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Smart Caretaking System for Uncomplainable Patients and Babe in Arms Using IOT

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***Abstract*—**The current number of working people is greatly increased. To care a baby or a elderly people is really the toughest one. So most of the people send their babies to baby care center and elder people to the old age homes. In order to minimize this effect we propose a new model that is smart caretaking system. IoT plays vital role in smart world thus it also produce the solution for baby care and also the person who is unable to talk or communicate. The smart system used to monitor the baby and patients all over the day. It has some tiny cameras, smart sensors, smart robotic arm for milk feeding and give foods etc. It has some android application to provide a ideas such that what baby is doing, whether the baby is crying or not, Urine state of the baby and elder people. For the babies we will design a smart cradle it has a swing capability. Depending upon the eyeball movement and crying state the cradle will move faster and slower .If a baby is slept it stops to swing. This is called as smart cradle. It is the intelligent system for the working mom in a busy life schedule. Smart bed cares the elder people who cannot communicate.

Keywords*—Smart cradle, Smart bed,Arduino cameras, Robotic arm,Sensor set*

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I. INTRODUCTION

All we know that the mother's lap will not compared with any smart cradle. Today's world is really busy. Toddlers need the attention of parents for 24 hours and 7 days a week. which practically impossible. We live in a world with full of technology and the busiest schedule. As a small babies need more attention all over the day. Without the human intervention we can monitor the baby all over the day. It is specially designed for babe in arms(Upto 8 months).

It is the smart cradle which has some smart sensors such as temperature sensor, Moisture Sensor, Sound Detection sensor, Eyeball movement sensor to detect fever, Baby's bed status(wet or not), Crying state, Sleeping state respectively. It also has a robotic arm which is automatically provide milk and food for the baby depends upon mummy's advice to the maid .It has an camera which will be set at the top of the cradle which monitors the baby. It sends an immediate mail or notifications to the registered mobile number. It has the smart android application named as CRADA to provide a smart services such as notifications in emergency, Baby's crying state. Mummy can also able to view the baby's state in any stage .The system also has one buffer to indicate the crying or urine state.It has automatic swing capability.

For the elder people or comaic people they cannot able to communicate. So our CRADA will provide necessary information to the family members. Our robotic arm will feed the elder people when there is a need or else by pressing the button. It is really the effective one to care the elder people .It adds the ages to the elder people.

II. BLOCK DIAGRAM

1. HARDWARE USED

Smart Sensor(temperature sensor, Moisture sensor, Eyeball movement sensor, Sound detection sensor) Microcontroller Buzzer

2. SOFTWARE USED

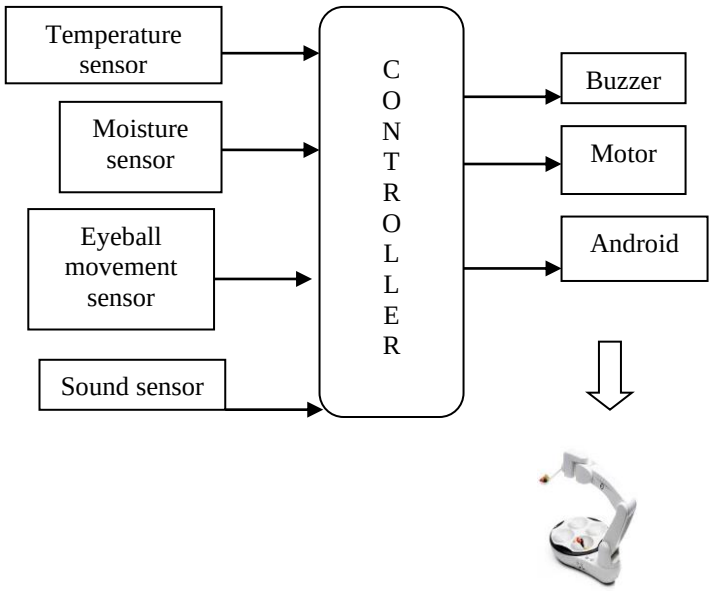
Embedded C(programming language)

Keil, µ vision for ATMEL Controller

Thing speak and datonis for IoT .

3. APPLICATION USED

CRADA is used for smart view of baby and elder people. It is the smart application for notifications and alert.



EXPLANATION OF PARTS

TEMPERATURE SENSOR(LM35):

Temperature sensor is usually RTD(Resistance Temperature Detector) that usually collects the data from the bed. It determines the fever condition of the baby. If the temperature is high it sends the data to the mummy's mobile.

MOISTURE SENSOR:

Moisture sensor collects the data such as the bed is wet or not. If it detects the moisture it sends or indicates the mother to take care of baby and for elder people too.

EYEBALL MOVEMENT SENSOR:

An eye tracker can detect the presence, attention and focus of the baby. It keeps tracking on baby. If the baby is sleeping, the cradle will swing slowly or else in a normal speed.

SOUND DETECTION SENSOR:

It has a microphone and processing circuitry. If baby is cried it sends a data to the mother.

CONTROLLER:

ATMEL controller is used here to get all the inputs , process all the data and sends the data to the buzzer, motor and application.

BUZZER:

It is the type of alarm that sends immediate alert to mummy and family member to take care.

MOTOR:

The DC motor is used to swing the cradle automatically depends upon the input from the sound and eyeball movement sensor.

ROBOTIC FEEDING ARM:

The robot, known as ADA for Assistive Dexterous Arm is designed to attach in cradle or bed for automatic feeding.

Fig: Smart cradle model

ADDITIONAL FEATURES:

This cradle has some blinking LED's which is not harmful to the baby.

The voice note will be stored to care a baby. It feels like the mother is nearer.

Moving toys also present in this. So the baby will enjoy definitely

III.WORKFLOW

Our designed smart cradle demonstration is as follows,

Fig: Cradle demo

The whole system will be shielded for the safety purpose of baby. This cradle also have an mosquito repellent in order to save the baby from the mosquitoes and insects.

The crying samples were collected from various babies to set the threshold value.

S.No	Boys(dB)	Girls(dB)
1	78	96
2	76	97
3	89	98

Table: Various sound level from six babies

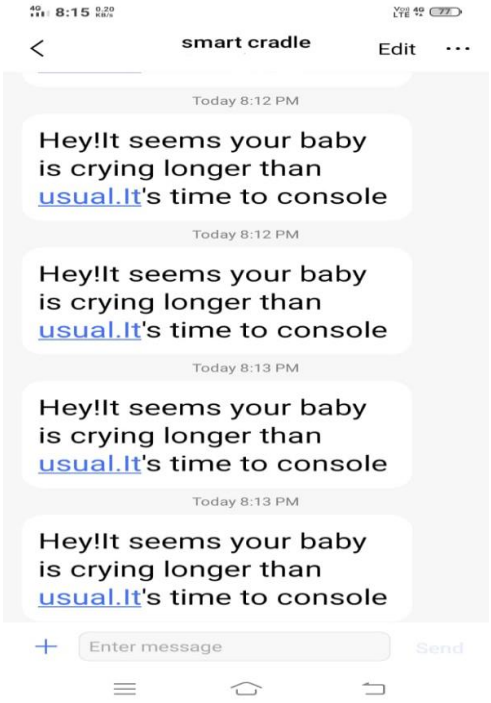
- The cradle swings depends upon the body movement of the baby.
- The humidity sensor used to measure the urining state of the baby and alerts the mom With a notification.
- The sound sensor output will do,

  1.Swings the cradle if baby cries for 1 mins.

  2.Plays the mummy's voice input if baby cries for 2 mins.

  3.Notifications send to mummy's mobile.

The sample from baby is collected and alerts the mom with a notifications with the help of GSM module.



ADVANTAGES:

- Safer cradle.
- Easy to access the application.
- Low cost cradle
- Reduce the stress to mother.
- Unmanned swing capability.

IV. CONCLUSION

This method will give the exact solution for the working women especially to take care the people and babe in arms. In day to day life everyone need to go for a job. In this busy schedule take care of baby, Elder people and comaic people is really the toughest one. By the intervention of IoT it is become easy and safe. It is the safest cradle for babies so they won't fallen from the cradle. This project will be helpful for the women especially for working women.

REFERENCES

[1] Wahab A.Jabber,IoT BBMS,IoT based baby monitoring system for smart cradle,DOI:10.1109/Access 2019 2928481,IEEE access,2019.

[2] Madhuri.P.Joshi, IoT based smart cradle system with an android app for baby monitoring,978-1-5386-4008-1/17/31.00 International Conference On Smart Technology for Smart Nation,2019.

[3] Anirudha Rajendra pati, smart baby cradle-An IoT based Cradle Management System, International Journal of Innovative Science and Eng,2018.

[4] Vijayamahantesh Hiremath, Automatic cradle system with measurement of baby's vital biological parameters,978-1-5386-0569-1s31.00,International Conference On Smart Technology for Smart Nation,2017.

[5] Rachana M s, S-MOM smart mom on the move, 978-1-5386-3570-4/18/$31.00, International Conference on Trends in Electronics and Informatics (ICOEI),2017.