A SURVEY ON HEALTHACRE SYSTEMS USING CONTEXT AWARE MONITORING (CAM) TECHNIQUES

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ABSTRACT

This paper gives an insight of how we can effectively store and retrieve the data from health-care in order to improve the performance. Context-aware monitoring (CAM) is a technology that has recently entered into the technological world and it provides real-time personalized health-care services. CAM is a rich area for big data applications. Velocity, veracity, volume and variety are the four dimensions of big data, as stated by Data scientists of IBM. The proposed model is alleviating the big data in cloud computing environment. It's excavating the patterns from the patient data and correlating the probabilities to discover the abnormal symptoms properly in different patients.

INTRODUCTION

The cloud computing technology is providing personalized, computing environments which are dynamic in nature and adaptable to make changes with the real time situations making it more reliable to use. The cloud computing [1] is enhancing IT industry. The healthcare organizations are now a day's willing to shake their hands with the cloud computing technologies. The healthcare industry is generating large amount of data for records keeping of patient related data [2].The ambient living systems consist of heterogeneous sensors and devices which generate huge amounts of patient-specific raw data every-day [3],[4] which are unstructured data. Due to different kinds of sensors and devices, the captured data have wide variations. The size of data easily varies from bytes to several gigabytes and terabytes of unstructured data [5].The patient data are dynamic and a constant eye keeping becomes essential for them. The pertinacious data such as patient profiling, his records, disease histories and social contacts are huge in amount which can soon reach to the level of Zeta-bytes .The precise storage of these data ensure the proper intervention of anomalous conditions of patient in future. To address such concerns, it is necessary to develop the cloud environment [6], [7] that becomes an essential and inseparable part of healthcare systems in these days. Efficient processing of immense medical data stored in cloud, extraction of accurate information and

anticipating the patient's conditions by observing to provide the required services are some of the main challenges of context-aware monitoring.

NEED FOR BIG-DATA FOR CONTEXT-AWARE MONITORING IN HEALTH-CARE

To improve the quality of health-care by considering the following:

Abstract context-aware framework gives solutions for detecting the abnormalities in health-care environment by colligating the datum with the physical activities in real-time scenarios.
The cloud computing is relevant for retrieving the dynamically changing stored data and for efficient learning. It meliorates the discovery of User-specific rules with potential support.
It provides better knowledge for apprehension of the patient's conditions through the learning of the patient's historical data in order to abridge the delusive alerts given to the system.

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EXISTING WORKS IN HEALTHCARE SERVICES

S.No	Year	Author	Existing Systems	Proposed System	Proposed Techniques/ Strategies
1.	1994	R. Agrawal, R. Srikant *et al*.	Increase of problem size is proportional to increase of performance gap	Size and transaction numbers were increased in the databases	Apriori hybrid algorithm
2.	2000	A. K. Dey	Simple human and computer interactions	Interaction between human-beings and computers through sensors of computers	Context aware features Essential and Accidental Activities
3.	2002	R. Rastogi and K. Shim	Generalized association rules to discover patterns of	The attributes can be either numerical or categorical Disjunction over	Pruning and graph search algorithm

			multiple attributes	un-instantiated attributes are permitted in association rule	
4.	2004	E. M. Tapia, S. S. Intille, and K. Larson,	Sensors were used in laboratories and were not mean to be used at home	for recognizing activities in the home settings using a set of small, easy-to-install, and low-cost state-change sensors is introduced	Activity Recognition Algorithms Context-Aware Experience Sampling Environmental State-Change Sensors
5.	2006	G. Parati and M. Valentini	ambulatory blood pressure monitoring	antihypertensive treatment that helps in reduction of 24h mean blood pressure and its variability	antihypertensive treatment
6.	2008	F. Paganelli, E. Spinicci, and D. Giuli	Chronic care model which provides improved efficiency in patients	ERMHAN is a context aware mobile platform which supports mobile care givers in daily activities	Ontology based context aware computing and Service oriented approach
7.	2009	P. Haghighi, A. Zaslavsky, S. Krishnaswamy, and M. Gaber	data stream mining algorithm and Ubiquitous data stream techniques lightweight	Situation Aware Adaptive Processing for smart and real time analysis of data	Situation Aware Adaptive Processing
8.	2010	Y. Oh, J. Han, and W. Woo	Context-aware middleware systems were used	generalized context-aware software architecture for heterogeneous	CADDOT Model IoT

				smart environments	
9.	2015	Abdur Rahim Mohammad Forkan, Ibrahim Khalil, Ayman Ibaida, Zahir Tari	Context aware monitoring using Cloud oriented context aware monitoring (COCAMAAL)	Big data context aware monitoring(BDCAM) for learning knowledge discovery process	Ambient Assisted Living(AAL) system

In 1994, scientists R.Agrawal , R. srikant et al. proposed a system for size and transaction numbers of increased in the databases to overcome the problem of existing system where increased size was proportional to increase of performance by using the technology Apriori hybrid algorithm.

A. K. Dey proposed a system to initiate interaction between human-beings and computer through sensors of computers in 2000.This was a great motivation towards the context-aware world and the new upcoming technology IoT. The earlier systems had proposed the simple interaction between human and computers using technology of context aware features of indispensable and incidental activities.

In 2006, G. Parati and M.Valentini proposed a system for antihypertensive treatment that helps in reduction of 24h mean blood pressure and its variability to solve the problem of ambulatory blood pressure monitoring using Antihypertensive treatment.

A system for situation aware adaptive processing for smart and real time analysis of data was proposed by P. Haghighi , A. Zaslavsky, S. krishnaswamy and M. Gaber , in 2009 to give solution for the problem occurred in existing system of Data Stream Mining algorithm and ubiquitous data stream techniques lightweight using technology of situation aware adaptive processing.

SYSTEM PROPOSAL

The CAM technique uses cloud computing platforms [1]. Every patient specific context obtained from the ambient systems is sent to the cloud either through sensors or manually. A number of distributed servers in the cloud store and process those contexts to discover and elicit the required information for decision-making using the CAM technique.

The correlations between the threshold values of critical symptoms and context attributes are discovered by our model. A set of association rules are generated using Map-Reduce Apriori (MRA) algorithm [10],[11] for any specific patient whose context data is been gathered over a long period of time.

Thus the system uses superintended learning over new context data sets which are generated using the rules discovered in previous steps. This ensures the robustness of the system by giving the most precise anticipation of patient's health situations.

CONCLUSION

The security and real-time accessibility of data in healthcare organizations becomes easier using cloud environment. Our solution gives more reliability to these healthcare centers where capturing, storing, and sharing and accessing the sensitive data is difficult and tiresome work to be performed on daily basis. CAM can easily distinguish between emergency and normal conditions. This paper will promote and enhance the need for cloud computing [1] in healthcare and other areas where data handing is difficult by improving the efficiency of systems.

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