Health Monitoring and Alert System

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ABSTRACT

The aim of this prototype wireless health alert system is to monitor the elderly sick patients at home independently and inform during the emergency health conditions to the caretaker automatically and manually by pressing the push button switch fixed in the monitoring system. This system is specially designed with fixed monitoring system on the body. The proposed system consists of sensors, microcontrollers, A/D converter ,signal conditioning circuit, transmitter section and receiver section. Sensors are used to sense temperature pressure, heartbeat rate. In addition to this a push button switch is fixed in the monitoring system to manually send the signal to transmitter A/D converter converts analog signal sensed by sensor into digital signal and fed into signal conditioning circuit. Microcontroller process this signal and send through GPRS/GSM modem Transmitter transmits the sensors signals which is output by microcontroller Receiver section receives the signal and communicates to caretaker mobile. The wireless health alert system is compact and portable. continuous monitoring helps to detect abnormal conditions and avoids delay in treatment and makes fast recovery. This can be implemented in hospitals, homes and homecare centers for aged people.

Keywords : Sensors, Health Care, Wireless Health Alert

I. INTRODUCTION

In the present scenario everyone at home are working. Sometimes due to nature of work people find it difficult to care sick and elderly people. So there is a need for constant monitoring for deseased or elderly people at home. This proposed system helps for remote monitoring of their health condition. Technological advancements leads remote communication through mobile. So the critical and abnormal conditions can be known and the required treatments can be initiated by the caretaker.

II. PROPOSED SYSTEM

The hardware parts of block diagram consists of Battery, Switch, Regulator, LCD Display, Microcontroller. Wrist band, Optocoupler, Push Button switch and GPRS/GSM modem. The 9V power supply is given through battery. Regulator converts to 5V to the wrist worn device. The wrist worn device consists of sensors like heart rate, temperature and pressure which senses the patients vital conditions and send it to PIC microcontroller .The sensors are optically coupled with microcontroller. The microcontroller is programmed by embedded C

language that processed signal and send data to 16X2 LCD display. The sensors interfaced in wrist worn device operates in 3.3V and this wrist worn device is interfaced to the microcontroller for successful SMS communication. The LCD displays the appropriate information of a patient who worn the wrist band device. It sends the patient information to the caretaker mobile through GPRS/GSM modem. That GPRS/GSM modem operates in 12V it sends the information by pressing the push button which is optically coupled to the microcontroller.
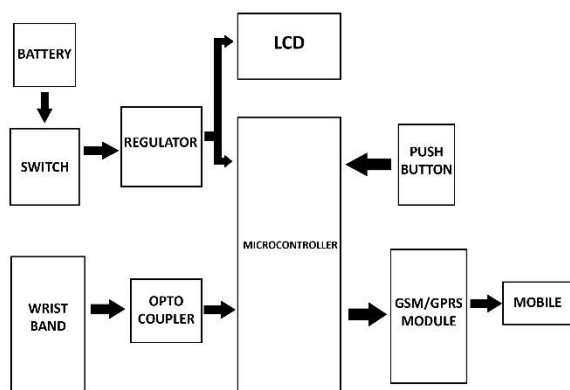

Fig 1. Block Diagram

III. CIRCUIT DESCRIPTION

Circuit diagram consists of Power supply, PIC Microcontroller, Sensors, LCD display and GPRS modem. Power supply has two output voltage levels +12 V and +5V. The sensor like heart rate module pressure module and the LM35 temperature sensors with inbuilt A/D Converter are interfaced separately with the microcontroller. Temperature sensor and blood pressure sensor are interfaced with the Port A . Heartbeat sensor is interfaced through Port B. The GPRS/GSM modem is interfaced to Port C and the LCD display is interfaced to Port D. These signals are transmitted using GPRS/GSM modem to caretaker mobile.
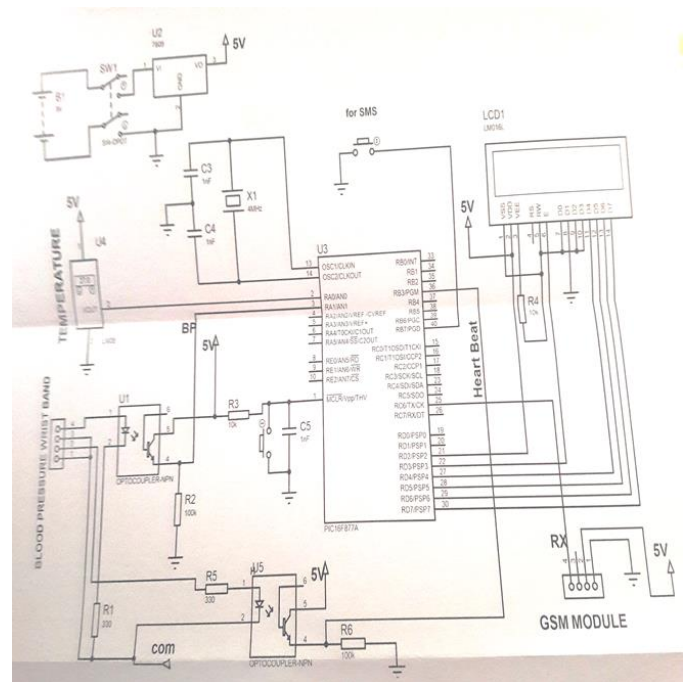

Fig 2. Overall Circuit Diagram

IV. OUTPUT AND RESULT

In this wrist worn device consists of Sensors, Microcontroller and GPRS/GSM Kit. The device is worn on patient wrist. When switch on the device, it gets pressurised. After sometimes it get released, when it released the output readings (Temperature, Heart beat, Pressure) are displayed in LCD display and readings are sent to caretaker through GPRS/GSM Modem by pressing the push button switch.
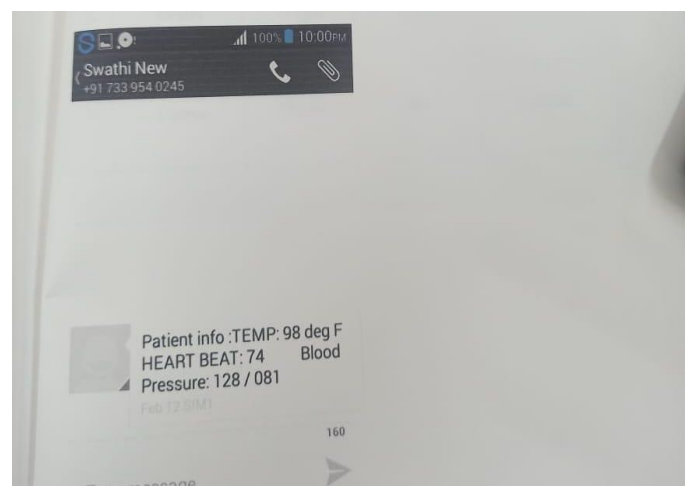

Fig.3 SMS on health data

Fig.4 Hardware Model

- Human body Temperature : 98F
- Heart beat : 72bpm
- Pressure : 120/80

These are the normal values of above parameters. If exceed or decrease this values can be consider as abnormal condition.

S. No	PATIENT	HB	TEMP	PRESSURE
1	A	74 bpm	98 F	128/81
2	B	71 bpm	101 F	119/75
3	C	73 bpm	96 F	120/82

Fig.5. Hardware with Wrist Band

V. CONCLUSION

It is the wireless patient health monitoring system. Any abnormalities in health conditions such as the Temperature, heartbeat and pressure of human being who wear the wrist worn device is indicated to the patient and also to care taker. This device is cost effective and can be monitored in Real- Time since it is embedded. Wrist worn devices are designed with low power consumption in mind. This portable wrist worn device is compact and comfortable in nature so that future processing and memory upgradation can be achieved simply by software changes. The system combines measurement of vital signs, online analysis and emergency Seration, predication, sending of web based predication messages and GSM/GPRS connectivity between wrist worn web server, web application and mobiles. This wrist worn device can be easily implemented for monitoring and storing data in web server for anytime anywhere anyplace reference.

VI. REFERENCES

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