Password Protected and Multiuser Wireless Electronic Noticing Using GSM

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Abstract— **Notice board is a one of the primary thing in any where such as organization or public utility places like railway stations, bus stop, public transport time tables, exhibition centre. But day by day sending the various types of notices is a difficult process. This paper deals with the SMS based password protected and multiuser smart notice board using GSM. This system provides information in an innovative and smart way. It fabricated with an LCD. The communication and information transfer between the authentic user and the LCD display unit is done via GSM to insure remote display facilities, so any notice can be displayed on the notice board from the user's mobile SMS from distant places. Several notices are display simultaneously. In addition, the user can print any notice which is of concern to them. The total system is designed with simple logic with a robust algorithm and fabricated with a PIC midrange microcontroller, LCD, GSM module and other commercially available electronic device to ensure efficiency and reliability with less cost.**

Index Terms- **Digital notice board, Electronic notice, GSM, LCD, Microcontroller, Mobile phone.**

I. INTRODUCTION

Notice board are an important medium for displaying information and keeping people informed. The traditional analog notice boards are usually made up of cork, timber or aluminium. This involves the pinning up of printed or hand written information on a board. But this has disadvantages of dependency for on a person for pinning up notices and wastage of paper. Person are always needed to change any notice or originate a new one. Also, multiple people gather, struggle and cluster in front malicious intensions of any persons can manipulate remove or perish paper notices attached in a board, other leaving people are uniform. This traditional notice board often get dirty, having wear and tear on notice board quite inconvenient for users. These is also an unregulated display of information, difficulty in storage. If the board are placed in busy places eg. near entrance or exit points, then a busy person does not get enough time and scope to access and read all the information posted on a notice board. It become more problematic when no digital printout is possible. This paper deals with an attempt to efficiently overcome the shortcoming of traditional notice boards. Here a system is developed for a smart electronic noticed board using SMS- base wireless technology along with secured password protection. Due to the password protection only authentic user are display any notice on the notice board. Due to the wireless system whenever and wherever the user is, they can just type what information they want to be a provide on a mobile phone and just press the send button. The message will be sent to the board and displayed. Due to the wireless system it is very convenient to display the notice on notice board. Now a day almost all Electronic notice boards are designed using a wired system. One of the drawback of the system is inflexible in terms of placement because of the messy wires [7]. Since the proposed system is wireless this problem is overcome. Wireless notice board is a means of wireless data transfer for quick display of message in real time. This system is user-friendly authenticated person display the message at notice boards situated at different locations through a single SMS from the mobile phone. Thereby it eliminates the wastage of paper and ensures the immediate transfer of information. In proposed system information can be displayed page by page and expired notices can be stored in the database for long time. In addition, people can print out multiple copies of any posted notices. So it can be concluded that the proposed system can be used successfully in traditional Schools and Colleges, Factory Production Areas, Hospitals, Waiting Rooms, Company Reception Areas, Public Transport Timetables, Art Galleries etc. without error and maintenance.

II. SYSTEM DESCRIPTION

Figure 1 shows the overall block diagram of the system. It shows how an effective and reliable communication between a mobile phone and a microcontroller is established by using a GSM modem. The system consist of two modules:-Transmitter unit and Receiver unit. Transmitter unit means simply our mobile phone. First start our mobile phone then go to the message option then we get one password protected text here the password is put and type information which they want to provide and then simply press the send button. This information then transmitted using RF (Radio Frequency) technology to the receiver unit. It is then decoded and displaced on an electronic notice board.
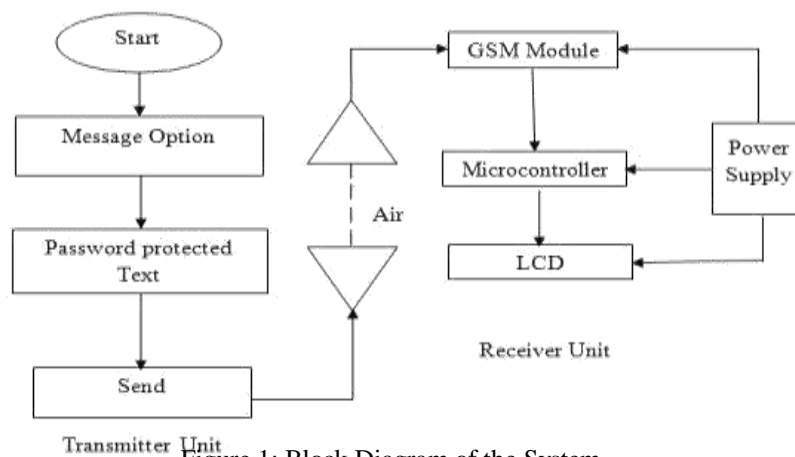
Figure 1: Block Diagram of the System

The PIC microcontroller is the heart of the proposed system. The microcontroller is interfaced with the GSM modem. A 20*4 character LCD display is attached to the microcontroller to display the message as notices and notifications. The message are displayed on the notice board until any new message are comes. When new message are come then they will trash the old message automatically. Multiple users are authorized to update notices on the electronic notice board by providing password and sending an SMS from their mobile [7].

I.   *Power supply/Adapter*

The power supply of the system is design specially. Power supply is the source of electrical power. Normally any electronic circuit uses +5 V DC power for its regular working. User can directly built +5 V DC power supply using 4 diodes, filer, capacitors and regulator IC. 7805 (Integrated Circuit) or can directly purchase a +5 V DC power adopter from the local market. The system is run by the main power system which is placed adjacent to the digital notice board. O the system doesn't need costly battery circuitry. A rectifier converters the main supply power to the system operating level.
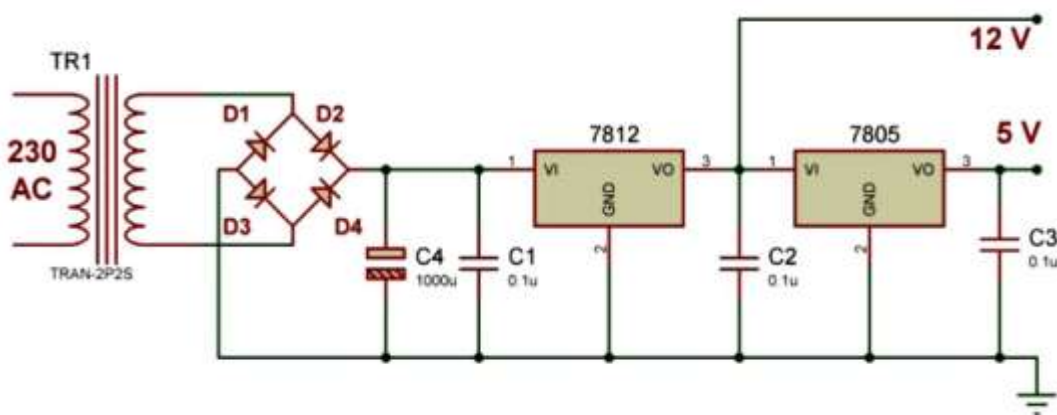

Figure 2: System Power Supply Unit

II.   *AT commands for Transmission or Reception of SMS*

Basically AT commands are used as the control instructions of the modem. To control the dial-up modem or the GSM/GPRS modem several AT command is used to return to the online data state, ATD is used to dial. These commands are also supported by the mobile phones. The message or information which is stored to the subscriber identity module (SIM) can be read by appropriate AT commands also. GSM/GPRS modems support some additional AT commands for same purposes side by side the standard AT commands. To read message or information via the SIM by the computer, mobile phones or GPRS/GSM modem should support two AT commands: +CMGR (this command is used to read information or message through the PC at a specific location of the storage) and +CMGL (This command is used to list messages, to read messages that have specific status in storage like stored unsent, stored sent, received read, received unread). The +CMGL AT command is used to cover messages from the storage section. To active short message service (SMS), an authentic SIM should be used in the mobile phone or GPRS/GSM

modem, and to connect to the computer. Table 1 show some AT commands which are used in the system for writing, sending, reading, status checking and others .

Table -1: Some AT Commands Used in GSM Data Transfer Module of the System

AT Command	Description
+CMGC	Sending the command
+CMGS	To send message/information
+CMMS	Additional SMS to send
+CMGW	To write message/information
+CMGD	To delete messages/information
+CMSS	Send message from storage
+CMGI	Module testing

III.   Central Processing Unit

A PIC 16F73 microcontroller has been chosen as the central microprocessor unit of this system. It is a 28-pin DIP IC .It has a program Memory of 4096 bytes (Single Word Instructions), Data SRAM of 192 bytes, 22 I/O ports, 11 Interrupt pins, five 8-bit A/D channels, two timer 8 bit, one timer 16 bit, Operating Frequency DC-20 MHz, FLASH Program Memory 4k (14 bite words) and instruction set of 35 instructions. Basically its low cost and commercial availability make it attractive as the main processing unit. Moreover, all necessary peripherals are already built into it, saving time, space and cost. Sometimes analog circuitry with different control approach can be used for the information processing; however for the simplicity microcontroller is recommended for this system.

IV.   LCD Display

A liquid crystal display (LCD) is a thin, flat display device made up of any number of color or monochrome pixels arrayed in front of a light source or reflector. Each pixel consists of a column of liquid crystal molecules suspended between two transparent electrodes, and two polarizing filters, the axes of polarity of which are perpendicular to each other. Without the liquid crystals between them, light passing through one would be blocked by the other. The liquid crystal twists the polarization of light entering one filter to allow it to pass through the other [3].

Figure 3: Picture of LCD

II.   ADVANTAGES

i)   It can reduce use of papers.
ii)   It can reduce physical effort of printing and distributing paper based notices.
iii)   If large screen display is used it can spread among more people in laser time.
iv)   Using GSM mobile we can send message to any distant, locations from any part of the world.
v)   As it's a GSM wireless transmission system it has very less errors.
vi)   No printing and photocopying costs thus saves time.

III. RESULT

Figure 4: Smart Notice Board

The message "YOU ARE WELCOME" displayed in the LCD display of the system is shown in Figure 4.

VI. CONCLUSION

The project "Password Protected and Multiuser Wireless Electronic Noticing Using GSM" has been successfully completed. Due to password protection this is strictly maintained the security which makes it user friendly. This proposed system works very effectively. If viewers are in hurry they can store the notice by printing. The project is very cost efficient, marketable and the components used are very simple and easily available in the market.

VII. FUTURE SCOPE

i)   20*4 LCD display can be replaced by other LCD's which can display more character according to the need.
ii)   Currently only one message can be displayed on one time this can be overcome by using more LCD displays for more messages.
iii)   It can display more than one message alternately.

VIII. ACKNOWLEDGEMENT

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