



## A Web-based Health Care system for the rural areas

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### ABSTRACT

Healthcare offers wellness or improvement of health through prevention, diagnosis or treatment of disease. The importance of health care is immense in society. A computerized system can regularly monitor health status. This paper suggests a web application for where people can enter their medical records and can access it. The Health care system helps users to register as a patient and to store their data in the database. A group of registered doctors will be available in this system to provide with free advice and date for an appointment. The doctor can check patients' records and can issue prescriptions. This system provides storing information electronically and provides an efficient way of faster communication between the doctor and patient. The patient can check their health readings from anywhere, anytime. The patient can also use Home-care service where the patient has to answer certain questions based on their symptoms.

**Key words:** Online health care system, database, MySQL, PHP.

### 1. INTRODUCTION

Healthcare focuses on monitoring and measurement of various biological parameters of the patient's body. These parameters include Heartbeat rating, pulse, blood pressure, sugar level, and temperature. In today's world, most of all the system had turned into a computerized web-based system. Like that, Healthcare can also be computerized to work the various operations online.

The health care system used to provide basic health care for patients suffering from minor diseases in rural areas. For such kind of diseases, a home care service is needed. Home care service aims to improve the quality of life for patients with minor disease or disability.

The main objective of this paper is to develop an application based on health care to provide the primary tips to tackle a short-term disease and to access the medical data anytime.

The online health care system is a web-based application aimed to provide services to improve the patient's medical needs. This system has two kinds of users, patient, and doctor. Patients can store the medical data and can also make an appointment with the registered doctors. On the other hand, the Doctor can sign in to check the records of the patient and can respond to suggestion.

### 2. EXISTING SYSTEM

A good deal on health care based systems already exist. Most of the hospitals also developed their computerized system to manage the appointments and schedules. But still, in rural areas, the lack of proper health care service leads to major diseases. This may be due to lack of transportation and hospital facilities. A health care based web application can solve the minor disease of the people in rural areas. For that, some already existing systems need to be considered.

The hospitals based health care system, [2] helps to retrieve the historical medical records of the patient and reused to develop a home-care service. The working groups will manage the service. So such a system will have to establish a link with the hospital, to retrieve data.

A wearable sensor (Angel Sensor) continuously checks the current status of each patient as mentioned in [3]. It also uses a voice interactive device (like Amazon Echo) to make the system more helpful. This system will help the doctor to monitor each patient and to develop a medical report. The result will be given out through the same voice interactive device. Thus, the patient himself knows whether he has any disease.

A web application [4] where the patient has to send the symptoms of their disease to the doctor within the system. According to the nature of the symptoms specified, first aid instructions will be provided. If it is a major issue, then they direct to the hospital for a checkup.

The author in [5] has discussed the current status, challenges and future development of health care services in various countries. From their research analysis, the public is not well aware of the services of electronic health care.

There are various health related challenges faced in many countries. Some countries cannot get the primary treatment for a short-term disease. This paper makes a solution to this problem. It emphasizes the equity of health care system, both in private and in public.

### 3. PROPOSED SYSTEM

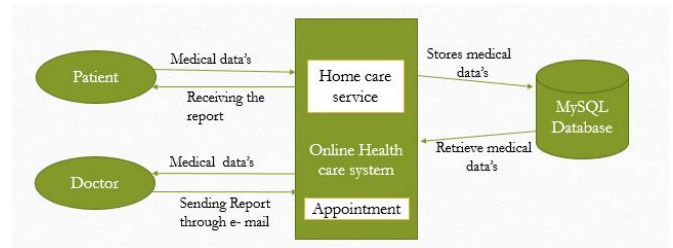
This paper suggests a web-based healthcare system which provides digital healthcare to the public. The data can be accessed anywhere. Data can be stored in a highly secure manner. The system can log in either as a patient or a doctor. The patient will be provided with their medical data and the place of the hospital at which they have an appointment. On the other hand, the doctor can have data on the list of patients along with the time and date of appointment.

When the user signs in as a patient, they have to select the disease from the list of categories. The patient has to enter their primary medical data like Heart beat rating, pulse, blood pressure, sugar level, and temperature. These data should be measured from a laboratory. A list of registered doctors will be available to analyze these data start the digital treatment. When a doctor is selected, the patient can select either for an appointment or Home-care service.

Home-care service includes a set of questions related to the symptoms of the patient. The patient has to answer all the questions related to the disease so that the doctor can analyze it. The patient will get a mail from the doctor regarding the report of the questionnaire.

The other service may lead to a direct appointment with the registered doctor. So the patient can go to the registered hospital to have the checkup. The patient generally chooses an appointment for major diseases.

Thus, a minor disease can be cured by using this system rather than going to a hospital. It is also helpful in storing medical records. So the user can access the present as well as the past data that have already been entered. The architecture of the health care system is shown in Figure 1.



**Figure 1:** Architecture of the online Health care system

Figure 1 represents 2 types of users; doctor and patient. The patient can send their medical data to the health care system where it is stored in the database. This data can be accessed by doctors to analyze it and can send a mail regarding the data. The patient can also make direct appointments with the registered doctor.

The doctors within the system can also give precaution measures for spreading diseases. The detailed description, including how these diseases get affected and what all steps to be considered for its prevention. Thus making it a more user-friendly system.

### 4. RESEARCH OBJECTIVE & METHODOLOGY

#### A. Objective

The main aim of this project is to provide a web-based application for handling healthcare issues. The user can log in either as a user or as a doctor. When logged as a patient, the user can store their medical records so that they can access it from anywhere and at any time. They can also make an appointment with the registered doctors. These data can be shown graphically or in tabular form. When logged in as a doctor, the user can provide primary mediation, when requested by the patient.

#### B. Advantage of this system

- Keeping track of the health condition of past medical data in the manual record is a difficult task. So the health care system provides a solution to this problem.

The system can store the medical data such as heartbeat rating, sugar level, blood pressure, pulse and temperature in the database. For example, a person suffering from fever has to compare their current temperature with the previous temperature. The current temperature can be checked using a thermometer and the previous temperature data can be easily accessed through the system. Another example is a diabetic patient who has to track their sugar level for a regular basis. For this, each current level can be measured manually with a sugar level measuring apparatus from home. In this way, the medical data

can be stored and can be used at any time. There will be a database for storing the data.

- Minor disease such as common cold, fever, diabetes, etc., need not necessary to consult a doctor physically. Such diseases can be treated at home. This system helps to recover disease online. A group of registered doctors can advise the patient suffering from such diseases.

The patient can also make an appointment with the doctor mentioned in the enlisted hospitals. People who are not able to achieve a good health service can get free medical advice from the doctors in this system. For a minor disease, the doctor's advice is enough. But for major issues, physical treatment is necessary, for that an appointment for the required doctor is needed.

### *C. Methodology*

The online health care system provides a web-based healthcare application where the medical data are stored for any future use. The system is also capable of handling minor diseases and has a provision to have an appointment with the registered doctors.

The application is developed using PHP and MySQL for the database. The health care system is broadly classified into 2 parts, one is the patient's secession and the other one is the doctor's session. These 2 parts within the system perform different operations.

#### *I. Patients Module*

Each of the patients is identified using register id. This id will be assigned to each patient during sign up. The patient can store their medical data into the database. The medical data include a heartbeat rating, sugar level, blood pressure, pulse, and temperature, which should measure physically using the medical apparatus. Here a MySQL database is used for storing data.

The patient has the provision to have a direct appointment or take medical advice from the registered doctor for their disease. For an appointment, a list of doctors from enlisted hospitals will be available. Otherwise, the patient can answer a set of questions related to the disease and get a reply through mail. So minor disease can be managed by taking advice from the registered doctors.

#### *II. Doctors Module*

The doctor has to log in and will be identified using a registration id. The registration includes submitting a valid

copy of their degree certificate to make sure whether the doctor is a genuine one. This will be ensured by the administrator who monitors the doctor's registration and lists them as registered doctors. The doctor will get the appointment details of each patient along with patients register id. So each patient will be scheduled based on the time available by the doctor.

Each of the doctors can analyze the report of each patient's disease and can respond through e-mail. So the doctor will know the general details of the patient. The report is prepared based on the questionnaire answered by the patient. This will help the doctor understand what the disease is and how it can be solved. For major disease, the doctor can ask the patient to make an appointment so that it can be cured at the earliest. The doctors only offer free advice for the minor disease. This advice can help the patient to treat themselves at home.

### **5. FUTURE WORK**

In the future, this project can be modified to include more functionalities related to health care. The system can include a provision for uploading the medical details like a picture and can check their digital healthcare. Instead of answering the questions, the patient can be provided with hardware devices (some wearable device) which can continuously monitor the patient and store the data into the database. This hardware device must capable of measuring heartbeat rating, pulse, sugar level, temperature, and blood pressure. This system can also be upgraded by including a video call service, so the patient can have a face to face conversation with the doctor. Health care service is a huge sector, many types of research can be developed from this sector.

### **6. CONCLUSION**

Health is an important factor in our life. In a society, health plays a major role. Many health care services are developed to mold a healthy person. A computerized system can help health care service easier. It will help the system to store the data rather than storing it in a paper. In this paper, a web-based health care application is developed to solve this problem. A database within the system helps to store the medical data and can access it at any time. The computerized system helps the patient from physically going to the hospital for a checkup. The registered doctors within the system can use the medical records. They provide an email back to the patient with results. The patient can do home treatment based on doctors prescription. This will be successful only for minor diseases such as common cold, fever, etc. For major issues, the patient has to consult the doctor physically. For this, the patient can make an appointment with the doctor. The health care system is a time consuming and cost-effective way of digital communication between patient and doctor.

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