

Baby Monitoring System Based on GSM Module

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Abstract:

Baby Monitoring System used to determine the movements and activities of the babies through alarm system. This paper presents a design of a Baby Monitoring System based on the GSM network. The prototype is developed to achieve reliable and efficient baby monitoring system that can play a vital role in providing better infant care. This system monitor vital parameters such as body temperature, pulse rate, moisture condition, movement of an infant and using GSM network this information is transferred to their parents. Further, the measurements can be done through different parameters. Also, the risk situation conveyed to the parents with alarm triggering system to initiate the proper control actions.

I. INTRODUCTION

The baby monitoring system is a kind of alarm system which can detect babies' movements and activities and can convey the message about the condition of babies to the concerned authority via a radio or mobile or even a display.

Since the very beginning of humanity, families have had instincts to secure their babies from probable dangers and risk.

However, the way by which parents look after their children has changed with the technological breakthroughs [1] [2]. They are now thinking about adopting the technological and engineering inventions for getting advantages and benefits in terms of safety issues of their babies. In this era when parents are busy with their career, a modern baby monitoring system can be a solution for handling babies properly instead of keeping them in babies' day care centers or appointing a nanny for them. Baby monitoring system is used to detect the movements and activity of babies via alarm system. It conveys message about the condition of the babies through mobile or radio system which

related to proper authority for secure their babies from risk and danger [1, 2]. Nowadays, lot of technologies and inventions are creating more advantage towards to save their babies from risk factors. However, modern baby monitoring system is the best solution for handling the babies in proper manner rather keeping their babies in care centers. The continuous baby monitoring is a tedious process for working parents also it is impossible to carry their babies especially at the time of working hours. To meet out these, a baby monitoring device is the good solution to eradicate the stress and barriers of the parents [3]. Further, this article proposes a design and prototype of baby monitoring system using GSM technology. Further, it play important role for providing better infant care with some parameters such as pulse rate, body temperature, moisture condition, and the infant movement[4]. The respective information is transferred to their parents with the help of GSM technology. Finally, the measurements are done through the above sensors also the risk situation is

conveyed to their parents by alarm triggering method for proper control actions[5].

II. LITERATURE REVIEW

J.E.Garcia, R.A.Torres, et.al, proposes a prototype based on the commercial GSM network with the help of telehealth mobile system. This system consists of three blocks such as data visualization, data acquisition system, data sending and receiving. In the data acquisition system, the vital parameters are sensing through Body Sensor Network (BSN), heart rate, respiratory rate, temperature and blood pressure. Then some of the mobile applications are enhanced via cell phones and smart phones which are developed in order to acquire other clinical data. Hence, the system under the GSM technology was capable of sending the information. It constitutes with second block, the cell phones and smart phones connectivity are used for sending the information and the traditional hardware components also implemented. A In third block, the web application was developed that allows the data for remote visualization. Therefore, this system is most affordable, efficient and flexible platform for tele monitoring with relevant clinical parameters from patients.[6]

N. P. Jain, T. P. Agarkar, et.al, suggests an GSM technology based on real time patient monitoring system[7]. Since, these are controlled by wireless devices, patients monitoring system and feedback using control. The GSM technology are used to determine the various parameters of an ICU patient and also control the over dosage of medicine is provided. The measurements of vital parameters are done automatically, is there any risk under the situation the messages can be conveyed via physician with alarm triggering systems. This implementation was efficient and reliable for real time monitoring which provides better healthcare to the patients. Further, this system enables the

doctors to monitor vital parameters via body temperature, blood pressure and heart rate of patients. It can be done through the hospitals in remote areas as well as it monitors the patient if he/she are out of the premises. In addition, it also provides a feedback to control the dosage of medicine to the patient as guided by the doctor remotely, and message about patient's health condition also received by the doctor. Then the information is transferred through mobile phone parameters via SMS to clinicians for further analysis or diagnosis. Further, this system helps the doctor to monitor the patient's previous history from the monitoring device, then it sent the data to several doctors incase a doctor fails to respond immediately.[8]

Ashraf A Tahat, et.al, contributes the SMS service based on telemedicine system. Here, the short message service are utilizes with the help of mobile monitoring system. It can be done through hardware equipment within a low cost level. Further, it was developed to set up their transmission of the patients ECG signal and temperature. This experimental setup was operated for monitoring the GSM signal which enclosed from the cellular service by interchanging short message service with remote mobile device. Therefore, the communication between the client (mobile phone) and PDA (remote smart phone) as server are achieved through the client using attention commands, and Protocol Description Unit (PDU) mode. At the server unit, the SMS are handled from the mobile phone, temperature display and patients ECG signal. Jia-Ren Chang Chien, et.al, proposes an instrument for home care development based on embedded system. It was implemented for an infant monitoring system based on ARM processor.[9-10] The key technologies of this system can be used to monitor the babies activities and the living environments at any time through a web browser in the world. [11]

Proposed System

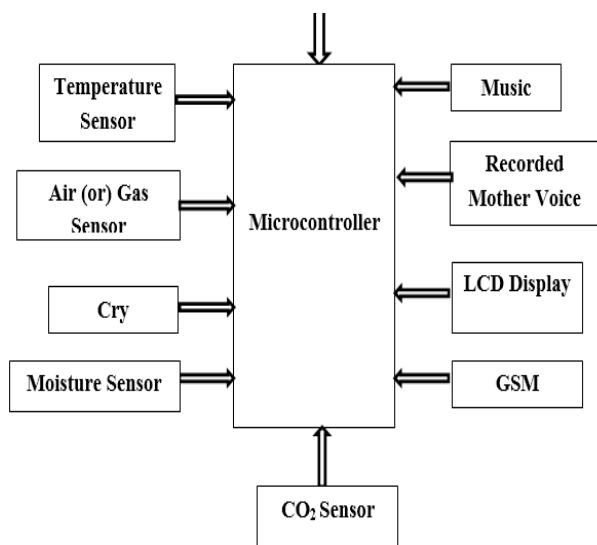


Fig.1 Proposed Diagram of Baby monitoring using GSM technology

The proposed work has been done through GSM interface technology for Short Messaging Service (SMS). It is the fundamental part of an GSM system which progressed through alarm based technique. The main advantage of the alarm conditions can mitigate any inaccuracy in the normal sensor. Further, this paper proposes a design of baby monitoring using GSM network and a prototype was developed for reliable and efficient monitoring system. It plays an important role in providing better infant care as shown in fig.1 which includes the pulse rate monitoring, body temperature, infant movement in the moisture condition. The usage of GSM technology helps to transfer the information to their parents, then the measurements of these parameters also done and the risk situation are conveyed to their parents through the alarm triggering system. Therefore, the system architecture consists of several sensors for monitoring parameters like LCD screen; GSM interface and a sound buzzer were these are controlled by a single microcontroller.

- The system consists of temperature sensor, humidity sensor and IR sensor.

- Temperature sensor and humidity sensor are sensing used to sense data from the child body.
- The single chip microcontroller reads and frames the surrounding temperature, humidity along with the sensor. All the values are display on LCD. Single chip microcontroller can analyze the two sensors.

III. CONCLUSION

This paper presents a design of a Baby Monitoring System based on the GSM network. However, the prototype was developed to achieve reliable and efficient baby monitoring system which play a vital role in providing better infant care. This system monitor vital parameters such as body temperature, pulse rate, moisture condition, movement of an infant and using GSM network this information is transferred to their parents. Further, these measurements can be done through different parameters. Also, the risk situation conveyed to the parents with alarm triggering system to intimate proper control actions.

REFERENCES

- [1]. Design and Development of a Smart Baby Monitoring System based on Raspberry Pi and Pi Camera
- [2]. S. Brangui, M. El Kihal and Y. Salih-Alj, "An enhanced noise cancelling system for a comprehensive monitoring and control of baby environments", International Conference on Electrical and Information Technologies (ICEIT), pp. 404-409, 2015. [2]
- [3]. R. Palaskar, S. Pandey, A. Telang, A. Wagh and R. Kagalkar, "An Automatic Monitoring and Swing the Baby Cradle for Infant Care", International Journal of Advanced Research in Computer and Communication Engineering, vol. 4, no. 12, pp. 187-189, 2015.
- [4]. Aslam Forhad Symon, 2 Nazia Hassan, 1 Humayun Rashid, 1 Iftexhar Uddin Ahmed, 1 S M Taslim Reza, 'Design and Development of a Smart Baby Monitoring System based on Raspberry Pi and Pi Camera', Proceedings of the

- 2017 4th International Conference on Advances in Electrical Engineering, pp. 28-30 September, 2017.
- [5]. J. E. García, R. A. Torres, 'Telehealth monitoring system', Pan American Health Care Exchanges (PAHCE), 2013.
- [6]. Patil and M. Mhetre, "Intelligent Baby Monitoring System", ITSI Transactions on Electrical and Electronics Engineering, vol. 2, no. 1, pp. 11-16, 2014.
- [7]. P. Dive and P. Kulkarni, "Design of Embedded Device for Incubator for the Monitoring of Infants", International Journal of Advanced Research in Computer Science and Software Engineering, vol. 3, no. 11, pp. 541-546, 2013.
- [8]. E. Ziganshin, M. Numerov and S. Vygolov, "UWB Baby Monitor", 2010 5th International Conference on Ultrawideband and Ultrashort Impulse Signals, pp. 159-161, 2010.
- [9]. Ashraf A Tahat, 'Implementation of an SMS – Based Telemedicine System for patient Electrocardiogram Monitoring', Proceedings of the IASTED International Conference on Telehealth /Assistive Technologies
- [10]. Kamaraj, M., Sivaraj, R., & Venckatesh, R. (2014). Biodegradation of bisphenol A by the tolerant bacterial species isolated from coastal regions of Chennai, Tamil Nadu, India. International Biodeterioration & Biodegradation, 93, 216-222.
- [11]. Kumar, M. S. R., Amudha, A., & Rajeev, R. (2016). Optimization For A Novel Single Switch Resonant Power Converter Using Ga To Improve Mppt Efficiency Of Pv Applications. International Journal of Applied Engineering Research, 11(9), 6485-6488.
- [12]. Santhosh, R., & Ravichandran, T. (2013, February). Pre-emptive scheduling of on-line real time services with task migration for cloud computing. In 2013 International Conference on Pattern Recognition, Informatics and Mobile Engineering (pp. 271-276). IEEE.