

Name of the Team leader: M.BALA SUBRAMANIAN

Team ID: PNT2022TMID00858

Roll number: 2019PECCS372

Registration Number: 211419104037

Mobile Number: 9566279485

Mail ID: balarock893@gmail.com

Name of the Team Member 1: M.GOKUL NITHISH

Roll number: 2019PECCS402

Registration Number: 211419104085

Mobile Number: 8870142355

Mail ID: gnithish29@gmail.com

Name of the Team Member 2: HARISH.D

Roll number: 2019PECCS412

Registration Number: 211419104092

Mobile Number: 7339026210

Mail ID: harishdevaraj778@gmail.com

Name of the Team Member 3: B.ABISHEK

Roll number: 2019PECCS352

Registration Number: 211419104002

Mobile Number: 9841720820

Mail ID: abishekbabu431@gmail.com

IOT-BASED BABY MONITORING SYSTEM SURVEY USING THE RASPBERRY Pi

ABSTRACT

The Internet of Things (IoT) is a significant part of daily living. The main distinction between embedded systems and IoT is that embedded systems have a specific protocol or software installed in the chip, but IoT devices are intelligent devices that can make decisions based on their surroundings. The advancement of sensor technology, the accessibility of devices with internet connections, and data analysis algorithms enable IoT devices to respond intelligently and autonomously to emergencies. IoT devices are so used in a variety of industries, including agriculture, medicine, industry, security, and communications. IoT solutions are helpful for performing deeper automation, analysis, and integration inside a system. IoT advancements in software, hardware, and current tools contribute to technology.

LITERATURE SURVEY

High-speed internet accessibility and widespread mobile phone use contribute to the growth of the Internet of Things. The utilisation of is one such crucial idea in this. using their mobile devices to see the baby's actions while you're watching them. This essay demonstrates the Smart Cradle's architecture, which support video surveillance.

This cradle swings on its own. upon hearing the baby's wailing sound. Also, it buzzer is set to go off and the phone is alerted if first, Baby cries last till a certain time, which indicates Cradle can no longer support the infant and its necessities. secondly, whether the bed's mattress is in good condition. Cradle is damp. This cradle rotates automatically. item for baby's amusement that will lower the infant cries possible.

This project is an attempt to provide a method for busy parents to monitor their infants and make sure that they are receiving the right baby's welfare and protection. This apparatus can Identify the baby's movement and sound, particularly video output showing the infant sobbing and in-motion can be shown on a monitor for viewing so that the Mother or another dependable someone

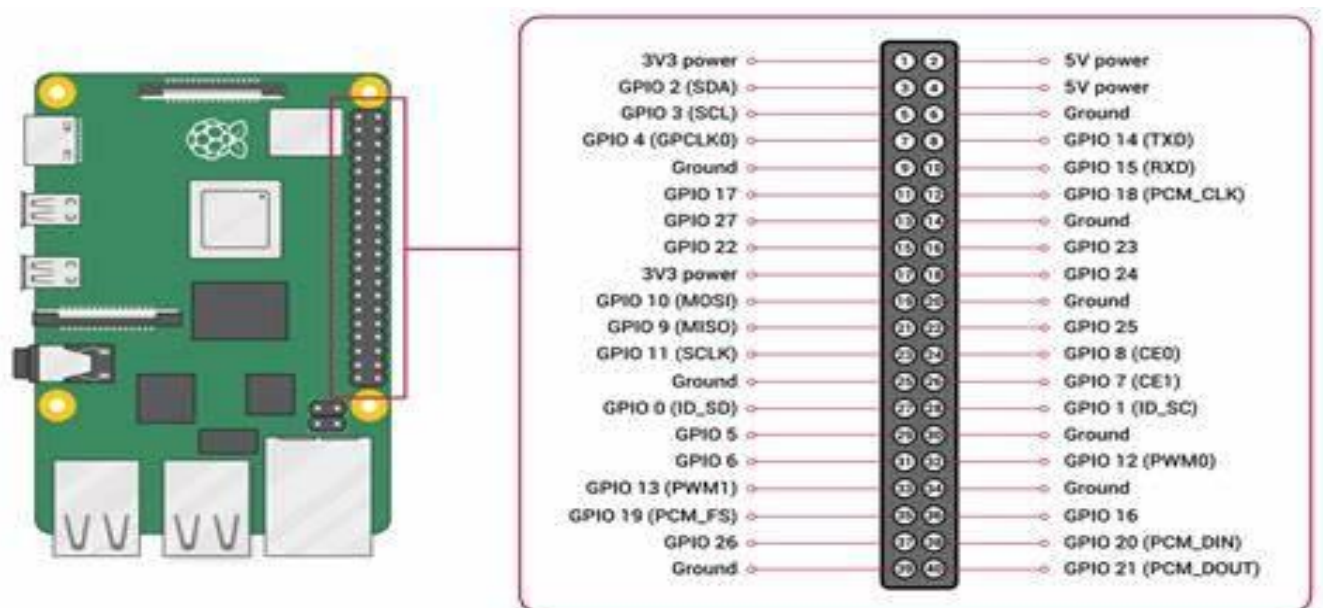
can observe the while they are not with the infant. monitoring of the infant system has the ability to detect tears and movements automatically determines the infant's condition. complete authority. A Raspberry Pi-based system was used to create the hardware. Baby's heartbeat is detected using the B+ module and condenser MIC PIR motion sensor integration allows for the detection of sobbing. Pi camera is used to catch the baby's movement. movement of the child.

It is suggested that the nursery box be upgraded to include the capability of recognising infant crying in order to enhance the calibre of child health care. The digital signal processor is the hardware core. (DSP) chip TMS320DM643 and multimedia audio codec chip TLC320AIC23B, which are capable of recognising a baby's cries in real time. The audio decoder chip will process the baby-crying signal when it is picked up by the pickups, after which it will be transmitted to the DSP chip for further processing.

The sound signal will be preprocessed and extracted for the linear prediction coefficient (LPC) via an improved autocorrelation function method in the DSP chip. The dynamic time regular (DTW) identification algorithm will effectively identify it, and the output will then be transferred across the serial port to the host computer. This study is very

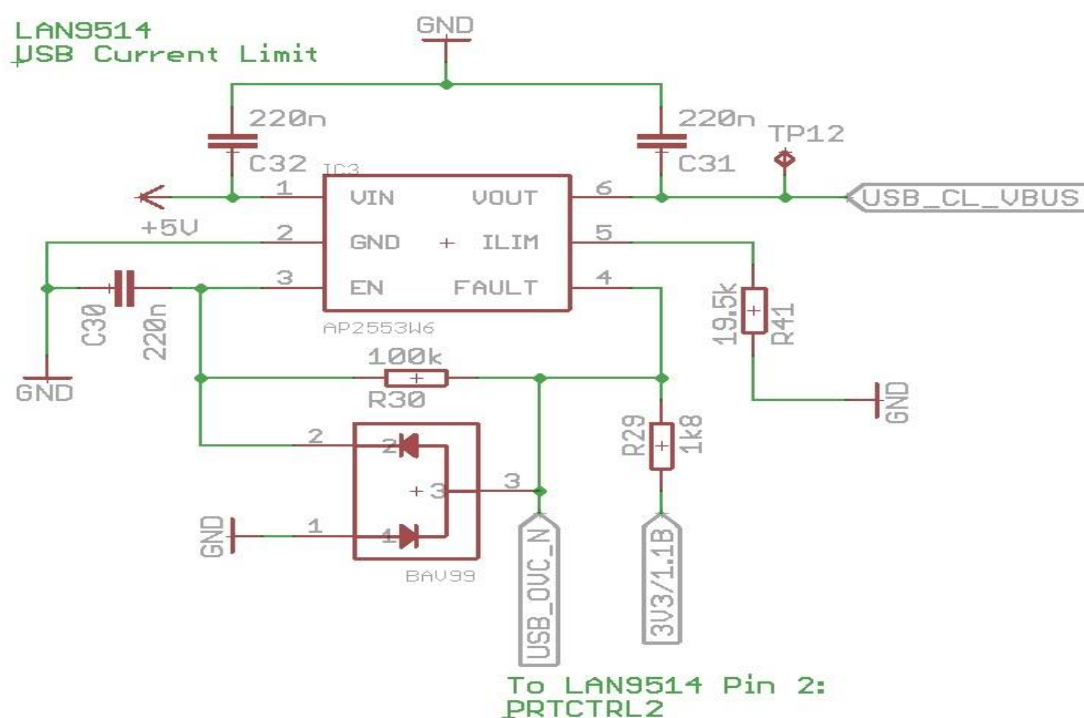
significant since it has been demonstrated that a baby's crying condition may be accurately identified up to 97.1% of the time.

Crying is how we humans first communicate with the outside world to express our fundamental needs. Parents work hard to recognise and promptly address these before the sobbing becomes frantic. However, Most first-time parents struggle, which results in Angst and a sense of powerlessness. That is Our effort is focused on developing an automated mechanism that can differentiate between several infants needs determined by sobs. We gather different sets of elements of the baby-cry audio that are paralinguistic using signals and different rule-based or statistical classifiers. We assess and carefully contrast the achieve up to 70% accurate results to the dataset for assessment.



The system's architecture consists of a wearable sensor for tracking vital indicators and a sound buzzer, both of which are managed by the same microcontroller, the ESPressoLite V2.0 based on ESP8266, which is powered by a lithium ion polymer battery. The system may be upgraded or expanded to detect additional vital signs even though it is primarily focused on temperature monitoring.

SYSTEM:



In the proposed system, sensors and a forecasting cloud are both utilised, resulting in data that is highly accurate about the condition of the children. Additionally, we are using cameras to monitor the children via a wide area network (WAN), which can be seen in the web application and can also be used to control the situation from a remote location anywhere in the world. Since MCP3008 is employed in this project, all sensors should be connected to the raspberry pi's 3.3 volt pin.

The ground pins of MCP3008 and all sensors should also be grounded. As an example, connect the LM-35 to channel 0, the humidity sensor to channel 1, and the sound sensor to channel 2 of the MCP3008 now. USB camera and Raspberry Pi connected Connect the Raspberry Pi's power supply. Connect the HDMI.

CONCLUSION:

The technology analyses children's actions and provides rapid web app notice via video enhancement. for keeping an eye on the infant. system atomization Using a cloud-based real-time database system, dependable sensors enable baby monitoring easy.

REFERENCES

[1] A. Industries "Raspberry Pi Model B+ 512MB RAM ID: 1914 - \ \$29.95: Adafruit Industries Unique & fun DIY electronics and kits" Adafruit.com 2016 [online] Available: <https://www.adafruit.com/product/1914>.

[2] A. Industries "Raspberry Pi Camera Board ID: 1367 - \ \$19.95: Adafruit Industries Unique & fun DIY electronics and kits" Adafruit.com 2016 [online] Available: <https://www.adafruit.com/product/1367>

[3] "IoT Based Smart Cradle System with an Android App for Baby Monitoring", 2017 International Conference on Computing, Communication, Control and Automation (ICCUBEA).

[4] "Video-based IoT baby monitor for SIDS prevention" in 2017 IEEE Global Humanitarian Technology Conference (GHTC)

[5] "Sudden Unexpected Infant Death and Sudden Infant Death Syndrome", Centers for Disease Control and Prevention. Centers for Disease Control and Prevention 17 Apr. 2017, May 2017

[4] R. Palaskar S. Pandey A. Telang A. Wagh R. Kagalkar "An Automatic Monitoring and Swing the Baby Cradle for Infant Care" International Journal of Advanced Research in Computer and Communication Engineering vol. 4 no. 12 pp. 187-189 2015.

[5] "Difference between Raspberry Pi and Arduino" Hardware Fun 2016 [online] Available: <http://hardwarefun.com/tutorials/difference-between-raspberry-pi-and-arduino>.

[6] E. Ziganshin M. Numerov S. Vygolov "UWB Baby Monitor" 2010 5th International Conference on Ultrawideband and Ultrashort Impulse Signals pp. 159-161 2010.

[7] Aslam Forhad Symon, Nazia Hassan, Humayun Rashid, Iftekhar Uddin Ahmed, S M Taslim Reza, "Design and Development of a Smart Baby Monitoring System based on Raspberry Pi and Pi Camera". Proceedings of the 2017 4th International Conference on Advances in Electrical Engineering 28-30 September 2017, Dhaka, Bangladesh, DOI: 10.1109/ICAEE.2017.8255338

[8] Rameesa. O, C Periasamy and Priyanka. M. T. "Real Time Child Monitoring System based on Raspberry Pi and Beacon Technology using Android App". Int. J. Adv. Res.6(3), pp. 1410-1416, ISSN:2320-5407.

[9] Advanced Baby Monitor "International Journal of Internet of Things", 2017, 6(2), pp. 51-55, DOI:10.5923/j.ijit.20170602.09.

[10] S. Patil and M. Mhetre, "Intelligent Baby Monitoring System", ITSI Transactions on Electrical and Electronics Engineering, vol. 2, no. 1, pp. 11-16, 2014.

