iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 7 **Issue:** IV **Month of publication:** April 2019

DOI: https://doi.org/10.22214/ijraset.2019.4285

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 6.887
Volume 7 Issue IV, Apr 2019- Available at www.ijraset.com

Review on Implementation of Digital Notice Display and Announcement System on Linux Platform with Raspberry Pi

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Abstract: This paper is introducing a new notice system which does not require reaching to the display or any planning or pasting of paper anywhere. The system is consists of the voice alert notice which canbe built on single board known as Raspberry Pi which includes ARM8 quad core processor from Broadcom. So, the entire development will be on the Linux based operating system and the hardware module is selected as Raspberry Pi. The new system is consist of a text to voice feature, also the message will can be remotely send through email.
Keywords: OS, Raspberry Pi, ARM8, TTS

I. INTRODUCTION

Notice Boards are an important medium for displaying information and keeping people informed. The traditional notice boards involve the pinning up of printed or handwritten information on a board. But this has the disadvantages of dependency on a person for pinning up notices and wastage of paper. Some developments in notice boards, in an attempt to overcome above- mentioned drawbacks, include display of data on a screen using wireless communication. This has been implemented on Liquid Crystal Displays(LCD) and Light Emitting Diode displays. Some of the available methods, 16x2 character LCD has been used. The disadvantage of this system is that in order to view the message, the observer should be very close to the screen. With newe day technology there some digital notice boards that are becomes very famous. It includes led display notice boards. But problem is the same that one has to reach to display to take notice on it. Hence we are introducing a new notice system which does not require reaching to the display or any pinning or pasting of papers anywhere. The system is consist of the voice talret notice which be built on single board known as Raspberry Pi which includes ARM8 quadcore processor from Broadcom. The Raspberry Pi is a low cost, credit-card sized computer that plugs into a computer monitor or TV, and uses a standard keyboard and mouse. It is a capable jloittle device ethat enable people of all ages to explore computing, and to learn how to program in languages like Scratch and Python.

II. LITERATURE SURVEY

As we are going to implement the notice announcement system, one has to be find the previous system that have been built in past by various researchers to improve the quality and features of our proposed system. Also, we have to take some of the technological review, so that we could not have to face the serious problem in the development of our proposed system.

A. Dharmendra Kumar Sharma, Vineet Tiwari, Krishna Kumar, B.A. Botre, S.A Akbar, "Small and Medium Range Wireless Electronic Notice Board using Bluetooth and ZigBee" 978-1-4673-6540 6/15//$31.00 @ 2015 IEEE.

In [1] paper introduces a low cost, handheld, wireless electronic notice board by using Atmel's ATmega32 micrcontroller and different wireless technologies (Bluetooth and ZigBee) and their performance analysis based on the parameter such as range, BER (bit error rate). The notice board receives serial data from wireless module receiver and displays it on the graphical liquid crystal display. They have used KS0108 based 128x64 graphical LCD as display element. Here the display used for notice board is too small to consider as notice board display wand can't be viewed from far distance.

B. Yash Teekchandani, G. Siva Perumal, Radhika Mujumdar,t Sridhar Lokanathan, "Large Screen Wireless Notice Display System" 2015 IEEE International Conference on Computational Intelligence and Computing Research.

In [2] paper proposes a method in which large screen like computer monitors or televisions can be used for displaying notices sent as text messages from a mobiles phone;. The proposed method useds Hyper Text Markup Language (HTML) to present the output since it offers many customizsation option. To give high resolution output, the credit-card sized computer Rapberry pi has been used. Here in this project the Author used screen displays to display the notices but have to reach to the display to view it where it is placed.

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C. Sarthak Jain, Anant Vaibhav, Lovely Goyal, "Raspberry Pi based Interactive Home Automation System through E-mail,2014 Internatiuional Conference on Reability, Optimization and Information Technology – ICROIT 2014, India, Feb 6-8-2014

In [3] paper aims at designing a basic home automation application on Raspberry Pi through reading the subject of Email and the algorithm for the same has been developed in python environment which is the default programming environment provided by Raspberry Pi. In this paper, they are receiving the mail on raspberry pi device for the automation of home electrical appliances, which shows that the email can be received and read automatically on Raspberry Pi.

D. Abdul Rawooof, Kulesh, Kailash Chanddra Ray, "ARM based implementation of Text to Speech (TTS) for real time Embedded System" 2014 Fifth International Conference on Signals and Image Processing.

In [4] paper, include reading aids for the blind, talking aid for the vocally handicapped and training aids and other commercial application. In this context the embedded processor ARM (Advanced RISC Machine), has been chosen as hardware platform to implement Text To Speech conversion. As we required th texto to speech conversion on the embedded board, it is possible in this paper. They have used arm processor to perform the task. tWe are using the ARM based raspberry pi board for the same action.

E. Michan Swiatkowski, Klaudiusz Wozniak, and Lukasz Olcyzk, "Student Notice Boiard Based on LED Matrix System Controlled over TCP/IP Protocol", 2006 International Students Young Scientists Workshop Photonics and Microsystem.

In [5] paper, the integrated student deisplay system enables easy informing counting down to festive displaying date, hour or any other message. In addition graphic mode enables even more types of information to be displayed. Though they are using the graphics display, but the problem is the same that one have to reach to display, to see the notices and can't get the notification of new notices.

III. PROBLEM STATEMENT

The traditional notice boards involve the pinning up of printed or handwritten information on a board. As studied in the above literatures, the displays used for notice board are too small to consider as notice boards display and can't be viewed from efar distance. In some the authror used large screen displays to display the notice but have to reach to display to view or to view matter displayed on it, where it is placed. Though they are using the graphics display, butr the problem is the same that One have to reach to display to see the notice and can't get the notification of new notices.To overcome the above facts, one should design a system that sho7uld satisfy the size problem, the problem of reaching to the board to view the display, also we has given some notification of new notices. The ysys5tem should be user friendly.

IV. PROPOSED APPROACH

The proposed system is aimed at designing and development of voice or a notice announcement system which can be solved the problems as mentioned in the above chapter. The system will built on single board known as Raspberry Pi which includes ARM8 quad core processor from Broadcome which satisfy the sdize and also low cost. The notice will directly receive to the system by a wireless mean of SMS or an Emai. So the user can send any notice to the system from the remote place. The proposed system is divided in the following module.

A. Preparation Of Raspberry Pi Module
B. Development Of Alogreithm For Message Receiving
C. Development Of Alogrithm For Text to Voice Conversion
D. Development of Audi Amplication



Fig No. 4.1 Raspberry Pi 3B Board

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V. METHODOLOGY

Proposed system includes the raspberry pi board as the main controlling hardware unit which has the ARM8 microprocessor architecture. The board needs the operating system, hence we will used the RASPBIAN operating system which is based on the Linux OS. They system work for notice announcement; hence the speakers are connected as audio output. The output of the raspberry pi board is

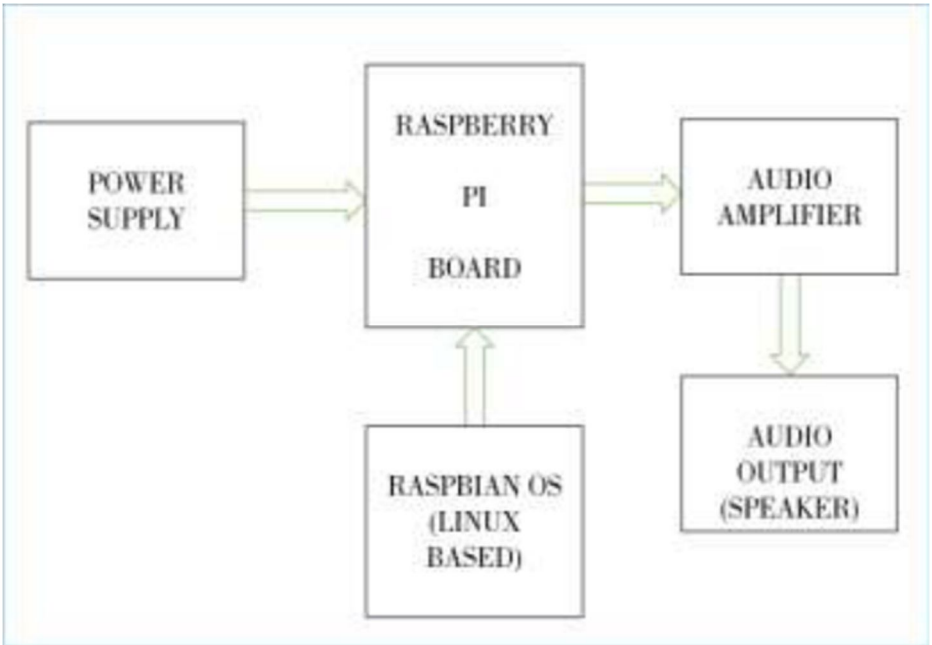


Fig No. 5.1 Block Diagram of proposed system

[1] too small as we can only listen the audio in headphone from raspberry pi. Hence we are using here an audio amplifier circuit to enhance the volume through Raspberry pi. The power requirement of the raspberry pi board only 5 watt, but it should a regulated dc. Hence we are using 5 watt SMPS power supply to run the module.

The input to the system that is the text that should be speak by the system is taken from the user's cellphone. The usert will send the SMS or an email to the system in the form of text that should not as the speech. The whole development will be in the linux based OS and on the python language which is highly supported and used in the raspberry pi board by the researchers.

VI. EXPECTED OUTPUT

Once the system is ready with all the functionally it is expected from the system that system should.

System should received the text that user wants to Announce The system should able to give output in speech Form whatever it receive from use

VII. CONCLUSION

A voice announcement of notice with raspberry pi has been presented in this paper. It offers an edge over other traditional notice boareds as well as the new era of digital notice boards Because of features such as an announcement of notices that it received without any person to speak it and send message with user's cell which is a common thing that carry every human being with them. The size and cost is very low as compared to other display that gives visual output not the audio.

REFERNCES

[1] Yash Teckchandani, G. Siva Perumal, Radhika Mujumdar, Sridhar Lokanathan, "Large Screen Wireless Notice Display System" 2015 IEEE International Conference on Computational Intelligence and Computing Research

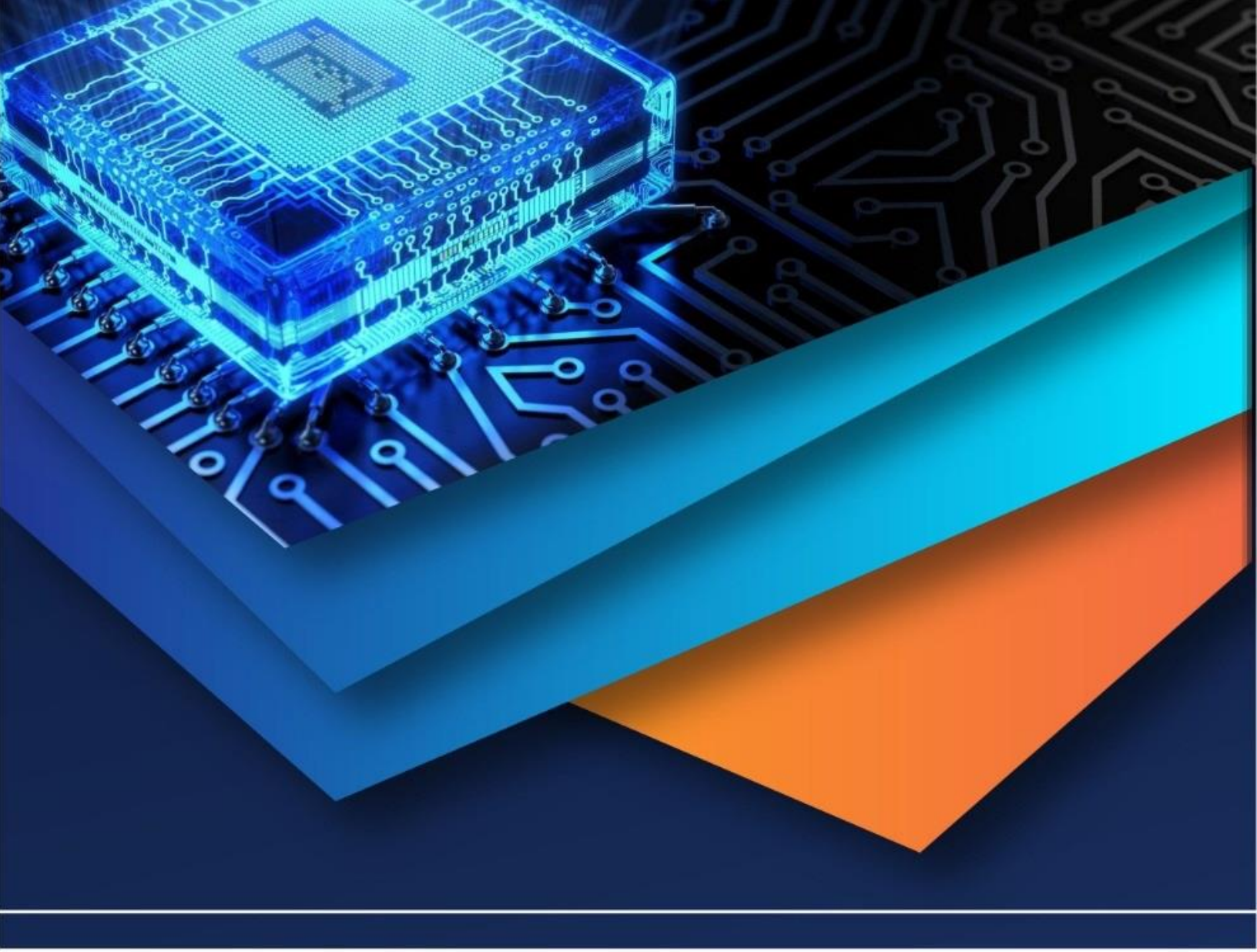
[2] Dharmendra Kumar Sharma, Vineet Tiwari, Krishan Kumar, B. A. Botre, S.A. Akbar, "Small and Medium Range Wireless Electronic Notice Board using Bluetooth and ZigBee" 978-1-4673-6540-6/15/$31.00 ©2015 IEEE

[3] Sarthak Jain, Anant Vaibhav, Lovely Goyal, "Raspberry Pi based Interactive Home Automation System through E-mail", 2014 International Conference on Reliability, Optimization and Information Technology - ICROIT 2014, India, Feb 6-8 2014

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[4] Abdul Rawoof, Kulesh, Kailash Chandra Ray, "ARM based implementation of Text-To-Speech (TTS) for real time Embedded System", 2014 Fifth International Conference on Signals and Image Processing
[5] Michal Swiatkowski, Klaudiusz Wozniak, and Lukasz Olczyk, "Student Notice Board Based on LED Matrix System Controlled over TCP/IP Protocol", 2006 International Students and Young Scientists Workshop, Photonics and Microsystems
[6] Darshankumar C. Dalwadi, Ninad Trivedi, Amit Kasundra "Wireless notice board our real-time solution" National Conference on Recent Trends in Engineering & Technology
[7] Nivetha S. R, Pujitha. R, Preethi Selvaraj & Yashvanthini S.M"SMS based Wireless Notice board with monitoring system"International Journal of Advanced Electrical and Electronics Engineering, (IJAEEE) ISSN (Print): 2278-8948, Volume-2, Issue-3, 2013
[8] Price of Basys™2 Spartan-3E FPGA Board retrieved on 13th August 2014 from http://www.digilentinc.com/Products/Detail.cfm?Prod=BASYS2&NavTop=2&NavSub=649&CFID=18448141&CFTOKEN=9715b 5fba0c2d007-574B45C2-505602010
[9] AI-Ali A. R. and AI-Rousan M., "Java-based home automation system", IEEE Transactions on Consumer Electronics, vol. 50, no. 2, pp. 498- 504, 2004
[10] Ali M., V laskamp J.H.A, Eddiny N.N. , Falconer B. and Oram c., "Technical Development and Socioeconomic Implications of the Raspberry Pi as a Learning Tool in Developing Countries", 5th Computer Science and Electronic Engineering Conference (CEEC), pp. 103- 108,2013
[11] Ardam H. and Coskun I., "A remote controller for home and office appliances by telephone", IEEE Transactions on Consumer Electronics, vol. 44, no. 4,pp. 1291-1297, 1998
[12] Baudel T. and Beaudouin-Lafon M., "Charade: remote control of objects using free-hand gestures", Communications of the ACM, voI. 36,no. 7,pp. 28-35, 1993
[13] Bromley K., Perry M., and Webb G. "Trends in Smart Home Systems, Connectivity and Services", ww.nextwave.org.uk,2003.

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