VIRTUAL CLINIC: A CDSS ASSISTEDTELEMEDICINE FRAMEWORK

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*Abstract—*Abetter health is one the basic human rights, but most of time due to vast number of patient and less number of doctors some seriously ill patients always get treated lastly which leads to unwanted operation failures, Most of the times symptoms are same for various diseases therefore the evaluation gets delayed. To remove this setback we introduce the virtual clinic decision support system, which accepts inputs from the users patients and based on previous records suggests prescriptions or treatments which can be modified by the physician if needed. This system makes the decision of patients health condition based on input symptoms and prescribe the treatment accordingly. This system fills the first step in any medical situation by providing an evaluation of symptoms and possible treatment to the physician which can speed up the process of overall treatment.

Keywords : Virtual Clinic, Decision support system, patients , physician.

I. INTRODUCTION

A better health is one the basic human rights, but most of time due to vast number of patient and less number of doctors some seriously ill patients always get treated lastly which leads to unwanted operation failures, Most of the times symptoms are same for various diseases therefore the evaluation gets delayed. To remove this setback we intro- duce the virtual clinic – decision support system, which accepts inputs from the users / patients and based on previous records suggests prescriptions or treatments which can be modified by the physician if needed. This system makes the decision of patients health condition based on input symptomsand prescribe the treatment accordingly.

This system fills the first step in any medical situationby providing an evaluation of symptoms and possibletreatment to the physician which can speed up the process of overall treatment. This system can be very effective in rural aswell as remote areas where there is lack of expensive medical equipment and are dependent on near by town for treatments of diseases like cancer, paralysis, T.B. etc. This system can take a decision based on the provided symptoms and the history of past prescriptions or treatments , This system canbe effective to minimise the time and efforts to identify the disease as well as it can suggest us the appropriate place and doctor based on the kind of disease identified. This system fasten the process which usually takes a day or two and the physicians can directly proceed to tests can the treatment can get started a lot early.

A major challenge for virtual clinic decision support system is its interoperability with the given input parameters and symptoms , if some parameters or symptoms are added unknowingly or any symptom added unknowingly can change the whole scenario as well as treatment as systemwill misinterpret the disease along with this there can be wide range of data source and types for the records in the system which will increase its complexity for categorising or identifying the disease , its counter measures and prescriptive treatments, medicines.
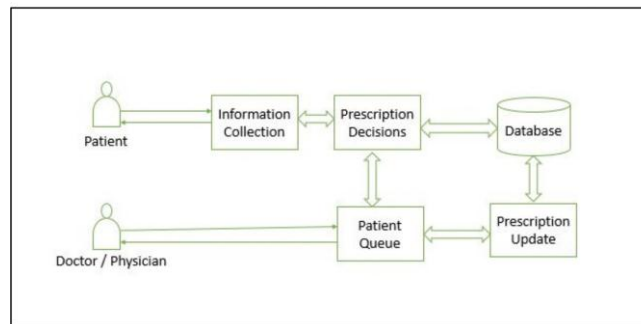
II. FIGURES/BLOCK DIAGRAM:

Fig. 1. Block Diagram
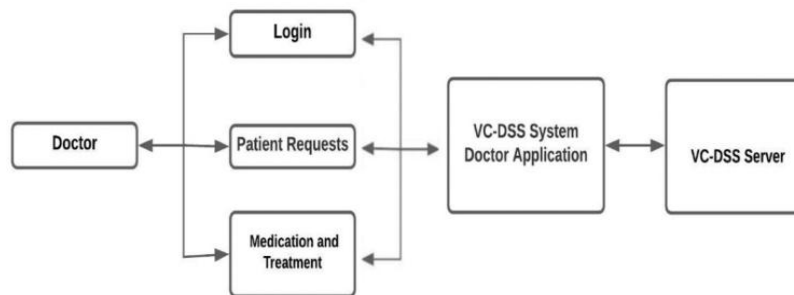
III. SYSTEM WORKING

Fig. 2. System Architecture Diagram

The system architecture diagram shows the work of the system in a detailed manner. As you can see in the diagram the system comprises of several system components out of which some of are Information Collection, Prescription Decisions, Patient Queue, Prescription Updates, Database and two users of the proposed system Patient and doctor.

The Virtual Clinic – Decision Support System is divided into two different modules which are patient Module and doctor module. The Patient module comprises of Information Collection stage under which the end user / patients will interact with system by providing necessary information about symptoms and vitals using different parameters. Which will be used to make certain decisions about health conditions and disease information by using algorithms and help of existing data sets regarding disease parameters etc. Then with accordance withal the information the virtual clinic will determine the disease and the nature of disease and based on that will provide the prescription decisions which will guide patients about the medications and treatment. Once the decisions about the medications are determined then the system will add the patient data into the patient queue where doctor or physician can check out the symptoms and the decisions formed by virtual clinic as well as the treatment suggested which the doctor can change or modify if necessary.

IV. STATEMENT OF SCOPE

A Software requirements specification (SRS), a requirements specification for a software system, is a complete description of the behavior of a system to be developed and may include a set of use cases that describe interactions the users will have with the software. In addition it also contains non-functional requirements. Non-functional requirements impose constraints on the design or implementation (such as performance engineering requirements, quality standards, or design constraints).

The software requirements specification document enlists all necessary requirements that are required for the project development. To derive the requirements we need to have clear and thorough understanding of the products to be developed. This is pre- pared after detailed communications with the project team and customer. A software requirements specification (SRS) is a comprehensive description of the in-tended purpose and environment for software under development.[4] The SRS fully describes what the software will do and how it will be expected to perform. An SRS minimizes the time and effort required by developers to achieve desired goals and also minimizes the development cost. A good SRS defines how an application will interact with system hardware, other programs and human users in a wide variety of real- world situations. Parameters such as operating speed, response time, avail-ability, portability, maintainability, footprint, security and speed of recovery from adverse events are evaluated. Methods of defining an SRS are described by the IEEE (Institute of Electrical and Electronics Engineers) specification 830-1998.There are many good definitions of System and Software Requirements Specifications that will pro- vide us a good basis upon which we can both define a great specification and help us identify deficiencies in our past efforts.

There is also a lot of great stuff on the web about writinggood specifications. The problem is not lack of knowledge about how to create a correctly formatted specification oreven what should go into the specification.

V. GOALS AND OBJECTIVES

1) The main goal is to design and implement a systemwhich will help the physicians to reduce their work load.

2) To maintain all the records of al kinds of identificationsand diagnosis.

3) To let the patients and physicians aware of each other'spast records.

4) To provide the quality identification of harm nature andselec the best quality

VI. APPLICATIONS

The application that will be developed is going to be usefulto the many systems.

Web applications

A web application or "web app" is a software program that runs on a web server. Unlike traditional desktopapplications, which are launched by your operating system, web apps must be accessed through a web browser. From a user standpoint, a web app may provide a more consistent user interface across multiple platforms because the appearance is dependent on the browser rather than the operating system. Additionally, the data you enter into a web app is processed and saved remotely. This allows you to access the same data from multiple devices, rather than transferring files between computer systems.

Sales and Marketing

There are many ways to look at using sales promotion applied to profit maximization. As a brand manager I focused on balancing sales and maximizing profit forthe product I was responsible for advancing. The bottom line, there are many ways to use and measure a sales promotion campaign. Your profit maximization output depends on how you set up your business and chose to look at your results.

Digital marketing

To achieving traditional marketing objectives such as more exposure and engagement, sales building, and increased customer lifetime value, The Business of Media puts everyday businesses in a position to recuperate a significant amount of their digital marketing investment.

VII. CONCLUSION

This work describes a solution to the problem of exponentially increasingly large number of patients as compared to the availability of doctors. This virtual cliniccan determine the type of disease and nature of harm just by some inputs and based

on that it can assess the condition of health and determine the basic treatment medications. Which reduces the burden of physician by reducing all low risk patients.

Decision support system decides the prescription based on input parameters and the existing history of disease parameters therefore these aides the physicians in treatment these decisions made by virtual clinic can be viewed and modified if required which provides an opportunity to the physicians the work of decision support system which they can further determine is accurate or negligible. Virtual clinic can become a stepping stone in field of medical treatments, this decision system can revolutionize the whole medical treatment scenario. This virtual clinic - decision support system makes the medical treatment upstart and remove all the evaluation process and just makes the physician moves to the second step ahead of the time results in saving time which makes possible for the physicians to manage the effectively and attempt the high risk patients and to provides efforts where they are needed

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