

IOT Based Smart Baby Cradle

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Abstract

The current scope of working moms has enormously raised. Afterwards, infant care has become a day by day challenge to a few families. Accordingly, for the most part, guardians send their children to their grandparents' home or to infant care homes. Be that as it may, the fogeys can't unendingly screen their infants' conditions either in customary or strange things.

Along these lines, an Internet of Things-based great Baby Cradle is made arrangements for checking infant continuously. In this task we create infant support that swings precisely once the child cries and turns the toy according to parent request. For this present, it's a cry investigation framework that distinguishes the child cry voice and therefore the support swing until the parent stop the swing of the support. This strategy moreover faculties the temperature and wet condition just as we can see infant.

Keywords: - *Baby Cradle, Sensor, Internet of Things, Motoe*

INTRODUCTION

In the previous hardly any decades there has been a critical ascent to the quantity of female interest in power to industrialization. Because of which a lot of female laborers need to avoid home to chip away at consistent schedule. Because of

which dealing with newborn child has now become a test for such females. Such females need to depend on third individual to deal with the infant. Mother consistently stresses over the prosperity of the child.

As we have found in India or some other industrializing country that the two guardians need to go to work and furthermore take care of the infant which builds outstanding task at hand on both the guardians. On the off chance that a framework is built up that can help guardians to keep an update about child during disease or in any event, during ordinary everyday practice, can be incredible assistance to such families as they can stress less over the infant and focus on work difficulties. Likewise any surprising movement can be right away followed and an alarm will be given about the circumstance and can be quickly dealt with. As a rule condition child cries when he/she is either eager, not feeling great, stir from rest or need its diaper changed. So in this proposed model we set forward a thought of a support that is sufficiently brilliant to screen the previously mentioned exercises, discover its motivation and give a caution to the guardians.

This proposed framework will give the guardians loosening up time and permit them to take less worry about prosperity if the child when they are away as they can get update about status of baby inside the support. The other bit of leeway is that

alarm messages will be given on event of any action that is strange and identified by sensors. Correspondence will be done through wire in which Short Messaging Services (SMS) is a necessary part. Along these lines we can monitor some biomedical boundaries of the baby.

REVIEW OF LITERATURE

Smart Baby Cradle by Aniruddha Patil; Nitesh Patil and Anjali Mishra [2018]:

In this system the cradle has motor which will rotate the mobile toy and noise sensor detection which will sense the noise when the baby is crying or making loud noise. Automatic swing of cradle is performed when baby cries loudly. A servo motor will rotate (swing) the cradle up to an angle that is safe when infant is inside the cradle. A camera will be used to track the baby inside the cradle. A GSM module to communicate with a remote device that is operated by parents. And an Arduino microcontroller to control and monitor the activities of the cradle.

The automatic cradle system by Vijayamahantesh Hiremath, Dr. P. Vankataratnam [2017]: In this intelligent baby cradle system was developed. The cradle was capable of detection the movement of the baby and

initiate cradle swing. in addition, within the event of Bed wet or physiological condition, the developed device is capable of causing SMS. The device may be accustomed minimize the work of the fogeys and nurses in home and hospitals severally.

Smart Cradle by Natheera, S. Sundaravadivel, N. L. Visakan, S. Viswanathanand, M. Vivekkumar [2018]:

In this system mike module used to detect the cry of the baby and it connected with Arduino Uno. The baby cries then the mechanically wiegen swing are activated. The wet sensing element results a Boolean price either true or false indicating whether or not the bed within the cradle is wet or not. The integrated camera module is employed to show the video of baby throughout any abnormality. All are connected with Arduino Uno.

IOT Based Baby Monitoring System for Smart Cradle by Waheb A. Jabbar, Senior Member, IEEE; Hiew Kuet Shang, Saidatul N. I. S. Hamid¹; Akram A. Almohammed; Roshahliza M. Ramli¹, Member, IEEE and Mohammed A. H. Ali⁴, Member, IEEE [2017]: The system consists of a baby

cradle that mechanically swings employing a motor once the baby cries in keeping with the sound device signal. Additionally, a mini fan mechanically opens to supply a cool temperature encompassing to the baby supported the temperature device. The oldsters will observe the traditional information recorded within the MQTT server cloud, like close temperature and remote switches, through the web victimization MQTT server, whereas the abnormal conditions are sent to the oldsters with triggering alarm to require acceptable actions. The oldsters also can monitor the baby's condition through Associate in The nursing external net camera and put on the lullaby toy settled on the baby's cradle remotely via the MQTT server to entertain the baby.

Survey on Digital Age- Smarter Cradle System for Enhanced Parenting by Sharmadha Senthil Nathan, Shivani Kanmani, Shruthi Kumar, Madheswari Kanmani [2018]: The system consists of automatic Rocking of the Baby Cradle, Detection of wet condition and detection of Temperature in Baby Cradle System. Cry analyzing system that detects the baby cry voice and consequently the cradle swings until the baby stops crying. The

speed of the cradle may be controlled as per the user want. Wet sensor and temperature sensor are put in a diaper and it connects with mobile through a microcontroller. It may be harmful to the baby.

METHODOLOGY

Modules

Module 1

This module involves weight sensor which shows the baby is in cradle or not. Noise monitoring system sense the noise of baby using noise sensor. When baby is crying

and making loud noise then send msg to parent mobile.

Module 2

In this module motor module is performed. Using this module we connect Dc motor and Servo motor. Dc motor use to rotate the toy and servo motor is used to swing cradle automatically when baby cries and when parent give order to swing. Wet monitoring system is used to detect wet condition in the cradle. When the baby wets the cradle due to urine, it will send feedback on parents mobile. Temperature sensor is used to sense the temp.

SYSTEM ARCHITECTURE

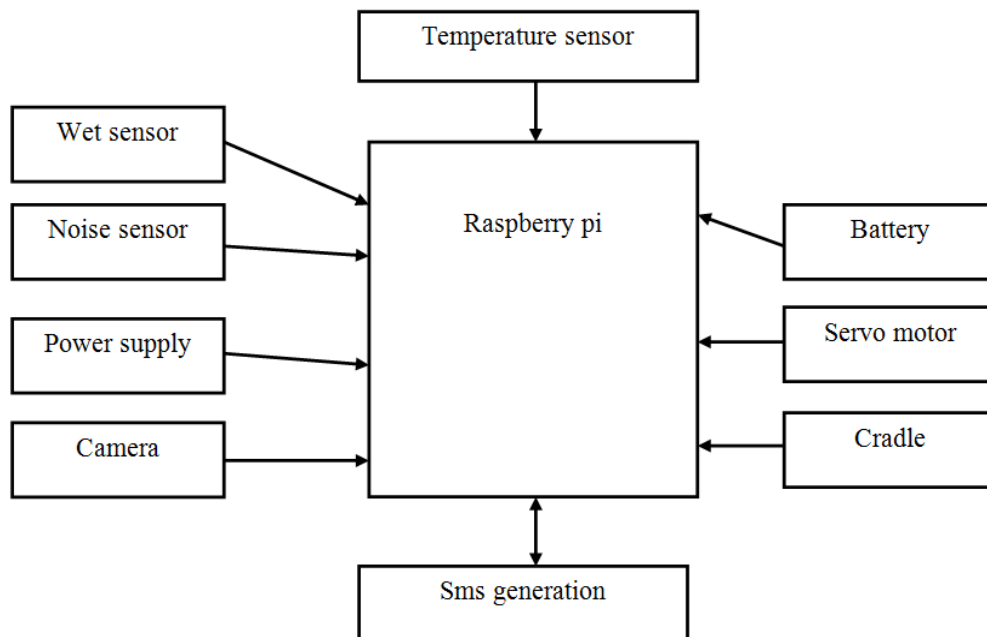


Fig. 1 System Architecture

Module 3

In this module connection of camera and speaker are performed. Web camera is used to watch the baby from remote distance on compatible device and using mike, speaker parents can hear the sound of baby or speak with baby.

Module 4

The testing and analysis of system is performed.

Features

1. To design the wireless Baby monitoring system which help parents

and nurses to take care of babies without physical attention.

2. Allow women to contribution towards society.
3. Develop a system for soothing and monitoring of baby.
4. Design a cradle, with distinctive features.
5. Helps parents and nurses to take care of babies without physical attention.
6. To collect and transmit data from remote place to the receiver section using the IOT communication.

FLOWCHART

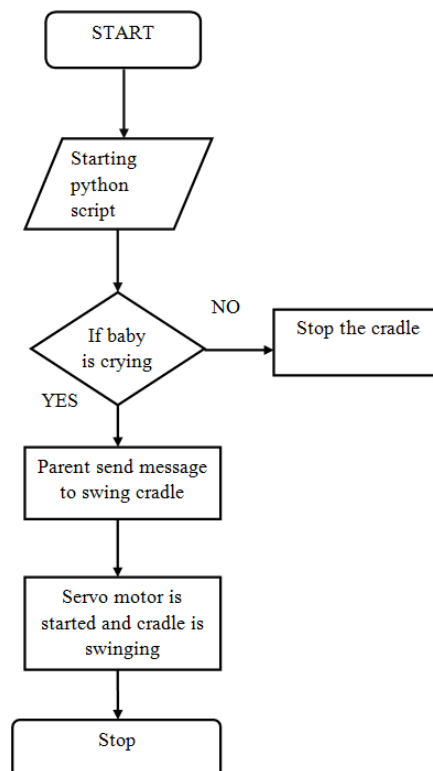


Fig. 2 Servo Motor

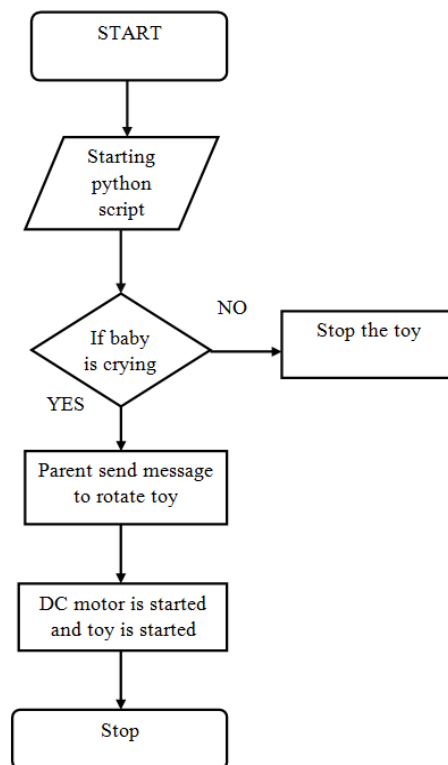


Fig. 3 DC Motor

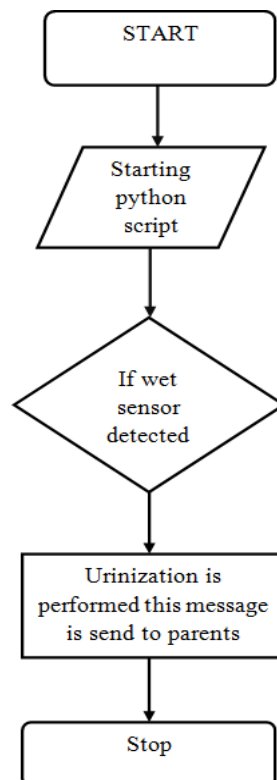


Fig. 4 Wet sensor

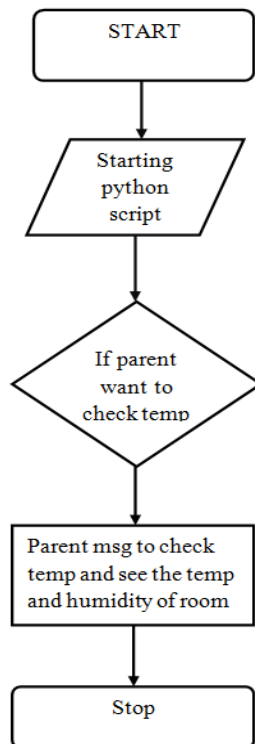


Fig. 5 Temperature sensor

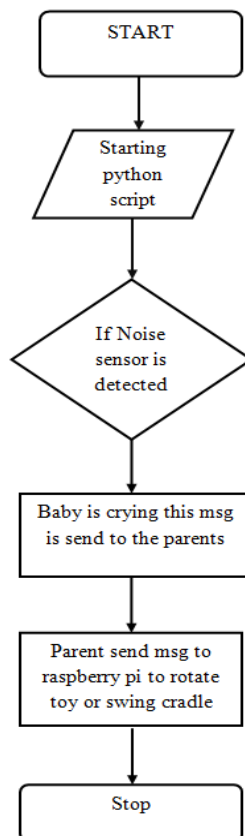


Fig. 6 Noise sensor

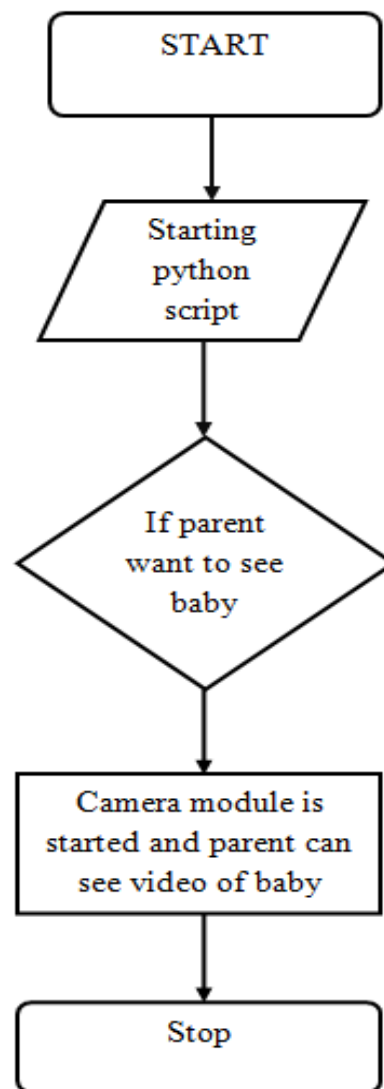


Fig. 7 Camera module

SYSTEM REQUIREMENT

a) Hardware Specification

Cradle

Raspberry-Pi

Camera

Wet sensor

Weight sensor

Noise sensor

DC motor

Servo motor

Battery

b) Software Specification

Operating system: Windows 7 & 10

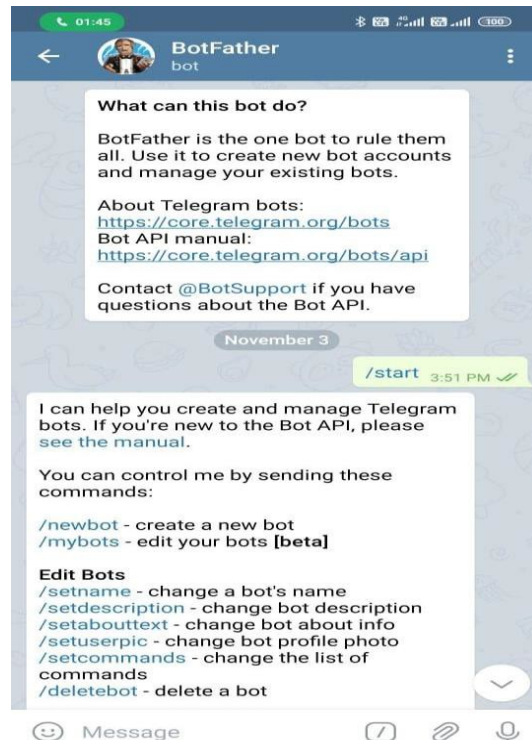
Programming Language: Python (3.6)

VNC Viewer

RESULT & ANALYSIS

Result

1. Telegram bot is created



2. Temperature sensor detection



3. Wet sensor and DC motor, Servo motor detection



4. Camera module



CONCLUSION

Proposed idea of smart cradle is a less expensive and easy to use system. Telegram is used it makes the user communicate for longer distance. It is a convenient system to monitor the baby health care from any distance. Helps parents and nurses to take care of babies without physical attention.

FUTURE SCOPE

Future work, develop a health monitoring system of baby. It can help improve the quality of infant care system. This system will provide parents assurance that their infants is well taken care of. The constant capturing and monitoring of various biomedical parameters of the baby helps the mother to understand baby's internal health status.

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