



Bluetooth Based Electronic Notice Board.

Ashutosh Pandya, Chinmay Raut, Mihir Patel, Siddharth Das, Amol Deshpande

Abstract: *Notice boards are of primary importance in any organization and in places such as bus and railway stations, when a need of for circulating notices arises it becomes tedious job. Thus an electronic notice board is an extremely efficient method of providing messages. It is difficult to update the messages at once. Thus this project focuses on development of a wireless board. This apparatus has the capability of displaying the latest messages using an Android application from a smart phone. This help susintransmitting any message with in a fraction of a second eliminating any delay by simply sending a command which is much efficient compared to any other traditional method of transmitting the message. Thus the proposed technology can be of great utility in many public places such as malls or commercial buildings to enhance the security system and also increase the awareness regarding emergency situations and avoid any possible dangers.*

Keywords: *Wireless, Microcontroller, GSM module, Bluetooth, Liquid crystal display, Rectifier, Regulator.*

I. INTRODUCTION

Notice board is generally utilized in elementary schools and significant associations to pass on messages on the loose. A great deal of paper is been utilized and which just squandered. This prompts a great deal of deforestation that prompts a dangerous atmospheric deviation. Little creative decisions in utilizing innovation for ordinary purposes would positively affect the earth's issues which we are by and worried about. The crux of the venture is designing a structure of a notification driven scheduled notice Board that will supplant the current methods[1]. The fundamental target of the task is to develop a remote notification system that showcases any note which is transmitted by the client's android application gadget. Remote activity can be accomplished by any advanced cell/Tablet and so on, with a GUI (Graphical User Interface) based touch display. While the client sends the text from the mobile gadget and is recovered by a Bluetooth gadget on the receiver end[2]. The secret is known to the administrator then it can be delivered to the microcontroller that shows the notification sent from the client on the notice board which will be furnished with a crystal display. It utilizes an 8051 (SST89E51) to control its activity. Bluetooth will deal with the remote piece of the corresponding interface that is transmitted and get information between the two devices. While a mobile is currently in excess of a telephone nowadays, various

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Applications are being based on a hagioscope of stages for cell phone sisastounding. APC frame work tha fistulized for this reason for existing is known as a discourse synthesizer and can be actualized in both programming or equipment products. Wireless innovation has been gaining a huge ground over the previous decade. The consistently expanding utilization of remote systems today fills in as a marker of the advancement in the territory of remote networks. The interest in remote innovation is expanding in each aspect. The proposed framework in this report has numerous up and coming applications in instructive establishments and associations, wrongdoing avoidance, traffic the executives, railroads, promotions, and a lot more fields. Being easy to understand, working in along extend and quicker methods for passing on data are significant supports for this application. In other works done on a similar system that makes use of Zigbee and other short distance asynchronous communication channels. There is a detailed comparative study of different short-range wireless protocol which needs to be examined in order to select the one that will best suit the purpose[3], it was evident that the advantages of the system are less compared to that of the advantages. The main features including capacity, network topology, security, quality of service support, and power consumption are studied. Similar technology can be implemented using Zigbee [4], but it is not cost-effective By utilizing this proposed approach we can upgrade the security arrangement of wherever and make attention to the crisis circumstances and maintain a strategic distance from any potential danger. A remote printer is utilized for printing applications. The sound gadget is a speaker that is constrainedbyamicrocontrollerthroughthe Text-To-Speech (TTS) converter [5] but that will increase the power consumption of the system and this is more of a problem for system.

II. BASICPRINCIPLE

Taking into consideration, it tends to be inferred that, there exists a need for an electronic notice board that empowers a proficient direction to the client for showing notice. By thinking about increasing the smallness of electronic frameworks, there is a need of installing at least frameworks together. This venture is a usage of the possibility of remote correspondence among a mobile cellphone and an AVR controller. In this challenge work, we need to shape an inserted framework that incorporates display unit. The unit incorporates a show off that may be interfaced with microcontrollers. A remote printer is applied for printing applications. The sound device is aspeakerthisisconstrained by a microcontroller via the Text-To-Speech (TTS) converter.



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GSM innovation is uniquely utilized for SMS applications. Bluetooth is an open remote conference for trading information over quick exact ways from fixed and mobile phones, making Personal Area Networks (PANs). It was start with imagined as a remote option to RS232 information links. It can be partnered some gadgets, beating troubles of synchronization. Bluetooth will get the signal sent with the aid of the Android application device (cell telephone), and afterward, impart this signal to the microcontroller. So as to execute this venture, we must make an Android application app this is capable of playing out the accompanying functions. It has the functionality to Convert voice facts to text. It sends the text over to the micro-controller through Bluetooth.

III. SYSTEM IMPLEMENTATION

8051 microcontrollers have been designed by Intel. It has an 8-bit configuration. It has 40 pins and utilizes a DIP (dual inline package) package, 4-kilo bytes of ROM storage is present and it also has RAM of 128 bytes, there are two 16-bit timers and it also consists of four 8-bit ports which are parallel in nature, they are programmable and can be addressed as per requirement [6]. An on-chip oscillator has been integrated in the microcontroller having a resonating frequency of 12 MHz. The system bus connects all necessary support devices to the CPU. The system bus consists of an 8-bit data bus and a 16-bit address bus to monitor control signals.

All other devices in the system like program memory, data memory, serial interface, interrupt control and timers are all interfaced with the help of system bus [7]. Fig. 1 represents the basic block diagram of the system giving us a detailed idea about how the flow of hardware connections will be so that the system delivers the desired output. The system receives supply from a five volt supply and is then passed through a regulator system to ensure that the supply of power is uninterrupted. The Android device is used in order to provide input to the system from the user. The Bluetooth device will act as a communication channel between the microcontroller and the android device. As we receive a input from the user the message is carried by the Bluetooth terminal to the Microcontroller which in turn converts the message into a form which is then displayed on the liquid crystal display unit.

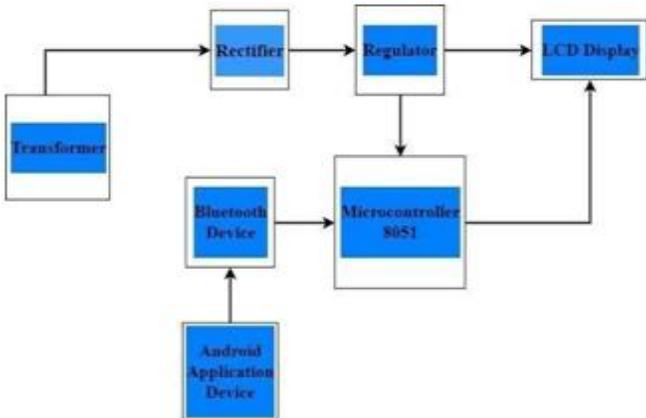


Fig.1. Block Diagram of the system

A. HARDWARE USED IN THE SYSTEM

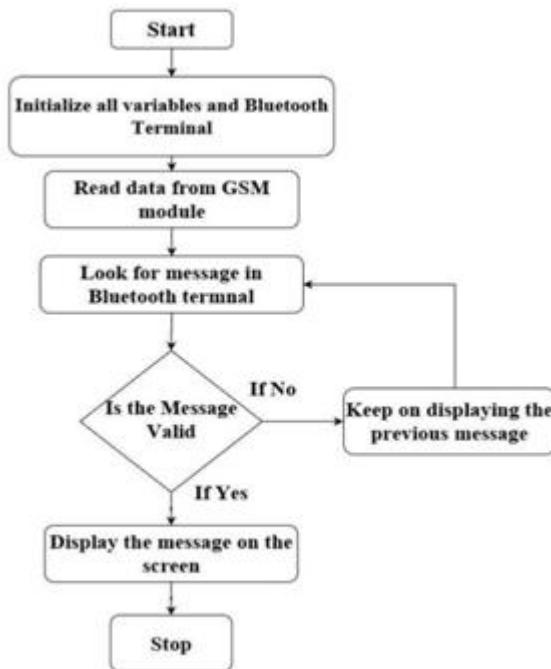
A GSM module is nothing but a chip that is used to set up communication between a cell phone and a GPRS system.

The modem is an interpretative part of the entire system. These modules consist of a GSM module that is powered by a dc power supply and communication interfaces like RS-232, USB 2.0 for computers. A GSM modem can either be a dedicated modem device with a USB, Bluetooth connection, or else it can be utilized as a mobile phone that provides GSM capabilities. GSM module is used as it is an inexpensive way of sending data wirelessly over a large area also it has a user-friendly interface [8]. HC05 is a Bluetooth module that is intended for remote correspondence. This module can be utilized in an ace/slave arrangement. To communicate with a smartphone with an HC05 Bluetooth module, the smartphone requires a Bluetooth terminal. Bluetooth Module is a Serial Interface. So when we want to communicate through a smartphone with the HC-05 Bluetooth module, connect this HC05 module to the PC through a serial to a USB converter. Before establishing communication between two Bluetooth devices, firstly we need to pair the HC05 module to smartphones for communication. The Bluetooth chip is an asynchronous communication channel. A Liquid crystal display 16x2 display will be used. In this 16-character, 2-line parallel liquid crystal display, we can accomplish a huge survey zone in a smaller bundle. It includes a yellow-green LED backdrop illumination and it utilizes the regular HD44780 interface, so the example interface code is generally accessible for an enormous assortment of microcontrollers. The DDRAM address 0x00 will correspond to the principal character of the top line, address 0x0F relates to the last character of the line on top, address 0x40 relates to the primary character of the subsequent line, and address 0x4F compares to the last character of the second line. The strategy by which we have associated the LCD for our purpose.

B. SOFTWARE USED IN THE SYSTEM

Fig. 2 represents the process flow of the system. The very first state is to initialize all the connected ports and devices. Once all the variables are set, the microcontroller will start reading the data which is coming from the GSM module. The data to the GSM module comes from the Bluetooth terminal which in turn is connected to the end-user and relies on the user for the message input to be given. Now the microcontroller will decide whether a message has arrived or not and if the message has been given by the user then it will also check whether it is a new message or the message which has been previously given and if the message is found same as the earlier message then the system will keep on displaying the earlier message. On the other hand, if the message is a new one, the previous message will be discarded and the new message will be displayed on the screen. It is a one of a sort application that gives us the similarity with all micro-controllers. All we need is an HC05 sequential connector association with sequential ports of the given micro- controller. It can control any micro-controller that utilizes a Bluetooth Module HC05 through a mobile. This application can send just as getting orders by means of Bluetooth, so we can troubleshoot our equipment issues without any problem.



**Fig .2. Flow Diagram**

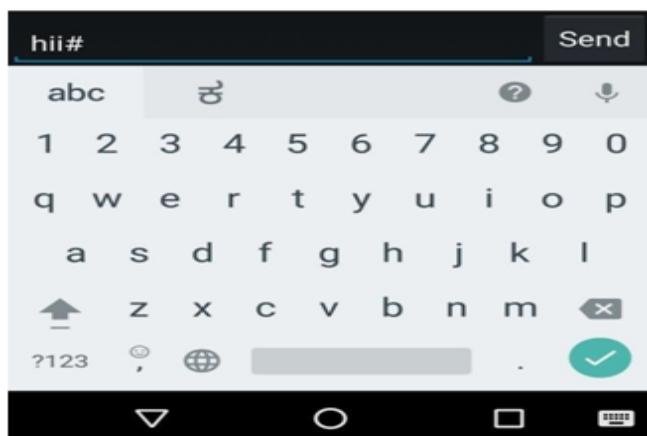
The application has a very easy to understand interface and is very effective and furthermore the size of the application is very little. The application has a large number of features which include its separate sections for the purpose of transmitting and receiving data and also it is important to know that the data is coded in ASCII format. There are no outside unsettling influences, so we get continuous access with a without Ads of Bluetooth Terminal. The entire system is implemented in an online simulation environment and the output is tested therefore we know that the code and the flow of the system is very efficient.

**Fig.3. Bluetooth terminal**

Fig.3 represents the terminal for Bluetooth interface through which the user will connect itself and give the input message. There are a few steps the user must follow to ensure connection to the Bluetooth terminal is secure, when we first open the terminal dialogue box will appear asking us to turn on the Bluetooth and after the Bluetooth is turned on we will be connected to the device as a slave. Once the connection with the system is established the user can type message, but for the message to be displayed on the screen the message must end in a hash function.

IV. RESULTS

The result of the system is nothing but a very simple display of the message on the LCD screen. The output helps us to analyze that the result which was intended to achieve is so successfully. The output displayed on the screen is the message send using HC05 terminal. The sample message that will be displayed on the screen is seen in Fig.4 where the message is on the interface.

**Fig.4 Sample message on terminal**

V. FUTURESCOPE

The main aim of our project is to display various notices which we have achieved using the Bluetooth technology but as Bluetooth has a limited range, the application is limited to a particular geographical area which is the main drawback of our system, so if the Bluetooth

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Based notice board disconnected to a wireless fidelity then the range of the network can be increased. The inclusion of other effective parameters such as date and time can be done as well as provisions can be made to display several notices simultaneously can be achieved in the notice board. A playlist of certain default notices can also be created to be displayed daily basis such as the notice if 'welcome' or the various good thoughts can be done. The design can be made more user friendly by enhanced interaction for the user. There can also be a provision for each student to connect his/her mobile to the Bluetooth modem so that the notice can also be seen in their mobiles. We can have detailed information about who has sent the message, whether the message has been read or not by the receiver. Another advancement that can be made to the current model is that a buzzer and a led can be added in order to make aware the receiver that a new message or notice that has arrived will not go unread.

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VI. CONCLUSION

Thus the system will be an effective Design for us Providing a more efficient way of displaying notice across the entire building with a very short span of time saving a lot of time and efforts. The Led module can also be attached to a rechargeablebattery. Thewholeprocessshouldbemonitored which will make the system more secure and also any additional delay and error can be eliminated. The system in future can be connected in a mesh topology which will increase the range of the network which under current circumstances will be around 5meter due to choice of Bluetooth module.

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AUTHORS PROFILE



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