

Digital Notice Board with Real Time Clock

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Abstract:- Scrolling led display boards are a common sight today. Most of the things are made to be digital. The usage of led scrolling display at super markets, shopping malls, bus stands, railway stations and educational institutes is becoming one of the effective mode of communication for providing necessary information to the people. But some of these units are inflexible in terms of updating the message instantly. If the person or the user wants to change the message it needs to be done using a computer at the particular location and hence the person needs to be present at the location where the display board is placed. It means the message cannot be updated from wherever or whenever. Also the display board cannot be moved to any other place because of complexity and delicate wiring.

In this paper we are discussing about a led sign board which provides the user to change the scrolling message using WiFi service instantaneously unlike dedicated device such as personal computer or laptop. The user can update it even from far away distant. It is a process wherein the display board need not to be reprogrammed to display a new message because it is wireless.

Keywords:- AT89C52 microcontroller, Wi-Fi module, 7×96 characters LED display, max232 serial interface.

I. INTRODUCTION

The overall idea of the project is wireless communication between a mobile phone and a display board using WiFi technology. This project combines advantages of AT89C52 microcontroller and WiFi technology to establish accurate communication system between the user and display board.

The administrator or the sender uses a simple Wi-Fi Module based handset for sending messages to display board. Wi-Fi module is used at the receiver side is used to receive the messages from sender. The received messages

is stored in the SIM of the modem in receiver end. By providing proper AT commands, those messages are read from the module and stored in the microcontroller. In order to decrease the power consumed by the module and to simplify the hardware complications and delicate wiring necessary to drive the LEDs, the design used to drive the LEDs is Multiplexing. In this technique, at the maximum of 30 LED's can glowing at any one time so the power required for display module is reduced.

II. RELATED WORK

First, In “Low cost, handled, wireless electronic notice board by using ATmega32 microcontroller” by Dharmendra Kumar Sharma and Vineet Tiwari, IEEE2015 13-17 october 2015, pp. 1- 4, 2015 [1]. This project aims at building handheld, cost effective, wireless electronic display board using Atmel's ATmega32 microcontroller for overall controlling activities and different wireless technologies like Bluetooth and ZigBee to establish the communication between the user and the display board. They used KS0108 based 128×64 graphical LCD to display the messages. Performance analysis is based on parameters such as range, BER(Bit Error Range). RSSI(Received signal strength indicator). Signal attenuation and power consumption. The microcontroller receives the information serially from wireless receiver module and display it on the LCD display.

In “Ethernet card based digital notice board” by Gowrishankar Kasilingam, Mritha Ramalingam and ChandraSekar(2014)(ISSN(print):09746846,ISSN(online):0974-5645),vol7(2)[2], pp 185-188 proposed development of Ethernet Card based digital notice board. The complete system would have a dual system in terms of changing message display, dual power supply switchable between solar power system and alternating current (AC) from the utility supply, and inbuilt motion detector that could automatically switch OFF the whole system after working hours and would automatically switch ON if any motion is sensed by the motion detector after the programmed working.

In “Android based digital notice board” by Neeraj Khera and Divya Shukla, IEEE 2016[3] . They developed low cost digital notice board using Arduino Uno at the receiver end. This system make use of either Bluetooth or Wi-Fi to establish serial communication, Android based application is used for Bluetooth and Wi-Fi connection. This application has two functions one is displaying the messages and in addition to that wireless calling is also implemented using Wi-Fi.

In “Ethernet card based LED display boards using AT89S52 microcontroller” by Rahul Kamboj and Preeti Abrol (2013)[4] . They developed a multiple LED display boards based on Ethernet Card using AT89S52 microcontroller, Ethernet Card modules and moving LED displays. One or more LED displays are connected via different Ethernet Card Modules from different locations so that the same message is displayed on all the LED boards, With few limitations, This project is proven to be less cost, efficient as well as secured comparing with previous works. Using the concepts of wireless technology with Ethernet Card we can make the communication faster, with more efficiency. We can display the messages with less errors and maintenance.

III. METHODOLOGY

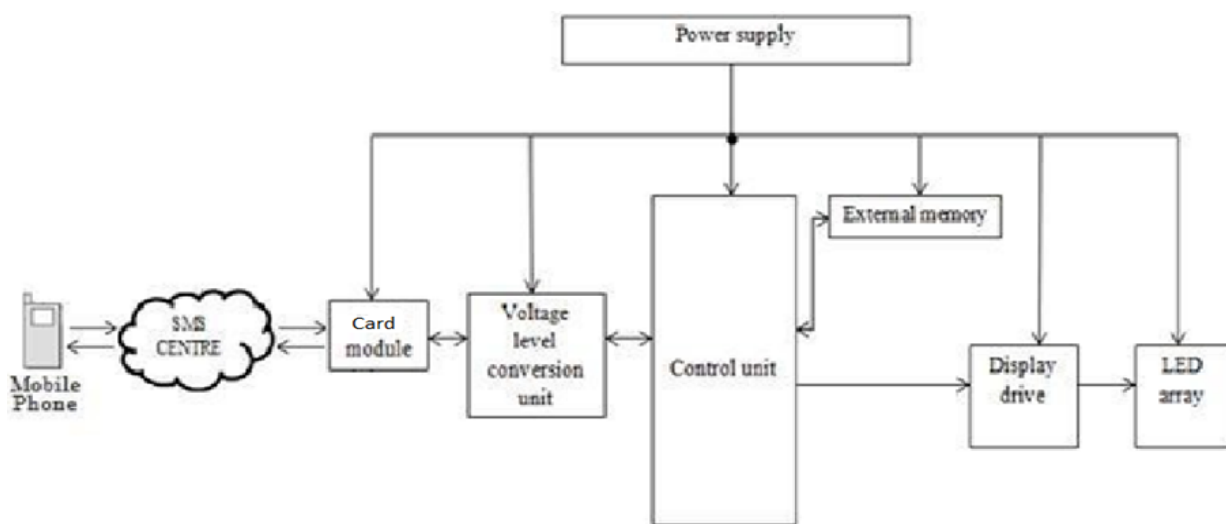


Fig 1:- System Architecture

Fig 1 explains the basic block diagram of digital notice board using real time clock the LEDs are driven using the design called multiplexing to reduce the overall power consumption of the module. The module mainly works in 4 steps-

- User sends message to using an application
- WiFi module in the receiver side receives the messages
- The messages are stored in SIM of the modem
- By issuing proper AT commands messages are stored in microcontroller
- Received messages are displayed on the led board

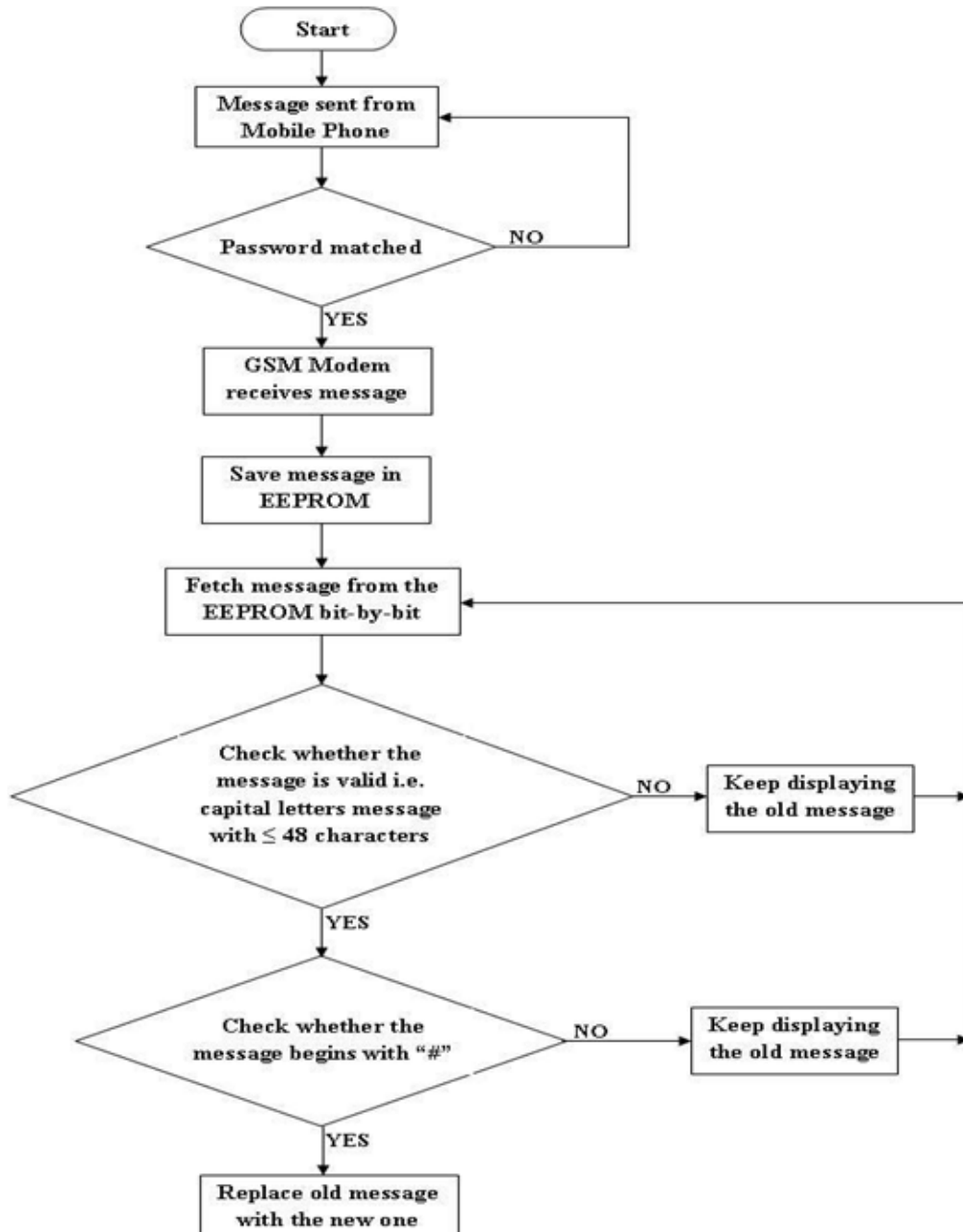


Fig 2:- Data flow diagram

IV. WORKING

The WiFi module receives the SMS from the authorized transmitter of the user it may be mobile phone or computer, stores the received message in SIM(Subscriber Identity Module) in the modem, The Wi-Fi module responds by requesting a confirmation SMS. The Wi-Fi module has a different voltage level from that of the control unit. by providing proper AT commands the messages stored in SIM are transferred to the microcontroller, the microcontroller validates the sender’s Mobile Identification Number (MIN) and displays the sent information on an LED board which serves as the display board. The main components that are used includes AT89C52 microcontroller, Wi-Fi module, 7×96 characters LED display arranged in matrix configuration, max232

serial interface,(EEROM) electrically erasable programmable read-only.

V. CONCLUSION

The proposed systems removes most of the drawbacks of already available notice boards in the market, As most of the things going online these days digital notice boards effectively replaces the traditionally followed notice boards, digital notice makes mass announcements s easier, faster, efficient and also can be displayed again and again without much wastage of energy with greater efficiency with low errors and less maintenance cost. This system can be used in educational institutes, work areas, bus and railway station, weather forecast, stadiums, commercial centers and also for the personal uses.

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