

Children Tracking and Tele Health Care Monitoring System in Signal Processing

¹S.Kalaiyarasan, ²Dr.N.Sivakumar

¹Research Scholar, , Department of ECE, AU College of Engineering, Vishakhapatnam

²Assistant professor, Department of ECE, AU College of Engineering, Vishakhapatnam

Abstract

This paper discuss about the latest technology evolved in the signal processing. This paper propose a new technique to monitor the school going childrens and it is used to prevent them from kidnapping and from other sort of injuries. It will also extented the facility for the hospital management system by implementing the telemonitoring system in healthcare. The new sensor technology were entered into the field by rapid developement in mobile technology and telecommunication.

KeyTerms : wearable sensor, SMS, GSM, pulse rate, heartbeat rate.

I. INTRODUCTION

The wearable sensor will be attached with the GPS and it will be given to the childrens. The wearable sensor will monitor the status of the children and it will send the detail to the server. The GPS is used to track the current location of the children. If the children will be move away from a particular region suddenly it will send a request to the server. The server will automatically send an alert message to the corresponding parents mobile number. The wearable sensor will monitor the childrens pulse rate if the rate of pulse will be decreased from the normal pulse rate it will send an alert to the server. The server will send a message to their parents mobile number. And in the tele health care monitoring system the progress of the patient will be monitored simultaneously. If the patient will use the wearable sensor it will monitor the heart beat rate the pulse rate and the respiratory rate. If there is a change from the normal pulse rate the GSM in the wearable sensor will send an alert to the health care center, family and the ambulance for the immediate recovery of the patient.

II. EXISTING SYSTEM

In the existing system there is no proper mechanism to track the children and to monitor the patients. Either the children will monitored in the school premises using the RFID technology. Beyond the school premises we cannot able to predict the condition of the children until they reach the home. There may be any chance to misinterpret the childrens in this mean time. And there is no proper technology was implemented for the patient

monitoring system if a heart patient were went outside lonely. They cannot be able to monitor by any person. Therefore it will be very tedious for them in their critical condition when they go outside. Also they cannot get the proper first aid. Because nobody knows the proper condition of the corresponding patient.

III. PROPOSED METHODOLOGY

In the proposed system the children tracking system and the patient monitoring system were implemented using the wearable sensor and the GPS. This will helps to track the position of the children and the patient each and every time. If there is any change it will send an alert to the corresponding person so that it helps to protect them in right time.

IV. WEARABLE SENSOR

The wearable sensor having the monitoring applications. And the remote monitoring systems have some problem in the mitigation. In this paper the wearable sensor which will be fitted to the skin were implemented. The wearable sensor is a non-obtrusive device which allows the physician to eradicate the limitations. The main use of wearable sensor is to monitor the continuous process of physiological signals in the advancement of diagnosis and in some critical situations of the patients.



Fig 1: Wearable Sensor

V. INNOVATION OF WEARABLE SENSOR

The wearable sensor that fit with the skin has the soft stick patches that move with the skin. The patches that fit to the skin will be like tattoos which stick with the skin. The micro fluidic construction of wires will be formed or folded like an origami structure which allows the patches to blend and create a flexible nature of the electronic devices. The wearable sensor will be very soft in nature but it has

many different monitoring functions. This conventional sensor will be more comfortable to the patients and it will not create any disturbance over them. And the pulse oximetry sensor in that will monitor the heart rate and oxygen saturation continuously.

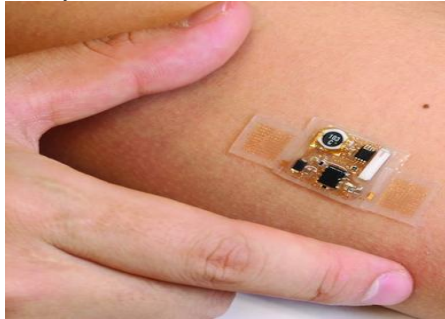


Fig 2: Soft Skin Wearable Sensor

VI. GLOBAL POSITIONING SYSTEM

The GPS network will transmit the data the indicate the current location and the current time. The repeating signals will transmit the waves and synchronize the operation. The GPS will be determined by the amount of time it takes to send the data to the GPS receiver.

The GPS transceivers will have the atomic clocks in this the signal will be sent through the random signal which is called pseudo random code. The pseudo random code is used to identify which satellite is transmitting the information currently. The network satellite that continuously transmit the coded information which makes the possibility to identify the location on earth by measuring the distance.



Fig 3: GPS Embedded With Wearable Sensor

The patient who carries the wearable sensor with them can able to monitor easily by using the GPS unit after their operation or other diagnosis process. The wearable sensor consists of the MEMS which is used to identify the position of the patients. The MEMS has the two different categories the sensor and actuators. The sensor that has no moving points and it will be operating under the sliding friction. The actuators are to analyze and measure the performance and reliability. In this paper the micro

sensor and micro actuators will be integrated together into a single chip and it will be embedded with the wearable sensor for the better performance.

VII. IMPLEMENTATION OF MEMS IN WEARABLE SENSOR

The MEMS in the wearable sensor will predict the condition of the person and it will send a request to the server. The server will analyze the position. If there is any critical situation it will send a alert message to the pre configured number through the GSM system and it will also extend its facility to predict the current location of the patient and informed to the ambulance and hospitals immediately to take sudden recovery. Also the wearable sensor will have the separate patient id. Using that id the patient details can be viewed. It will be helpful for the other persons to give the first aid for them or to take some other remedial measures.

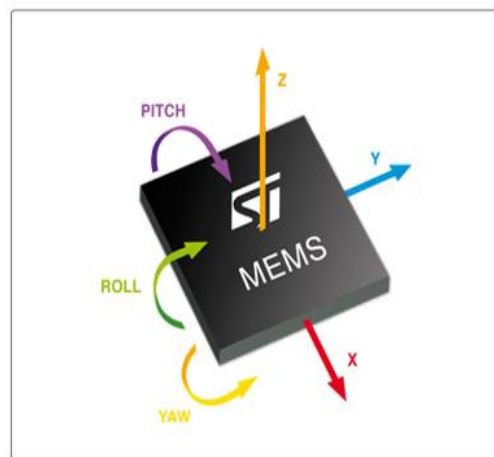


Fig 4: Micro Electro Mechanical Systems

VIII. WORKING METHODOLOGY OF CHILDREN TRACKING SYSTEM

In the children tracking system the wearable sensor in their hand will be embedded with the GPS tracking system. In the sensor the school zonal region and the time will be registered. If the children move from the zonal region at the particular period of time it will send an alert to the parent's number. Also the wearable sensor will monitor the pulse rate and heart beat rate of the children. If there is any changes in the pulse rate from the normal condition the it will send a request to the server. The server will send an immediate message to the parent's number and the corresponding teacher number who will take care for the corresponding student in the school. All the details were predefinely stored in the sensor device and it will also store in the server. When the request reaches the server it will check the details of the children and it will respond quickly as per the request of the wearable sensor. Here the signal is processed between the wearable sensor and the server which

will be predominantly monitored using the wireless technology.

In the wearable sensor we implement the datamining techniques to preprocess the data. The health care system uses the data mining system to have a deep knowledge representation. The datamining task such as prediction, anomaly detection and diagnosis decision making. In the tele-health monitoring system. The prediction is used to predict the requisition of the patient or the user. The anomaly detection is used for analyzing the situation and raising the alarm. The diagnosis decision making will classify the data into different groups based upon the diseases. In the prediction method it will follow the supervised learning methodology. In the anomaly detection is based on the classification methods to distinguish the datasets in normal class and outliers. In the diagnosis decision making is used to extract the useful information of sensor data such as outliers, alarms and other meaning full data.

IX. CONCLUSION

This paper will provide a solution for the both children tracking and tele monitoring system using the wearable sensor device. In this the soft skin wearable sensor will be implemented and it will embed with the GPS and the GSM systems which will give the more reliability in the field of medical as well as security. The tele monitoring system will be successfully implemented in the hospital management system to provide the better utility and the reliable service for the society. This paper will also used to take the immediate remedial measures for the user in the busy world.

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