IJREAT International Journal of Research in Engineering & Advanced Technology, Volume 1, Issue 5, Oct-Nov, 2013
ISSN: 2320 - 8791
www.ijreat.org

A Review: Telediagnostics System

Mahakal Singh chandel[1], Dr. D.S. Bhillare[2]

Head , Arjun Institute of Advanced Studies and Research centre, Indore, India

Head, Computer Centre, Devi Ahilya university, Indore, India

Abstract- In the last decade there has beenproliferation of telecommunication technologies world wide. The penetration of cellular mobile communication technologiesis phenomenal in both in rural and urban areas. However,the efforts to provide appropriate health care to remote and rural areas have not yielded the desired results due to socio economic and geographical factors.In this context, tele-diagnosis, an information and communication technology based tool, has the potential to assist in electronic delivery of diagnostic and healthcare services to remote rural population even in the absence of physical infrastructure in place and thus can create a platform to develop and deploy health care network. Telemonitoring can be used to minimize the effect of distance between health provider and patient, improve access to specialist healthcare, reduce travel requirements, provide economic saving by sharing of resources, enhance effective communication between health professionals and improve quality of health care. Appropriate use of mix of available telecommunication technologies can make telemedicine deployment a reality.

***Keywords*-tele-mentoring, tele-diagnosis, teleradiology,mobile and wireless networks. pervasivehealthcare applications.**

I. INTRODUCTION

The introduction of telecommunications technologies in healthcare environment has led to an increasingly mobile society. The worldwide deployment of mobile and wireless networksinfrastructure can support many current and emerging healthcare applications. This could fulfill the vision of "Pervasive Healthcare" or healthcare to anyone.

Pervasive healthcare is the conceptual system of providing healthcare to anyone, at anytime , and anywhere by removing restraints of time and location while increasing both the coverage and the quality of healthcare .pervasive healthcare computing is at the forefront of this research, and presents the ways in which mobile and wireless technologies can be used to implement the vision of pervasive healthcare.

II. LITERATURE REVIEW

According to **Upkar Varshney,**telemedicine is also beneficial in tele-monitoring for experienced doctor or interns working in medical institutions of hospitals. It can be an effective solution to provide better medical facilities on time in remote, rural and urban areas where the desired medical facilities are not available[1].

In 2007, applications and requirement of pervasive healthcare, wireless networking solutions and several important research problems were clearly defined. It was shown that the wireless health monitoring including context-awareness,reliability and autonomous and adaptable operation are also feasible[2].

Chun-Chin- lin, et al has introduced the concept of composing ubiquitous network technology and cable television(CATV), using this technology attainder can watch vital signs including heart-rate, blood pressure and body temperature any time, so that the attainder will alert about the patient activities[3].

Olguin, D.O., et al used wearable sensor by which, we identity individual personality traits and measure group of performance in a Post-Anesthesia care unit(PACU)[4].

Antonio Coronato et al, presented a methodology to formally express requirements in safety critical wireless and pervasive healthcare applications, in order to achieve a higher degree of dependability. Also it was shown that how it is possible to formalize and constrict mobility characteristics by combining , and in same cases extending, several formal methods[5].

Postolache, O., described the usage of 24 GHZ Microwave FMCW(Frequency Modulated Continuous Wave) Doppler radar (MDR) as one of the main components of a pervasive biomedical system that is part of an assistive environment for the people with less mobility or people with long-term health condition. The design and implementation of an assistive environment based on a MDR sensor, an experimental study concerning the microwave Doppler radar characteristics and remote sensing of heart rate and breath rate based on acquisition and processing of the signals delivered by the used radar[6].

Sonali Agarwalet al. tested body area sensor network, which is a group of sensor nodes inside and outside the human body for continuous monitoring of health conditions, behavior and activities. Context awareness in pervasive health care is a proactive approach which is different from a conventional event-driven model and here we are continuously monitoring a patient health conditions through the use of Body area sensor network. They presented a layered architecture of Wide Area Wireless Sensor Body Area Network (WA-WSBAN) along with data fusion techniques, standards and sensor network hardware requirement for context awareness.

This architecture may be used in pervasive healthcare monitoring to detect various events and accurate episodes and unusual patterns and activities obtained from the study can be marked for later review. research work patient activity and gender classification has been done by using one to all and multi kernel based support vector data classification. The similar practices may be utilized for the study of various observations in real time health care applications and proactive measures may be initiated based on results obtained from data classification [7].

Postolache, O introduced ubiquitous and pervasive e-health environments, in this new implemented embedded vital signs sensor were joined to ubiquitous computation in order to materialize Ubi-Health systems with lower price and augmented interoperability in comparison with traditional clinical instrumentation for in house health status monitoring needs. The system allows vital signs and motor activity monitoring, including gait characterization[8].

Bingchuan Yuan and John Herbert,presented a system called CARA (Context Aware Real-time Assistant) whose design goals are to address these issues in a pervasive long-term healthcare solution. This can provide efficient healthcare services by adapting the healthcare technology to fit in with normal activities of the elderly and working practices of the caregivers. This system can continuously measure physiological signals, and either store the data on the server or stream the data to a remote location in real-time [9].

In the TELEMONITORING information **Hariton costin,** designedand implement of an electronic-informatics-telecom and scalable system, that allows the automatic and complex telemonitoring, every where and every time, in almost real time of the ital signs of person with chronic illness, of elderly people of these having high medical risk and of those with nero-locomotor disabilities[10].

Again **CRISTIAN,** added the concept Automatic and complex telemonitoring through Electronic-informatics-telecom and scalable system, everywhere and every time, in real time persons search or locate disabilities[11].

Also Juan M.Corchado, given theSolution for dependent people in these channel , which needs importance assistance from other in order to perform basic daily life activities , such as essential mobility, object and people recognition, or domestic tasks is to system implements a service-oriented architecture based platform, which allows heterogeneous wireless sensor network to communicate in a location restrictions. By these system, approach provide a higher ability to recover from errors and a better flexibility to change their behavior at execution time[12].

E.Garcia,while working on "COLLABORATIVE TELE-NEUROLOGY" project , showed that person can use remote diagnosis for neurological diseases By telecommunication technology[13].

Illias Sachpazidis, thought to serve the poor or developing countries, telemedicine would play a vital role to health administration and treatment.Citizens have no access to healthcare , they have to travel long-distance to receive a medical diagnosis. According to these, propose a medical network based on state-of-the art medical applications that addressed the issue of providing health care from a distance[14].

Ren Guey Lee used a hybrid fiber coaxial(HFC) network in taiwan and succeded in designing a home telecare system feasible. This home care telecare system combined biomedical data , three channel electro cardiogram(ECG) and blood pressure(BP) , video, and audio into a national

television standard(NTSE) channel or communication between the patient and healthcare provider.In NTSE television signalsused second-language audio from second audio-program(SAP) sub channel, modulated by digitized biomedical data and long distance transmission. This translated digital biomedical data into the frequency domain using frequency shift key(FSK) technology and inserted these signals into a SAP band[15].

G.CoatricuxintroducedsecureMedical information handling and sharing with applications ranging from telediagnosis to telesurgery and cooperative working session. At the same time, these benefits introduce concomitant risks for shared electronic patient records(EPR) and call for more secure information management.To ensure security,integrity, and authenticity medical information needed watermarking.Watermarking has found a niche role in information for secure sharing and handling of medical images[16].
Mohamed KALLELalso introduceduse of image against piracy through the internet. It is necessary to ensure security during this act. The multiple watermarking technique represents a solution to preserve the security of such data.This can be done under remote collaborative work. This technique is applied in the TeNeci(Collaborative tele-neurology) platform. Multiple watermarking techniquehides information in the medical image and at the same time ensures its imperceptibility. Approach of this paper is to hide the total diagnosis of each practitioner in the image ensuring a good quality of the image at the same time[17].

III. CONCLUSION AND FUTURE SCOPE

There have been number of laudable but disparate efforts to deliver telediagnosis services and initiatives from many government, semi-government and private institutions. There is a strong need for an integrated framework covering various aspects namely:Hardware, Software, Connectivity, bandwidth, patients at remote locations, and village hospitals.
Further, we need framework to support transmission of medical data,and support various telemedicine applications like, telementoring, telediagnosis, teleradiology, post operative care remote patient monitoring and ambulatory emergency care etc., with required quality of service.

REFERENCES

[1] **Upkar varshney**,"pervasive Healthcare", *IEEE Computer*, vol.36, no.12, pp.138-140, Dec.2003.
[2] **Upkar Varshney** " Pervasive Healthcare and wirelessHealth Monitoring",Proceedings of Mobile Netw Appl(2007) 12:113-127
[3] **Chung-chin Lin, Ren-Guey Lee, chun-chieh Hsiao** " A Pervasive Health monitoring service system based on ubiquitous network technology", 21 August 2007 .
[4]**Olguin,D.O.;Gloor,P.A.;Pentland,A;"**Pervasive Computing Technology for Healthcare", Pervasive-Health 2009,3rd International Confrence,London,1-3 April 2009.
[5] **Antonio Coronato;Giuseppe DE Pietro**,"Formal Specification of Wireless and pervasive healthcatre application",Pervasive Computing Technologies for Healthcare,2009.PervasiveHalth2009.3rd International Conference.
[6]**Postolache,o;Madeira,RN.;Girao,P.S.;**"Micro wave FMCW Doppler radar implementation for in-house pervasive health care system", Medical Measurements and Applications Proceedings(MeMeA),2010 IEEE International Workshop ,April-20-2010-May-1-2010
[7] **Sonali Agrawal,Divya,G.**N.Pandey, "SVM based context awareness using body area sensor network for pervasive healthcare monitoring",IITM'10 Proceedings of the First International Conference on Intelligent Interactive Technology and Multimedia ,NewYork,USA.
[8]Postolache,o et al.;"Multi-usage of microwave Doppler radar in pervasive healthcare systems for elderly", Instrumentation and Measurement Technology Conference(I2MTC),2011IEEE,10-12 May 2011.
[9] **Bingchuan Yuan;John Herbert "**Toward Useful Services for Elderly and People with Disabilities", 9th International Conference on Smart Homes Health Telematics,ICOST 2011,Montreal,Canada,June 20-22,2011.
[10] Hariton Costin,Cristian Rotariu "Complex Telemonitorning of Patients and eldely People for Telemedical and Homecare Services", Proceedings of 1t WSEAS International Conference on Biomedical Electronics And Biomedical Informatics(BEBI'08), August 20-22,2008.

[11] **Hariton Costin,Cristan Rotaru,Ioana Alexa** "Real Time Telemonitoring of Medical Vital Signs", BEBI'09 Proceedings of the 2nd WSEAS international conference on Biomedical electronics and biomedical informatics,Year-2009.

[12] Juan M.Corchado,Javier bajo,dante i. Tapia, And Ajit Abraham,"Using Hetrogeneous WirelessSensor Networks in a telemonitoring System for Healthcare ",IEEE Transactions on information Technology in Biomedicine ,VOL.14,No.2,MARCh 2010.

[13] E.Garcia, J.Bogousslavsky,V.Bonnans "Collaborative Tele-Neurology for remote Diagnosis ", SETIT-2005, 3rd International conference;Science of electronics, Technologies of Information and Telecommunications , March 27-31,2005-TUNISIA.

[14] IIias Sachpazidis,Stephan Kiefer, Peter Selby, "A Medical Network For Teleconsultations in Brazil And Colombia",The Second IASTED International conference TELEHEALTH, July 3-5,2006, banf,AB,Canada.

[15] Ren-Guey Lee, Heng-Shuen,Chung-Chih Lin,Kauang Chang, and Jyh-Horng Chen, "Home Telecare System using cable television Plants-An experimental Field Trial", Proceedings of IEEE Transactions On Information Technology In Biomedicine,VOL.4,NO.1,MARCH 2000.

[16] G.Coatrieux,L.Lecornu,Ch.Roux,B.shankur, " A Review of Image watermarking Application in Healthcare",2006.

[17]] Mohamed KALLEL, Mohamed salim BOUHLEL, Jean-Christophe LAPAYRE " use of multi-watermarking schema to maintain awareness in a teleneurology diagnosis platform", Radioengineering, VOL. 19, NO. 1, APRIL 2010.