WIFI BASED DIGITAL NOTICE BOARD

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Abstract— The main aim of conducting this project is developing an advanced digital notice board using the Wi-Fi module. In this modern world everyone needs a comfortable life style. Man has researched different kind of technology for the sake of his life. In today's world of connectedness, people are becoming accustomed to easy access to information. Wired network connections such as Ethernet has various limitations depending on the need a type of connection one has. To overcome the limitations, the technology switches to Wireless communication. So the main aim of this project is to develop a wireless digital notice board that receives the message by the Wi-Fi module and displays the information sent by the user. Notice Board is the primary thing in any institution/ organization or public places like bus stations, railway stations and parks. This project deals about an advanced hi-tech Wi-Fi based notice board. The aim of this project is to design a simple, cost effective, user friendly and easy installation system which can receive the message through the Wi-Fi module and display it on the led display.

keywords— Wi-Fi module, android mobile, wireless communication, wired network, limitations

I. INTRODUCTION

The Wireless Display System (WDS) is aimed at the colleges and universities for displaying day-to-day information continuously or at regular intervals during the working hours. Being Wi-Fi-based system, it offers flexibility to display flash news or announcements faster than the programmable system. Wi-Fi-based campus display system can also be used at other public places like schools, hospitals, railway stations, gardens etc. without affecting the surrounding environment. The WDS mainly consists of a Wi-Fi receiver and a display toolkit which can be programmed from an authorized mobile phone. It receives the SMS, validates the sending Mobile Identification Number (MIN) and displays the desired information after necessary code conversion. It can serve as an electronic notice board and display the important notices instantaneously thus avoiding the latency. Being wireless, the Wi-Fi based WDS is easy to expand and allows the user to add more display units at any time and at any location in the campus depending on the requirement of the institute.

II. WORKING

In this project, there are two circuit transmitter and receiver. The transmitter side consists of android mobile in which the web application XGLED is installed. In receiver side, circuit mainly consists of 8051 family Microcontroller, switch mode power supply(SMPS), Wi-Fi module, LED module, LED control card, IDE cable, fuse etc. The 230v AC is provided as the input to the SMPS through the Fuse. The main purpose of providing the Fuse is to protect the circuit from the fault condition. The SMPS is a high quality power supply with a continuously variable stabilized output adjustable at any value between 0 and 30v DC. In this project the components like Wi-Fi module, LED module, microcontroller and LED control card require 5v each for their proper function. Hence, all these components are powered from the 5v pin of the SMPS. Here we are using five SMPS and five LED modules. Every LED module is powered from the individual SMPS. The Led modules and power supply circuits are connected through the IDE cable. Out of five LED modules, one module is

used for the display of time and other four modules are connected in series for the display of message sent by the user. A program is done to interface the Microcontroller with the Wi-Fi module. The program is done in such a way that first of all a communication medium is established between the transmitter circuit (android mobile) and Wi-Fi module. The user need to connect the mobile Wi-Fi with the Wi-Fi module present in the receiver section. When the password entered by the user is matched with the receiver section Wi-Fi module password, a safe and secure communication medium is established.

Whatever message the user wants to display in the notice board types in web application XGLED and send. Then the message is received by the Wi-Fi module present in the receiver section and stores in the memory of the microcontroller and display in the LED display board. The capacity of the microcontroller is that it can store the message up to 2000 letters.

III. FIGURES

3.1 BLOCK DIAGRAM
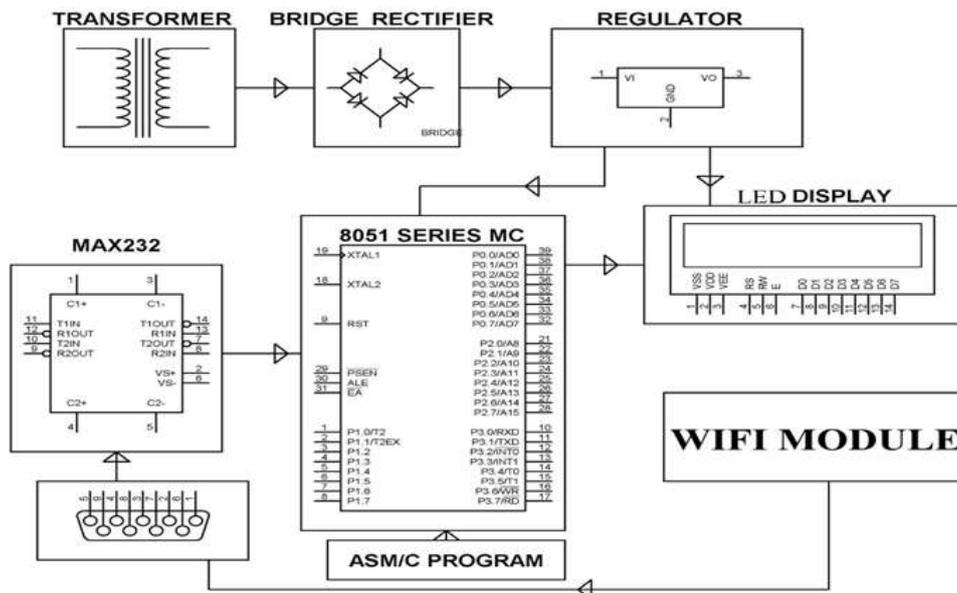
3.2 INTERNAL WIRING DIAGRAM
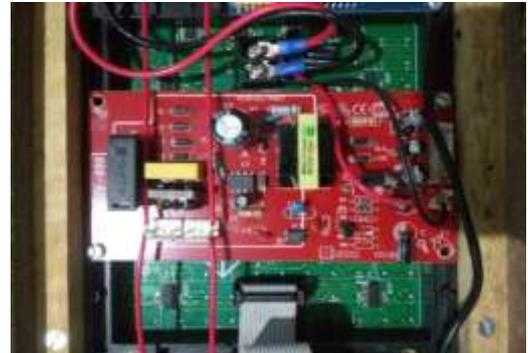
IV. RESULT

In this project we want to display the message on the notice board as our department and college name. For that first of all we have to enter the department name and college name in the application installed in the mobile phone. The message can be edited in the mobile application as show in the fig-a. Then we have to send the message. The led display board receive the message by the Wi-Fi module installed in the display board and display it. The output of the project which is the name of department and college has shown in fig-b.

Fig-a   Fig-b

V. FUTURE MODIFICATION

Scope of this project is very wide. Some future modifications are provided below: ☐ Changing sources the message from various at present the project is receiving the message from GUI based software on pc through RF connectivity. If Bluetooth module is interfaced with the microcontroller of this project and one application is written for Bluetooth enabled Smartphone, then any such phone having that app installed will be able to change the message on the display. If Wi-Fi module is interfaced with the microcontroller of this project and one application is written for Wi-Fi enabled PC PC/laptop, then any such PC having that app installed will be able to change the message on the display. GUI based software is already provided with the project, that is need to be run on PC/laptop. The message sending through email can be added to it. One just has to modify the software so that it can receive the emails. Once it receives the email that software will send the received email on the display with the RF connectivity which is already provided. Right now the project is having only one LED matrix, which is able to show messages in only one direction, but the casing of the display is made wider so that it can accommodate two LED matrixes. So anyone interested can make another matrix that can be placed in the casing of display on the opposite direction, which will enable the display to show messages on both the sides.

ADVANTAGE
- The electronic notice board is wireless and no need of wires for displaying the information on the LED display.
- It is very easy to operate and consumes less power
- The circuit of the wireless notice board is portable.

DISADVANTAGE
If receiver module range not available, then does not possible to communication between them.

APPLICATION
The applications of wireless notice board mainly include public places like bus stands, railway stations, airports, shopping malls and parks to display the information wirelessly.
This project is also used in organizations, schools and colleges.

VI. CONCLUSION

The prototype of the Wi-Fi based display toolkit was efficiently designed. This prototype has facilities to be integrated with a display board thus making it truly mobile. The toolkit accepts the SMS, stores it, validates it and then displays it in the LED module. The SMS is deleted from the software application each time it is read, thus making room for the next SMS. The major constraints incorporated are the use of '*' as the termination character of the SMS and the display of one SMS as a time. These 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 campus. principle of TDMA technique, we can choose to simulcast and /or 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.

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