

An Automatic Monitoring and Swing the Baby Cradle for Infant Care

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Abstract: This paper presents a brand new approach in coming up with associate automatic swinging cradle system. Proposed system helps the oldsters and nurses in taking care of their kid while not physical attention. We have design of a low cost automatic baby monitoring cradle that swings automatically when baby cries, for this it has a cry analysing system which detects the baby cry voice and accordingly the cradle swings till the baby stops crying. The system has inbuilt alarm that indicates two conditions – first when the mattress is wet, which is an important parameter to keep the baby in hygienic condition, second when baby does not stop crying with in a stipulated time, which intimated that baby needs attention. Here a video camera is positioned above the infant's cradle which captures video. This system may be in the main employed in hospitals, crèches and reception.

Keywords: Swinging, Wet sensor, Bassinet.

I. INTRODUCTION

In the gift situation wherever each the parents are busy in their career, it has become terribly troublesome for them to urge sufficient time to require care of their babies. Sometimes it's not reasonable for them to afford a nanny. This end in admitting their child to crèche throughout their job temporal order. It is found that almost all of the day's baby stops crying or sleeps after they are in cradle. In today's life style, it's terribly troublesome for fogeys andnanny to take a seat close their kid and truthfulness them whenever they cry or sleep. Thus, we have designed a system which might facilitate the parents within the kid care while not physical attention. Automatic cradle could be a device that provides associate aid to swing the baby cradle automatically.

This system aims at two main things in assisting parents. Automatic cradle movement informs parents when necessary.

II. LITERATURE SURVEY

Many home-care systems are available but majority of this system are specially designed for the aged people and patients. These systems can monitor their health status, automatically send out emergency signals, and have other functions. However, the caring methods for infants are not the same. Children and adults require different type of care because they are totally dependent for their normal functions on someone else. Infants cannot give any feedback about their discomfort or health complaints. Infants cannot express themselves like old people, e. g when an infant has a fever, he/she can only express his/her discomfort by crying. Hence, a home-care system specially designed for infants is today's need which would substantially lighten parents' especially mother's burden. In support of this requirement many research papers and patents for healthcare application are studied with the

intention of possible solutions to take care of the infant. Author had developed a system which is based on commercial GSM network. Vital parameters such as body temperature measurement using LM 35[1,6], 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 [3].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 [5]. In paper [14], 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 signal is interfaced to PIC microcontroller 18F4550 and GSM modem is used for communication.

Patents are also searched to find novelty in baby care monitoring system. In design, (Patent No. 2002/0057202 A1)[16], system is developed which monitors breathing ,fever and volume of baby sleeping in the crib. There is a module having three sensors attached to the diaper. This signal are amplified, transmitted by transmitter and at remote station there is receiver, multiplexer which applies this signal to audible alarm to alert mother to take

appropriate action. U.S. Patent No.6, 043, 747 (Altenhofen), wherein a parent unit can record messages Which may then be transmitted to the baby unit to soothe or calm the baby [17]. The baby unit includes a microphone and can transmit sounds to the parent unit. However, in order for the parent to detect a problem with the child, the parent must constantly monitor the sounds being transmitted from the baby unit. The next U.S. Patent No. 6,450,168 B1[18], includes an infant's sleep blanket/garment which is offered as either a sleep sack or a sleep shirt, depending on the age of the infant. The sack with no arm holes for newborns and with arm holes and sleeves for older infants. Here thermometers incorporated to monitor the infant's temperature as he sleeps. U.S. Patent No. 4,895,162 [19], in which a soft belt containing a pair of electrodes is positioned around the torso of an

infant such that the electrodes are in position to monitor vital signs, such as respiration and pulse. Monitoring lead Wires connect the electrodes to a monitor unit proximate the infant.

III. COMPONENTS

- Bassinet (750 * 440 * 310)
- Motor (200RPM, Torque - 45kg-cm)
- Microcontroller
- Wet sensor
- Frame (870 * 600 * 870)
- Free Wheel (Outer Diameter - 100mm, Thickness 22mm)
- Curve Plate - (Width - 22mm, Thickness-5mm, Diameter - 290mm)

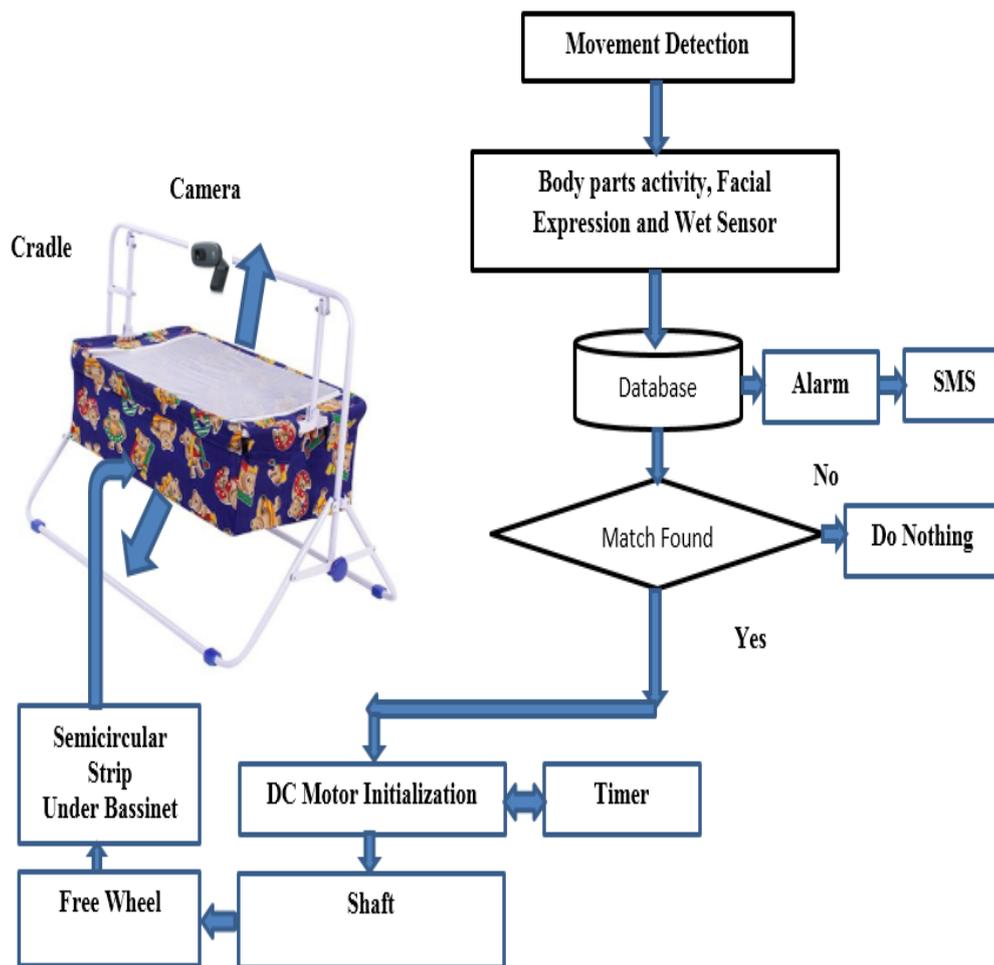


Figure 1: Shows a proposed system for automatic monitoring and swing the Baby Cradle.

IV. METHODOLOGY FOR PROPOSED SYSTEM

DC motor can offer movement motion according to its rated power. The shaft of DC motor is connected to main shaft on that the free wheel is mounted. The curve plate mounted below figure1. The bassinet is formed in contact with the free wheel by means that of rubber lining as a friction material. As per microcontroller programming the motor rotates in right-handed direction for three seconds and then in anticlockwise direction for three second.

When the motor rotates in dextrorotatory direction it pushes the bassinet because the free wheel mounted on shaft is in touch with the semicircular strip underneath the bassinet and after three second the motor can rotate in anticlockwise direction and as a result of this the bassinet are pushed on the either aspect and in this manner the system can keep operating. The system is style so baby feels comfortable and gets a decent sleep. Mechanical &

electronic parts are design is such it provides swish and gentle motion a bit like oldsters manually swings the cradle. Also, once cradle stops swinging it doesn't provide jerks to the baby.

V. PROPOSED SYSTEM CONSIDERATIONS

- When baby cry parent can automatically swings the cradle till baby stops crying.
- Alerts parent when the mattress get wet
- Alert parent by giving temperature by message
- Alerts parent by sending sms
- Parent can have a video recorded activity of child.
- Baby monitoring by web camera
- It detect facial expressions (sleeping, dazing, crying and laughing), temperature and automatically sends message about baby is safe or not.

VI. ADVANTAGES

1. Easy for parents to monitor their baby
2. Provides security
3. Small in size
4. Lightweight
5. Easily portable from one place to another
6. Easy to use
7. Cost efficient
8. Less power consumption

VII. CONCLUSION

Thus, the we have designed system would be of nice use to the operating oldsters and nurses for taking care of their infants. This system emphasizes the importance of kid care that is our society future.

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