International Conference on New Horizons in Science Engineering Technology (NHSET-2018)
International Journal of Scientific Research in Computer Science, Engineering and Information Technology
© 2018 IJSRCSEIT | Volume 4 | Issue 5 | ISSN : 2456-3307

Real Time Notice Board Using Raspberry Pi 3

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ABSTRACT

The era of mobile technology opens the windows to the android app. Traditionally notice board is all about sticking information, but sticking various notices day to day is a difficult process. This project is designed to develop a PC controlled scrolling message display for notice board. This system can be implemented in many important places where latest information can be displayed. The websites are disappearing and the mobile phones are prominent. It's the time to change from conventional websites and other things to apps, which has become the part of our daily routine. We are introducing "VoiceTotext.apk" the android application software which would convert the voice to text. It works on all android platforms, but also it can work with a working internet. Our multipurpose program is considering the user as an Albertan or non Albertan, student or parent, faculties or office staffs individually. Project gives a total solution to everyone. It gives us more comfort and a better user interface later on Students can interact with Google directly. Latest news and updates is got through the application.

Keywords: Raspberry Pi 3, Micro controller

I. INTRODUCTION

We come across situations where we need to urgently need to display notices on a screen. For areas like railway stations and other such busy facilities the station master/announcer need not have to type in every announcement message manually on the screen. So here we offer an innovative Android based notice display system which allows the user to display the notice without typing manually. Here the announcer/administrator may speak out the message through his/her android phone, the message is then transferred wirelessly and displayed on the screen. To demonstrate this concept we here use an LCD TV screen to display messages.

II. THE MAIN OBJECTIVES

- For displaying day to day information continuously or at regular intervals during the working hours.
- It offers a flexibility to display flash news or announcement faster than the programmable system.
- To allow only authorized user to access various function and processed available in the system.
- Provide greater speed and reduced time consumption.

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III. METHODOLOGY

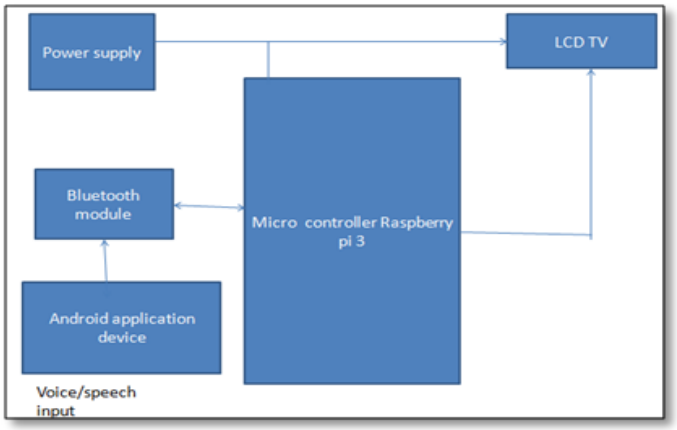

Figure 1. Block diagram of digital Notice Board

The LCD TV is interfaced with an 8051 family micro controller. Bluetooth receiver is used to receive Android-transmitted messages, sent them to the Microcontroller for decode and further into the process. The microcontroller then displays the message on the LCD TV screen. Use of this notice board system can be used in various places including railway stations, schools, colleges, offices to Display emergency announcements on screen instantly, instead of typing the message at all times. So that voice based notice board project is very useful in different organizations. Bluetooth is inbuilt in raspberry pi 3. Program is written in raspberry pi 3 using python language.SD card is installed in the Bluetooth module. “VoiceToText.apk” app is used to convert voice to text. The message to be displayedon notice board can be text or voice. That app is installed in the mobile. Only authorized person can operate this app.

IV. COMPONENTS

Figure 2. Raspberry Pi-3

i) HARDWARE REQUIREMENTS

- Raspberry pi 3
- Bluetooth module
- Android application device
- LCD TV

A.RASPBERRY PI 3

It is a series of small single-board computers. It has on-board Wi-Fi, Bluetooth, and USB boot capabilities. Processor speed ranges from 700MHz to 1.4 GHz, on-board memory ranges from 256MB to 1 GB RAM. SD cards are used to store the operating system and program memory.

B.BLUETOOTH MODULE

It has a class-2 Bluetooth module with serial port profile, which can configure as either Master or slave. A drop-in replacement for wired serial connections, transparent usage. It can be simply used for a serial port replacement to establish connection between MCU, PC to embedded projects and etc.

Specifications:

Frequency: 2.4 GHz ISM band
Speed: Asynchronous: 2.1 Mbps (max)/160 kbps, synchronous: 1Mbps/1Mbps
Power supply: +3.3 VDC 50 Ma
Working temperature: -20~+75 Centigrade
Dimension: 26.9mm*13mm*2.2mm
Profiles: Bluetooth serial port

C. ANDROID APPLICATION DEVICE

Here android phones are used and application is installed. It allows the user to display the notice without typing manually. Here the announcer or administrator may speak out the message through his/her android phone, then message is transferred wirelessly and displayed on the screen.

D.LCD TV

LCD TV is used to display the messages which are sent by the authorized person. It is interfaced with an 8051 family microcontroller through HDMI port.

ii) SOFTWARE REQUIREMENTS

- **Python:** Python is widely used high-level, general- purpose and dynamic programming language. Its design emphasizes code readability, and its syntax allows programmers to express concepts in fewer lines of code than would be possible in languages such as C++ or Java. Python is a widely used high level programming language. Python is preferred to code in Raspberry pi 3.

- **Android app:** "VoiceToText.apk" is used to display the messages on the screen.

V. ADVANTAGES

- It is easy to design and manufacture as all the components are easily available.
- The use Android mobile increases its scope of application and modification.
- It has low cost of manufacturing and no need of lengthy wires.
- The messages displayed can be saved.

VI. APPLICATIONS

- **Schools and colleges:** The way of communicating to students is convenient compared to traditional method.
- **Hospitals:** Avalibility of doctors on the particular day can be displayed & the facilities available in the hospitals can be conveyed clearly.
- **Hotels:** Menu can be displayed, special dishes on the particular day can be displayed, vacancy of rooms can be displayed.
- **Railway stations:** The passenger would learn the arrival and departure of the train. Arrival of train with platform number can be displayed

VII. CONCLUSION

Using this project papers can be avoided, reduces human effort usage in definite purpose areas.This Project is calibration of software and hardware through which most of the complicity reduces.Only Authorized user can display information.Digital notice board system created can be used for many practical purposes in various companies like in construction companies and research areas, hospitals, railways, colleges.

VIII. REFERENCES

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