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Patient Management System For Doctors Using Cloud Computing

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Abstract: *With long waits and all the tackles for user or patients to reach out their respective doctors for simple diagnostic tests and their records to update and regular check-up causes enormous amounts of time. This paper give solution to all the problems faced to form newly developed system for patient system. This patient healthcare system provides automated laboratory tests order, appointment system, infrastructure for medical record with a security for unauthenticated person or entry and Global positioning system features. In this patient can access their medical data remotely access at respective location. It makes system compatible to reach out for doctor using an efficient appointment system. Manage health status for improvement of health and discover ourselves to give new life. Since all the data storage in particular repository or cloud it is less time and space complexity than paper-based system. It too does increases performance with lots of learning.*

Keywords :*Appointment system, Cloud computing, Global positioning system, Paper-based system, Remotely access.*

I. Introduction

The biggest factor of any country varies in Rural as well as Urban area. People of Rural area manage their health due to lack of availability of doctors and lack of proper medication while areas of Urban are acquired by job seekers and industrialist who does not have time to their proper medical check-ups [1] Thus a well-equipped, useful system to monitor your health and to have health check-ups done quickly for improvements of health status [5]. Using GPS, you too can see a specialist for particular disease or for consultation to get contact [5] [4].

Electronic health record for repository of the patient's data system using cloud computing will create the record, managed these record, analyze the health status; display your health according to time in the form of graph to an authenticated user or patient and particular doctor [5]. It is secure data, for access the data you have to have some authenticated key drawback is that we cannot access database remotely from this application from anywhere so can it does not contain a proper outcome. Another that we cannot find Nearest Clinic or Medical Centre for medication at instant care. There is no GPS service for it [7].

II. Existing System

System which gets a proper assignment of the health care for the patients and its betterment to increase health status. Proper management of patients includes all reports and backup of all history to future via present gets a proper idea about patient and to manage that particular properly [5]. A system should also give proper consultation how to reacts to a particular situation which can gives an emergency condition i.e., how to handle such condition? How to proceed to such condition? What are the takes on that situation? That's all should covered in this situation.

i. **Practo Android Application** – This application gives proper interaction between Doctor as well as Patient. It also gets to book an appointment online to the particular doctor. We too can also interact with the profile of the any specialist Doctor. There are many drawbacks in that application but which stand outs is that its security to view the record of the patient. It is not so secure to access. It can be accessed by Mobile OTP (One Time Password) which can be insecure and retrievable. Another drawback for this application is it does not generate the report online of any patient [6] [7].

ii. **Thyrocare Android Application** – This android application is properly made for the thyroid patient. Thyroid patients had proper Medication from that application. It to use to book an appointment system application of any thyroid test or any application. The main drawback is that we cannot access database remotely from this application from anywhere so can it does not contain a proper outcome. Another that we cannot find Nearest Clinic or Medical Centre for medication at instant care. There are no GPS services for it [5] [7].

iii. **E-Wireless Health Care System** – This is an application which not has to be expanding. This system provides information about particular hospital. No need to expand database for further usage. From these we cannot expand the future reference about system. By these we can access the details of the doctors as well as patient data with single query. From these we cannot expand the data for manipulation.

III. Comparitive Study

From the existing system it just provides a framework to interact with patient database but not used to optimize the problems. It too does not provide security to the system in the form of authenticated key. It is expanding to the particular hospital or particular disease which is good but cannot used to find solution for any particular disease in universal platform. Lack of availability of sample data also causes the problems to the service. Practo, Thyrocare, E-Wireless health care system are the proper solution for any form of disease using their data base.

All the drawbacks from the existing system cover with the proper solution. The system provides a proper security to the system using authenticated key to avoid an unauthorized access. System thus is so simple and compatible to use and form particular solution to a particular problem. Since it will implement on universal platform for universal use it can form proper solution for problems faced by human beings and use the database to tackle the situation.

IV. Proposed System

It is the basic system that works with the cloud computing. Cloud is basic need of the computing word to host the system or any business in efficient and reliable manner. It is so versatile that any amount of data accessed by cloud is confident; it has some remote access to authenticated user to get extract. Basically, our system works on the 3 Services of the Cloud to run proper system that are AWS EC2(Amazon web services Elastic Cloud), AWS S3(AWS Simple Storage Services), AWS Glacier as in *Fig 1* Thus all the services based on the cloud hence all the data has access by some authenticated user for some Confidential data[6]. Thus, system can run scalable to get proper and fast output. In this we can interact with doctor by book an appointment which doctor nearer to us track down using GPS which is Compatible [4].

As shown in *Fig 2* system is basically managed by the cloud for hosting and for repository database. System architect contains the data of the system which manages system properly. System thus proceeds further for access for the doctor and patient as it is. IF patient want to see his database or to imply for new collaboration with the doctor for consultation the person need to get authenticate thus their system creates repository for patient in cloud then it proceeds further properly. As it is Doctor portal also needs to get authenticated for proper authentication. And thus, Doctor can manage the database of the patient from backend as well as frontend of the system. As this system basically for patient then patient can access all the data and services like book an appointment, view medical record, Online consultation and book diagnostic tests. AWS Glacier gives biggest plus point to archive data so it can scale new data into system and if needed it can access to the system at different authenticated key.

System Architecture as mentioned in *Fig 1*–

I. **User** – User plays a vital role in this model. User can interact with the doctor by using authenticated key or have to establish that key. For that user or patient has to sign up to account. Thus, then set an appointment easily makes a proper connection with the Doctor. After User has all authority of services and that user can also have a remote authority to access or retrieve his data or medical history anytime. Thus, users can also this service in the form of Consultation.

II. **Doctor Portal** – Here Doctor is a proper admin who handles all the data. Doctor has all the authority to access the data of his connected patients. Doctor makes a proper communication link between Patient and Cloud. Doctor can access, modify, and alter the medical data of patient from cloud backend.

III. **Cloud** – Cloud plays a biggest role among all in this system. Cloud is used to hosting the data. There are 2 important model of the cloud PAAS (Platform as a service) and IAAS (Infrastructure as a service). In this system we use AWS (Amazon Web Services). Where AWS EC2 gives us a hosting for our system so it can act as PAAS. We also used to store the database of the patient in cloud so it provides Confidentiality, scalability, Integrity and productivity so for that we use AWS S3 for storage. Any achieve data can be stored in AWS Glacier as well. AWS is so efficient to use.

V. Figures And Tables

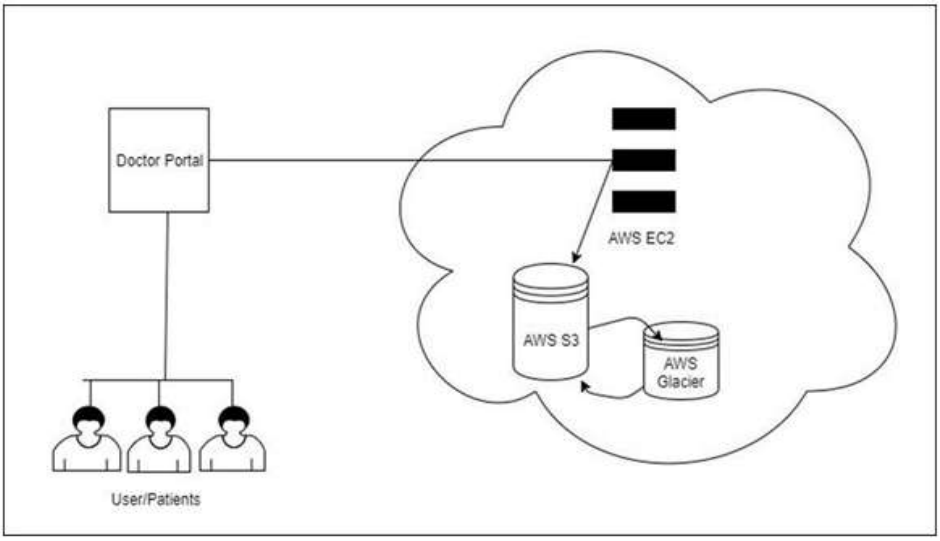

Fig 1 System Architecture

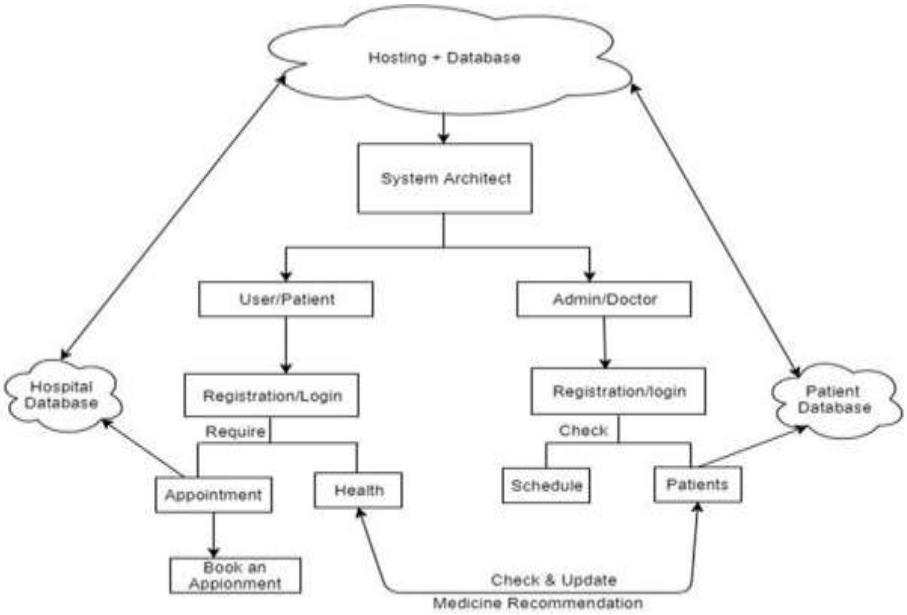

Fig 2 Functional Block Diagram

VI. Future Scope

System basically is of the people and for the people. It gives simplicity, compatibility, of the system. It also gives scalability, integrity, Confidentiality of the data to store.

I. The main and important is about its increase in its security.
II. Instant care for the people in the form of ambulance requirement.
III. Proper and Intensive care of medication.
V. Availability of the blood groups in case of emergency.
VI. End to end Consultation process between Doctor and patients regarding health

VII. Conclusion

As a mobile and web community they are biggest revolutionaries and that does bring a proper aspect of using it in smart manner. This system gives a proper approach to avoid traditional way of paper-based record of health to electronic health record. This wireless automated personal health system, used to view all the clinical record of patients to find optimized and proper solutions. It also gives hand to hand control of our health. Various applications such as Electronic health record, E-consultation, Appointment system and gives proper interface to system. It too recovers the drawbacks of previous proposed system such as practo and thyrocare in terms of security and database. The proper solution for problems which can arises to all type of age group. It's easy Interface can be useful for age group from 16 to 80.

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