Smart Medical Assistant System

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ABSTRACT: Health is a crucial part of human lives. Nowadays, healthcare is becoming vital each day, as there are lots of diseases that emerge around us. Technology is transforming the medical sector by massively impacting almost all practices and processes of medical professionals. Despite this, many of the people and medical staff still dealing with paper-based medical records and prescriptions while conducting treatment. When a patient wants to appoint any hospital or clinic, to carry previous medical reports or past prescriptions is becoming essential for them. It is necessary because the doctor gets an idea about the patient's health status by referring to their previous medical histories, helping for better treatments and medications. However, patients cannot maintain every medical documentary for years.

Conventionally, the doctor asks patients about their previous diseases, prescription, or medicine details orally, nevertheless it becomes difficult to get exact information from the patient. Sometimes, it becomes more important for the doctor to know about the medical history of a person so that they can provide suitable treatment with better clarity of that person's health. Focussing on this, a smart medical assistant system is designed where doctors can record all prescriptions, treatment, or medical details of the patient on software instead of writing on a paper. All these records are stored in the central cloud and made visible to doctors as well as patients. Each patient has assigned a unique authentication card for maintaining the privacy of their medical history account. Doctors can access and update a patient's medical history anytime and anywhere by logging into their account through a smartcard swipe. The system can avoid overdue to treatment decisions. Likewise, the system helps to keep transparency about medicines and treatment.

KEYWORDS: Medical Records, Web Application, Paper-based Prescriptions, Doctor, Authentication, Patient, Database, Cloud, etc.

I. INTRODUCTION

Health is the primary factor that is indispensable for each and everyone in the world. Without health, neither success nor attainment emanates in one's way. Everyone is suffering from some of the other sicknesses, so appointing clinics or hospitals for check-ups. Sometimes, there will be situations where the doctors may not be available in the hospitals. What if there is an application that will allow the user to consult with the doctor through the online mode? With the technological developments in the medical sector, more applications are being operatable through smart and mobile devices. Then yes, it is possible to connect your doctor through online mode using smart health consulting android system applications. The system offers a complete solution for patient's health monitoring and treating them in a better way.

In today's world, everyday several lives are seriously getting affected just because the patients are not well-timed and properly operated. Although, some real-time health parameters may not efficiently be measured or reported properly in the clinic as well as in hospitals. Additionally, it is very challenging for hospitals to frequently check a patient's basic health parameters to predict their health conditions. To deal with these types of circumstances, a smart medical assistant system is beneficial. The system is designed to be used in hospitals and pathologies to monitor and predict the patient's health condition by referring to their medical history.

In this paper, we will discuss a smart medical assistant system comprising of different options of hardware and software.

We are using smart RFID swipe-cards for patient's authentication purpose that supports the Raspberry-Pi embedded module. By swiping an RFID card, the doctor can able to access a particular patient's online medical history account, where previous records have been stored. Doctors have authorized to add new treatment details to that account. The system is accessible for pathology,

where pathology assistants can get idea about tests that the doctor has recommended to patients. Likewise, a pathology person can access the patient's medical account, and authorize to add pathology test results to that account. The system had made transparent for patients as well, through suitable login ID and password, patients will also get access to their medical account. While entering their personal medical accounts, patients can able to see their entire medical and pathology history anytime and anywhere.

So, through our dynamic system, we are developing a unique platform for doctors, patients, and pathology, that collaborate all details together and made treatment transparent with better clarity.

The main objectives of this project are:
1. To maintain a person's entire medical details into unique dedicated platform.
2. To made medical field and treatment process transparent and easier to deal
3. To save the doctor's time while treating emergency cases.

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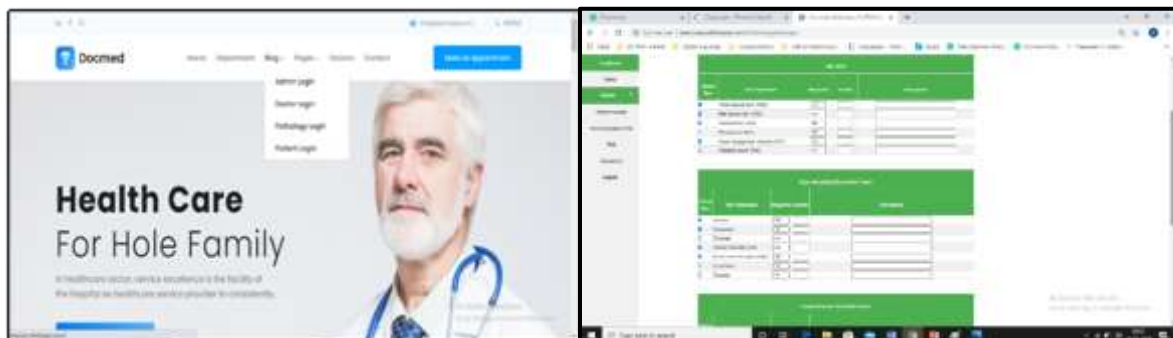

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The proposed system generates and collaborates numerous amount of databases which was created and stored by website actors.We have included numerous health parameters tests into pathology section, which generates a valuable medical database. These databases can be used for any type of analysis.This collected database helps to achieve valuable insights which are useful for some decision making or theory practices.

In this paper, database of haemoglobin parameter has been considered. Haemoglobin results of random 36 patient's (Male=18; Female=18) has been stored into the database. Out of this 36 random entries, as a sample, 6 patient's data has been shown into the table given below:

I. ANALYSIS RESULTS:

The figure represents a graphical analysis of haemoglobin results of 36 patients (samples). Out of 36, 18 were haemoglobin results of male candidates and the remaining 18 are of females.

The data has been arranged in an ascending order for precise analysis. The graph characterizes haemoglobin range difference by gender.

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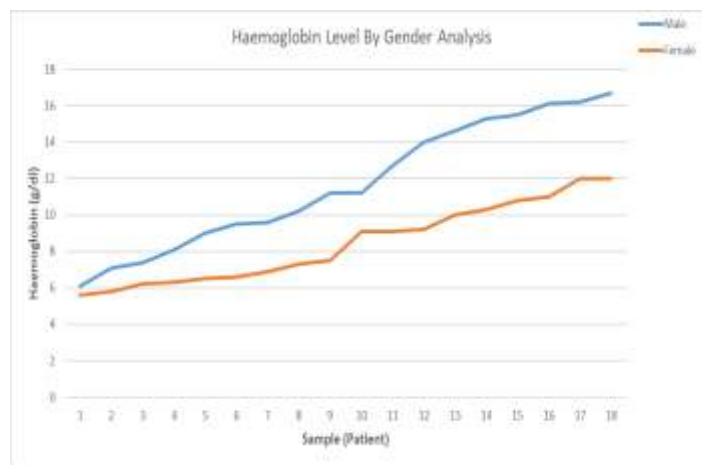**Fig.b. Line Diagram forComparingHaemoglobinValueOn Gender Basis**

V. HARDWARE & SOFTWARE

Hardware requirement:

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Software requirement:
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An integrated development environment which is abbreviated as IDE is a software application that offers inclusive amenities to the computer programmers for software development.

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V. CONCLUSION
From this project, we can develop unique, dynamic, and flexible software platforms, which collaborate all medical system parameters together. The platforms made all health parameter results stored together into the database in well-organized manner.

This database can be used by doctors for analysis and generating valuable insights for better decision making. Authentication by central administrative system help to avoid medical frauds and make medical system transparent. Authentication will safeguard vital information.

The system can be developed at a global level, build a flexible environment for both doctors as well as patients.

Advantages:
1. The system offers unique, robust, flexible software platform to simplify and collaborate medical system together.
2. Prevent people from medical frauds
3. Save the time of doctors as well as patient, avoid delay for treatment.
4. Low cost

Disadvantages:
1. Complexity
2. Security issues while dealing with cloud

VI. FUTURE SCOPE
In many countries, the system has been started deploying. As the system relies on the tremendous amount of database collections it can be used in the future for medical big data collection and medical analytics purposes. The system can be connected with medical equipment to automate the process of data filling. Authentication can be replaced by any other authentication system like the fingerprint module. By connecting to payment gateway and chemists with the web application, fees transaction and medicines purchasing also added to the system. The system can be developing in numerous ways in the future.

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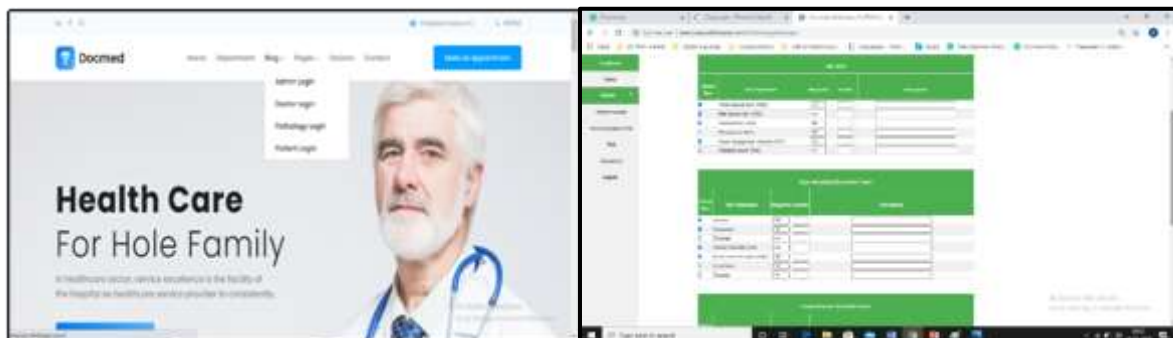

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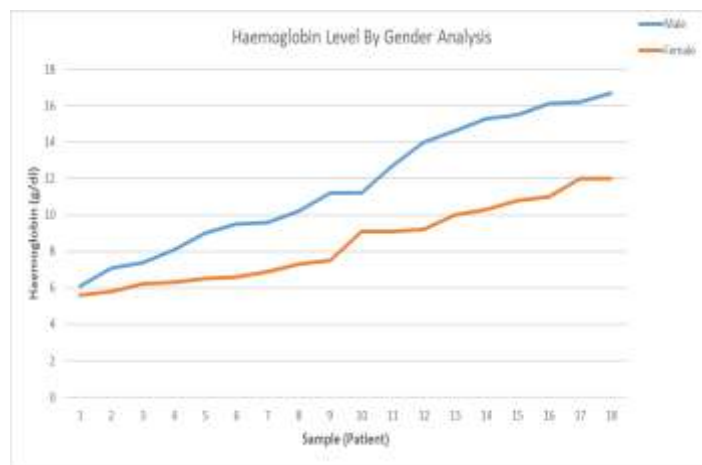**Fig.b. Line Diagram forComparingHaemoglobinValueOn Gender Basis**

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