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SMART REAL TIME HEALTHCARE MONITORING AND TRACKING SYSTEM

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Abstract:

In this project Health monitoring systemshave rapidly evolved and smart systems have been proposed to monitor patient current health conditions.The system will monitor patients and facilitate takingcare of their health. In our proposed and implementedsystem, we focus on monitoring the patient's heart beatpulse, body temperature, cough count detection and fits detection. Nowadays, Globalization demands Smartcities, which involves many attributes and services. Aimof Smart City concepts is to provide better life to societyand provide innovative and creative solutions in each ofthe eight pillars of smart city. Healthcare field is one ofmost delicate and important field to be developed andenhanced by Smart system. This paper proposes asystem architecture for smart healthcare based on GSMand GPS technologies. The objective of this work isproviding an effective application for Real Time HealthMonitoring and Tracking. The system will track, trace,monitor patients and facilitate taking care of their health.SMS alert will be sent to the medical expert by using aGSM module and they can suggest the patient abouttaking an immediate remedy.

I. INTRODUCTION

The objective of this work is providing an effective application for Real Time Health Monitoring and Tracking. The system will track, trace, monitor patients and facilitate taking care of their health, so effective medical services could be provided at desired time. By Using specific sensors, the data will be captured and compared with a given threshold via microcontroller which is defined by a specialized doctor who follows the patient, in any case of emergency a short message service (SMS) will be sent to the Doctor's mobile number along with the measured values through GSM module. Further, the GPS provides the position information of the monitored person who is under surveillance all the time. Moreover, the paper demonstrates the feasibility of realizing a complete end to-end smart health system responding to the real health system. The system will be able to fulfill the gap between patients in dramatic health change situation and health entities who response and take actions in real time scenario.The Patient monitoring system is very essential in real life. Health monitoring systems have rapidly evolved recently, and smart systems have been proposed to monitor patient current health conditions, in our proposed and implemented system, we focus on monitoring the patient's heart beat rate, cough count detection, fits detection and body temperature. Based on visiting hospitals, it was approved of the effectiveness of this project and its ability

to facilitate communication between the patient and doctor. Utilizing the available services of GSM and GPS technologies to build a smart health monitoring system can improve and enhance the real time monitoring, where GSM services are used for global communications any time and anywhere, GPS technology is applied for outdoor positioning.The eight key aspects that define a smart city as shown in fig.1 which depicts the smart city concepts-smart governance, smart building, smart infrastructure, smart energy, smart technology, smart citizen, smart mobility and smart healthcare. In this paper we propose a system architecture for smart healthcare based on GSM and GPS technologies.

II EXISTING SYSTEM

Existing system can monitor heart rate, blood sugarlevels, human's body temperature, and by using awireless communication technologies tosynchronize and display these information into asmart mobile phone or a standard computer. Suchdevice gather data from user and display somerelated graphs in order to encourage users to remainaware of their health conditions by providing aweek to week feedback. It achieves wirelesstechnology with limited options of connecting toparticular users only. It may not work, if thewireless infrastructure of the system gets changed.

III PROPOSED SYSTEM

Proposed system will monitor heart beat rate,human's body temperature, cough count and fitsdetection by using a specific sensors, GPS andGSM technologies to display these information intoa smart mobile phone or it will send the data to webserver. The proposed systemconsists of an end-to-end smart health applicationthat can be building up from

two functional buildingblocks. Main function of the first building block isto gather all sensory data that are related to the monitored persons, whereas the second blockfunctions are to store, process and present the resulted information.

IV BLOCK DIAGRAM:
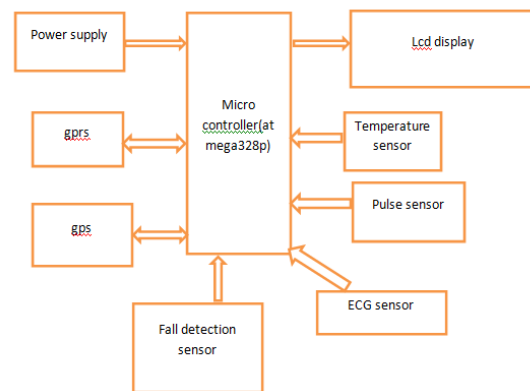
The function working is elucidated as the Arduino will takes the readings of heart beat pulse, body temperature, cough count and fits detection from the respective sensors and orders GSM shield to send an SMS message containing these readings, patient information and the location of the patient which has been taken via GPS shield to the medical expert so that instant remedy can be taken.
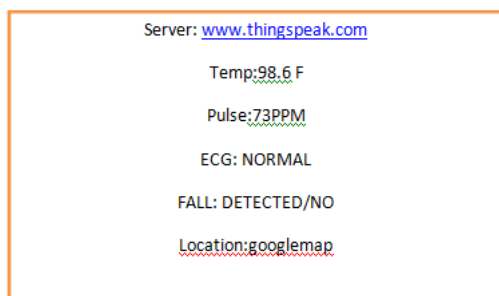
V. ARCHITECTURE AND IMPLEMENTATION

This section provides insights structure of the proposed system and explains the main building blocks and the interconnection relationships among the system blocks. Mainly, the proposed system aims to cover an end-to-end smart health application that can be build up from two functional building blocks. However the main function of the first building block is to gather all sensory data that are related to the monitored persons, whereas the second block functions are to store, process and present the resulted information.

The given system illustrates that the arduino takes the reading of heart pulse rate, body temperature, cough count and fits detection, and orders GSM shield to send an SMS message containing these readings, patient ID and the location of the patient which has been taken via GPS shield to the medical expert so that instant remedy can be taken.

Arduino Board

Arduino Uno is based on ATmega32 microcontroller, which has a set of 14 input/output digital pins, where 6 out of 14 can be used as a PWM output pins, also, the microcontroller board has 6 analog inputs, a ceramic resonant of 16 MHz, an USB interface, a DC power jack, a reset button, and ICSP header. The USB interface, simplifies the connection of the microcontroller with the computer, also the USB can be a power supplier for the microcontroller board.

VI RESULT

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Server: www.thingspeak.com

Temp:98.6 F

Pulse:73PPM

ECG: NORMAL

FALL: DETECTED/NO

Location:googlemap
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VII. CONCLUSION

In the Proposed system heartbeat rate, body temperature, fits detection and cough count detection has done by using various sensors and their principles. Furthermore these details and the location of the person is sent to the prescribed person mobile number as SMS Via GPRS. Then the prescribed person will notify the person to take immediate remedy. The proposed system is in terms of versatility and mobility as it is very small in size and light in weight. Hence, SMS is the most appropriate way to transmit data in critical situations in rural areas where broadband communications are rare.

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