



IoT Based Smart Monitoring Cradle

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ABSTRACT

In recent times, Baby Monitoring has become a uphill Task for many parents. Thus, most parents send their Babies to Baby care houses, Grand Parents. However, the Parents cannot continuously monitor the Baby conditions either in normal or abnormal situations. To overcome this problem, we Proposed a Monitoring unit called as Smart Monitoring Cradle which Monitors the Baby Conditions. In this unit an automated monitoring system is integrated and the parameters like Temperature, Moisture on bed, Motion and position of the baby are measured and monitored.

Keywords : *Temperature , Moisture, Monitoring*

I. Introduction

The plan of quickness and advancement accompanies the utilization of innovations/procedures which incorporate Internet of Things (IOT) technology. Using Iot and other Modules like, Humidity and Temperature sensors, Swing Automation, Cry Detecting Mechanism, Parents can identify each and every movement of the Baby [1]. Humidity and Temperature Sensing Module for identification of Wetness of cradle. Sound sensor to examine cry patterns which then alerts the swinging system (whenever required) . All the information are taken from the sensors will be put away in Cloud and mailed to the parents at regular intervals. All sensor data are combined to get data about the body conditions which is useful as for proper monitoring of the Baby. A moment Proper warning will be created if any strange movement is recognized (something abnormal like crying of infant or wetness because of Baby Urine) and parent will be notified through mail or a Message. The system is designed such that swinging mechanism of the cradle will be enabled automatically if any abnormal activity is detected .

II. Sensors & Control Units of Cradle System

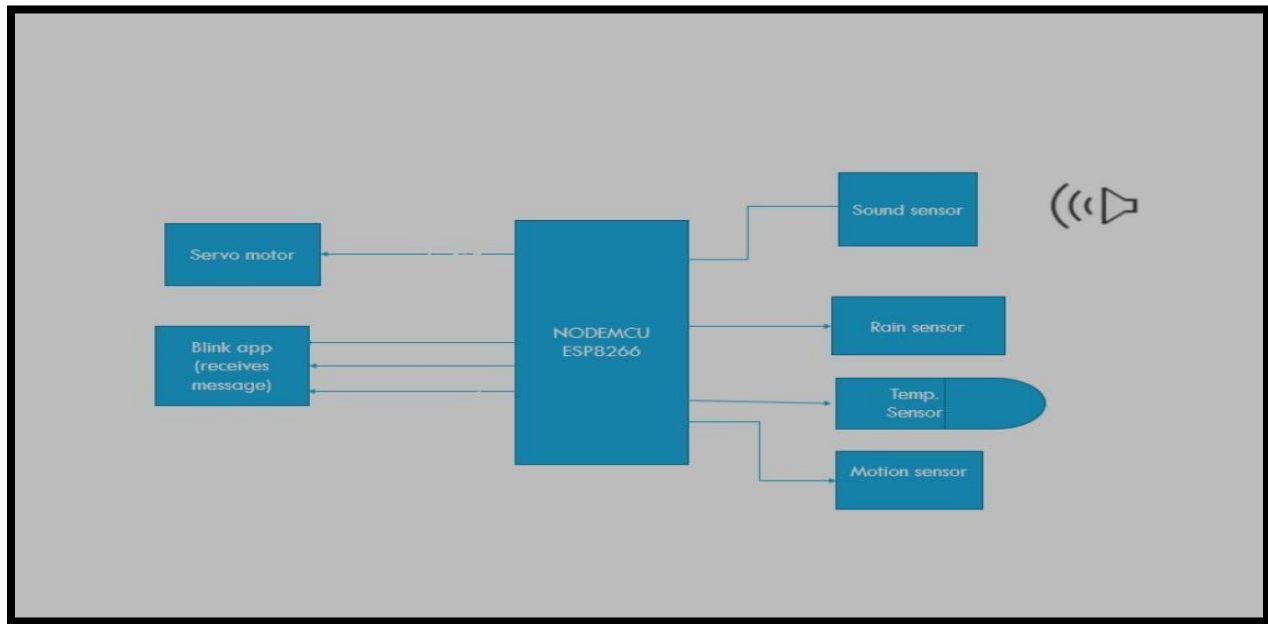


Figure 1 : Functional Unit of Cradle System

Temperature and Humidity Sensor This composite sensor contains calibrated digital signal outputs of temperature and humidity. Connected to connector CON3, it includes a resistive-type humidity measurement component and an NTC temperature-measurement device.

Sound Sensor Using mic as a sound sensor in the proposed system. This sensor operates on 3.3V to 5V dc. It provides a digital output on the display. It detects sound from the atmosphere and output digital trigger signal. The unit is Fed with different Patterns of Crying Mechanisms and if any of the Pattern is recognized the Swing is activated Automatically.

Servo-Motor & Motion Sensors Servo-Motors are used to Swing the Cradle Unit and Motion sensors are used to detect the Baby Movement (Especially Abnormal Movements).

Node MCU It is an open source firmware for which open source proto typing board designs are available. The name "Node MCU" combines "node" and "MCU"(micro-controller unit). The term "Node MCU" strictly speaking refers to the firmware rather than the associated development kits [2][3]. Both the firmware and prototyping board designs are open source. The firmware uses the Lua scripting language. The firmware is based on the eLua project, and built on the Espressif Non-OS SDK for ESP8266. The ESP8266 requires communicating via serial at 3.3V and does not have 5V tolerant inputs so you need level changeover to communicate with a 5V microcontroller like most Arduino use. ESP8266 Wi-Fi module gives our projects access to Wi-Fi or internet. It is a very inexpensive device and makes our projects very powerful.

III. Results

The Results are obtained using Blynk Mobile App.

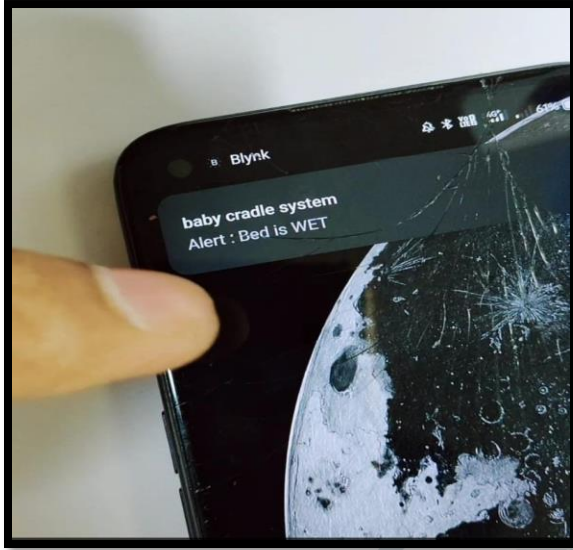


Figure 2: Notification when Bed is Wet

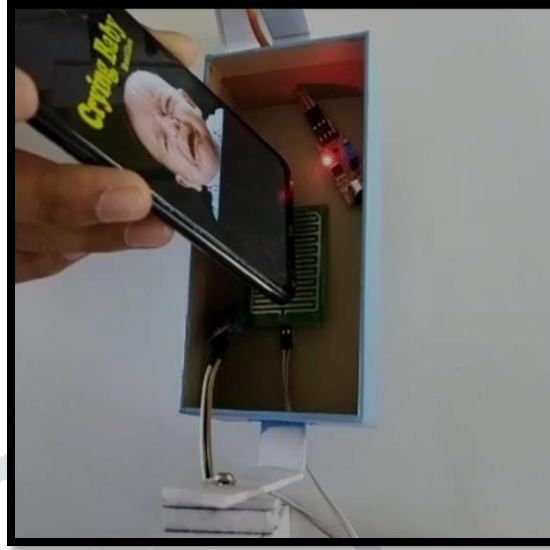


Figure 3 : Sensor detecting Baby Cry

IV. Conclusion & Future Scope

In this Paper we have obtained the results for the Cradle unit , when Bed is Wet, Detecting Baby Cry, when the temperature is High. This work can further be extended by including various other Parameters. Our proposed framework targets observing the child, for example, pulses and internal heat level utilizing remote innovation and sound sensor used to quantify infant cry's. This unit overcomes the problems of the current cradle units which are awkward, less easy to use and costly.

V. References

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