DOTING: SMART INFANTARY BASSINET USING REAL TIME SYSTEM

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Abstract - Infants or a toddler needs parent's attention 24hours a day and 7days a week, which is practically impossible due to other priorities like household activities, official works and personal works. Baby care center or nanny is the two options available which involves lot of passion. We live in a world where the technologies are used all around us. The new generations of parents were raised with technologies.

There are many things of the parents will buy to help them to take care for their baby. So, there is a need for safe and secure place to take good care of the children's need with minimum human intervention, which can be accomplished with the help of the Automatic Baby Cradle.

The Automatic Baby Cradle provides parents a smart automatic cradle system to help the parents to monitor and to take comfort for the baby. The Automatic Baby monitoring Cradle allows them to monitoring the babies, the cradle, plays soothing music, observing the temperature of the infant, bed wet sensor which will caution the attendants for bed wetting of the infant. The mother keeps an eye to a baby to take care.

Key Words: Blynk server, Video monitoring, Smartphone, Bassinet, real time, comfort, human intervention.

1. INTRODUCTION

Generally, the baby cradle is used for to make sleep and soothing a baby. For example guardians have to take care of the child till as they asleep. However, conventional cradle does not electronically equipped such like battery or adapter to automate the cradle automatically. In Addition to that, this kind of conventional cradle is used in village of designated cradle areas or non-developed cities due to its low prices. But the problem of this kind is that you need manpower to take care of your child and your child may not be safe and feel comfortable in the conventional cradle. Thus, we need automatic cradle to take care of child which uses the battery or power source. Besides, there are extra features or function is provided by the newly automatic cradle that is beneficial for parents.

Because in the present world people very busy in their professional life so they do not get ample time to take care of their infants. It will be very difficult to control the babies and if someone is hiring professional to take care of their infants. It may increase your expenses from monthly expenditure. Moreover, in today life it is very hard to even for the homemakers (mummy) to sit nearby their babies and sooth them whenever they feel uncomfortable. Though, it is automatic this application is very useful for the nurses in maternity units of hospital.

In this project we made cradle to swing oscillate without human Intervention, Automatic by the sensors which is actuated by movements or specific action done by the body. It will also contain a sound system or alert alarm for the parents as an indication of that baby has walked up.

1.1 Methodology

Project is mainly designed with an IOT based system so that system becomes smarter and efficient than the earlier version of the projects. Proposed system is able to provide following features, suchas:

A. Tracking a baby to monitor its activities and transmit live video streaming of baby's activities to the parents through Internet. Android App to alert the parents when baby approaches dangerous zones & for the changing of diaper. It is also has the feature of transmitting live video streaming of baby's activities to the parents through an App.

B. The Video footage can be recorded for a specific time period on the inbuilt memory. The temperature, humidity, and sound level are A PIR Motion Sensor has been used to alert the parents when baby wakes up

from sleep. This is very important in situations where the child wakes up without crying and wanders off, without knowledge of parents. A sleep mode is implemented in the system to capture the continuous movement of the baby and the same information will be transmitted through WIFI and made useful to parents through a mobileApp.

C. It also used to check the condition of the baby's. IOT based home automation which takes care of above mentioned parameters. The Humidity of the room is observed by DHT11 sensor. ESP 8266 WIFI module has been used for the communication. In addition to monitoring of temperature & humidity, Parents also will be able vary the above parameters if needed through a feedback mechanism with the help of an App.

1.2 SURVEY OF CRADLE

Waheb A Jabbar, 2019[4] is proposed as an efficient and low-cost IOT-based system for monitoring in real time. He also proposed a new algorithm for the system that plays a key role in providing better baby care while parents are away. In the designed system, Node Micro- Controller Unit (Node MCU) Controller Board is exploited to gather the data read by the sensors and uploaded via Wi-Fi to the Ada-Fruit MQTT Server. The proposed system exploits sensors to monitor baby's vital parameters, such as ambient temperature, moisture, and crying. A prototype of the proposed baby cradle has been designed using NX Siemens software, and a red meranti wood is used as the material for the cradle. The system architecture consists of a baby cradle that will automatically swing using a motor when the baby cries. Parents can also monitor their babies' condition through an external web camera.

Nedheela N Nazar, 2019[10] in this paper he discussed with a smart cradle which will help a mother or a father have a track of their child and do some household work simultaneously. When the baby cries the cradle will start swinging with the help of DC motor. The temperature and wetness sensor detects the temperature and wetness of the baby and if it increases a particular level, message will be send to the parents. The mic in the system detect, if the baby cries and a song will play through the speaker set up in the APR, also message is send to the parents using smart phones with the help of blank server. Feeding time is also preset according to baby's growth and is notified to the parent.

Anirudha Rajendra Patil et.al[6] 2018 in this paper they proposed idea in the prototype of smart cradle will allow the cradle to efficiently integrate itself with a smart phone typically android device. An Arduino microcontroller will be used to assemble all the sensors and hardware component required. Constant monitoring of the babyinside the cradle will be done. If any activity such as urination or baby waking up from sleep occurs a notification through an SMS will be sent to the parent's device. The Smart cradlewill also have additional features such as rocking the baby automatically via geared motor mechanism. Also with some additional features such as watching the baby live through Arduino camera. Use of various sensors such as PIR (passive infrared) sensor to detect light level inside the cradle, and PCB for sensing wet conditions etc. will only add to the efficiency of the cradle. Other applications of this cradle can be at a maternity hospital as an assistant to the staff who are responsible to look after the baby. Modules of noise detection and urine detection have been implemented. Our future scope includes playing music which can be used to ease the baby, when he is bored or crying. A set of servo motors will be used to rock the cradle, Also a camera will be attached to see the movement of the baby inside the crib.

Madhuri P joshi, Deepak C. Mehetre 2017[1] in their paper they have discussed the smart cradle which supports video monitoring. Firstly, This Cradle swings automatically on detection of baby cry sound. Also it activates buzzer and gives alerts on phone if–first, baby cry continues till specific time which means now cradle cannot handle baby and baby needs a personal attention and second, if the mattress in the cradle is wet. This cradlehasan automatic rotating toy for baby's entertainment which will reduce the baby cry probability. For detection of auto swing action, threshold values, alert generation and video monitoring. She proposed an Algorithm and she has also mentioned that future extension of video monitoring camera for night vision is possible.

Vijayamahantesh Hiremath, P. Venkataratnam 2017[2] in this paper they have discussed the implementation of new indigenous low cost E- baby cradle that swings automatically when baby cries for this it has cry analyzing system which detects the baby cry voice and accordingly the cradle swings till the baby stops crying. The speed of the baby can controlled as per the user need. The system has inbuilt alarm that indicates the condition when baby does not stop crying within a stipulated time, which intimated the baby needs attention. This system helps parents and nurses to take care of babies without physical attention. This project is designed using structured modeling and is able to provide the desired results. It can be successfully implemented as a Real Time System with certain modifications.

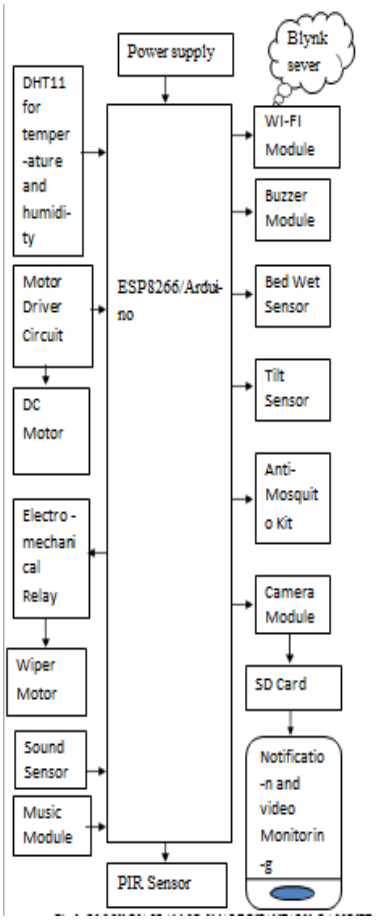

Fig 2. BLOCK DIAGRAM OF SMART INFANTARY BASSINET

The block diagram of the proposed system is shownin Figure 2.1.This system consists of 2 units:

The child unit consists with a data processing unit, which interfaces with camera, speaker, microphone and self- soothing system with wireless connectivity (Wi-Fi).

Parental unit is a smart phone, laptop or tablet with internet connectivity. Child unit connected with home internet connections via Wi-Fi or Ethernet. Parental unitand child unit are connected via internet. A notification will be given to the parent if baby is crying continuously. Then the parent can operate the system remotely according to his or her wish. It can be connected to the internet and can check his/her child online with a mobile phone in real time, Notify the reason for crying.

2. RESULT

A.IMPLEMENTATION IN REAL PLATFORM

Figure 1: Hardware Unit

3. CONCLUSIONS

Baby care is hard problem worldwide. It is very important duty as they our future. Though mother's lap is the best for baby, considering the need of present world and knowing the significance of the baby care, this system is designed. This system is economical and easy to operate which helps working parents to manage their work. Video monitoring is made available for that we most commonly used android smart phones.

In Future, more features like we should implement it on scroller and also IR (camera) for night vision.

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