

Wireless Electronic LCD Notice Board Using GSM Technology

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Abstract- Notice Board is a primary thing in any institution / organization or public places like bus stations, railway stations, schools, universities and parks. But pasting various notices day-to-day is a difficult task. A person is required to take care of these notices display.

The GSM technology was initially developed in Europe which depicts protocol for second generation of cellular communication system that has gradually advanced over the years. GSM system has evolved as a replacement for first generation analog cellular networks. The advanced architecture and services of GSM has made it ideal for third generation cellular systems. Meanwhile, today GSM has been widely used for calling and SMS messages. In schools and various institutes, notices has been displayed using manual notice board and different traditional methods has been developed in the past. Competing with today's scenario, there is a need of real time notice display. This paper proposes a GSM based wireless electronic notice board system which can replace the current programmable electronic display. It is about to write the message in a cellphone and send it as SMS which is displayed on the LCD display. [1], [8]

Keywords- GSM Modem, LCD display, 8051 microcontroller, MAX232, wireless, notice board, SMS

I. INTRODUCTION

This project is an implementation to the concept of the wireless communication between a mobile phone and a microcontroller. Wireless technology is the future of all types of communications. We wish to control everything without moving an inch. GSM (Global System for Mobile Communication) is globally accessed by more than 200 countries. GSM is optimized for duplex voice telephony. GSM, initially developed as an alternative for first generation (1G) technology, has now been upgraded up to fourth generation (4G) and in some countries fifth generation (5G) technology.

With the help of microcontroller, GSM MODEM could be further used for some of very innovative applications including, GSM based home security devices, GSM based robots, GSM based DC motor controller, GSM based stepper motor controller, GSM based voting machine control etc.[2]

A. GSM Modem

Just like a dial up modem, a GSM modem is a wireless modem. It works with GSM wireless network. The difference between a dial-up modem and a wireless modem is, wireless modem transmits and receives data through radio waves whereas dial-up modem transmits and receives data through a fixed telephony line.



It works on frequency ranges 850/900/1800/1900 MHz It works well for SMS, voice calls and data transfer applications. [2]

B. Micro-controller

Microcontroller- It is a small computer on a single integrated circuit containing a processor, memory, and programmable I/O peripherals.

Due to its unsophisticated design and less price, microcontroller is adopted for various fields including automobiles, medical science applications, defense, engineering and industrial use, energy management and a lot of other domains. [3]

C. MAX 232 Level convertor

The MAX232 is a dual driver/receiver that includes a capacitive voltage generator to supply EIA-232 voltage levels

from a single 5-V supply. EIA- 232 inputs levels are converted to 5-V TTL/CMOS levels. TTL/CMOS input levels are converted into EIA-232 levels by all the drivers.[3]

II. BASIC FUNCTIONS OF E-NOTICE BOARD

- A. GSM modem captures SMS messages sent by the user through a mobile phone.
- B. The user is required to send SMS messages to the SIM number of card inserted in the GSM modem.
- C. The SMS is received by GSM modem and is processed in order to forward the message (data) to the microcontroller.

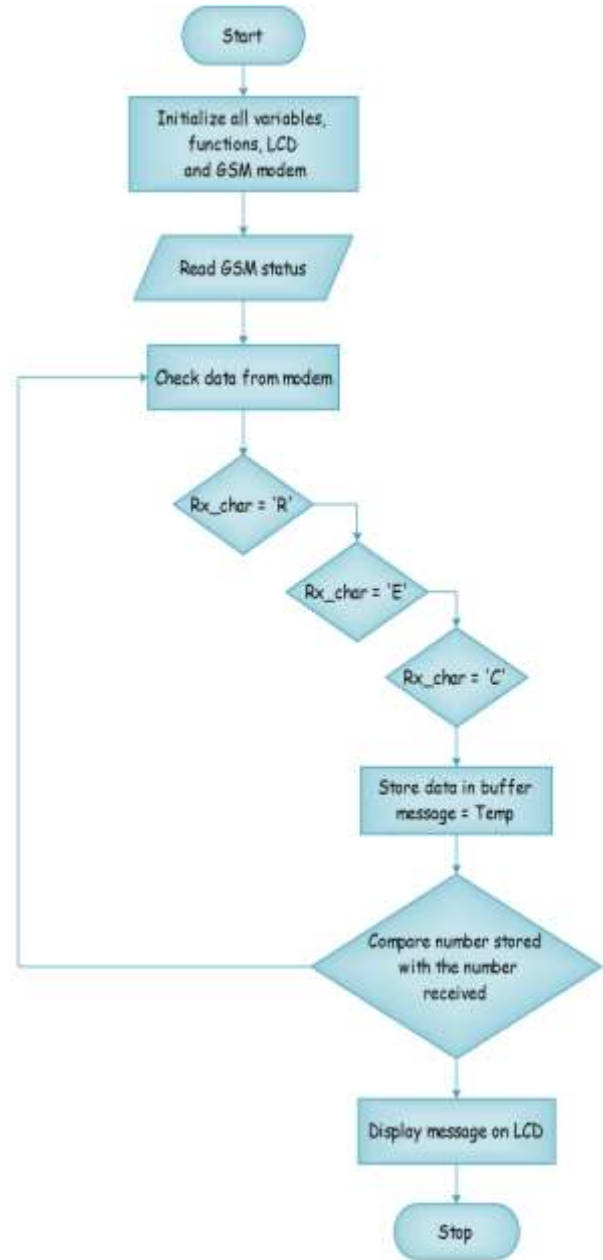


- D. Once the message is received from the GSM modem, it is then sent to the microcontroller which processes this data.
- E. The microcontroller grabs out the SMS message body text and then it is displayed on the LCD screen interfaced to the microcontroller. [1], [4]

III. WORKING

This project uses a GSM modem duly interfaced to a microcontroller through a DB9 cord, and a MAX-232 IC is interfaced to the microcontroller. On giving a missed call to the modem SIM number, the caller number gets stored in the microcontroller for further communication to that very number only. This gives a security feature to the system. GSM modem receives the message from the number which was earlier stored in the microcontroller memory and the message is finally displayed on the LCD display. [1], [4]

IV. FLOW CHART



V. CONCLUSION

This model can be used very efficiently in establishments like chain restaurants where the orders and special discounts can be displayed at all the branches at the same time, in colleges where students and staffs can be informed simultaneously in no time.

It can also be set up at public transport places like railways, bus stations, airports and also at roadside for controlling the traffic and in emergency situations. It is economical system and very easy to handle. Use of papers in displaying of notices is avoided. The information can only be updated by the authorized persons.

VI. FUTURE SCOPES

A. In this project we are sending messages over a GSM network and displaying it on a LCD by the use of AT (ATtention) commands.

B. The same technique can be applied to control electrical appliances at distant locations.

C. Robots can be controlled in a similar manner by sending the commands to the robots. This technique can be used for spy bots at distant locations, utilized by the defence organizations to monitor the movement of enemy troops.

D. Alphanumeric LCDs have limitations on size as well as number of characters. These can be replaced with large LED displays which are not only eye catching but display characters in a moving fashion one after the other.[6]

VII. ADVANTAGES & LIMITATIONS

A. ADVANTAGES

1. Messages can be sent from remote areas.
2. Paper & Stationary cost will be saved.
3. Since it is GSM based, it can be used for distant transmissions.
4. Messages are delivered accurately in no time.

B. LIMITATIONS

1. Network failure will restrict the transmission of messages.
2. It is costly as compared to manual notice board.

VIII. APPLICATIONS

1. In educational institutions.
2. In traffic controlling.
3. In shopping malls and public places etc.

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