Reduced Energy Consumption using Wireless Body Area Networks In health monitoring

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Abstract— *In this paper we proposed a system based on Wireless Body Area Network to save energy in Health Monitoring systems. This system mainly targets for the patients who are aged, suffering from degenerating diseases.*

Keywords— *WBAN, Imotes, cross bow, monitoring station, Health Information System.*

I. INTRODUCTION

The architecture of WBANs consists of smart miniaturized devices (motes) that are able to sense, process and communicate. The device has been designed in such a way that they can be worn or implanted, and monitor physiological signals and transmit these to specialized medical servers without much interference to the daily routine of the patient[1].In the recent[2] US Dept of energy consumption are increasing drastically which seems that it cannot be adopted any saving policies. Significantly power for transmitting data from nodes to the *Access Point* (AP) must be preserved so that battery life is extended and recharging is as infrequent as possible[3]. The need to implement frequent recharging procedures is one of the main drawback impeding wide adoption of WBANs as an alternative to traditional practices of monitoring a patient's physiological behavioral condition. The requirements for this architecture concern mainly usability aspects of power management functions, integrations with the home network and service deployment. The system is able to best schedule tasks for health monitoring for example heating the room depending upon the desired temperature of the patient.

II. BASE VIEW

The basic function of user profile is the character of identifying the persons health status depending upon their age group. so that some settings of energy management can be made automatically. A WBAN architecture for monitoring environmental parameters like patient presence, temperature and light. This information is aggregated and proposed in order to create 3 types of profiles-patient presence profiling, it contains disease of patient ,and room temperature and lightening.

The sensor network collects every 2 hour information called –Daily profile about the patient presence or absence in the room and the patient condition is monitored every hour and the information is transferred to Monitoring station. The information transferring through From patient to the database and monitoring station, personalized information is represented diagrammatically.

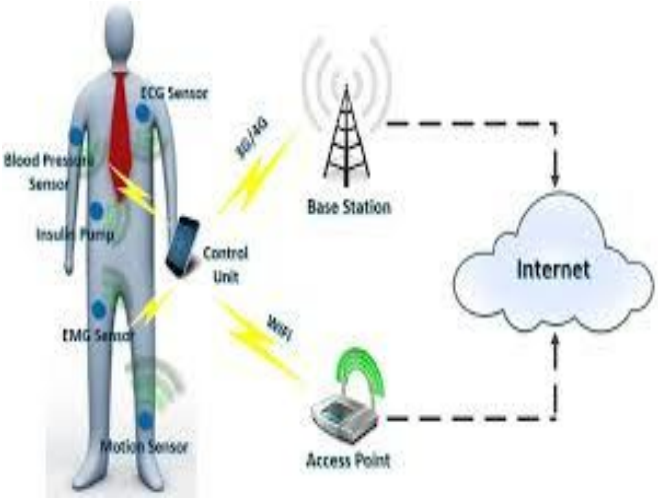

Fig 1: Information transfer from server to patient

III. ANALYSIS

A matrix is generated for each day associated with a column that represents the sequence of present profile identified in monitoring period. Each matrix column is spastically elaborated in order to predict the present profile in a given day for each half day. For day x for example the prediction algorithm performs,

1. For each present profile y in the selected column , the probability that occurs after the sequence of profiling of the past K hours in day x (with K=1) is calculated.
2. If a profile y exists with such a probability higher than threshold (experimentally set to 0.75) the algorithm stops and y is the predicted profile otherwise K is increased by 1 and the algorithm goes back to step1.

IV. PROPOSED SYSTEM

In the proposed system of body area networks we use cross bow , Mica Z and imote motes[4], which provides temperature , light , and patient movement information. In this the patient's sphere is connected to the carer's sphere. All this is connected to a reaction platform where there is continuous authentication is performed and the reaction platform is connected to the health information systems which performs continuous monitoring.

Carers sphere may control their environment through the service interface of the gateway that is able to get connected with any type of carer terminal, like e.g. wireless PDA, embedded devices, etc. Moreover, the system is able to collect additional information from the environment through a sensor network and create user profiles in order to perform a partially automatic configuration of the energy management policies

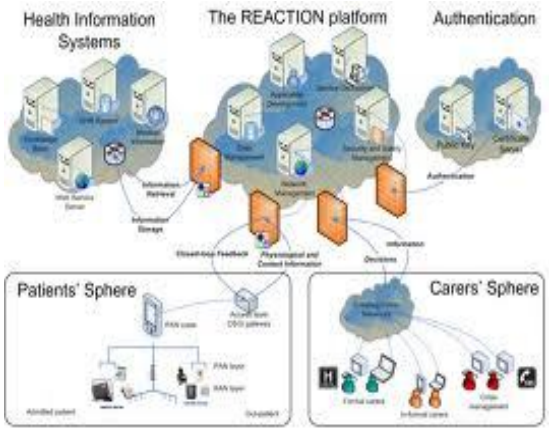

Fig ii: Architecture for Health Monitoring System

V. CONCLUSION

In this paper we presented reduced energy consumption in health monitoring systems. Based on this system energy can be reduced in health monitoring systems where there is a continuous monitoring is performed on patients behavior.

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