

Data Collections Through Wireless Sensor for Health Care

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ABSTRACT

There should be some human presence next to the patient who personally monitors the old age patients. In the proposed system, protection house is regarded as an independent healthy living for elderly person. Advances in mobile technology and novel traditions of computing paradigm (i.e., cloud computing) permits actual instance attainment, dealing out, and tracking of activities in security house. In this paper, we develop android safety handset appliance to assists old people for autonomous living in their personal residence. Safety handset appliance co ordinate with cloud through web server and backings the aged person to complete their day by day living actions. This is used to follow the patient's action along with the remnants of tablets, foodstuff and other behavior. Modification that we propose is to monitor the Heart Beat of the patient to find the usual functionality of the long-suffering along with IR based patient tracking solution at every room.

KEY WORDS: Wireless Sensor Networks (WSN), Data Collection, Liquid Petroleum Gas (LPG)

1. INTRODUCTION

Nowadays, WSNs has become an attractive field for study as well as scientific and technical developments. WSNs are different from habitual wireless networks and hence, pose more challenges like limited energy, restricted duration, restricted protection, etc. with the benefit of simple setting up, little safeguarding, etc. Wireless Sensor Networks (WSNs) encompass of a huge number of small devices equipped with one or more sensors, some handing out circuits, and a wireless transceiver. Such plan are called sensor nodes or motes. These sensor nodes are tightly deployed either surrounded by the phenomenon to be sensed or extremely close up to it. The size of a sensor node is little adequate to permit simple and unsystematic deployment of a huge amount of motes into remote and inaccessible environment. Parameters like heat, anxiety, dampness, radiance, and substance activity are constantly reported by these motes which are arranged and left unattended in the field. As age of people increase, they be likely to fail to remember basic things like switching off lights/fans. They may fail to remember to switch off cylinder gas leading to LPG gas outflow, or lock the doors leading to thefts in home. Hence, we suggest a Safety Home system for safety of such people. In a Safety home, sensors are needed for monitoring general parameters like heat, dampness, LPG leakage, etc.

Thus, with the growth of wireless network technology, we have a preference little data rate, extended battery life, fewer difficult protocols, for such applications as an alternative to wasting bandwidth of elevated data rate protocols. Small space wireless communication technologies mainly include Bluetooth, Wi-Fi, ZigBee. For the system proposed, to monitor various parameters defined in above section, ZigBee technology is employed. ZigBee is a universal open standard for wireless radio networks in the monitoring and control fields. The growth of ZigBee technology was done by the IEEE 802.15.4 group and ZigBee agreement, to meet the following principal needs: (1) small cost, (2) ultra-low power utilization, (3) use of unlicensed broadcasting bands, (4) inexpensive and easy setting up, (5) flexible networks.

2. METHODS AND MATERIALS

Bluetooth device: Bluetooth is a frequency hop wireless moving technology. The scroll spectrogram exhibit, the bluetooth device (the red/yellow energy squares) hops across the full 2.4 GHz Wi-Fi frequency band. This is simply seen in the scroll spectrogram display, but more complicated to see in spectrum analyzer displays which show only regularity and amplitude information but limited time-domain information.

Heartbeat sensor: Heart beat is sensed by using a high power type LED and LDR. The finger is located between the LED and LDR. As Sensor a photo diode or a photo transistor can be used. The skin might be illuminated with observable (red) by means of transmitted or reflected light for recognition. The extremely tiny changes in reflectivity or in transmittance caused by the changeable blood content of human being tissue are approximately invisible. Various noise sources may produce disturbance signals with amplitudes identical or even higher than the amplitude of the pulse signal. Valid pulse measurement therefore requires extensive preprocessing of the raw signal.

Temperature: The LM35 series are accuracy integrated-circuit temperature sensors, whose output voltage is linearly relative to the Celsius (Centigrade) temperature. The LM35 thus has an benefit over linear temperature sensors calibrated in ° Kelvin, as the user is not necessary to subtract a huge regular voltage from its yield to obtain convenient Centigrade scaling. The LM35 does not require any exterior calibration or trimming to provide typical accuracies of $\pm 1/4^{\circ}\text{C}$ at room temperature and $\pm 3/4^{\circ}\text{C}$ over a full -55 to $+150^{\circ}\text{C}$ temperature series.

Eye tracking has a extended record in fitness check and psychosomatic examine as a tool for footage and studying person visual behavior. Real-time gaze-based passage access can also be a prevailing means of message

and organize for community by means of physical disabilities. Following latest technical advances and the beginning of reasonable eye trackers, there is a increasing awareness in persistent attention-aware structure and crossing point that have the budding to develop typical individual knowledge communication. We also confer how to equal the consumer necessities and key features of special eye tracking systems to discover the most excellent structure for every task and request.

Method and system for individual action detections with acceleration sensors for the planned rescue structure for disabled and aged people who requires a help in emigration from calamity areas is proposed. Not only fundamental signs, blood pressure, heart beat pulse rate, body temperature, bless and consciousness, but also, the location and attitude of the persons have to be monitored for the proposed rescue system. The attitude can be measured with speeding up sensors. In particular, it is better to differentiate the attitudes, sitting, standing up, and lying down. Also, action velocity has to be detected. Experimental outcome demonstrate that these attitude monitoring can be done with acceleration sensors.

System Architecture:



Figure.1. Proposed System Architecture

User Registration: If the user wants to access the details of the long-suffering from the server, they should have an account with that server. Without having an account they aren't able to access the records or view the details. So first the user will create an account with that server by providing the necessary information like Username, Password, DOB, Address and Phone number etc. Once these information are given by the user, server will get those information and stored it into the database for future purpose. Also a mobile application will be created and installed in the mobile so that the user / guardian can view the patients details through this application itself.

Cloud Server: Cloud Computing, as the name suggests is a method of computing where vigorously scalable and often imagine resources are provided as a service over the internet. These facilities can be consumed by any user over a standard HTTP medium. The client doesn't require to have the awareness, expertise or control over the technology infrastructure in the "cloud" that supports them. In the cloud server all the user's requested information and access details will be stored. The Embedded Kit fabrication is connected with the Cloud server. Also the Cloud Server will retrieve the data whenever the user is requested.

IR Monitoring: In this module, we can detect the patient information by using IR sensor. An IR receiver will be fixed in the patient's body and so that when the patients enter the room, the receiver will receive the signal from the IR transmitter. So that we can track where the patients is exactly located. These information will be stored in the Cloud Server. By hitting the Cloud Server the Guardian can view the patients' current location.

Voice Message Passing Using IVRS: In this module, we can send the voice information to the patient to take the medicines, lunch and other necessary activities they have to maintain in the regular basis. This is a reminder information to take medicines. To Send the Voice message we're using a technique called, interactive voice system.

Heart Beat Observation And SMS Alert: In this module we're monitoring the Heart Beat of the patient. To check the Heart Beat, we're fixing an Heart beat sensor in the patient's body. The values passed from the sensor are monitored by the server. If the values are abnormal, then an automatic SMS alert will be send from the Cloud Server. Once the patient's condition is abnormal, the Cloud Server will search its database and gets the concerned user's information and send an SMS alert to that user. For this purpose a Nokia Express Music Mobile will be connected with the Cloud Server via data cable. To generate an SMS we're using JSMS conf file. The SMS will be send to the user's mobile from the Mobile that was connected with the server.

Future Enhancement: The real-time control of home is affordable at low cost and achievable by the use of pervasive sensors and actuators. The automatic working makes the total system much simpler and easily controllable. In this paper, we extend android safety handset application to help aged citizens for self-regulating living in their

individual home. Safety handset application co ordinating with cloud through web server and assists the elderly person to complete their daily life activities. This is used to follow the Patient's movement along with the remainder of medicine, Food and other activities.

3. RESULTS

The IR sensor is a extremely simple device that works by reflecting infrared light off of an object and detecting the reflecting with a photo-transistor that is tuned to the identical frequency of light. The LED is mounted after that the photo-transistor, however, the emitted light from the LED does not openly shine into the photo-transistor.

4. CONCLUSION

The ZigBee protocol is an ideal selection for the temperature monitoring application because of its features like low data rates, low power consumption, etc. In this paper, a system for temperature monitoring is explored so as to avoid hazards mainly in compact environments like home, office, etc. A prototype was successfully designed and tested for the same.

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