ISSN (ONLINE): 2395-695X
ISSN (PRINT): 2395-695X

International Journal of Advanced Research in Basic Engineering Sciences and Technology (IJARBEST)
Vol.3, Special Issue.24, March 2017

BIOMEDICAL PWSN BASED FALL DETACTION AND HEALTHCARE MONITORING FOR OLDER AGE PEOPLE

MAHESHWARI.R[1],
P.G scholar,
M.E-Communication Systems (Dept of ECE)
Idhaya Engineering College for Women,
Chinnasalem.

SR.CATHERINA MARY.J[2,]
Assistant Professor,
Department of ECE,
Idhaya Engineering College for Women,
Chinnasalem.

ABSTRACT

Large image archives formed by Human body scanning are getting increasing valuable source information in hospitals. The need for retrieving a required reference image from a large image data base is increasing significantly for the purpose of analyzing resource in hospital. In this work we proposed to extract textural features from MRI brain Images Using Local Pattern Descriptor. Local tetra pattern and Local vector pattern are widely applied to extract textural features from facial images till today. So it was proposed to use both Local tetra pattern and local vector pattern to extract fine features present in the MRI brain image. The primary ides of developing first phase of this work is applying local vector pattern with the combination of first and second order derivatives. Sequentially, in the second phase it was decided to extract the feature from MRI brain image using Local tetra pattern and comparing both the results. Ultimately the extensive analysis will carry out on different medical images and try to prove that the propose method achieves the improved feature extraction accuracy and better results.

Keywords: MRI brain Image, local tetra pattern, image retrieval

I. INTRODUCTION

The number of senior citizens, older than 60 years, is expected to grow to more than one billion by 2015, 2.5 billion by 2050, and 3.6 billion by 2100. This trend is causing a growing need for long-term health monitoring within the home environment. Shortage of nursery homes, increasing personal care costs, and privacy preference motivate the senior's wish to stay longer at home. However, this does not come without obvious risks, especially when living alone. In fact, a lot of people suffer from chronic health conditions, including heart disease, lung disorders, diabetes, sleep disorders, and somnambulism.

In particular, sleep disorders are recognized as detrimental to both physical and mental health,

And affect the population on a large and growing scale. Technologies available for diagnostics and treatment of chronic diseases typically involve recording of biomedical signals such as brain activity (EEG), heart pattern (ECG), muscle activity (EMG), eye movements (EOG), blood oxygenation saturation (SpO2), and respiration effort.

These measurements are made through sensors attached to the patient's skin. However, these devices involve the use of wires that impose significant discomfort and restrictions on the patient, which can affect strongly the results. In addition to chronic health problems, fall incidents are considered a major risk for elderly living independently, as falls often result in serious physical and psychological consequences, or even death. Rapid detection of fall incidents can reduce the mortality rate and raise the chances to survive the event and return to independent living. For these reasons, fall detection has become of primary interest.

ISSN (ONLINE): 2395-695X
ISSN (PRINT): 2395-695X

International Journal of Advanced Research in Basic Engineering Sciences and Technology (IJARBEST)
Vol.3, Special Issue.24, March 2017

Conventional health monitoring systems for this purpose are based on a wristwatch or necklace with a button that is activated by the person in case of emergency.

The paper is explained as follows, Section II describes about the related work. Section III describes limitations and existing system. Section IV representing the proposed system and various modules present in it. Section V represents the result and discussions about the entire system. Then the Section VI exits the paper with conclusion of the entire system.

II. RELATED WORK

Hyejungkim, et al. [4], presents a mixed signal ECG SoC monitoring system. This system contains integrated analog as a front end and DSP as a back end. For impedance measurement of ECG signal and band power extraction AFE supports concurrent 3-channel ECG monitoring. For motion artifact, r-peak, HRV analysis and classification of arrhythmia SIMD processor provides additional Algorithm as advanced functionality. Without affecting the information content of the input Signals the adaptive sampling ADC provides the equivalent data rate of the ADC output and SoC provides best power consumption i.e. 31.1μW from1.2 V supply.

In [7], agents for intrusion detection are placed in every node of the mobile ad-hoc network. These agents detect any anomaly in the node by using local audit traces and also communicate with agents of neighboring nodes to detect distributed attacks on the whole network. The focus in this work is more on intrusions in mobile ad-hoc network routing protocols such as route logic compromise and traffic pattern distortion. D.J.R.Kiran Kumar and Nalini Kotnana [9], presents a portable real-time wireless health Monitoring system. Monitoring system is Implemented using Programmable System on Chip (PSoC). This system is useful for monitoring of patients' temperature, heart rate and oxygen saturation in bloody, pH level of blood and ECG. Here low cost, low power consumption and flexible network topology ZigBee wireless module is used to sense the remote patient data. To sense there mote patient data here low cost, low power consumption and flexible network topology ZigBee wireless module is used. Proposed systems sensor unit consists of temperature sensor, two types of LEDs and photodiode packed in Velcro strip, three colours LED with LDR, ECG, Microcontroller unit,PSoC circuits built by Cypress Microsystems.

III. EXISTING SYSTEM

In Existing fall detection system for the elderly as a wearable monitoring device, distinguishing between fall and non-fall events, which can link wirelessly with a pre-programmed laptop computer or Bluetooth-compatible mobile phone. Upon detecting a fall, the device communicates wirelessly with the laptop/cell phone to call emergency contacts. The device also detects abnormal tilt and warns the user to correct their posture to minimize the risk of falling. Moreover, in addition to the visual alert (flashing LED) fall alert, the proposed fall detection device has audio (siren) and tactile (vibrating buzzer) alert options for the seeing/hearing-impaired people and facilitates a manual cancel button in the event of a false alarm or falls that can be recovered by the user. Regarding the performance assessment of the proposed device, some actions have not been successfully distinguished, by one of the proposed algorithms, to be falls or non-falls. Main drawbacks of existing approaches are less Accuracy and Power Consumption.

IV. PROPOSED SYSTEM

The proposed architecture is intended for indoor applications as a potential ambient assisted living (AAL) technology. This trend is causing a growing need for long-term health monitoring within the home environment. Shortage of nursery homes, increasing personal care costs, and privacy preference motivate the senior's wish to stay longer at home. However, this does not come without obvious risks, especially when living alone. In fact, a

ISSN (ONLINE): 2395-695X
ISSN (PRINT): 2395-695X

International Journal of Advanced Research in Basic Engineering Sciences and Technology (IJARBEST)
Vol.3, Special Issue.24, March 2017

lot of people suffer from chronic health conditions, including heart disease, lung disorders, diabetes, sleep disorders, and somnambulism. In particular, sleep disorders are recognized as detrimental to both physical and mental health, and affect the population on a large and growing scale. Technologies available for find the problem of Blood pressure, human body temperature and fall detection etc... Experimental results, conducted in a real room setting with human subjects, demonstrate the need for a wireless sensor network for the targeted application.

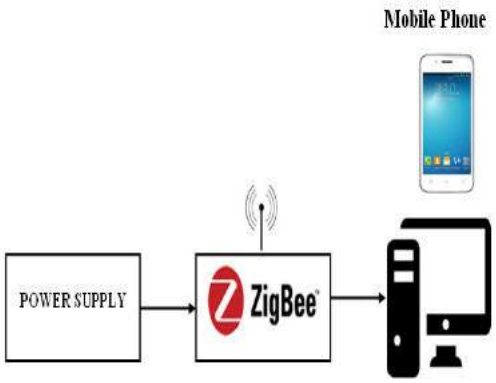

Figure1: block diagram of base station

The AAL addresses the needs of the ageing population, to reduce innovation barriers of forthcoming promising markets, but also to lower future social security costs. AAL aims - by the use of intelligent products and the provision of remote services including care services at extending the time older people can live in their home environment by increasing their autonomy and assisting them in carrying out activities of daily living.

Advantages of proposed system are High Performance Operation, Low Power Consumption and BWRSN in detecting emergency situations while monitoring, at the same time, the respiration rate.

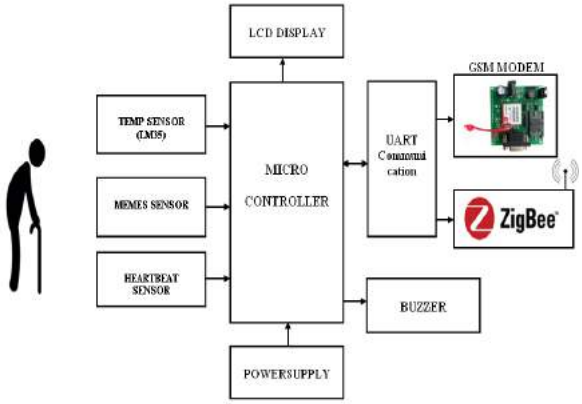

Figure 2: Block diagram of Bio-medical PWSN

V. RESULTS AND DISCUSSIONS

To receive each and every action for abnormal or older age people and sending information for GSM. Following Figure 3 a,b,c,d,e shows the system output models providing the health care monitoring of the old age people.

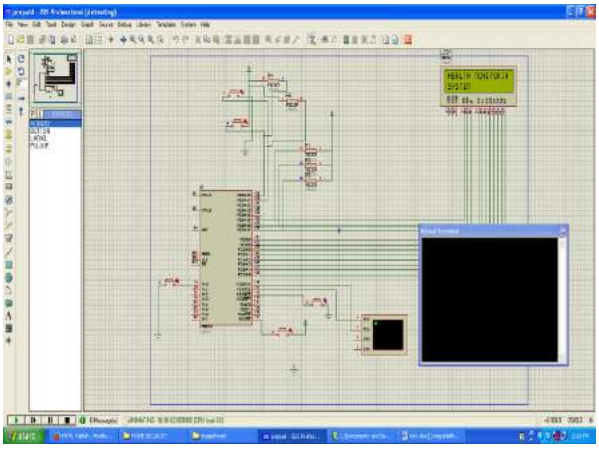

Figure 3.a: Health care monitor

ISSN (ONLINE): 2395-695X
ISSN (PRINT): 2395-695X

International Journal of Advanced Research in Basic Engineering Sciences and Technology (IJARBEST)
Vol.3, Special Issue.24, March 2017

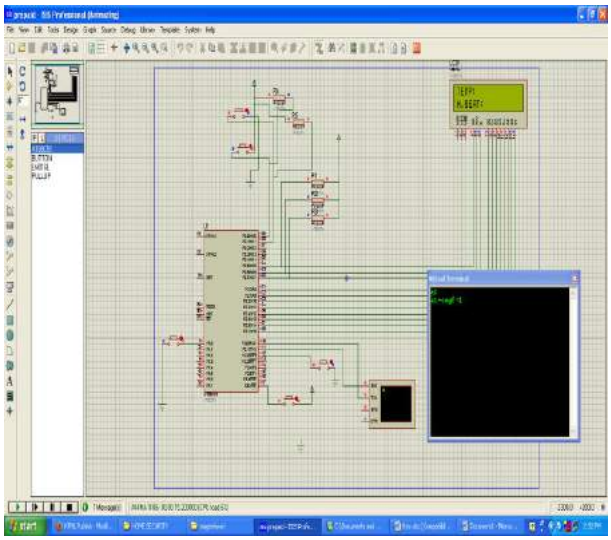

Figure 3.b:input to the monitor

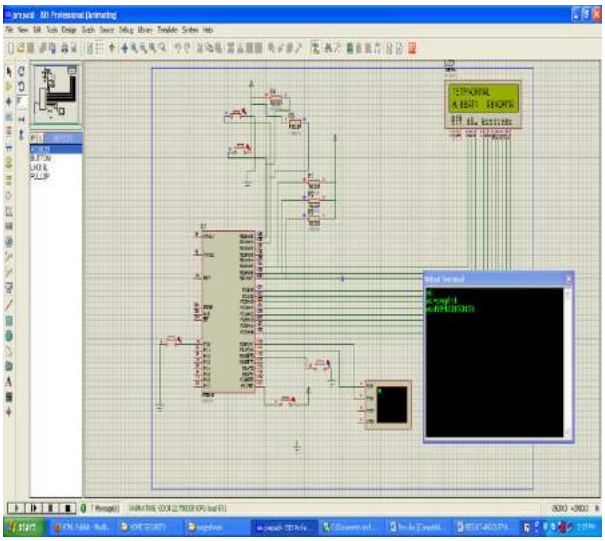

Figure 3.d: abnormal heart beat

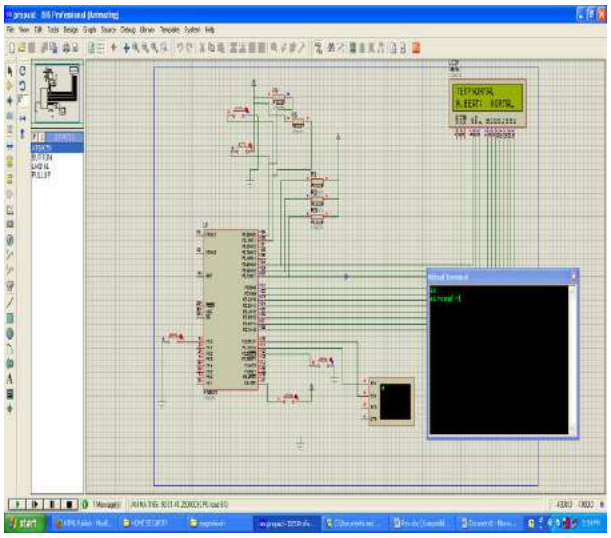

Figure 3.c: normal heart beat

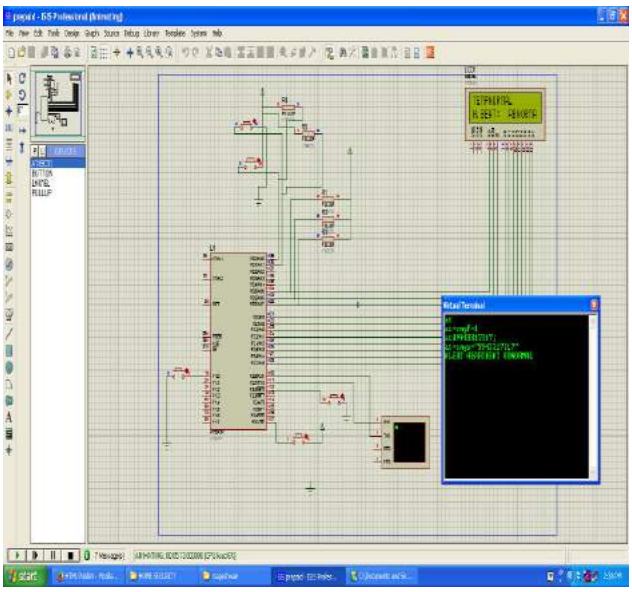

Figure 3.e: alert signal to virtual terminal

VI. CONCLUSION

In this work the feasibility of performing, at the same time, contactless fall detection and vital signs monitoring has been demonstrated. This represents an emerging asset in AAL applications, which strive to foster new technologies to enhance the quality of life of older people.The data transmitted to receiver through wireless GSM and the signal to mobile or pc via rs-232 will be implemented and verified.

REFERENCES

[1]. Balambigai Subramanian Asokan RamasamyEfficient Zigbee Based Health Care System for Arrhythmia Detection in Electrocardiogram EJSR1450-216X Vol.69 No.2 (2012), pp. 180-187

[2]. D.Cypher, N. Chevrollier, N. Montavont, and N. Golmie,Prevailing over wires in healthcare environments: benefits and challenges,. IEEE Commun. Mag., vol. 44, no. 4, pp. 56. 63, Apr. 2006

[3]. J. S. Choi and M. Zhou, ―Performance analysis of Zigbeebased body sensor networks,in Proc. IEEE Conf. Syst., Man Cybern.,2010, pp. 2427–2433.

[4]. Hyejungkim, et al.," A Configurable and Low-Power Mixed Signal SoC for Portable ECG Monitoring Applications", IEEE Transaction on Biomedical Circuits and System, Vol.8, April 2014.

[5]. R.S.H.Istepanian and A.A.Petrosian, Optimal zonal wavelet-based ecg data compression for a mobile tele cardiology system,. IEEE Trans. Inf. Technol. Biomed., vol. 4, no. 3, pp. 200.211, Sep. 2000.

[6]. Jin-Shyan Lee, Yu-Wei Su, and Chung-Chou Shen Hsinchu, Taiwan.A Comparative Study of Wireless Protocols: Bluetooth, UWB, ZigBee, and Wi-Fi,‖ The 33rd Annual Conference of the IEEE Industrial Electronics Society (IECON) Nov. 5-8, 2007, Taipei, Taiwan.

[7]. E.Jovanov, A.O.fDonnel, A. Morgan, B. Priddy, and R. Hormigo, Prolonged telemetric monitoring of heart rate variability using wireless intelligent sensors and a mobile gateway,. in Proc. Eng.Med. Biol., 24th Annu. Conf. Annu. Fall Meet. Biomed. Eng. Soc. EMBS/BMES Conf., 2002. Proc. 2nd Joint, oct. 2002, vol. 3, pp. 1875.1876.

[8]. K. Kinsella and W. He,An aging world: 2008,International Population Reports, U.S. Census Bureau, Washington, DC, Tech. Rep. P95/09-01, 2009.

[9]. D.J.R.Kiran Kumar and Nalini Kotnana, "Design and Implementation of Portable Health Monitoring system using PSoC Mixed Signal Array chip", International Journal of Recent Technology and Engineering (IJRTE), Volume-1, Issue-3, August 2012,

[10]. Shyr-Kuen Chen, Tsair kao, Chai- Tai Chan, Chih-Ning Huang, Chih-Yen Chiang, Chin-Yu Lai, A Reliable Transmission Protocol for ZigBeeBased Wireless Patient Monitoring‖ IEEE Trans Inf. Technol. Biomed.,vol.16,No.1 JANUARY 2012.

[11]. U.Varshney,Improving wireless health monitoring using incentive-based router cooperation,Computer, vol. 41, pp. 56–62, May 2008

[12]. U.Varshney and S.Sneha,Patient monitoring using ad hoc wireless networks:Reliability and power management, IEEE Commun. Mag., vol. 44, no. 4, pp. 49.55, Apr. 2006.

[13]. Y. Zhang, W. Lee, and Y. Huang, ―Intrusion Detection Techniques for Mobile Wireless Networks‖, ACM Wireless Networks Journal, 9(5): 545-556, September 2003.