

Review 3 Paper on –Smart Baby Cradle Monitoring System

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ABSTRACT: In this 21st century, both men and women share equal rights, they both work hard equally to maintain the social status and run in this fast-growing world. Day by day the technology also grows very fast and the human makes it. So, it is very important to take care of the next generation, a special care should be shown to them especially babies. Our system deals with design and implementation of smart baby cradle system which is special gift to parents in this century. The objective of this system is to design a smart baby cradle with multiple features which helps in monitoring the babies and updates the baby's status to parents. This design encloses the different features like camera monitoring, automatic swinging of cradle when baby cries, sensing the wetness of baby's bed, monitoring presence of baby in the cradle, all these features encloses a SMS module where message about baby's cry, wetness in bed and absence of baby in the cradle are sent to parent's mobile number to intimate them about their baby.

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

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.

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.

Monitoring a baby continuously is really a tough job as well as it is not possible for the parents to carry out their babies all the time with them especially while working. Hiring a caregiver for the non-stop monitoring of babies is an option when parents are busy at home or in the working places or as an alternative solution is day care center. But these two methods may not be commodious for parents according to their demands. Most importantly parents do not get surety about their babies' safety in both of the cases. In this perspective, a baby monitoring device can be the best solution to remove the anxiety and stress of the parents

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

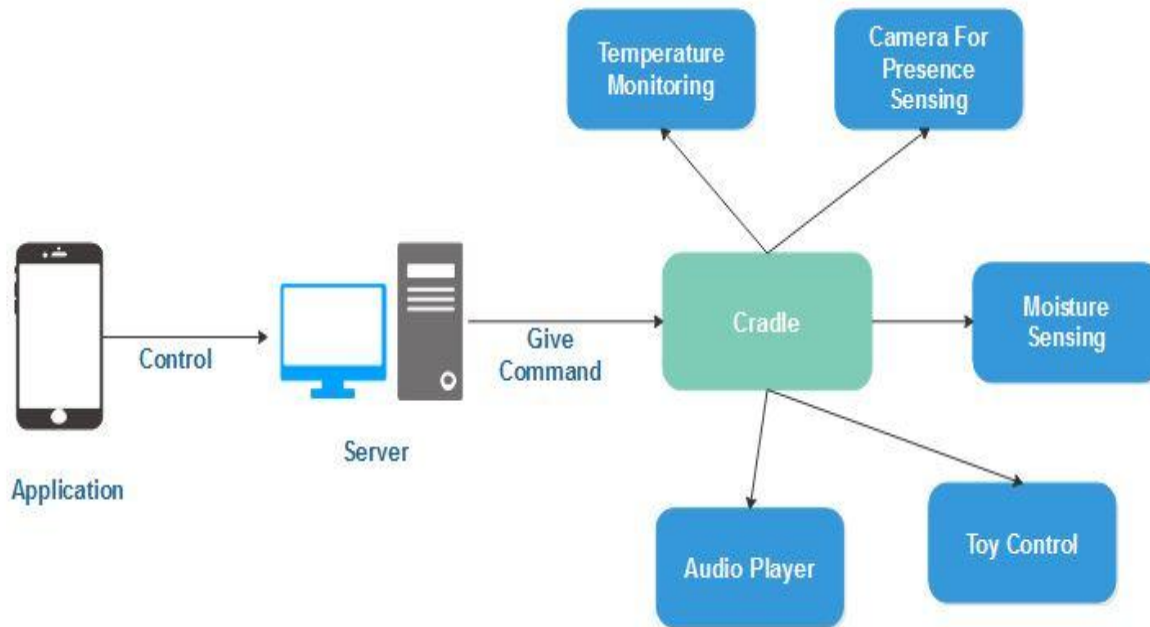


Fig: Architecture Diagram

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 uy 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 pay the song.

Algorithm:-

f 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 Pie.GPOI 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

TEMTH ← Temperature Threshold value

HTH ← Humidity Threshold value

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

Raspberry Pie 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 >= TEMTH || 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

Executable Project Snapshot:-

Project Result:-

Application:- (add information about application)

- Hospitals
- Houses

Advantages:-

- Easily handle the baby.
- Reduce the parents work.
- Reliable.
- Scalable.
- High Performance.

Future Scope:-

In future we can add more features to make more efficient and user-friendly. The feature we can add to this device such like parents can monitor their baby live via 3G, rotating toy with music and camera, and the sound detector to detect sound of the baby could be added to enhance the system features. With the development of technology daily routine has been eased for the parents along with the baby care. Otherwise motherlap's will be the best cradle for baby.

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

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