



Wireless Smart Notice Board

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ABSTRACT : This project deals with an innovative rather an interesting manner of intimating the message to the people using a wireless electronic display board which is synchronized using the Bluetooth technology. Now-a-days information displaying is going digital with a high speed. This will help us in passing any message almost immediately without any delay just by sending a SMS which is better and more reliable than the old traditional way of passing the message on notice board. This proposed technology can be used in colleges many public places, malls or big buildings to enhance the security system and also make awareness of the emergency situations and avoid many dangers. Using Bluetooth module display the message onto the display board. In the last couple of decades, communication technology has developed by leaps and bounds. It has already established its importance in sharing the information right from household matters to worldwide phenomena. In this paper, we present the development of an SMS controlled E-notice board which can be updated automatically and remotely. The system was implemented using a BLUETOOTH Module IC controlled by a Microcontroller and an LCD display. The BLUETOOTH module receives the message to be displayed as data, then transmits the message through the COM port to the microcontroller displays the message on the LCD display.

I. INTRODUCTION

If the user wants to display any message, he can send the information by SMS and thus update the LCD display accordingly. As engineer's main aim is to make life simple with help of technology, this is one step to simplify advertisement boards by using electronic display digital boards instead of flex boards. In this world Mobile Phones and the related technologies are becoming more and more prevalent. Various technical arenas in the field of Telecommunication and Embedded Systems are becoming omnipresent in the people. The use of cell phones has rapidly increased over the last decade and a half. Up gradation in networking technologies has encouraged the development and growth of very dense networks. Now-a-days the general mass prefer communicating while on the move therefore landlines usage has been drastically reduced. Notice boards are one of the widely used ones ranging from primary schools to major organizations to convey messages at large. A lot of paper is been used and which is later wasted by the organizations. This in turn leads to a lot of deforestation thus leading to global warming. Small innovative steps in making use of technology for regular purposes would have an adverse effect on the environment issues which we are presently concerned about. The main aim of this project is to design a Bluetooth driven automatic display Board which can replace the currently used programmable electronic display and conventional notice boards.

GSM Based Wireless Electronic Board helps in passing messages almost immediately by sending SMS which is better and more reliable than the old traditional way of pasting messages on notice board. It is used in enhancing the security system and also to make awareness of the emergency situations and avoid many dangers in industries. The main aim of this paper is to design SMS driven automatic display board which can replace the currently used conventional wooden notice boards in most universities. Messages that the user's mobile device has sent are shown on the notice board. A SIM-loaded GSM modem at the receiving device receives messages sent by users using their mobile phones. To receive messages from the user, the GSM modem is connected to the control unit. The message is delivered to the microcontroller, which then displays it on an electronic notice board that has a display unit connected to a microcontroller. The field of wireless communication, specifically GSM wireless communication, encompasses this essay. International Mobile Telecommunications System GSM is a digital mobile telephony system that is popular throughout much of the world.

The most popular of the three digital wireless telephony technologies—TDMA, GSM, and CDMA—Time Division Multiple Access (TDMA)—is a variant utilised by GSM. GSM converts data to an electronic form, compresses it, and delivers it along with two other streams of user data, each in its own time slot, down a channel. The message sent from the computer's keyboard is transmitted through radio frequency (RF) transmitter in a PC-based wireless electronic notice board. At the receiving unit, the RF receiver is mounted to the display panel. The data from the transmitter is received by the receiver, and the microcontroller at the reception end also gets this data. This information is sent to the display unit via the microcontroller, which also transmits the user's message to the transmitter.

II. PROPOSED SYSTEM

The idea is to create a display toolkit that can be used from a legitimate mobile phone to receive messages. The transmitter and receiver parts can be used to explain the entire procedure. When an authorised mobile phone sends a message to the BLUETOOTH module, the microcontroller extracts the message from the module and displays it on the display board.



Block Diagram

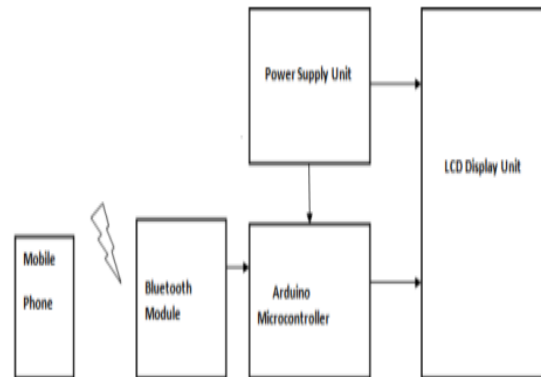


Fig block diagram

III. LITERATURE SURVEY

With the help of an Atmel ATmega32 microcontroller, different wireless technologies (such as Bluetooth and ZigBee), and an analysis of their performance based on factors like range, BER (bit error rate), RSSI (Received signal strength indicator), signal attenuation, and power consumption, Jadhav Vinod, Nagavanshitejas, IEEE 2020[1] introduces a low-cost, portable, wireless electronic notice board. The board displays serial data on the graphical liquid display after receiving it from the wireless module receiver. We have developed a universal communication receiver for notice boards that is compatible with both Bluetooth and ZigBee wireless modules.

IEEE 2017[2] Tejal Prakash Modhi, Sumit Lal Ostwal, and Noshin Ayaz Kureshi This project involved the construction of hardware that can use an android application to manage home appliances and show notifications. Therefore, the hardware can serve two general purposes. Users can use the same programme to type notices and then click the submit button to have them displayed. Due to the fact that each access uses a certain amount to send SMS, both functions can only be used if there is sufficient balance remaining on the user's SIM card. An ARM-based microcontroller called the LPC2148 makes up the hardware. It connects to the software via a GSM mobile communication network module, which reads messages from a SIM card A straightforward and inexpensive wireless notice board powered by Android has been created by Neeraj Khera and Divya Shukla, IEEE 2016[3]. Either Bluetooth or Wi-Fi are used in the proposed system for wireless serial data transfer. For this, Bluetooth and Wi-Fi communication between Android-based personal digital assistant devices and a distant wireless display board are employed in application programmes for Android. A low-cost microcontroller board (Arduino Uno) is set up to receive and display messages in any of the aforementioned communication modes at the receiver end. Two distinct applications for posting messages on a distant digital notice board and for wireless person contacting have been created using the provided system. In order to save time and money, the proposed system will focus on wirelessly sharing information with its target users.

A wireless electronic board that enables the flexibility to handle data presentation within a specific range on many displays was developed by Kruthika Simha, Shreya, and Chethan Kumar for IEEE 2017[4]. The notice board can display data that is being sent there via a serial communication protocol from a central dominant unit. As technology advances, producing output that is economically feasible and extraordinarily productive becomes a requirement, which increases our propensity to use automated control systems. Even while human intervention allows for selection, ability, and interaction, errors may still occur as a natural and unavoidable byproduct of this diversity. Therefore, automating a system is a recognised way to reduce human error and its effects.

J. Jasper Prem and S. Rubin Bose IJRIER 2017[5] Asynchronous serial connection is used by the GSM modem to connect to the microcontroller in the GSM-based LED scrolling display board. In order to read the message that the user has sent, the microcontroller emits a series of AT commands. the smart notice board's rapid message display via wireless data transfer. A faster display is possible with the GSM-based system than with a programmable one. This system is simple, reliable, and can be used by anybody, anywhere, with few faults and upkeep. The proposal system is handled by various transmissions, and the message feeds on just one receiver, according to the study titled "Design and implementation of multiple LED notice boards by using ZIGBEE Technology." A microcontroller operates several LEDs.

IV HARDWARE REQUIREMENTS

A. Arduino uno Board

The Arduino UNO is a single-board microcontroller designed to make it simple to interact with interactive items. Numerous programming languages can be used to programme it. Atmega328P is the processor used by Arduino, which has 14 digital input/output pins. Due to its ability to connect to a computer via USB cable and start using an AC-to-DC power adapter, Arduino can support the microcontroller

B.Arduino uno cable



A/B type USB cable. Use it to connect any board to your computer's USB female A port, including Arduino Uno, Arduino Mega 2560, Arduino 101, and more.

C. Bridge Rectifier

The output DC signal is acquired across the load resistor R_L , which is connected between the terminals C and D, while the input AC signal is applied across the two terminals A and B. Only two of the four diodes—D1, D2, D3, and D4—allow electric current during each half-cycle because they are connected in series. For instance, diodes D1 and D3 are seen as one pair that permits electric current during the input AC signal's positive half cycle, whilst diodes D2 and D4 are regarded as another pair that permits electric current during the input AC signal's negative half cycle.

D. LCD Display

A type of flat panel display known as an LCD (Liquid Crystal Display) operates primarily using liquid crystals. Since they are frequently used in cellphones, televisions, computers, and instrument panels, LEDs offer a wide range of applications for consumers and enterprises. When compared to the technologies they replaced, such as light-emitting diode (LED) and gas-plasma displays, LCDs represented a significant advancement. Compared to cathode ray tube (CRT) technology, LCDs permitted screens to be far thinner. As opposed to LED and gas-display displays, LCDs operate on the idea of blocking light rather than emitting it, which results in a significant reduction in power consumption. The liquid crystals in an LCD use a backlight to form an image where an LED emits light. LCDs started to be superseded by new display technologies like OLEDs as they took the place of earlier display technologies.

E. HC05 Bluetooth module

The Bluetooth module HC05 sends and receives data via the Serial Protocol (RX/TX). The HC05 Bluetooth Module is made up of a CMOS (complementary metal-oxide-semiconductor)-based CSR Bluecore 04 exterior single-chip Bluetooth system. Additionally, this module supports Bluetooth V2.0+EDR. Therefore, let's begin with HC-05. A cheap, simple-to-use, and compact module called the HC-05 Bluetooth Module is utilised for wireless Bluetooth connection. It supports the Serial Port Protocol (SPP), which facilitates data transmission to and reception from a microcontroller (such as the Arduino UNO). For data communication, the device's default baud rate is 9600, whereas for command mode communication, it is 38400.

V. APPLICATIONS:

- Educational institutions and organisations: Currently, posting flyers on bulletin boards is how we let people know about events. By adopting wireless notice boards to display information in real time, this approach can be abandoned.
- Railway station: Information about train delays can be displayed there instead of being announced.
- Advertising: From time to time, we hear offers for different things in shopping centres. Instead, we keep an electronic display notice board updated with information about the products and related deals.
- Controlling traffic
- A railway station and any other public amenities

VI. ADVANTAGES:

- User-friendly: Messages must be entered on a mobile device or computer before they can be wirelessly shown on the display unit.
- Eliminates the need for printers: In this approach, information is shown digitally rather than on paper, therefore printers are no longer necessary.
- Eco-friendly: As there is no need for paper, trees are saved.
- Information is transformed more quickly: Information is transmitted instantly, and messages are shown shortly after being typed.
- Anywhere Control is Simple.

VII. CONCLUSION

The display board systems are transitioning from traditional handwriting displays to digital displays as technology advances daily. Following on from Wireless display units. This study creates a wireless notice board system in the form of a photo that may display a user's desired message via SMS in densely populated or busy areas. It also includes a WiFi module and Bluetooth connectivity. Numerous upcoming uses for this planned system include those in educational institutions and organisations crime prevention, traffic control, railroads, advertising, etc. This application benefits greatly from being user-friendly, long-distance, and speedier means of information transmission. By employing the suggested methods, we may improve the security system, raise awareness of emergency circumstances, and prevent numerous risks.



VIII. ACKNOWLEDGEMENT

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