

# Design and Implementation of Wireless Notice Board Using Wi-Fi

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**Abstract:** - The project is to be designed by using ARM-LPC2148 interfaced with LCD display. At present, when information has to be updated in a notice board, it has to be done manually. The main objective of this project is to introduce the developed wireless notice board on displays messages sent from the user by using Wi-Fi, 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 easy for updating the messages instantly. This system is enhanced to display the latest information through an Android application of smart phone or tablet by using messages.

**Keywords--** ARM (LPC2148), LCD, Wi-Fi Module, Android mobile.

## I. INTRODUCTION

In olden days, generally displaying messages or any notifications want to display notices means only one way i.e., directly pasting the things in institutions/railway stations/ bus stations, organizations, and public utilities. So, that it is wasting the unnecessary time.

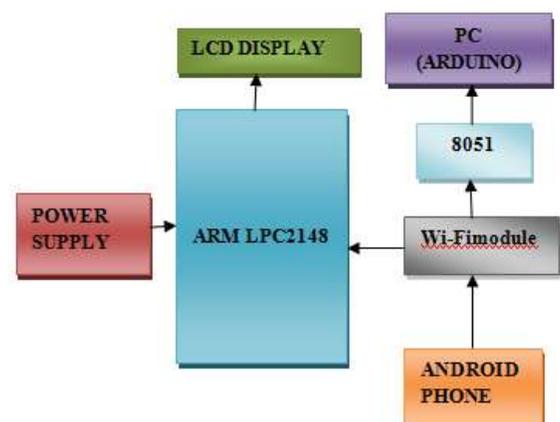
The main aim of the project is to develop a wireless notice board that displays notice when a message is sent by user's android applications device. It reduces the manual power and consumption of the time then remote operation is achieved by android phone(or) Tablet and PC etc. Whenever android OS is worked up on a (Graphical user interface) based on android touch screen operation. While the user sends the message from the android application device. It received and retrieved by the Wi-Fi through the ARM(LPC1248)to LCD display board.

The Wi-Fi is a generated one IP address will only be known to the user. It uses Arduino software to generate the IP address. We are already installing TCP/IP the terminal application in the user's android phone .when user's sent a message by using IP address in android phone through the Wi-Fi to the ARM control . The ARM controller which control data(or) message displays on the LCD notice board.

## II. PROPOSED SYSTEM

In a proposed system, when an authorized user sends a messages from a system/mobile is received by Wi-Fi receiver. After giving certain commands form Arduino software to the Wi-Fi module, it generates one IP address will only be known to the authorized user. Later an authorized user sends the message to Wi-Fi module finally these messages can be displayed in LCD displaying unit.

### A) Block diagram



**Fig 1: Block Diagram of wireless notice board**

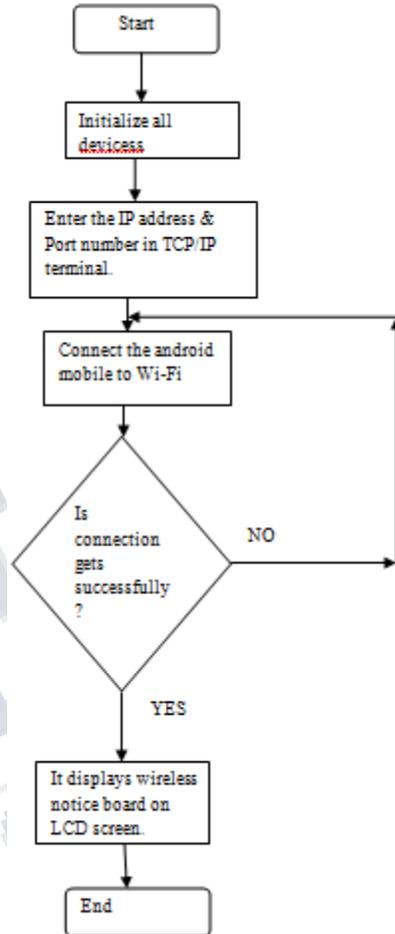
The above fig1 shows the block diagram of wireless notice board using Wi-Fi we are using LPC2148 which is an advanced RISC machine. It is a 32 bit controller which

follows von Neumann architecture. Wi-Fi interconnects to LPC2148 controller. It generates IP address with the help of Arduino software. By using android phone we can send the messages to notice board. Finally this message can displays in LCD displaying unit.

The project involves both hardware and software. Microcontroller LPC2148 is a heart of the project where it is used to control the whole system. With the help of Arduino software we can generate the IP address through Wi-Fi module. This IP address knows only to the authorizer user. We are giving the IP address and port number in the installed TCP/IP terminal application of user mobile.

After connection gets successfully we will send the message to the wireless notice board. Then, Wi-Fi receive s the message and it will displays in LCD displaying unit. This entire operation will controls by ARM 7 microcontroller.

**B) Flow Chart**



*fig2: Flow chart for wireless notice board.*

**C) APPLICATIONS**

- ❖ **Educational Institutions and Organizations:** Currently we depend on setting up papers on notification sheets to educate individuals of occasions. This strategy can be disposed of by utilizing remote notification loads up to show data continuously.
- ❖ **Crime Prevention:** Display blocks put on streets will show tips on open security, mischance anticipation, data on culprits on the run. The board will streak messages, for example, vehicle burglaries as and when they happen.
- ❖ **Managing Traffic:** In metropolitan urban areas we often run over car influxes. One approach to maintain a strategic distance from this would be educate

individuals in advance to take backup courses of action. A remote notification board fills well for this need.

- ❖ **Advertisement:** In shopping centres we get the opportunity to hear the offers on different items every once in a while. Rather we persistently show the data with respect to the items and related offers on electronic showcase sheets.
- ❖ **Railway Station:** Instead of declaring the postponement in landing of trains we can show the data.

#### D) Advantages

- ❖ High security.
- ❖ We can easily send the message and also we can modify the data at any required time.
- ❖ Without owner's permission no one can be send the message.

### III. RESULTS

The power supply is applied to the wireless notice board then LED indicates working condition of the board. Then Wi-Fi module pins of TXD& RXD are connected to the pins P3.0, P3.1 of 8051 microcontroller is as shown in fig3. Microcontroller board is connected to the PC through the RS-232 cable. With suitable commands open Aurdino software generated the Mobile IP address and port number is shown in below.

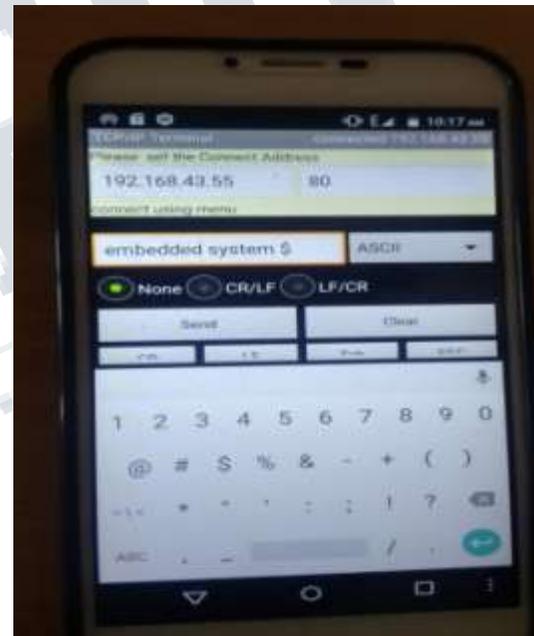


**Fig 3. Wi-Fi module interfacing with Microcontroller**

Function	AT Command
Working	AT
List Access points	AT+CWLAP
Join Access point	AT+CWJAP="SSID","Password"
Get IP Address	AT+CIFSR
TCP/IP Connection	AT+CIPMUX=1
Set as server	AT+CIPSERVER=<mode>[<port>]

**Table 1: commands giving to Aurdino software.**

The Wi-Fi pins TXD & RXD are connected to the port pins P0.8, P0.9 of ARM (LPC2148) microcontroller board. Open the installed TCP/IP Terminal and type the IP address and port number in the user android mobile is shown in below fig4.



**Fig 4: TCP/IP Terminal application.**



**Fig 5: Final output from wireless notice board.**

Then a message sent from the user android phone through the connected Wi-Fi module. The message has to end with “\$” symbol, otherwise error will display. Finally, the message “embedded system” displayed in the LCD is shown in fig6.

#### IV.CONCLUSION

As the technology is advancing every day the display board systems are moving from normal hand writing display to digital display. Further to wireless display units. This project develops a wireless notice board system with Wi-Fi connected to it, which displays the desired message developed by the user to send message in a most populated or crowded places. It is user friendly, long range and faster means of conveying information are major bolsters for this application. This proposed system has many upcoming applications in educational institutions and organizations, crime prevention, traffic management, railways, advertisements etc. By using this proposed methodology we can enhance the security system and also make awareness of the emergency situations and avoid many dangers.

#### V.FUTURE SCOPE

Currently only one message can be displayed at a time it is can be overcome by using many LCD'S to display different messages. Our prototype is mainly used for the text notice display the same concept can be used to display the image files or pdf's with the use of better wireless technologies than IOT.

This module added to a speaker and a real time clock. The speaker is used to announce the event of arrival of new information. An interrupt is generated every time a

message is received and a pre-recorded message is announced by the speaker. A real time clock runs within the system which records the timing detail of the messages received.

#### VI.ACKNOWLEDGEMENT

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