Development and Implementation of Personal Health Records System Using Web for Enhanced Healthcare Management

¹Dr. N. Ruba,²G.Rupavarshini ¹Assistant Professor, ²Scholar ^{1,2}Department of Computer Science, ^{1,2}Bon Secours College for Women, Thanjavur

Abstract- New technologies like cloud computing and the Internet of Things (IOT) will be developed in the future and used to the medical area from conception to practice. The primary role of cloud computing is in the medical industry. The health information system (HIS) of healthcare providers is included in the electronic medical record; nevertheless, because of its high cost and maintenance requirements, its adoption process is delayed. This research examines cloud-based security and access rights for electronic medical data. All hospital patient information is stored in the cloud data warehouse. A platform for an electronic healthcare system is provided by cloud middleware. Only authorised users may safely access the medical health record thanks to this feature, which also helps to prevent unauthorised users. This study proposes a cloud computing system that allows all institutions with access permissions to collaborate on safe electronic medical data.

Keywords— HIS (Health Information System), Emedical records, Cloud middleware.

I. INTRODUCTION

These days Data plays a crucial role in cloud computing in the healthcare industry. Personal Health Records, E-Health Records, and E-Medical Records are the three primary categories into which healthcare information systems are divided. The cloud computing system's patient data is secure and protected thanks to the HER frame structure. These three words are used in the context of cloud architecture and hospital patient data. Complete patient information gathered by the hospital or clinic is provided in electronic medical records. By diagnosing the illnesses, the clinicians use this knowledge to treat the patients. EMR data is utilised for round-the-clock screenings and monitoring, as well as to enhance the quality of patients' health. All of the patient's clinical data is included in the

electronic health records. Sharing information with other healthcare providers, including experts, is a crucial element of the HER. HER keeps track of the patient's hospital, nursing, and specialist information. PHRs are comparable to EHRs; the only distinction is that patients set up, access, and manage PHRs. There are several applications for cloud computing, particularly in the medical area for data. There are additional advantages and benefits for healthcare when using the cloud. Cloud computing handles health IT technology for patient and medical information. These days, cloud technologies are being used for healthcare management and research in order to protect sensitive data on the cloud.

II. LITERATURE SURVEY

1 Dacc: Distributed Access Control in Clouds S. Ruj, A. Nayak, and I. Stojmenovic proposed a method for data storage and access that avoids the need for multiple encrypted copies of data. The main innovation of this paper is the creation of key distribution centres, where one or more KDCs give keys to users and data owners. KDCs grant access to specific fields in all records, and single keys separate the data and the data owners. The user owns the data by possessing the attribute it possessed, and this can be retrieved only if the attribute matches the data. The attribute based encryption (ABE) is employed by the author based on bilinear pairings on elliptic curves.

2-Achieving Attribute-Privacy Collusion Resistance with Attribute-Based Signatures An attribute-based signature was developed by H.K. Maji, M. Prabhakaran, and M. Rosulek. It attests to the attribute that the user supplied rather than identifying the specific message sender. It is not colluding all persons; rather, it just pools the traits of the one participant who issued the signature, whose attributes fulfil the assertion being made. After outlining the security requirements of ABS as a cryptographic primitive, the author illustrates how groups with bilinear pairings may be used to generate ABS efficiently. Therefore, ABS satisfies a crucial security criterion in attribute-based messaging (ABM) systems by demonstrating that the structure is secure in the generic group model. The ability of ABS construction to be easily used in a multi-authority context, where users can make claims including combinations of attributes provided by separate and mutually distrusting authorities, sets it apart from many other attribute-based cryptographic primitives.

3. Safe and Effective Access to Data Outsourced According to W. Wang, Z. Li, R. Owens, and B. Bhargava, cloud computing should be mandatory in order to provide safe and effective access to data that has been outsourced. The flexible cryptographybased access control is used to encrypt each data block using a unique key. The key generation process is utilised in hash functions, which will introduce very little work, and the owner need only keep a small number of secrets in store. To stop revoked users from accessing updated data blocks, over-encryption and/or lazy revocation are used. Both user access rights modifications and updates to data that is outsourced are handled by a mechanism. As a result, the overhead and security of the suggested method are examined. An encryptor can select a set of characteristics and a number for each authority. Thus, an arbitrary number of corrupt officials are tolerated by this method.

Four Secure Methods for Distributing Keys and Sharing Secrets A. Beimel proposed data sharing, which now occurs in computer networks. To prevent malicious users from affecting the data being shared within the network, two cryptographic tools are used: the Generalised Secret Sharing scheme and the Key distribution scheme. This enables the network to store only secret information that only authorised users can access. The secret sharing scheme is primarily obtained through threshold secret sharing schemes, meaning that users can only access and use the information after a specific threshold has been reached. Key distribution schemes allow the usage of keys, whereas generalised secret sharing allows for arbitrary monotone collection. While a secured and limited scheme can only be accessible through

limitations, a communication key distribution system is ineffective in an unrestricted scheme. The public reconstruction calculation function of shared secret keys is utilised in Linear Secret Sharing Schemes, Monotone Span applications, and Secret Sharing.

5 Attribute-Based Cypher Text-Policy Encryption According to a distributed system presented by J. Bethencourt, A. Sahai, and B. Waters, a user can only access data that has credentials or qualities. The only method to enforce such data on the cloud is to keep the data on a trustworthy server and use that server to access the cloud. This study uses the Cypher text policy attribute-based encryption to conduct elaborate access control on the encrypted material. Even when the storage is untrusted, the data stored there may be kept private with this strategy, which also protects against collusion attacks. The Previous Attribute Based Encryption systems utilised characteristics to describe the encrypted data and even to build rules into user's keys; but in our system attributes are used to define a user's credentials, and a party encrypting data chooses a policy for who can decrypt.

III. SYSTEM IMPLEMENTATION

Existing System

Paper-based methods are still used to collect and retrieve patient data. According to this theory, medical facilities would still prefer to collect patient data on paper, as well as to document surgical operations, observations, and prescriptions. Accessing digital information might be more difficult for certain doctors and practitioners than getting a notepad and pen. The unavoidable reality that hospitals retain a significant quantity of new records every day may be the factor that makes manual record keeping so taxing. Sorting through the medical records of all the patients, who are growing every minute, will be extremely difficult. This intricacy frequently leads to mistakes that significantly impact the everyday events that take place in clinics, hospitals, and other healthcare facilities. In addition to taking a lot of time, compiling records might be challenging if you don't have a main volume that might include all the information.

Proposed System

Information from the patient's medical record is effectively shared with the patient's friends and

relatives. Third-party cloud health data is used to store medical records in the PHR. The PHR owner's patient control ensures the data access policy using security measures including encryption, allowing only authorised users to decode the patient's data file that they require. The health records in the PHR Cloud are protected in this suggested work paper by using attribute-based encryption, or ABE. Each patient uses health record information in this manner using an attribute-based encryption system. In this case, each patient is aware of the PHR's third party for patient-centric verification.



Proposed Architecture

Methodology

Patient Management System: The ability to register patients and check their reports and histories is available in the patient management system module. A patient management system makes it possible to obtain comprehensive information about a patient's health.

System for Doctor Service Reports:

The Doctor treatments Report System makes it possible to organise and get comprehensive information regarding medical treatments. These reports provide information on doctors, including their area of expertise, job efficiency, and duty hours, among many other characteristics that management may control.

Medical Service Module: The Medical Services System enables the addition of a list of hospital services, including dental, cardiac, psychiatric, and bone treatments, among many others. Along with all other treatment specifics, the patient can see the hospital's list of departments and services. Additionally, it controls emergency services and service timeliness based on patient status.

Database Module: The database contains the demographic information of every citizen living in

the country, including name, address, DOB, gender, phone number, and email.

Verifying User Access

We only employ the suggested OTP authentication method to make sure that normal users may access the data kept on the healthcare cloud. Utilise a parallelised approach with Map Reduce to expedite the processing; this is based on App. Parallel processing of huge data on the cloud is a popular approach. Mobile phones are used to authenticate access to healthcare data, ensuring that the entire procedure is economical and energy-efficient.

Experimental Results



© March 2025 | IJIRT | Volume 11 Issue 10 | ISSN: 2349-6002

← Files	ann 40a (se ann CCC
×	
TP_INFOGRAFIK.pdf	
	(†
← Files	
R	
Authentication	
ENTER OTP OTP Sent to 9894205562	
отр 	-1
CANCEL	SUBMIT
CANCEL	SUBMIT
CANCEL	SUBMIT +
CANCEL	SUBMIT +
CANCEL :	SUBMIT
← Files	SUBMIT
CANCEL	SUBMIT +
CANCEL	SUBMIT +
CANCEL :	SUBMIT
CANCEL :	SUBMIT

					-
Aedical	Condition Report				() Ontario
lection 203 of t lame, address i langerous for t fail or fax to: P	te Highway Traffic Act requires th nd clinical condition of any patien be person to operate a motor vehi rgistra of Motor Vehicles. Medical PL or 1.400 200 200 200 200 200 200 200 200 200	at all legally qualified medic it sixteen years of age or olds icle*. To simplify the reportin teview Section, Ministry of Trans 15, 3400 cm 1, 800 cm 2, 800 cm	al practitioners must re ir who, "is suffering fro g process, the Ministry sportation, 2680 Keele S	eport to the Registre m a medical condition of Transportation I treet, Downsview, Of	r of Motor Vehicles the on that may make it has created this form. M3M 3E6. Tel.
Patient In	formation				
Last Name		First Name		Middle Initial	Fee Schedule Code
Street No. and	Name or Lot. Con. and Twp.				Apt. No.
City, Town or	Village			Postal C	000
Date of Birth	м	ule Female Dri	ver's Licence No. (if avail	abie)	
For your	convenience, the following is	a list of the more comm	on medical condition	ons that are repo	rted to MTO, to be
marked w	th an "X". If the condition yo hol Dependence	are reporting is not list	ed, please indicate indicat	t in the section r pairment	tarked "Other".
Dru	Dependence		Diabetes or H	ypoglycemia or o	her metabolic diseas
 Seiz 	ure(s)-Cerebral		Uncontrolled		
Seiz	ure(s)-Alcohol related		 Mental or Emo 	tional Illness-Unst	able
Heat	rt disease with Pre-syncope/Sy	ncope/Armythmia	 Dementia or A 	Izheimer's	
B30	kout or Loss of consciousness	or Awareness	 Sleep Apnea-U 	Incontrolled	
Sec.	ke/TIA or head injury with sight	icant dencits	Narcolepsy-Ur	controlled	
D Mar	of Asulty Incompany Visual Pielo	impairment	 Motor Function 	vacinty impaired	
Date of exam	ination upon which this report is base	edt Y M	P How long h	as this person been y	our patient?
D Patient is	aware of this report.				
U wish to	be notified if my patient requests a	copy of this report, as releasing	g this report pursuant to	a request	
under the	Freedom of Information Act may the	eaten the health or safety of the	a patient or another indiv	idual.	Exc MTO Line Only
					030
Physician's L	ist Name, First Name and Middle Int	14			
Street No. an	I Name or Lot, Conc. and Township				Apt. No.
City, Town o	Vilage	Postal Code	Teleph	one. No.	
C. Family P	vaisian 🗆 Ememency Boom P	Numirian II Stratialist		C Ober	
			(Specially)		
Doctor's Sig	nature		Date of	Report	M D
Require	ement to Report Patie	Ints			
Require	ement to Report Patie	onts			
Require Section 20	ament to Report Patie 3 of the Highway Traffic Act sta	onts res:			
Require Section 20	ament to Report Patie	ents les:	eoktor the name	titress and clinical	condition of every
Require Section 20 (1) Every person side	ament to Report Patie 3 of the Highway Traffic Act sta legally qualified medical practil ern years of age or over attending	ents fes: jupon a medical practitioner	egistrar the name, at	dress and clinical	condition of every if such

IV. CONCLUSIONS

Today's advancements in technology have taken Automatic Number Plate Recognition (ANPR) systems from difficult to set up, limited, expensive, fixed based applications to simple mobile ones in which the "point to shoot" method can be used. The process concluded that the chassis numberrecognition algorithm based on OCR using artificial neural networks is well suited for intelligent vehicular systems. The main accomplishments of the proposed method are that it gives a significantly high value for correct identification rate (CIR) along with zero wrong identification rate (WIR).

This is made feasible by the development of software that operates on less expensive PCs and non-specialized hardware, eliminating the requirement for predetermined directions, angles, speeds, and sizes for the plate that would be passing inside the camera's field of vision. Along with smaller, more robust processors that fit in police cars, smaller cameras that can scan license plates quickly have also made it possible for law enforcement to patrol every day with the advantage of real-time license plate identification.

The automatic vehicle identification technology is expected to play a significant role in identifying defensive threats in the future. Additionally, it can increase women's security because they can quickly recognise the license plate before utilising a taxi or other services.

REFERENCES

- Performance Characterisation in Image Analysis: Thinning, A Case in Point, Pattern Recognition Letters, vol. 13, 1992, pp. 5-12, [1]Haralick R.
- [2] "TextFinder: An Automatic System to Detect and Recognise Text in Images," IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 21 No. 11, 1999, pp. 1224-1229, Wu V., Manmatha R., and Riseman E. M.
- [3] "Automatic Text Detection and Tracking in Digital Video," by Li, H., Doermann, D., and Kia, O., IEEE Transactions on Image Processing, Vol. 9, No. 1, 2000, pp. 147-157.
- [4] "Application of Artificial Neural Network Model for Optical Character Recognition," Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics: "Computational Cybernetics and Simulation," 1997, pp. 2517-2520, Mani, N., and Srinivasan, B.
- [5] In November 2005, S. Nomura, K. Yamanaka, O. Katai, H. Kawakami, and T. Shiose published "A novel adaptive morphological approach for degraded character image segmentation" in Pattern Recognition, vol. 38, no. 11, pp. 1961-1975.
- [6] In April 1998, Y. Cui and Q. Huang published "Extracting license plate characters from video sequences" in Mach. Vis. Appl., vol. 10, no. 5/6, pp. 308-320.
- [7] In Proc. Int. Conf.Comput. Sci. RIVF, 2005, pp. 59-63, T. D. Duan, T. L. Hong Du, T. V. Phuoc, and N. V. Hoang, "Building an automatic vehicle license plate recognition system."
- [8] "Automotive license plate extraction and recognition based on connected components analysis and HMM decoding," in Lecture Notes on Computer Science, by D. Llorens, A. Marzal, V. Palazon, and J. M. Vilar vol. 3522, J. S. Marques et al., Eds. New York: Springer-Verlag, 2005, pp. 571-578.
- [9] "New approaches for automatic reading of VLPs (Vehicle License Plates)," in Proc.

IASTED Int. Conf. SPPRA, June 2002, by F. Martn, M. Garca, and L. Alba.

- [10] "Learning-based approach, for license plate recognition," in Proc. IEEE Signal Process. Soc.Workshop, Neural Netw. Signal Process, 2000, vol. 2, pp. 614-623, was written by K. K. Kim, K. I. Kim, J. B. Kim, and H. J. Kim.
- [11] "Optical recognition of motor vehicle license plates," IEEE Trans. Veh. Technol., vol. 44, no. 4, pp. 790-799, Nov. 1995, P. Comelli, P. Ferragina, M. N. Granieri, and F. Stabile.
- [12] A template-based approach for license plate recognition was presented by Y.-P. Huang, S.-Y. Lai, and W.-P. Chuang in the Proceedings of the IEEE International Conference on Networking, Sensing, and Control, 2004, pp. 737-742.
- [13] Per IEEE Int. Workshop Cellular Neural Netw. and Appl., 1998, pp. 212-217, M. H. ter Brugge, J. H. Stevens, J. A. G. Nijhuis, and L. Spaanenburg, "License plate recognition using DTCNNs."
- [14] "License plate location based on a dynamic PCNN Scheme," by M. I. Chacon and A. Zimmerman, in Proc. Int. Joint Conf. Neural Netw., 2003, vol. 2, pp. 1195-1200.