Review on Baby Monitoring System

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Abstract - This paper presents a style of a Baby observance System supported the GSM network. A model is developed which supplies a reliable and economical baby observance system that may play an important role in providing higher kid care. this technique monitor important parameters like voice, movement of AN kid and exploitation GSM network this info is transferred to their oldsters. Measurements of this important parameters are often done and below risk state of affairs sent to the fogeys with SMS and vocation system to initiate the right management actions. The system design incorporates voice sensors for observance important parameters, GSM interface controlled by one microcontroller core.

Keywords: observance ,oldsters , fogeys , voice sensors, microcontroller ,GSM

1. Introduction

In the past few decades, feminine participation within the labour force within the industrial nations has greatly accumulated in gift society. after, baby care has become a challenge to several families in their existence. Mother is usually worries concerning the well being of her baby[1]. As we have a tendency to seen in Asian country each the oldsters ought to work and appearance once their babies/infants, therefore a lot of employment and stress is there on such families particularly on feminine counterparts. If a system is developed that incessantly gives updates concerning their infants throughout health problem or throughout traditional routine then it'll be of nice facilitate to such members as they'll add stress less surroundings giving a lot of fruitful output. additionally imperative state of affairs condition are often quickly be noticed and handled among less time. Usually, once a young baby cries, the cause is one amongst the subsequent things i.e. they're hungry, tired, not feeling well or would like their diaper modified. therefore we have a tendency to developed a image which might monitor the activities of the babies and/or infants beside finding one amongst the on top of causes and provides this info to their parents[2].

This projected system provides a peace of mind to white-haired ones once they square measure aloof from their baby as they'll get AN update standing of their well-being. Communication is completed by GSM interface within which Short electronic messaging Service (SMS) is key a part of the first GSM system and its progress. during this approach simply oldsters will get info concerning their health.

2. Literature Survey

Many home-care systems are available but majority of this system are specially designed for the aged people and patients.

These systems can monitor their health status, automatically send out emergency signals, and have other functions. However, the caring methods for infants are not the same. Children and adults require different type of care because they are totally dependent for their normal functions on someone else. Infants cannot give any feedback about their discomfort or health complaints. Infants cannot express themselves like old people, e. g when an infant has a fever, he/she can only express his/her discomfort by crying. Hence, a home-care system specially designed for infants is today's need which would substantially lighten parents' especially mother's burden. In support of this requirement many research papers and patents for healthcare application are studied with the intention of possible solutions to take care of the infant. Author had developed a system which is based on commercial GSM network. Vital parameters such as body temperature measurement using LM 35[1,6], Heart rate using IR Transmitter and Receiver, respiratory rate by using Piezo film sensor located on Patient's Chest and blood Pressure are sensed, amplified with variable gain, filtered and given to microcontroller. Remote subsystem with GSM module receives data which is then send to a server by a USB port. Data are stored on the server and remotely displayed in a web site. In SMS based telemedicine system, patients temperature measured by Infrared temperature sensor MLX 90614 and ECG signals acquired with electrodes interfaced with the microcontroller PIC16F877[3].A wearable hardware gadget is developed which captures the biological status of the baby such as motion, temperature and heart rate sensors (both optical and pressure) which are controlled by the microcontroller and connected to the Bluetooth module to provide wireless communication[5]. In paper[14], the temperature and humidity parameters are monitored. A skin-temperature probe, the air temperature-probe was used to monitor the temperature around the baby and humidity of incubator was monitored using the humidity sensor from SYHS2XXseries. This signals are interfaced to PIC microcontroller 18F4550 and GSM modem is used for communication. Patents are also searched to find novelty in baby care monitoring system. In design, (Patent

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No. 2002/0057202 A1)[16], system is developed which monitors breathing ,fever and volume of baby sleeping in the crib. There is a module having three sensors attached to the diaper. This signals are amplified, transmitted by transmitter and at remote station there is receiver, multiplexer which applies this signal to audible alarm to alert mother to take appropriate action. U.S. Patent No.6,043,747 (Altenhofen), Wherein a parent unit can record messages Which may then be transmitted to the baby unit to soothe or calm the baby[17]. The baby unit includes a microphone and can transmit sounds to the parent unit. However, in order for the parent to detect a problem With the child, the parent must constantly monitor the sounds being transmitted from the baby unit. The next U.S. Patent No. 6,450,168 B1[18],includes an infant's sleep blanket/garment which is offered as either a sleep sack or a sleep shirt, depending on the age of the infant. The sack with no arm holes for newborns and with arm holes and sleeves for older infants. Here thermometers incorporated to monitor the infant's temperature as he sleeps. U.S. Patent No. 4,895,162 [19], in Which a soft belt containing a pair of electrodes is positioned around the torso of an infant such that the electrodes are in position to monitor vital signs, such as respiration and pulse. Monitoring lead Wires connect the electrodes to a monitor unit proximate the infant.

3. Existing System

Many application has been developed in an android by using sound or frequency sensors.

For example- Samsung has developed application which blinking mobile flash lights after crying a baby.
But there is no any application that will recognize the crying voice of baby and according that send SMS to parent or directly make a call them.

4. Proposed System

The baby monitoring system which recognize the crying voice of baby and send SMS or to make a call to baby's parent.
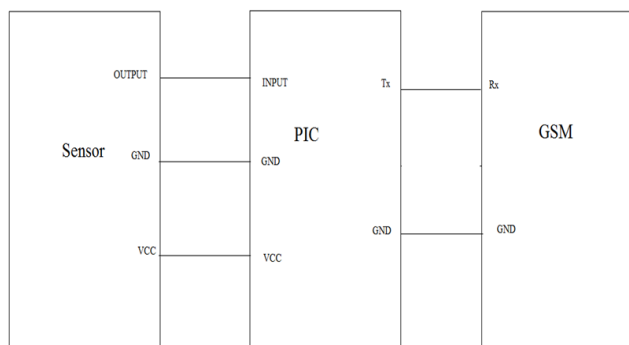
5. System Architecture

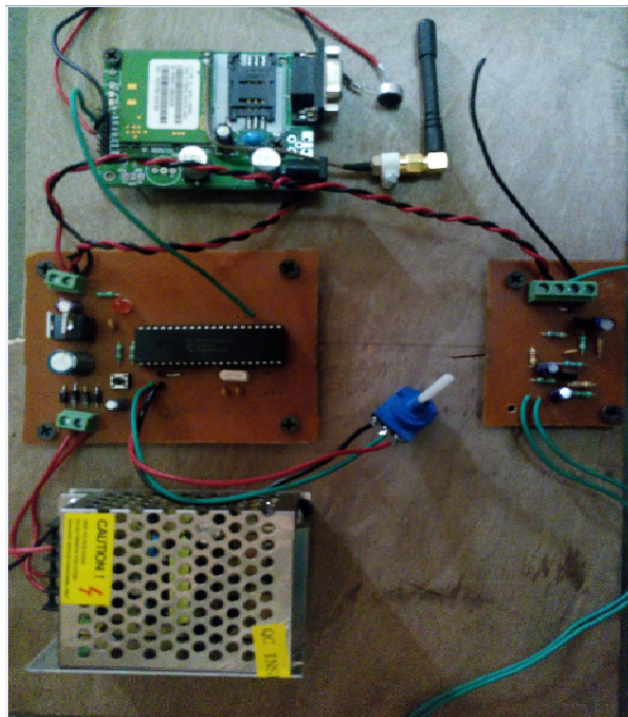Fig. 1. Block diagram of proposed system

Fig. 2. Hardware Module of the Implemented System

A. GSM Module

GSM (Global System for Mobile communication) is a digital mobile telephony system. With the help of GSM module interfaced, we can send short text messages to the required authorities as per the application. GSM module is provided by SIM uses the mobile service provider and send SMS to the respective authorities as per programmed. This technology enable the system a wireless system with no specified range limits. In this way, whenever the safe range of the vital parameter of an infant is violated GSM Modem interfaced with the microcontroller sends an alert SMS to the parent's mobile number and also making call on parent's mobile deploying wireless technology.

B. Controller

PIC microcontrollers (Programmable Interface Controllers), are electronic circuits that can be programmed to carry out a vast range of tasks. They can be programmed to be timers or to control a production line and much more. They are found in most electronic devices such as alarm systems, computer control systems, phones, in fact almost any electronic device. Many types of PIC microcontrollers exist, although the best are probably found in the GENIE range of programmable microcontrollers. These are programmed and simulated by Circuit Wizard software.
PIC Microcontrollers are relatively cheap and can be bought as pre-built circuits or as kits that can be assembled by the user.
The PIC 18f4520 is an 8-bit microcontroller, which has an on-chip eight channel 10-bit Analog-to-Digital Converter

(ADC).The amplified and conditioned sensor signals are fed to the microcontroller.

C. Sound Sensor(Mic)

The Sound Detector is a small board that combines a microphone and some processing circuitry. It provides not only an audio output, but also a binary indication of the presence of sound, and an analog representation of it's amplitude. Here during this system the detector used is detects the voice and so that detected voice sends towards the controller for additional method.

6. Conclusion

Looking after babies care is hard problem worldwide. Babies are society future.

This system will emphasize the importance of baby care. This "Baby Monitoring System" will be an economical and user friendly and very useful for the working parent and also for nurses/nanny.
They will be able to manage their work efficiently.
Proposed Baby Monitoring System is an inexpensive and simple to use, which can improve the quality of infant-parent communication. As GSM technology is used which makes the users to communicate for longer distances. This is a convenient system to monitor the baby's health condition from any distance.

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