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An 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 pinning or pasting of papers anywhere. The system is consisting of the voice aler notice which can be 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 bsed operating system and the hardware module is selected as Raspherry Pi. The new system is consisting of a text to voice feature also the message will can be remotely send through email.***
Keywords: ***ARM8, OS, RAspherry Pi, TTS***

I. INTRODUCTION

The system is consisting of the voice alert notice which can be built on single board known as Raspberry Pi which includes ARM8 quad core processor from Broadcom.

There are some PA System that are used in railway station, banks, school etc. A public address (PA system) is an electronic sound amplification and distribution system with a microphone, amplifier and loudspeaker, used to allow a person to speak to a large public. For example for announcements of movements at large and noisy air and rail terminals or at a sports stadium or amplify other audio content, such as recorded music or the live sound of a band.

II. OBJECTIVES

Once the system is read with all the functionality it is expected from the system that system should

A. System should receive the text that users wants to Announce.
B. The system should able to give output in speech from whatever it receives from the user.
C. The system should be cost effective.
D. It should be user friendly.
E. It should not damage the traditional system and give the best ever performance on every usage.

III. COMPONENTS AND METHODS

A. Proposed System

The proposed system is aimed at designing and development of voice alert notice or a notice announcement system which can be solve the problems as mentioned in the above chapter.

The system will build on single board known as Raspberry Pi which includes ARM8 quad core processor from Braodcom which satisfy the size and also low cost. The notices will dire ctly received to the system by a wireless mean of SMS or an Email. So the user can send any notice to the system from the remote places.

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 use the RASPBIAN operating system which is based on the Linux OS. The system should work for notice announcement hence the speakers are connected as audio output. The output of raspberry pi board is 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 to 10 watts, but it should regulated dc.

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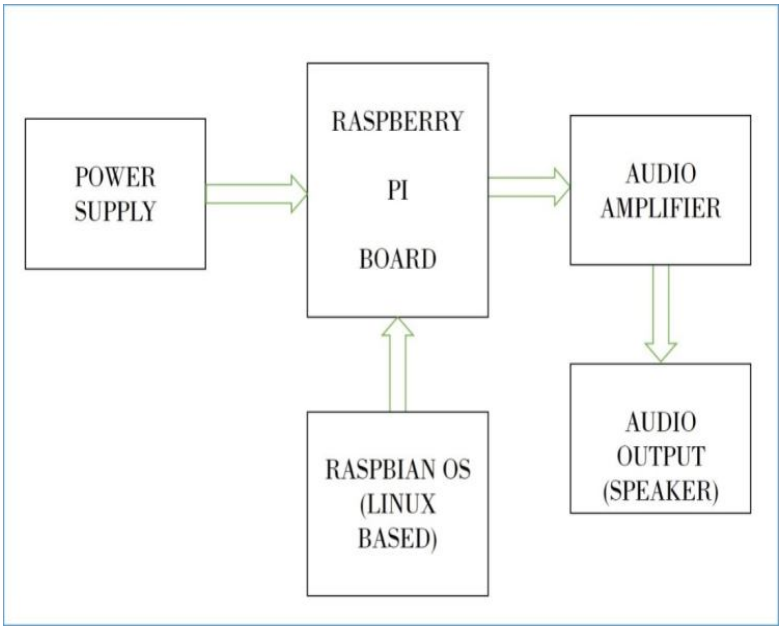


Fig .1 Proposed Block diagram

B. System Architecture

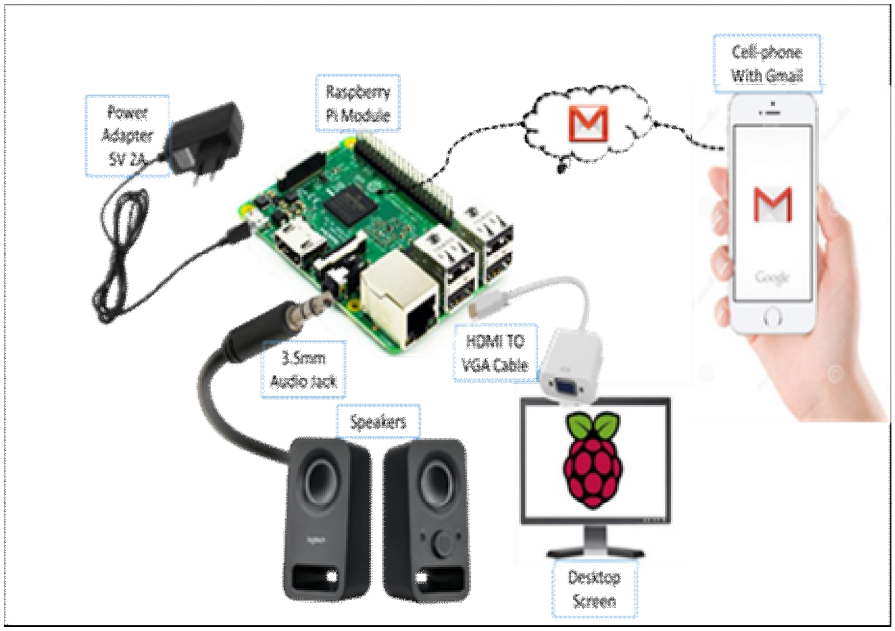


Fig.2 System architecture

The system architecture as hardware connectivity and other interfaces are shown in the above figure. The Raspberry Pi board needs the operating system, hence we will use the RASPBIAN operating system which is based on the Linux OS. The system should work for notice announcement; hence the speakers are connected as audio output. The power requirement of the raspberry pi board only 10 watts, but it should a regulated dc. Hence we are using 10 watt SMPS power supply to run the module. The 10 watt power supply is divided 5V 2A. The input to the system that is the text that
Should be speak by the system are taken from the user. The user will send an email to the system in the form of text that should be as a speech.

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C. System Hardware



Fig.3. Raspberry Pi 3B

A Raspberry pi is a credit card-sized computer originally designed for education, inspired by the 1981 BBC Micro. Creator Been Upton's goal was to create a low-cost device that would improve programming skills and hardware understanding at the preuniversity level. But thanks to its small size and accessible price, it was quickly adopted by tinkeres, makers, and electronic enthusiasts for projects that require more than a basic microcontroller (Such as Arduino devices.)

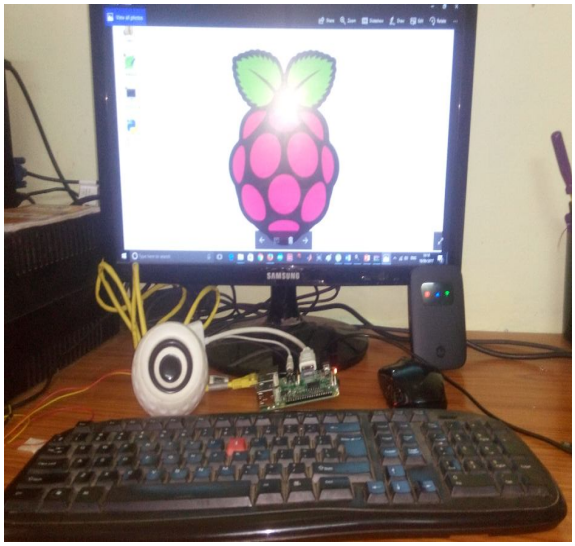
IV. STUDY OF PYTHON LANGUAGE

Python is an interpreter, object-oriented, high level programming language with dynamic semantics. Its high-level built in data structure, combined with dynamic typing and dynamic binding, make it very attractive for Rapid Application Development, as well as for use as a scripting or glue language to connect existing components together. Python's simple, easy to learn syntax emphasizes readability and therefore reduces the cost of program maintenance. Python supports modules and packages, which encourage program modularity and code reuse. The Python interpreter and the extensive standard library are available in source or binary form without charge for all major platforms, and can be freel distributed.

Python is often compared to other interpreted language such as Java, JavaScript, Tecla, or Smalltalk. Comparisons to C++, Common Lisps and Scheme can also be enlightening. In this section I will briefly compare Python to each of these languages. These comparisons concentrate on language issues only. In practice, the choice of programming language is often dictated by other real-word constrains such as cost, availability, training, and prior investment, or even emotional

V. RESULT ANALYSIS

Set up of projects below which allows us to final result Of this research work.

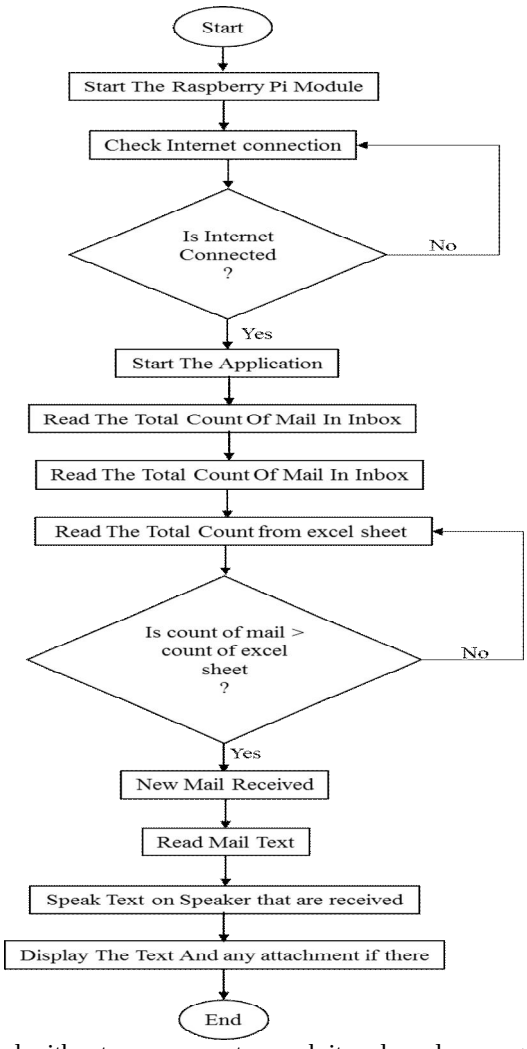


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VI. CONCLUSION

A voice announcement of notice with raspberry pi has been presented in this project. It offers an edge over other traditional notices boards as well as the new era of digital notice boards because of feature such as attachment. Since these aspects are highly variable, it seems a waste of time to consider them much for this comparisons.

VII. PROJECT DESIGNE



An announcement of notice that it received without any person to speak it and send message with user's cell which 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. The system has capable to give the output in audio As well as visual output.

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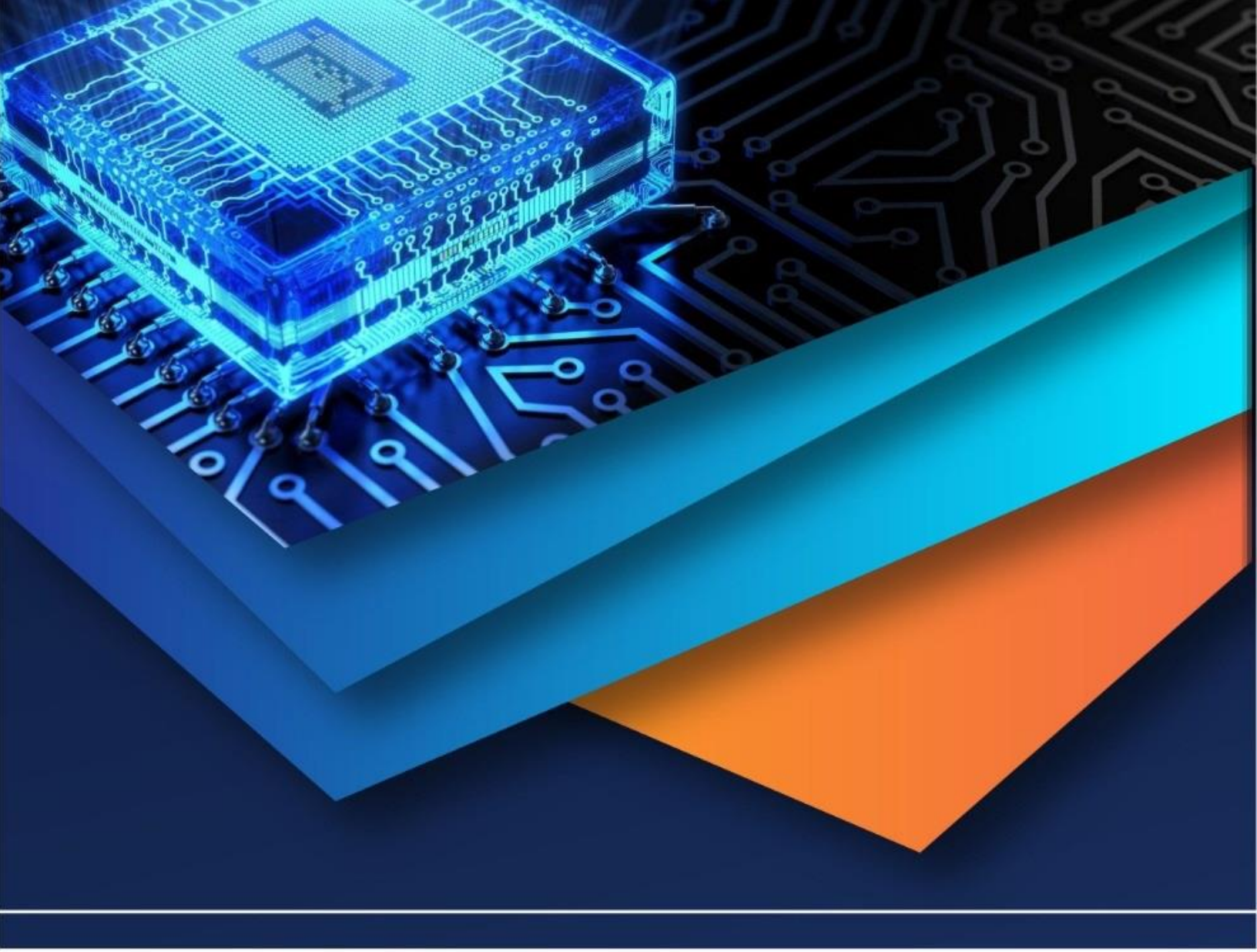
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