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## Android Based Wireless Notice Board and Printer

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**ABSTRACT:** Notice board is a 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 a difficult process. The Notice board is a common display for effective mode of providing information to the people, but this is not easy for updating the messages instantly. This project deals about an advanced Hi-Tech wireless Notice Board. This system is enhanced to display the latest information through an Android application of smart phones or tablet.

**KEYWORDS:** Notice board, Printer, Mobile.

### 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 Arduino system (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. LITERATURE REVIEW

With the development of cellular networks in the 1970's for increasing the lack of frequencies in the radiotelephone services which in turn lead to introduction of AMPS (Advanced Mobile Phone System) where the transmission was analog based. This was known to be the first generation in cellular networks. The second generation was based on digital transmission and was called with various abbreviations as GSM (Global System for Mobile communications), ERMES (European Radio Messaging System). Various Cordless telephone standards were also introduced during this time only. The third generation has risen with the unification of different technologies; some of them which are popularly known are FPLMTS (Future Public Land Mobile Telecommunications System), UMTS (Universal Mobile Telecommunication System), and IMT-2000 (International Mobile communication). These days, BLUETOOTH



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technology has become one of the most popular medium for wireless data transfer. It has a wide range and is efficient in its work.

Android is a set of software for mobile devices including Operation System, Middleware and Core Application, and a new Mobile Platform of Google. It is a complete mobile platform based on LINUX 2.6 Kernel that provides universal set of powerful Operation System, Comprehensive Library Set, abundant Multimedia User Interface and Phone Application. Android platform is produced to make new and innovative mobile application program for the developers to make full use of all functions connected to handset internet. The Android platform was developed by Google and later the Open Handset Alliance (OHA).

Arduino is an open-source prototyping platform based on easy-to-use hardware and software. Arduino boards are able to read inputs - light on a sensor, a finger on a button, or a Twitter message - and turn it into an output - activating a motor, turning on an LED, publishing something online. You can tell your board what to do by sending a set of instructions to the microcontroller on the board. To do so you use the Arduino programming language (based on Wiring), and the Arduino Software (IDE), based on Processing. All Arduino boards are completely open-source, empowering users to build them independently and eventually adapt them to their particular needs. The software, too, is open-source, and it is growing through the contributions of users worldwide.

### III. CURRENT THEORY

Currently we rely on putting up notices on the noticeboards using papers. This is time consuming since we need time for preparing notices. Also there is wastage of paper. If we need to renew the notice then we have to take a new hardcopy .A separate person is required to take care of this notices display. The interfacing of a GSM modem with a normal PC is quite easy with help of the commands sent to it from the HyperTerminal window. But we must take into fact that the modem requires a wired connection at one end and wireless at the other.

“Wireless printers” refers to printers in which a radio frequency (RF) or infrared light (IR) interface connects the printer to the network, a controlling PC, a handheld computer, or both. Wireless printers come in different sizes and shapes, from full-featured stationary models to small. The wireless interface eliminates the need for cables, eradicating a potential failure point and the subsequent repair or replacement cost, while providing a safer and more space-efficient work area. Audio device is speaker which is controlled by microcontroller through Text-To-Speech (TTS) convertor.

### IV. PROPOSED WORK

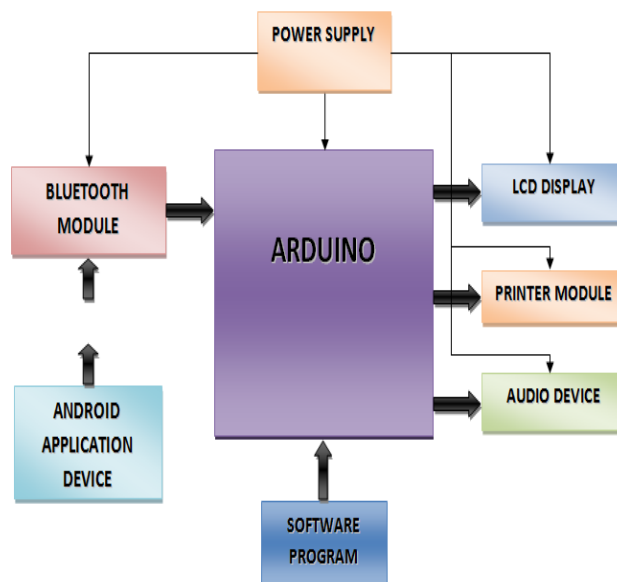
In view of the above it will be apparent that, there exists a need of electronic notice board that enables efficient way to the user for displaying notice. By considering increasing compactness of electronic systems, there is a need of embedding two or more systems together. This project is an implementation of the idea of wireless communication between a mobile phone and an AVR controller.

In this project work, we are supposed to design an embedded system which consists of display unit, printer and audio device using wireless technology. The display unit consists of any type of display that can be interfaced with microcontroller. Wireless printer is used for printing application. Audio device is speaker which is controlled by microcontroller through Text-To-Speech (TTS) convertor. GSM technology is specially used for SMS applications.

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**Fig -1:** fig. Block diagram of android based wireless notice board and printer.

Bluetooth is an open wireless protocol for exchanging data over short distances from fixed and mobile devices, creating Personal Area Networks (PANs). It was originally conceived as a wireless alternative to RS232 data cables. It can connect several devices, overcoming problems of synchronization. Bluetooth will receive the signal sent by the Android application device (mobile phone), and then send this signal to the microcontroller.

In order to implement this project, we need to create an Android application that is capable of performing the following

Functions:

- Convert voice data to text
- Send this text over to microcontroller via
- Bluetooth for displaying on notice board
- Play the message from the audio device
- Print the message via wireless printer
- Send the message as SMS to anybody
- 

The AVR controller will process that data and send it to the display unit, printer and audio device. All the transmission and reception will be done through serial communication. Further display unit will display the message, if user want print of it then print will be taken out and if that message is very much important then audio device will announce it.

Any type of LCD monitor display can be used as display device. This will be connected to controller via VGA to USB cable. USB port will be available on AVR chip board. The programming of AVR controller will be done in assembly language. Text-To-Speech (TTS) convertor is connected serially to the AVR and after that convertor amplifier is connected to amplify the audio signal.

## V. FUTURE SCOPE

Temperature display during periods wherein no message buffers are empty is one such theoretical improvement that is well possible. Another very interesting and significant improvement would be to accommodate multiple receiver MODEMS at different positions in the geographical area carrying duplicate SIM cards. Multilingual display can be



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another added variation in the project. The Bluetooth printing has been implemented successfully with android phone and outputs have been verified. Future work focuses on implementation of Wi-Fi printing.

## 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 presented an approach of using the Bluetooth technology for mobile printing, from a palm handheld and explained the application for the purpose of printing from a mobile device.

## VII. ACKNOWLEDGEMENT

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## REFERENCES

- [1] S. Herur, V. Miskin, “EFFICIENT WIRELESS THERMAL PRINTING FROM ANDROID APPLICATION”, International Journal of Advanced Research in Electronics and Communication Engineering (IJARECE) Volume 1, Issue 2, August 2012
- [2] N. Jagan M. Reddy, G. Venkareshwarlu, “WIRELESS ELECTRONIC DISPLAY BOARD USING GSM TECHNOLOGY”, International Journal of Electrical, Electronics and Data Communication (JEEDC) Volume 1, Issue 10, December 2013
- [3] Gargi Rajadhyaksha, Siddharth Mody, Sneha Venkateswar, “Portable Text to Speech Converter”, International Journal of Emerging Technology and Advanced Engineering (IJETA) Volume 3, Issue 8, August 2013.
- [4] 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.
- [5] Jigyasa Mishra, Apoorv Srivastav, Rahul Jain, “Arduino Based LCD Display”, International Journal of Emerging Technology and Advanced Engineering (IJETA) Volume 3, Issue 5, June 2014.

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