

# Voice Controlled Wireless Electronic Notice Board Using Android

Vinita Barthwal, Gourav Baboria, Sameer Kumar, Yash Aryan

Electronics and Communication,  
Lakshmi Narain College of Technology Bhopal

**Abstract-** Notice Board is primary thing in any institution / organization or public utility places like bus stations, railway stations and parks. But sticking various notices day-to-day is quite a difficult process. A separate person is required to take care of this notices display. This project deals about an advanced hi-tech wireless notice board. The main objective of the project is to develop a wireless notice board that displays notices when a message is sent from the users mobile. While the user sends the message from the mobile, the remote operation is achieved by any smart-phone/Tablet etc., with Android OS, upon a GUI (Graphical User Interface) based voice operation. Transmitting end uses an Android application device remote through which commands are transmitted. At the receiver end, these commands are converted to texts used which are displayed on a 16X2 LCD – interfaced to the microcontroller. Serial communication data sent from the Android application is received by a Bluetooth receiver interfaced to the microcontroller. The program on the microcontroller refers to the serial data to display the received data on 16X2 LCD. The power supply consists of a step-down transformer 230/12V, which steps down the voltage to 12V AC. This is converted to DC using a Bridge rectifier. The ripples are removed using a capacitive filter and it is then regulated to +5V using a voltage regulator 7805, which is required or the operation of the microcontroller and other components.

**Keywords-** Electronic Notice Board, Voice Commands, Bluetooth Module, Wireless Technology, Application, Android app.

## I. INTRODUCTION

The main objective of the project is to develop a wireless notice board that displays notices when a message is sent from the user's android application device. Remote operation is achieved by any smart-phone/Tablet etc., with Android OS, upon a GUI (Graphical User Interface) based touch screen operation. While the user sends the message from the Android application device, it is received and retrieved by the Bluetooth device at the display unit. The Bluetooth access password will only be known to the user. It is then sent to the microcontroller that further displays the notice sent

from the user on to the electronic notice board which is equipped with a LCD Monitor display. It uses an (AVR microcontroller) to control the operation. Bluetooth wireless technology is becoming a popular standard in the communication arena, and it is one of the fastest growing fields in the wireless technologies. Bluetooth technology handles the wireless part of the communication channel; it transmits and receives data wirelessly between these devices. While a mobile phone is simply more than a phone these days, the number of applications being built on a wide range of platforms for mobile phones is astounding. Wireless printing using mobile devices is gaining popularity; this particular functionality

uses Android Application. Speech synthesis is the artificial production of human speech. A computer system used for this purpose is called a speech synthesizer, and can be implemented in software or hardware products. A text-to-speech (TTS) system converts normal language text into speech. An intelligible text-to-speech program allows people with visual impairments or reading disabilities to listen to written works on a home computer.

## II. PROBLEM FORMULATION

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 propose an innovative android based notice display system that allows the user to display notices without typing them in 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 screen to display messages. The LCD is interfaced with an AVR family microcontroller. We also use a Bluetooth receiver to get the android transmitted messages, decode them and send them to the microcontroller for further processing. The microcontroller then displays the message on the LCD screen. The entire circuit is powered by a 12 V supply through a transformer. This innovative system can be used in a variety of places including railway stations, schools, colleges, offices for displaying emergency announcements on the screen instantly by just speaking out the message instead of typing it in each time. So this is how voice based notice board project is very useful in various organizations.

### Objective

Conventionally there was printed notice board. Which was used to display any sort of the information but they were not much useful as it was more difficult to change the information periodically and there was a lot of paper and ink wastage to. Then came electronic notice boards

which used LED's, with a particular combination to display any sort of information. But we needed to redesign the board in case to change the information. This project aims at developing such a Board the can be interfaced with the Phone and we may change the information to display as many times we need and that to very easily.

### System Components

- Micro controller unit (Atmega8A)
- Bluetooth device
- LCD (16x2)
- Resistors
- Capacitors
- Diodes
- Transformer
- Bridge Rectifier
- Regulator
- Decoder
- Android application device
- Buzzer

## III. WORKING

Voice commands are used to change scrolling message on Electronic Notice Board. Bluetooth is used as wireless communication technique. Android app does the function of speech recognition. Main concept behind Voice operated Electronic notice board using rolling display is to show scrolling messages and to control them by using our own voice. We have already seen GSM based Electronic Notice board, however speech controlled Notice board has additional advantage of ease of use. User has to give voice command in his/her own voice to control the scrolling messages displayed on electronic notice board. Voice recognition is done in the Android application. User has to install this Android application in his/her smart phone or tablet. Then user has to give voice commands to this android app. Android app then passes these commands to the microcontroller using wireless communication. It means user doesn't have to go near the Electronic notice board to change the scrolling message. Microcontroller receives these commands with the help of Bluetooth receiver and decoder. Then it passes these commands to the Rolling display which is made up of Matrix LEDs.

Dimension of rolling display: 376mm by 72 mm the complete Rolling display is made up of 6 blocks of individual matrix LEDs. A single matrix display is made up of 8 by 8 LEDs. It means 8 rows and 8 columns of LED which makes it 64 LEDs in one block. So in total there are 48 columns and 8 rows of LEDs. All LEDs are Red in color.

The main objective of the project is to develop a wireless notice board that displays notices when a message is sent from the users mobile. While the user sends the message from the mobile, the remote operation is achieved by any smart-phone/Tablet etc., with Android OS, upon a GUI known as (Graphical User Interface) based voice operation. Transmitting end uses an Android application device remote through which commands are transmitted. At the receiver end, these commands are converted to texts used which are displayed on a 16X2 LCD interfaced to the microcontroller.

Serial communication data sent from the Android application is received by a Bluetooth receiver interfaced to the microcontroller. The program on the microcontroller refers to the serial data to display the received data on an 16X2 LCD.

The power supply consists of a step-down transformer 230/12V, which steps down the voltage to 12V AC. This is converted to DC using a Bridge rectifier. The ripples are removed using a capacitive filter and it is then regulated to +5V using a voltage regulator 7805, which is required for the operation of the microcontroller and other components.

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 propose an innovative android based notice display system that allows the user to display notices without typing them in 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 screen to display messages. The LCD is interfaced with an AVR microcontroller. We also use a Bluetooth receiver to get the android transmitted messages, decode them and send them to the microcontroller for further processing. The microcontroller then displays the message on the LCD screen. The entire circuit is powered by a 12 V supply through a transformer. This innovative system can be used in a variety of places including railway stations, schools, colleges, offices for displaying emergency announcements on the screen instantly by just speaking out the message instead of typing it in each time. So this is how voice based notice board project is very useful in various organizations.

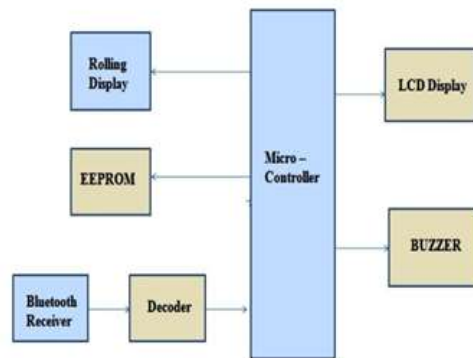


Fig-1: Block Diagram

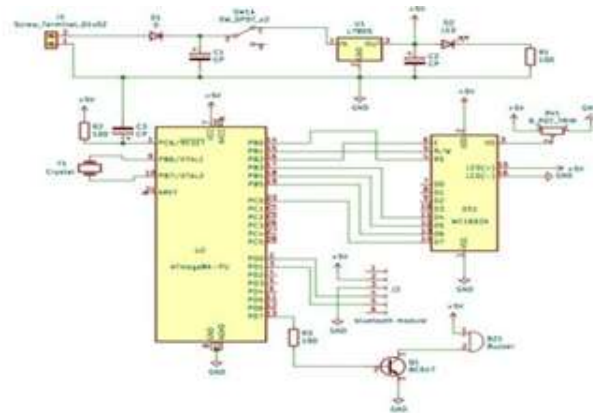


Fig-2: Circuit diagram

#### IV. RESULT

The project is displaying information on notice board and changing it with our voice commands as the notice board is interfaced through our phone

using bluetooth module. It saves time and money as no need to of ink or paper wastage for displaying notices, easy and comfortable usage and most important only one time coding where as in case of GSM based notice board for change of messages coding must be known.



Fig- 3: Project

## V. FUTURE SCOPE

- We can add feedback system in Android app. So that user can get feedback of the action.
- We can implement password so that any other person cannot control the system.
- To deal with the above mentioned problem owner of Voice Controlled Electronic Notice Board should not disclose the password or 4 digit pin required to connect the Bluetooth device to the Android application.
- Another alternative or we can say future scope of this project is user should send a password first and then the actual message to be displayed on "Rolling display".

## VI. CONCLUSION

Hence we will be concluding that, by introducing the concept of wireless technology in the field of communication we can make our communication more efficient and faster, with greater efficiency we can display the messages with less errors and maintenance. We have been using notice boards to display messages in offices, schools, hospitals, etc from a long time. But the major problem with these

notice boards is every time we need to change the message we have to go there and then erase previous message and then write the new one. So this project is a solution to this problem as it wireless technology Bluetooth which provides us the facility to change message on notice boards from distant mobile phone that is operated on android OS. to do the same a application is built with the graphical interface to change the message.

## REFERENCES

1. [www.google.com](http://www.google.com)
2. Smt.M.Baby, P.Harini, M.Sailaja, K.Annie Sumantha "SMS based Wireless E-Notice Board", International Journal of Emerging Technology and Advanced Engineering (IJETA) Volume 3, Issue 3, March 2013