

Review Paper on –Smart Baby Cradle Monitoring System

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ABSTRACT-

In this 21st century, the two people share equivalent rights, the two of them buckle down similarly to keep up the societal position and run in this quickly developing world. Step by step the innovation likewise becomes quick and the human makes it. Thus, it is essential to deal with the people to come, an extraordinary consideration ought to be appeared to them particularly coddles. Our framework manages plan and usage of shrewd child support framework which is exceptional blessing to guardians in this century. The goal of this framework is to structure a shrewd infant support with numerous highlights which helps in checking the children and updates the infant's status to guardians. This plan encases the various highlights like camera checking, programmed swinging of support when child cries, detecting the wetness of infant's bed, observing nearness of infant in the support, every one of these highlights encases a SMS module where message about infant's cry, wetness in bed and nonattendance of infant in the support are sent to parent's versatile number to suggest them about their infant.

Keywords-*Automatic swinging, Raspberry pi 3, Sensors, SMS module.*

I. INTRODUCTION-

The child observing framework is a sort of alert framework which can distinguish infants' developments and exercises and can pass on the message about the state of children to the concerned authority by means of a radio or versatile or even a showcase. Since the absolute starting point of humankind, families have had senses to make sure about their infants from likely threats and hazard. Be that as it may, the route by which guardians take care of their youngsters has changed with the mechanical forward leaps.

They are presently contemplating receiving the innovative and designing developments for getting favorable circumstances and advantages as far as wellbeing issues of their children. In this period when guardians are occupied with their vocation, a cutting edge infant checking framework can be an answer for dealing with babies appropriately as opposed to keeping them in children's day care focuses or designating a caretaker for them.

Observing an infant constantly is actually an intense activity just as it isn't feasible for the guardians to do their children all the time with them particularly while working. Employing a guardian for the constant observing of children is a choice when guardians are occupied at home or in the working spots or as an elective arrangement is day care focus. Be that as it may, these two techniques may not be roomy for guardians as indicated by their requests. In particular guardians don't get guarantee about their children's security in both of the cases. In this viewpoint, an infant observing gadget can be the best answer for evacuate the uneasiness and worry of the guardians

II. LITERATURE SURVEY-

Author had developed a system which is based on commercial GSM network. Vital parameters such as body temperature measurement using LM 35, 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.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. In paper, 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 SYHS2XX series. This signals are interfaced to PIC microcontroller 18F4550 and GSM modem is used for communication.

PROPOSED SYSTEM- SYSTEM ARCHITECTURE

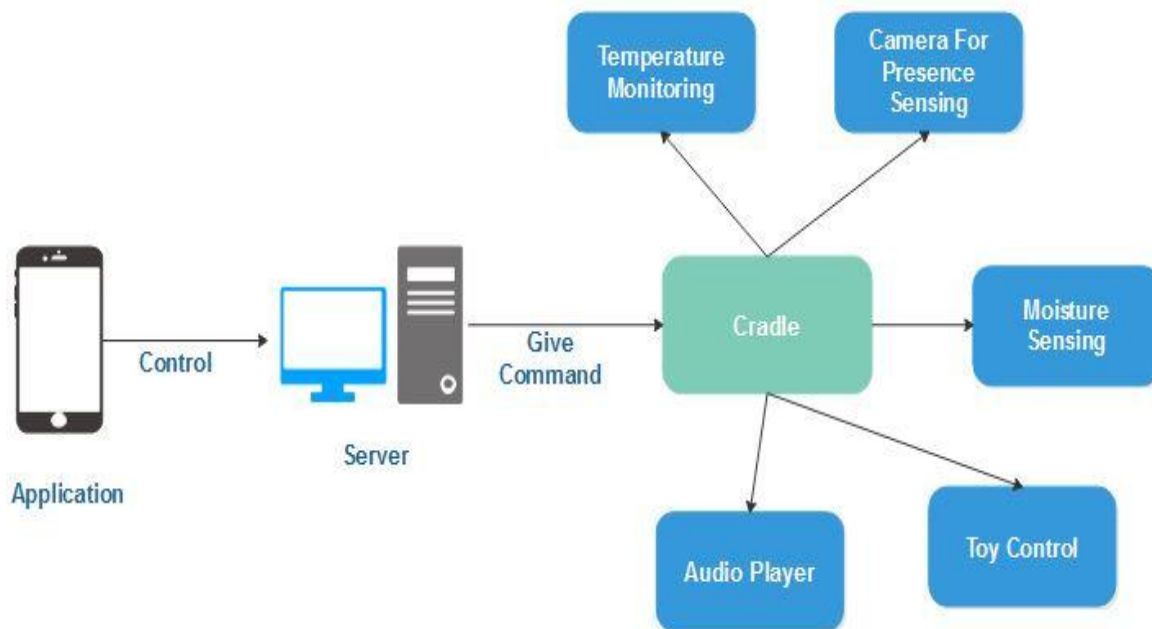


Fig: Architecture Diagram

WORKING -

The working of smart baby cradle is designed like there are different modules. Which features corresponding work in the design like sound sensor, temperature sensor and wet sensor are about to be described with features and the method of working. Camera will be in ON condition always.

The SMS/Notification generation method is done using the web sensor, way to SMS/Notification server has been used and the way that SMS/Notification is sent, user able to monitor the baby and Operate cradle.

Temperature Monitoring We have to use temperature sensor in our project for monitoring the temperature in room in which we placed the cradle. If the temperature goes down the notification will be send to the application.

Camera We have to monitoring the baby by presence using camera the videos will be send to the application.

Moisture Sensing moisture sensor is use to detect the moisture present in cradle, if it increase, it will give notification.

Toy Control Toy control is been done by using RC motors and will be control by user.

Audio Player Will use speaker, when our system will detect the crying of baby, it will play the song.

Methodology of the Algorithm:-

for baby crying: swing baby's cradle and play musical toy

Real-time vision monitoring and good baby surrounding conditions (temperature, humidity)

Define Wi-Fi Access Point Username/PW

Define Raspberry Pi.GPIO for Relay board // For switching actuators (swing motor, fan, musical toy, and buzzer)

Define sensors // for getting sensors data (Temperature, humidity, and sound)

T ← Temperature value // From DHT_22

H ← Humidity value // From DHT_22

S ← Sound value // From Sound Detection sensor

STH ← Sound Threshold value

TEMPH ← Temperature Threshold value

HTH ← Humidity Threshold value

Initialize IoT-BBMS // Switching ON the system at t = 0

Raspberry Pi acquires the data (sound, temperature, humidity)

Wi-Fi-based Webcam provides vision monitoring of baby for each round do

Get S, T, and H

if S > STH then

Switch ON Cradle's Swing Motor

Switch ON Musical toy

else if

T >= TEMPH || H >= HTH then

Switch ON FAN

Notify parents via IFTTT "Temp./Hum. are High!"

else

Switch OFF Cradle's Swing Motor

Switch OFF Musical toy

Switch OFF FAN

end for

Upload data to Raspberry Pie MQTT Server over Wi-Fi

Update status of sensors/actuators in Adafruit MQTT Server

Synchronize data to MQTT Dash App. using Smartphone

Control actuators remotely via MQTT Dash App.

Update camera vision to YYP2P App. over Wi-Fi

Module Information:-

1. **Baby Cradle Control Module:** Here we are controlling baby cradle swing by using Android mobile application, user able to control the swing of the cradle.
2. **Toy Control Module:** User able to control the toy placed in cradle, using the android mobile application. (On /Off control)
3. **Sound Detection Module:** When baby cry in cradle , our system will detect the sound and start the lori store in our system , also send SMS to parent That “ Baby is crying ”
4. **Temperature Module:** Here we are monitoring the temperature of cradle which, which will be indicate in mobile application of user.
5. **Monitoring Module:** We are using the Camera to monitor the live image of baby, the live video will get fetched in mobile application and parent can see the live video.
6. **Moisture Detection module:** Here we are monitoring the baby in cradle, when system sense the moisture in cradle then it alerts the parents.

Expected Result:-

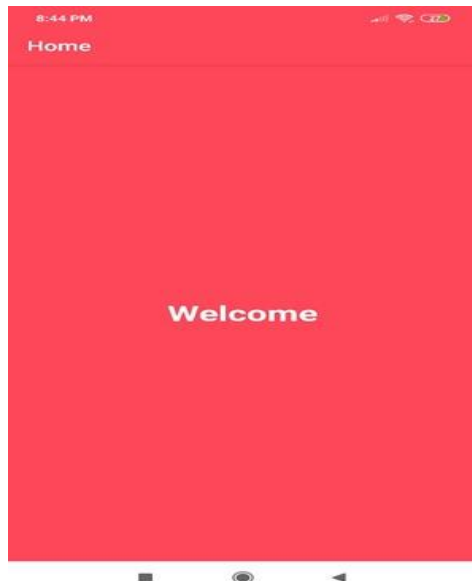


Fig. Welcome Screen



Fig. Registration Form



Fig. Login Form

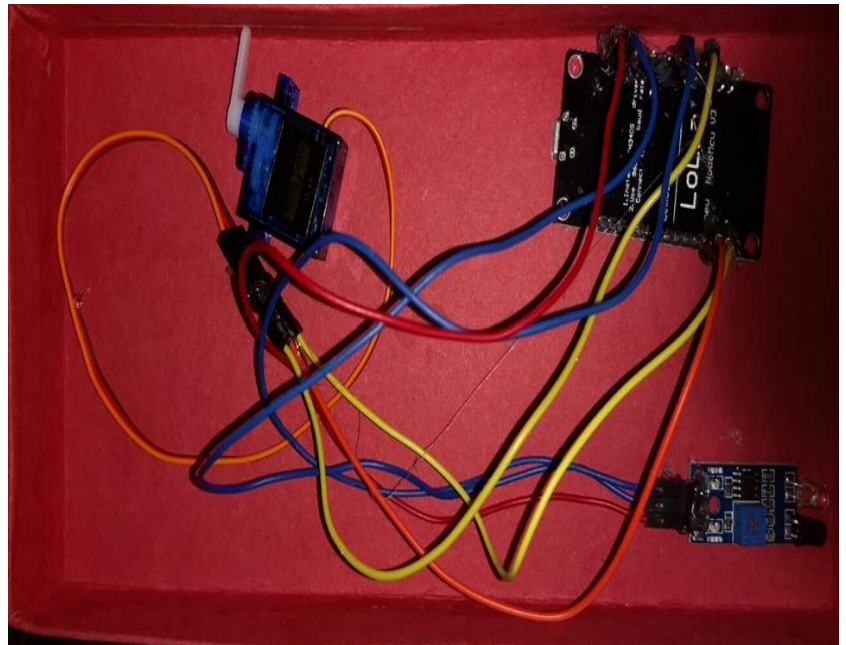


Fig. Hardware Module

CONCLUSION-

Technology has been developed in a great way that it makes human work simpler. So, in that aspect to convenient the baby care smart baby cradle has been designed. The automatic electronic baby cradle is the finest solution for today's parents who cannot find the sufficient time for their babies.

This automatic baby cradle would let the working mother to do household works besides taking care of baby at the same time. It is economical and user friendly. The automatic baby cradle can be used in hospitals and home. It is very useful for working parents and hospitals to take care of babies

REFERENCES-

- [1] Prof. A.D. Anjekar, Arshad, Khan Pathan, Pranjal R. Dandekar, "GENERAL IDEA ABOUT SMART BABY CRADLE" in International Journal of Innovative Computer Science & Engineering Volume 4 Issue 1; JanuaryFebruary-2017
- [2] Prof. A.D. Anjekar, Alkesh, R. Vaishnow, Amol I. Warade, Shubham B. Nishane, "ANALYSIS AND SYNTHESIS OF SMART BASSINETS FOR INFANTS" in International Journal of Advanced Research in Science, Engineering and Technology Vol. 4, Issue 3, March 2017
- [3] Foram Naik, Ruchi Khant, Milind Trivedi, J.M.Rathod, "AUTOMATED CRADLE" in International Conference on Re-search and Innovations in Science, Engineering Technology,2017
- [4] Rajat Arora, Heli Shah, Rohan Arora, "SMART CRADLE GEAR TO ENSURE SAFETY OF BABY IN THE CRADLE" in International Journal of Informative & Futuristic Research ISSN: 2347-1697, Volume 4 Issue 7 March 2017 .
- [5] K. Mathan Kumar, R.S. Venkatesan, "A Design Approach to Smart Health Monitoring Using Android Mobile Devices", IEEE International Conference on Advanced Communication Control and Computing Technologies (ICACCCT), 2014.
- [6] Mohamed Y. E. Simik, Abdeldime M.S Abdelgader, Feng Chi, Randa S. I. Saleh, "Automated Alarm System for DiaperWet Using GSM", IEEE 17th International Conference on Computational Science and Engineering, 2014.

- [7] B. Sneha, V. Bhavana, S. Brunda, T.S. Murali, S. Puneeth, B.A. Ravikiran, "A Wireless Based Patient Monitoring System Using Android Technology", IEEE International Conference on Applied and Theoretical Computing and Communication Technology (iCATccT), 2015.
- [8] Steven Bang, Richard Lam, Natalia LoCicero, "Rock Me Baby: The automatic baby rocker", Project for San Jose State University Department of Mechanical and Aerospace Engineering, May 2011.
- [9] Yang Hu, Weihua Gui, "Adaptive sway control for baby bassinet based on Artificial Metabolic Algorithm", School of Information Science and Engineering Central South University China.
- [10] Anritha Ebenezer, S. Anupreethi, "Automatic cradle movement for infant care", Undergraduate Academic Research Journal (UARJ), vol. 1, no. 1, 2012, ISSN 2278-1129.
- [11] Misha Goyal, Dilip Kumar, "Automatic E-Baby Cradle swing based on Baby Cry", IJCA, vol. 71, no. 21, June 2013.