

# Electronic Notice Board

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## ABSTRACT

Notice Boards are a common occurrence in variety of institutions, which we come across on a daily basis. In the current scenario, the notice/ advertisement boards are being managed manually. There is a long process involved in order to put up notices on the notice board. This wastes a lot of resources like paper, printer ink, man power and also brings about loss of time. In this paper we have proposed a system which will enable people to wirelessly transmit notices on a notice board using Bluetooth. In this report we have proposed a system by which only authorized people can access the notice board using a Bluetooth technology. We can also make the system compatible with more than one wireless technology.

Bluetooth is widely used today for connecting different devices and transferring data. Also, some of the places needs urgent notices like in college, railway station, share-market, and the notice should be in real time, so we need a real time notice. This project is our experiment to give a start to the new era of real-time noticing. This project is about writing the message, which is to be displayed in mobile and send it as message to other side. This received message is fetched into Microcontroller and after authentication; it is displayed on the LED screen of advanced 8\*8 Led Matrix.

**Keywords:-**Bluetooth, , LED (Light Emitting Diode), PC, RAM, EEPROM.

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## 1. INTRODUCTION

Notice Board is a primary thing in any institution organization or public utility places. Sticking various notices day-to-day is a difficult process. A separate person is required to take care of this notice display boards. The commonly used notice board system in our schools, colleges and universities. In these institutes, we still use manual way of putting the important notices, class and examinations schedule, results and all other useful information etc. in the notice boards.

We have developed a smart notice board system using android application, which is automatic in nature and provides update of notices, changed schedules, useful information, and display results quickly on the display. In the case of digital displays if we want to change the message or style an operator, have to go there and connect the display to PC or LAPTOP, time and money consuming complex method.

A permanent solution for these difficulties is wireless access to the Notice board with a user-friendly system. Wireless technologies play a key role in extending the reach of cable, fiber and DSL markets, and it does so quickly and reliably. This project describes about advanced digital wireless notice board system using Bluetooth technology. This project is built around AVR microcontroller.

Currently we rely on putting up notices on the notice boards using papers or display boards, which need to be reprogrammed via software to display new messages. The display boards on the railway stations and various shopping malls as well as high tech institutes and hospitals inspired us to design a digital wireless notice board for our institution, which will be able to display two notices at a time.

## 2. METHODOLOGY

In this project, we are using Bluetooth technology. Bluetooth is a wireless technology standard for exchanging data over short distances from fixed and mobile devices.

The physical range of Bluetooth is typically less than 10m (33ft), up to 100m(330ft).

We are using Bluetooth in controlling section. At this section, Bluetooth receives new message or notice from android application then it transfers to the microcontroller and microcontroller will display the message on electronic notice board.

### **What is Bluetooth?**

Bluetooth is a short-range wireless technology that allows both voice and data to be transmitted between electronic devices. Originally conceived as a means to implement hands free mobile phone use without a cable between the handset, companies have developed some very exciting applications for Bluetooth. With this technology, people really could send and receive voice or data to or from any device or person in a network using a small mounted device. Classic Bluetooth is a wireless small range network technology for streaming data applications such as voice communications, classic Bluetooth provides a robust connection between devices such as headsets, cars, industrial sensors, and medical sensors.

### **What is Bluetooth used for?**

Bluetooth capability is built into Electronics device and Adapters. Bluetooth is a direct device-to device connections. Which is allows the user to wirelessly share the data and other information between paired devices. Bluetooth is design to replace cables by taking the information normally carried by the cable and transmitting it over the radio frequency to a receiving Bluetooth device. The Bluetooth special interest group (SIG) which was founded in 1998 by Ericson, IBM, Nokia.

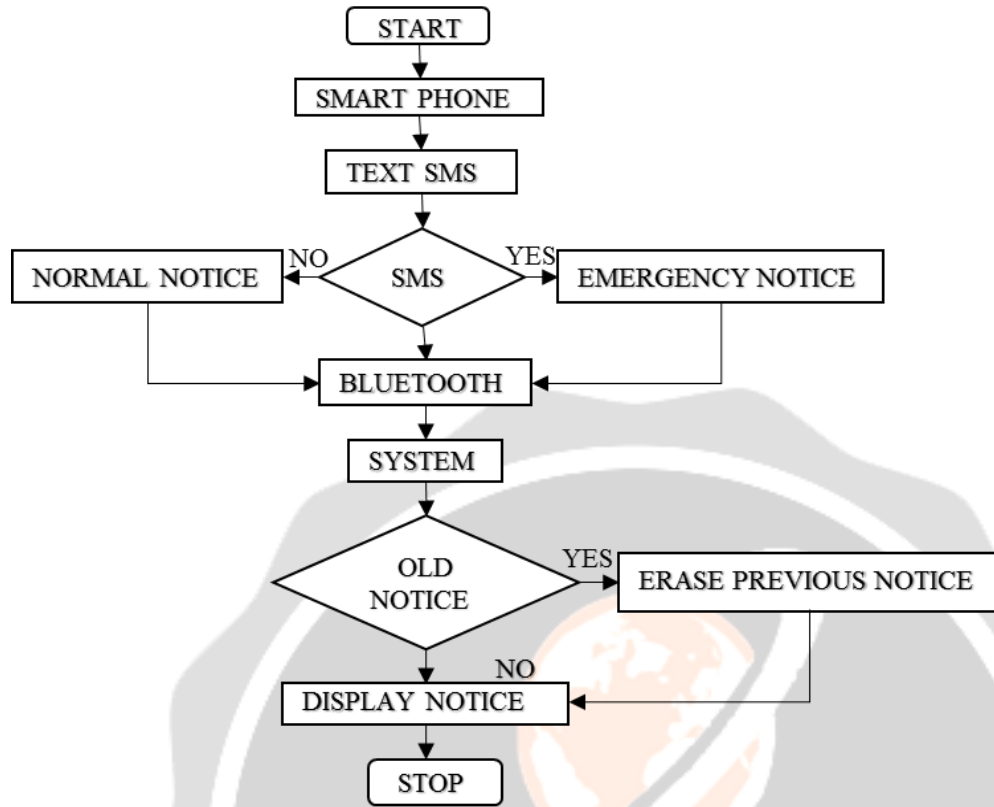


Fig.2.1 Methodology using flowchart

3. CIRCUIT DIAGRAM

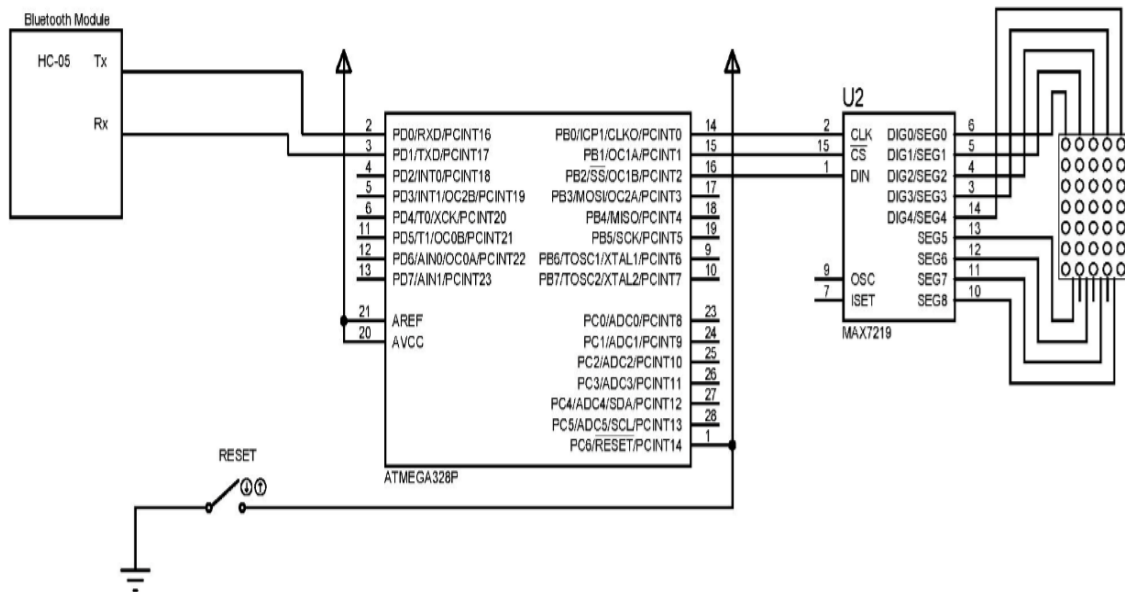


Fig 3.1: Circuit Diagram of Electronic Notice Board

#### 4. WORKING

- In this project, the power supply is given to the transformer, which is step down transfer.
- It convert 230V into 12V this is given to the power supply, which convert 12V to 5V.
- This 5V is given to the Microcontroller. The system is ON and waits for the message to display on the screen.
- To display the message. First the Bluetooth device paired with the electronic device with the help of password it is paired.
- The mobile contains the APP and the pairing we have to type the message and it is displayed on the LED display.
- The message keeps scrolling even after the Bluetooth connectivity is removed.

#### 5. COMPONENTS

- Microcontroller – ATMEGA328
- AT command supporting Bluetooth mobile phone
- Bluetooth module
- Arduino Board
- 8\*8 Maxmatrix display

#### 6. FUTURE SCOPE

- Multilingual display can be one of the added variations of the project. The display boards are one of the single most important media for information transfer to the maximum number of end users. This feature can be added by programming the micro-controller to use different encoding decoding schemes in different areas as per the local language. This will ensure the increase in the number of informed users.
- A commercial should be able to display more than one message at a time. Currently in our project, we are using onboard RAM memory to save a single message. To overcome this shortcoming we can interface an EEPROM to save messages. This not only allows more than one message to be displayed at a time but also allows us to retrieve messages from the EEPROM even after a power failure.
- A converter can also be added which will convert written message into speech and it can help the ones which cannot see. The notice would be announced for them with the help of these notice boards.

#### 7. APPLICATION

- **Educational Institutions and Organizations:**  
Currently we rely on putting up papers on notice boards to inform people of events. This method can be discarded by using wireless notice boards to display information in real time.
- **Crime Prevention:**  
Display boards put up on roads will display tips on public security, accident prevention, information on criminals on the run. The board will help flash messages such as vehicle thefts as and when they occur.
- **Managing Traffic:**  
In metropolitan cities, we frequently come across traffic jams. One way to avoid this would be inform people beforehand to take alternate routes. A wireless notice board serves well for this purpose.

➤ **Advertisement:**

In shopping malls, we get to hear the offers on various products from time to time. Instead, we continuously display the information regarding the products and related offers on electronic display boards.

➤ **Railway Station:**

Instead of announcing the delay in arrival of trains, we can display the information.

## 8. ADVANTAGES

➤ **User Friendly:**

Messages are only to be typed on a mobile or a computer, which in turn are display wireless on the display unit.

➤ **Eliminates Use of Printers:**

Since we don't use papers to display information, printers are also of no use in this system.

➤ **Echo Friendly:**

As no paper use, it helps in saving trees.

➤ **Faster Means of Transferring Information:**

There is no delay in transmission of information. Messages are displayed in a matter of seconds after typing.

## 9. RESULTS

➤ The use of microcontroller in place of a general-purpose computer allows us to theorize on many further improvements on this project prototype. Display during periods wherein no message buffers are empty is one such theoretical improvement that is very possible. The ideal state of the microcontroller is when the indices or storage space in the memory are empty and no new message is there to display.

➤ With the help of principles of Bluetooth technique, we can choose to simulcast and broadcast important notifications. After a display board receives the valid message through the MODEM and displays it, it withdraws its identification from the network & synchronously another nearby MODEM signs itself into the network and starts to receive the message. The message is broadcast by the mobile switching center for a continuous Time period during which as many possible display board MODEMS "catch" the message and display it as per the constraint of validation.

➤ The display board is one of the single most important media for information transfer to the maximum number of end users. This feature can be added by programming the microcontroller to use different encoding decoding schemes in different areas as per the local language. This will ensure the increase in the number of informed users.

## 10. CONCLUSION

➤ The project "electronic notice board" has been successfully designed and tested. The toolkit accepts the message stores it, validates it and then displays it in the LED screen. There is facility for displaying two messages at a time. The major constraint incorporated is the use of security code for start displaying message. Some limitations can be removed by the use of higher end microcontrollers and extended RAM. The prototype can be implemented using commercial display boards. In this case, it can solve the problem of instant information transfer in the most cases.

➤ Bluetooth system is the collaboration of software & hardware through which most of the complicity reduces, even systems size & cost also reduced. The Bluetooth based digital notice board system that we

have created has been in practical use in various companies like in construction companies and research areas, railways, colleges. This system can avoid paper work, reduces human effort usage in definite purpose areas.

- Now a days every advertisement is going to be digital. The big shops and shopping centers are using the digital moving displays now. This project can be used mainly for police or army to display something crucial within a matter of seconds. So keeping in mind we are designing a new display system which we can access remotely, thus utilizing digital technology.

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