes bones got fractured in the TMS it takes at least two to three days to get diagnostic reports.

In case of emergency blood needs doctors contact the blood bank. Sometimes rare blood groups such as AB+,AB-,A- etc., may be unavailable also tough to contact the those donors. In the traditional medical system it is tough to the Government to control the unauthorized doctors and unapproved diagnostic centers and pharmacy. In the TMS hospitals, blood banks, diagnostic centers are stand alone systems so communication among them is in efficient.

IV. Proposed System

To centralize and modernize the Indian medical system we propose this project which is easy to use and inexpensive web based system. Proposed system offers services such as

- Emergency conference.
- SMS.
- E-mail

A) PROPOSED SYSTEM MODULES

Our proposed system consists of six modules as follows:

- User(patient)
- Doctor
- Diagnostic center
- Pharmacy
- Blood Bank
- Hospital

And other features of our paper are as follows:

- User friendly-furnished with GUI
- It provides the update medical history about the project
- It tracks the media disease spreads in the country
- It consists of personal profile of the people along with their date.
- It offers emergency conference facility to the doctors and SMS & e-mail for sending blood requirements to the donors through the blood bank.
- It helps to retrieve the patient prescriptions & diagnostic reports and other required details using the unique id.

i) USER LOGIN:

User is one of the important modules in this project. User can download the prescription as well as see their medical history by logging in into his ID. User ID is generated at the time of registration.

Fig-IV -A User Registration Form

pid	name	dob	frame	gender	address	post	state	dist
1	Hari	1993-07-20	Venkatesh Babu	male	Krishnagiri	Krishnagiri	Tamil Nadu	Krishnagiri
* NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Fig-IV-B User Registration Database

User (patient) registration page and database is as shown in fig-IV-A and IV-B.

ii) *Blood Bank:*

In our proposed system each blood bank is registered by using the registration form as shown in the fig-IV-C. And unique id is provided to each blood bank and mapped under appropriate zone. Admin can track the blood availability and send the emergency blood requirements to the donors as shown in the fig-IV-D. by using the Java Messaging Services(JMS) and Java Mail API. In the blood request page the admin need to mention the needed blood group district, state and enter the message sent to the donors.

Fig-IV-C Blood Bank Registration Page

BLOOD REQUEST PAGE

Fig-IV-D Blood Request Page to Donors

iii) *Diagnostic Center (DC):*

Unique Id is provided for the Registered Diagnostic Center. Government official of the appropriate zones need to approve the each Diagnostic center. Diagnostic Center stores the scan reports in the web based system user id as the primary key. During the time of registration of the DC details such as name and location of the diagnostic center is collected as shown in the fig-IV-E

Fig-IV-E Diagnostic Center Registration

uid	type	mo	dname	pname	pword	address	post	state
635001553	GOVT OWNED	553	Govt	Hari	hari	Kishnagiri	Kishnagiri	Tamil Na
635001635	GOVT OWNED	635	Hari	Hari	hari	Kishnagiri	Kishnagiri	Tamil Na

Fig-IV-F Diagnostic Center Database

As shown in the fig-IV-F collected details during the registration is stored in the database diagnostic reg.

iv) *Pharmacy:*

Pharmacy at the particular area is registered and unique id is provided. Every pharmacy is need approval of the zonal government officer. Pharmacy pupils can access only the prescription of the particular patient.

v) *Hospital*

In this module hospitals are required to be registered and need to be activated by the government officers. During the time of registration facilities of the hospitals such as No.of.Doctors is working and total no of beds available and No.of.Workers etc., Each doctor is need to specify the Hospital ID to login into his account.

V. ARCHITECTURAL DESIGN

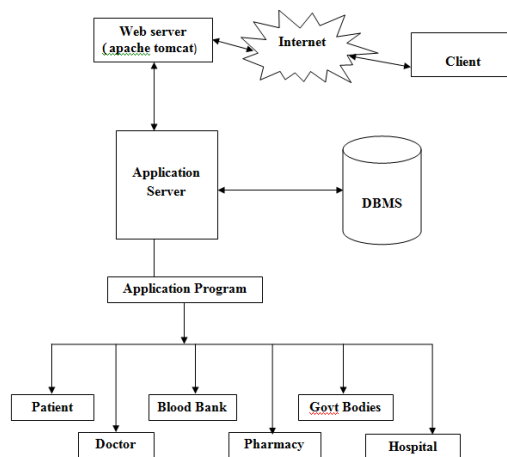


Fig-V-A-Architectural Design

Architecture of our project is as shown in the Fig.5.0. As a initial step client sends the request receives by the webservice(Apache Tomcat

6.0).After receiving the request file is send to the browser application server of this project serves the file to it. Application server stores the input data and serves the required data. It acts as the Interface between webserver and application. My sql stores the data here. In this Application huge amount of data is to be handled and Uniqueness among the id is to be maintained. To eliminate the irrelevant the datas at the time of retrieval Navie Bayesian classification technique is used.

VI. Navie Bayesian Classifier

The Naive Bayes algorithm is based on conditional probabilities. It uses Bayes' Theorem, a formula that calculates a probability by counting the frequency of values and combinations of values in the historical data[1].

Bayes' Theorem finds the probability of an event occurring given the probability of another event that has already occurred. If B represents the dependent event and A represents the prior event, Bayes' theorem can be stated as follows.

$$\text{Prob}(B \text{ given } A) = \text{Prob}(A \text{ and } B) / \text{Prob}(A)$$

To calculate the probability of B given A, the algorithm counts the number of cases where A and B occur together and divides it by the number of cases where A occurs alone.

VII.WEKA TOOL ANALYSIS:

Weka is an opensource tool for data mining. With help of the weka tool uniqueness of the patient id is analysed result as shown in Fig.VII-A

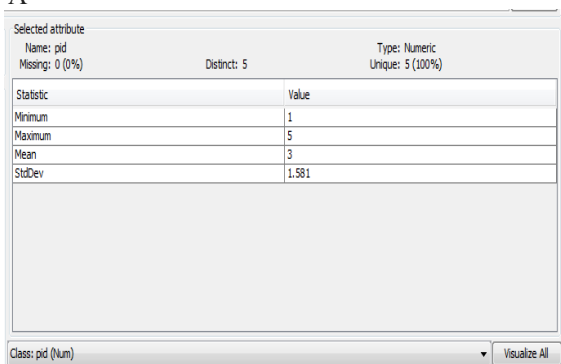


Fig-VII-A Patient Id Uniqueness Analysis usin WEKA

With help of the Pid all the other fields are mined efficiently using the tool as shown in the Fig-VII-B

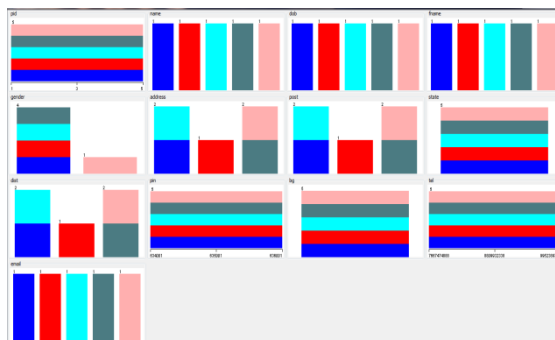


Fig-VII-B Patient Database Analysis using WEKA

Now let we see how the data is efficiently mined for the query to reterive the email id of the user who is having O+ bloodgroup in Tamilnadu state and Krishnagiri District as Shown in the fig below.**Query used:** select (email) FROM userreg where state="Tamil Nadu" and userreg where state="TamilNadu" and dist="Krishnagiri";

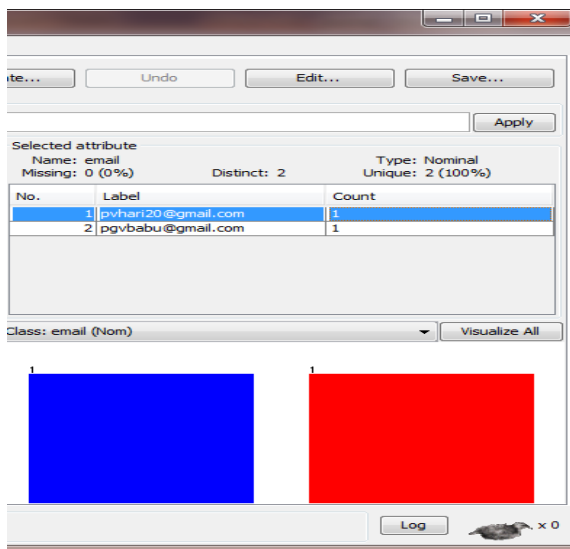


Fig-VII-C Patient Database Analysis using WEKA

VIII.CONCLUSION

Thus this project helps to modernize and centralize the traditional system in India which is in efficient communication among them. This project modernizes the entire departments such as Blood Bank, Pharmacy, Diagnostic Center, Users , Hospitals and Government bodies and provide effective communication.

This Project helps to identify and filter the unauthorized doctors, Hospitals, Diagnostic centers in the country and stops its function and protects the people from them.

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