DESIGN AND FABRICATION OF AUTOMATIC E-CRADLE'(BASED ON BABY CRY)

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Keywords:

Introduction:

In the present scenario where both the parents are busy in their professional life, it has become very difficult for them to get sufficient time to take care of their babies. Sometimes it is not affordable for them to hire a nanny or admit their child to crèche during their job timing. It is found that in most of the times baby stops crying or sleeps when they are in cradle due to providing them gentle rhythmic motion. The proposed E-Cradle is a novel solution to this problem. In the proposed design, there will be a circuit placed along the cradle which will sense the sound intensity of the cry of the child and takes necessary actions based on the sound intensity of the child's cry.

The system is designed to help parents and nurses in infant's care. Before the use of cradle in society, baby caring was completely by caretaker but in the nuclear family baby caring is very difficult. So there is a need for automation in the cradle section. As the baby needs more care and safety automation of cradle is very much difficult for safe design.

Objectives:
The design aims at following points:
1. Cradle starts swinging automatically when the baby cries.
2. If the baby stops crying before 2 minutes, then the cradle will stop automatically after 3 minutes of swinging.
3. Sounds an alarm if the baby cries for more than a stipulated time of 2 minutes indicating that the baby needs attention.
4. Sounds an alarm when mattress gets wet.

Methodology:

When the baby starts crying, the noise sensor detects the sound of the baby cry and sends signal to the Arduino Mega Board, which then send signals to the motor for the swing
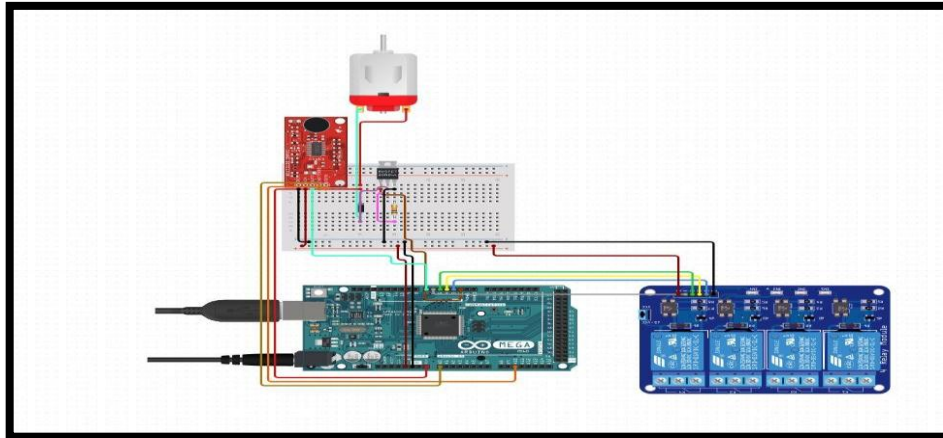
of the cradle. In the Wet Bed Sensing system, a wet bed sensor is placed on the bed when the baby wets the bed the sensor detects the water content and signals to the Arduino Mega Board, which then send signals to the Buzzer which acts as the alarm, hence warming the parents about the wet bed.
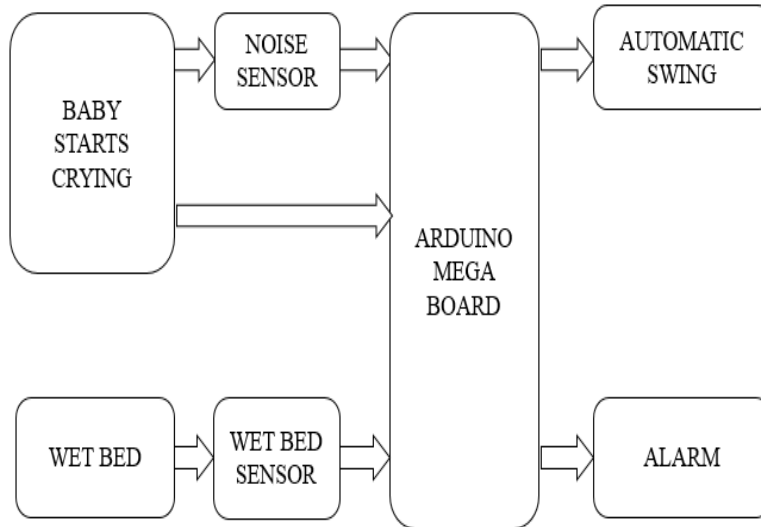
## 2D SKETCH
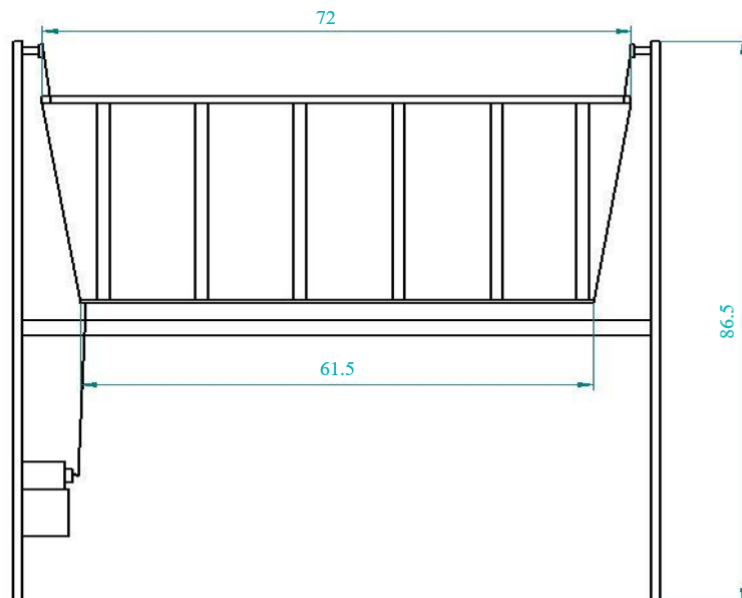
Automatic Swing of The Cradle

Circuit diagram for Automatic Swing

The automatic swing circuit include a mic which is connected to the Arduino board and a 5V relay which acts as a switch to turn the motor on and off. When the baby starts crying the mic receives the input and gives a signal to the Arduino board which in turn triggers the relay to turn on the wiper motor which has a link connected to the cradle, that will swing the cradle in a rocking motion.

The wet bed sensing system uses a soil moisture sensor to detect that the baby had wet the bed, the soil moisture sensor detects the wetness and then gives a signal to the Arduino board, the Arduino board then triggers the busser connected to it which then sounds the alarm, to notify the parents that the baby has wet the bed.

Wet Bed Sensing System
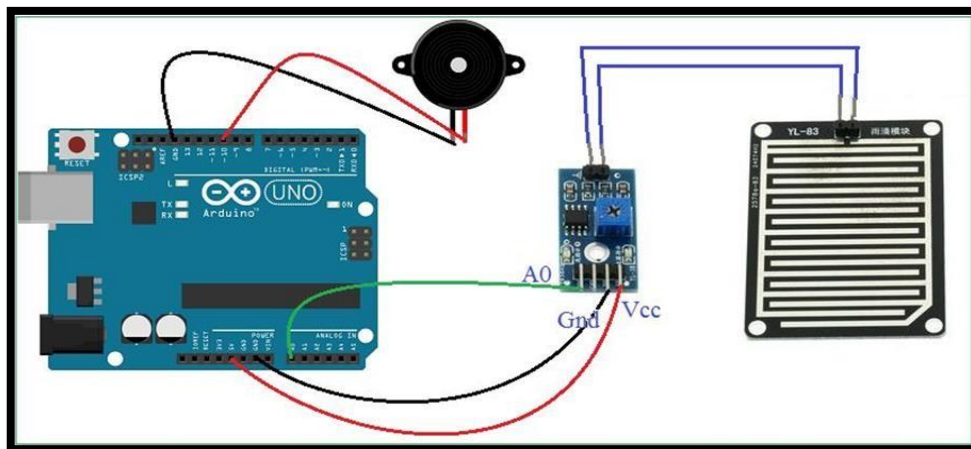
Circuit diagram for Wet Bed Sensing System

Conclusion:

In the present study, an intelligent baby cradle system was developed. The cradle could detect the cry of the baby and initiate cradle swing. Additionally, when the mattress is wet, the developed device can send alert to the parents via alarm. This project emphasizes on providing ease for the caring & safety of infants and reducing the work of the parents. This Project can be used to minimize the workload of nurses in hospitals.
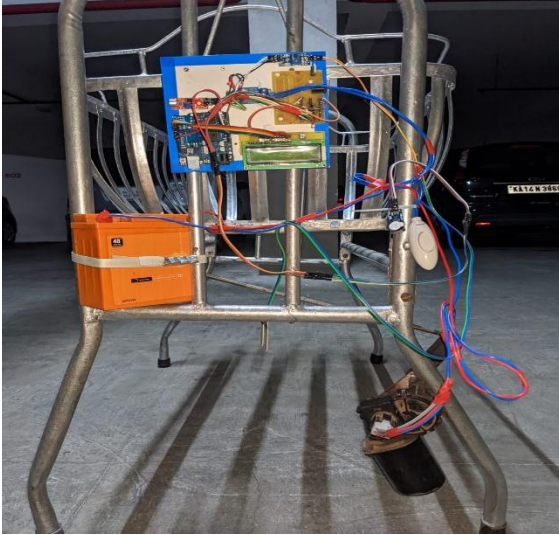
Scope for future work:

In future we can add more features to make it more efficient and user-friendly. Future features like monitoring the baby live via the net with the help of a camera, rotating toy with music and camera, and the sound detector to detect sound of the baby can be added to enhance the system features. With the development of technology daily routine and infant care has been eased for the parents.