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A Core Medical Treatment System for Emergency Management using Cloud

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Abstract – Medical *system is an engine for innovation that develops and broadly disseminates advanced, life-enhancing treatment and offers a wide set of choice for consumers of health care. One of the important professions that are faced with major challenges with respect to information management sharing is medicine. Health is an important factor in the formation of human resource development which will play a vital role in improving the qualities of human beings, who are the active agent of economic development. Better wealth would contribute to improving the economic status of the poor and expanding total output. In exiting system patient's data storage are associated only in their respective health care. But during emergency cases, it is impossible to identify the history of the patient and this is the reason as most of the patients lost their lives. Our work is integrated with cloud computing technology in which the history of the patients will be available whenever the patients get admitted for a medical assistance. Cloud computing is an emerging technology that can be integrated with tradition health management used provides better health service. In this way, the health care can be able to set the patient record and provide assistance on time and save their lives, and more importantly medical expenses. It will reduce duplication of data and procedures, prescription or referrals. In this medical treatment system is needed to improve the quality and quantity of the health service for the patients. Thus our proposed system will be more useful in emergency management by strengthening the monitoring and evaluation system through patient record.*

Keywords: cloud computing, data privacy and security, two fish algorithm

I. Introduction:

Medical treatment system is an essential system which possesses gathering, investigation, utilization and communication of information carried out for steering health facilities, timely treatment and research. Medical system is an engine for innovation that develops and broadly disseminates advanced, life-enhancing treatments and offers a wide set of choices for consumers of healthcare. The current healthcare system provides enormous benefits, but there are substantial opportunities for reforms that would reduce costs, increase access, enhance quality, and improve the health of the people. In healthcare management the data which is very huge and complex. Because it large volume it is difficult to maintain those electrical data using the traditional software. Cloud computing is computer technology that provides computing resources as needed. This can also be seen as a system that provides users with self-service Internet infrastructure so that users can access resources provided anytime, anywhere through an Internet connection. Health management through cloud infrastructure. We can easily store various patient information that is useful for patients when going from one hospital to another hospital. This medical history, which is easily obtained from health care, uses a patient ID.

Medicine is one of the most important professions faced with major challenges in dealing with information and sharing resources. Health is an important factor in shaping human resource development, which plays an important role in improving human quality, which is an active driver of economic development. Therefore, all actions to achieve development in a country must influence the state of the nation's personal wealth. Better prosperity will help improve the economic status of the poor and increase overall production. This requires good hospital management. There are several security issues in the cloud for security, namely the lack of cyber security problems to solve security problems that we use with encryption algorithms. We have gone through various encryption algorithms such as RSA, DES, AES, BLOWFISH, TWOFISH and many more. Among all these algorithms, the Twofish algorithm is an efficient algorithm that cannot be solved easily by third party. Therefore, we apply the Twofish algorithm in our work. Health is the most valuable human property, it affects all of its activities. It determines the fate of the people. Without them, there will be no strong foundation for human happiness. However, social planners often forget this simple truth and let their health not care. So, this work addresses health and saves the life of the patients. Organization of the paper is as follows: Section II depicts the related works. Section III describes the methodology of the proposed work. Section IV shows the justification for proposed system architecture. Section V concludes the paper and Section VI represents the future work of the paper.

II. Related work:

Many approaches have been proposed to improve emergency healthcare system. Shamimhossain .M [1] proposed the concept of all the details stored about the patient using big data concept. All the private records maintain and stored securely by implementing a decoy technique for big data management. Raghavendra .S [2] proposed the concept of storage and retrieval data technique over encrypted cloud data. Rashid Mehmood [3] proposed the work concept was analysis of patient data product future generation healthcare using bigdata, deep learning, IoT techniques. Manhualiu [4] proposed the concept of retrieve all the patient data using fingerprint method. Musa. A[5][6] using the concept of cloud computing encrypted to store the patient records in the cloud.

III.METHODOLOGY:

In this section briefly introduces the techniques used in the system which will help to ensure better understanding. In the existing system, patients are treated for the complicated diagnosis such as chronic disorders, renal failures, heart diseases and diabetes mellitus only by the patients history associated with the particular healthcare where he/she got the treatment[1]. In this scenario, After some course of time if the patient suddenly got serious and need of medical assistance, patient have been taken to the nearest healthcare but due to time delay, the identification of the history of patient are unavailable in medical field and this is the reason for most of the patient lost their lives. The main aim is to collect N number of patient's data to be stored in the cloud and those data can be retrived using patient's finger print (or) patient's Aadhar ID to protect/save their lives which is shown in Figure 1.

[Providing Treatment] [Security for Patient Record]

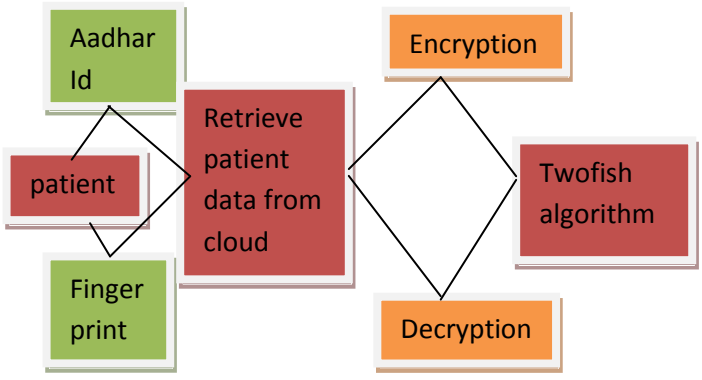

Figure 1: Overall technique of a secure data retrieval

A. CLOUD COMPUTING:

Cloud Computing is the witnessing rapid innovations for the recent year. It contains two main tasks ie, storing and secure the patient's records. Storing and the accessing data which means of internet rather than usage of computer hard drives[2]. It will reduce the complexity of the cloud network. It makes provision for customization, scalability and efficiency and so on. N number of information or patient treatment record will be stored and it is not easily stolen or lost because of it on-demand nature. You would typically buy cloud in the same way you would buy telephone services (or) internet access[3]. The challenges like hacking the database or the unencrypted data and leaking sensitive data will be avoided[4]. Cloud retrieval and cloud protection are important things in our proposed techniques. After storing the data in the cloud security, it performs different service model that is divided into three categories follows:

(1) Iaas-Infrastructure as a Service allows the users to take advantage of the infrastructure without mentioned running behind the hardware.
(2) Saas-Software as a Service, the clients use software application without install on their personal computer.
(3) Paas-Platform as a Service, it builds on Iaas and provides an access to the basic operating software, optional service for development and usage of software application without any software installations. Cloud retrival data, data security and privacy are more efficient and flexible structured data.

B. RETRIVAL AND DATA STORING CLOUD COMPUTING:

Cloud computing is a collection of resource computing. It is used for collecting N number of the patient's data reports. Those data will be stored in the cloud[8], which is mainly a relief in storage management, data access and which avoid expenditure on hardware, software and maintenances. These are the attributes of on-demand resource availability used for pay-as-use concept most commonly in a plain-text scenario, keyword searching procedures and the user is allowed to retrieve the data from the storage space[10].Most conventional Symmetric Searchable Encryption(SSE) paradigm permit the user to examine over cipher text and extract the cipher text securely from the encrypted cloud data by using the keywords and not decrypting the stored files.

C. SECURITY ALGORITHM:

Many security algorithms are there for encrypting and decrypting the cloud database. There are RSA, DES, AES, BLOWFISH algorithm, which is a symmetric key block cipher. It provides a good encryption rate in software. AES is triple faster than DES. Two fish algorithm is more faster and efficient encryption technique than AES and DES Algorithm. Blowfish contains the 32-448 bits data and block size is 64 bit data[7]. Blowfish contains the 16 round feistel network structured data. However, the Advanced Encryption Standard(AES) now receives more attention and schneier recommends to developed twofish, which is extracted from Blow fish algorithm. In our proposed system the technique used for encryption is twofish algorithm, since it is more efficient, flexible and faster than other techniques. Twofish is more advanced modern application. Two fish algorithm key size is 128,192 or 256 bits data. Its blocksize is 128 bit

data[9]. Blowfish and Twofish technique are similar but Twofish is advanced technique. Twofish algorithm is also contains 16 rounds. Twofish encryption algorithm uses symmetric key for both encryption and decryption is shown in Figure 2.

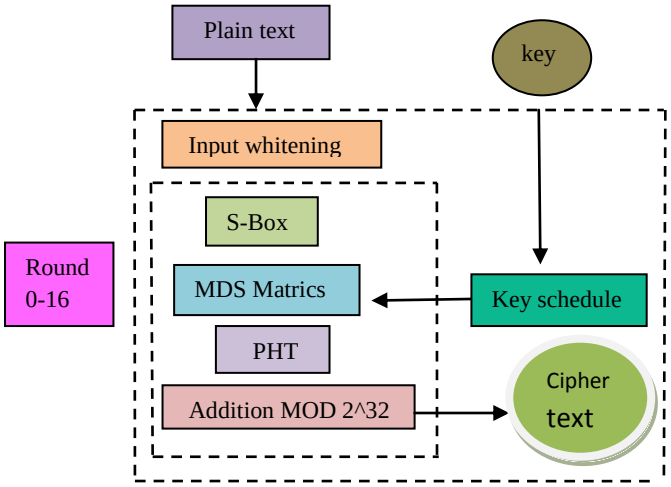

Figure 2: Process of Security Algorithm

IV. Proposed work:

The proposed work uses the concept of cloud computing for storing of vast data and makes it available at critical situation of the patient. A security algorithm is used which stores the data of the patient in a most secure manner. The architect of the proposed system is depicted in Figure 3.

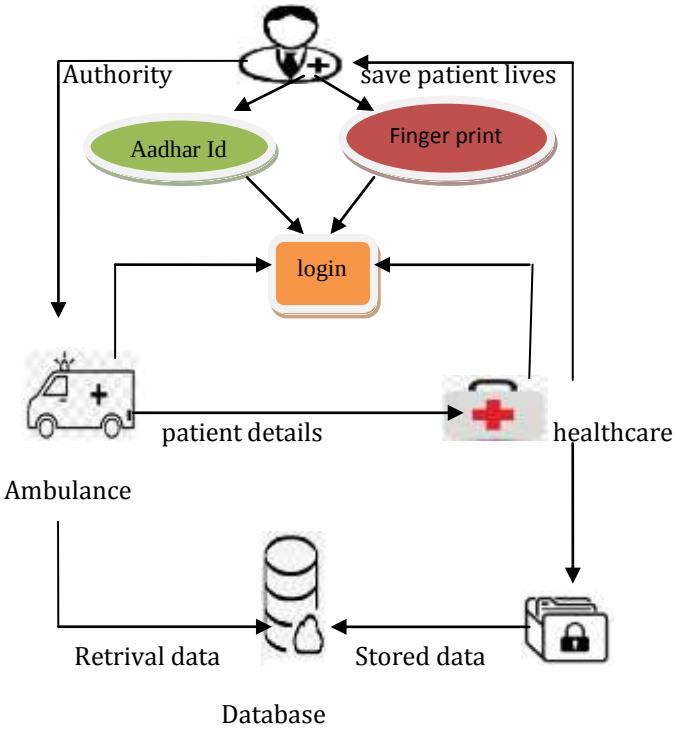

Figure 3: Architecture Diagram

The patient's medical history are stored in a database using an unique id proof like Aadhar id and finger print for better authentication purpose. So, if a person went unconscious, then finger print proof will be used to retrieve the patient's medical history from the cloud and a first aid can be done initially in the ambulance and the details will be send to the nearest health care and the preparation for the treatment can be done for the treatment of the patient. The information which is stored in cloud is secured by the two fish algorithm for an efficient store and retrieval of the data. Hence the patient's medical history can be maintained securely and timely treatment can be provided for the patient.

V. Conclusion:

In this paper, we proposed a medical treatment system for emergency management based on cloud computing technology. The patient history stored in respective healthcare only. During emergency cases, it is impossible to identify the history of the patients and this is the reason as most of the patients lost their lives. Our main proposed architecture can connect and share all data's to authorized person or healthcare experts using patient AadharID or fingerprint which retrives all data's about the patient. A better healthcare service can be achieved using this mechanism. In this way, the healthcare can be able to set the patient record and provide assistance on time and save patient lives.

VI. Future work:

This work can be further extended by providing efficient authorization techniques for the efficient and secure data retrieval in the cloud.

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