Wireless Electronic Notice Board Using GSM Module

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Abstract- In this proposed system the idea of wireless Digital electronic Notice Board Using GSM Technology has been presented. So our main aim to reduce paper work and time. In this paper we are fully trying to implement our system in such a way that it can display message from authorize user sends to GSM module which located on the electronic notice board. So in short, the GSM module which is locate at Digital electronic notice board receives the message from authorized user and displayed on electronic notice board which is situated at remote location, at same time this message will be sent to different user mobile numbers that are stored in microcontroller memory. So spreading of important message or notices will be takes place within very short span of time to respective mobile no's. Means user or registere person can able to send the message from anywhere and this message is displayed on LED display.

Key Words: GSM Modem, 8051 Microcontroller, IC level Shifter, LED Display.

1. Introduction

GSM – A digital mobile telephony system, which globally accessed by more than 213 countries and territories. Global system for mobile communication is completely optimize for full duplex voice telephony. Initially developed for replacement of first generation (1G) technology, now GSM is available with lots of salient feature with the constant up gradation of third generation (3G) technology.

Now-a-days advertisement is going to digital. The big shops and the shopping center use digital displays now. Also, in trains and bus the information like platform number, ticket information is displayed in digital electronic board. People are now adapted to the idea of the world at its finger-tip. The use of mobile phones have increased drastically over years. Control and communication has become important in all the part of the world.

This gave us the idea to use mobile phone to receive message and then display it on an electronic notice board. The GSM technology is used in this project. GSM stand for Global System for Mobile Communication. Due to this international roaming capability of GSM, we can send message to receiver from any place of the world. It has the system for SMS Short Message Service.

This project is a remote notice board with a GSM modem at the receiver end. So if the user want to display any message, he can send the information by SMS and thus update the LED display accordingly [1].

So overcome such issue we are going to make "Wireless Electronic Notice Board using GSM System" is useful in college, industries, hospital, organizations etc. This is wireless module which send messages wirelessly with the help of GSM module. Means user or registere person can able to send the message from anywhere and this message is displayed on LED display. In addition this message also send to everyone whose user number store in memory. Everyone gets the message personally. Whenever new message is received it is given indication by buzzer. As engineer's main aim is to make life simple with help of technology, this is one important step to simplify real time noticing.

2. PROPOSED SYSTEM

In this proposed system the messages send from authorized user to GSM module which located on the electronic notice board. So this GSM module receive the message and displayed on electronic notice board, at same time this message will be send different mobile numbers store in memory of microcontroller. When new message is arrived at electronic notice board than the buzzer will beep. Max232 shift the level of signals which convert the signal between the microcontroller and GSM module. After the conversion of signal this message will be displayed on electronic notice board..
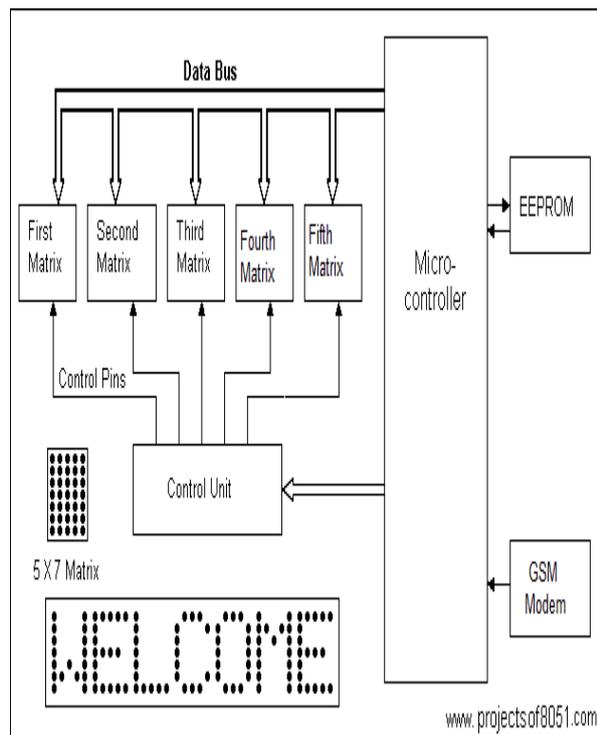
Fig -1: Block Diagram of Proposed System

Experimental Work

- Write the programs to the wireless electronic notice board by using keil software
- Now burn the program in the microcontroller with the help of the flash magic.
- Give the connection according to the circuit diagram.
- Use power supply circuits to provide 5Vol. DC to the microcontroller,
- Insert the SIM in the GSM module.
- Now switch on the power supply
- Send SMS to GSM module using other mobile
- Now you can see the same message on LED Board.

2.1 HARDWARE MODULE

GSM Based Digital Notice Board has following block:

1. Microcontroller 8051

2. Power Supply

3. Level Converter MAX 232

4. GSM MODEM

2.1.1. Micro-controller board:

It is low-power and high-performance CMOS 8-bit microcomputer with 8K bytes of Flash Programmable and Erasable Read Only Memory (EROM). The device is manufactured by using Atmel's high-density nonvolatile memory technology and compatible with the MCS-52™ instruction set and pin out. The on-chip Flash allow the program memory to be reprogramme in-system or by a con-ventional nonvolatile memory programmer. By combining a versatile 8-bit CPU with Flash on a monolithic chip, the Atmel micro-controller is powerful microcomputer, which provide a highly flexible and cost effective solution so many embedded control application.

The Intel 8051 is an 8-bit microcontroller which mean that most available operations are limited to the 8 bits. There are 3 basic "size" of the 8051:

1. Short

2. Standard

3. Extended

The Short and Standard chip are often available in DIP (dual in-line package) form, but the Extended 8051 model often have a different form factor, and are not "drop-in compatible". All these thing are called 8051 because they can all programmed using 8051 assembly language, and they all share certain feature.

2.1.2 Power Supply:

For our project we require + 5 Volt and +12 Volts supply. +5 Volt is given to Micro-controller board, and LED display. +12 Volts are used for the GSM MODEM.

2.1.3 Level converter MAX 232:

The MAX232 is an integrate circuit which is first created in 1987 by Maxim Integrated Product that convert signal from a TIA-232 (RS-232) serial port to signal suitable for use in TTL-compatible digital logic circuit. The MAX232 is a dual transmitter / dual receiver that typically is used to convert the RX, TX, CTS, RTS signal.

The drivers provide TIA-232 voltage level output (about ±7.5 volts) from a single 5-volt supply by on-chip charge pumps and external capacitor. This makes it useful for implementing TIA-232 in

devices\ that otherwise do not need any other voltage.

The receiver reduce TIA-232 inputs, which may be as high as ±25 volts, to standard 5v TTL level. These receivers have a typical threshold of 1.3 volt and a typical hysteresis of 0.5 volt.

The MAX232 replaced by an older pair of chips MC1488 and MC1489 that performe similar RS-232 translation. The MC1488 quad transmitter chip require 12 volt and -12 volt power, and MC1489 quad receiver chip required 5v power.

2.1.4 GSM Modem:

A GSM modem is a wireless modem that work with a GSM wireless network. A wireless modem behave like a dial-up modem. The main difference between them is that a dial-up modem send and receive data through a fixed telephone line while a wireless modem send and receives data through radio wave. Like a GSM mobile phone, a GSM modem require a SIM card from a wireless carrier in order to operate. A GSM modem can an external unit or a PCMCIA card (also called PC Card). An external GSM modem is connecte to a PC through a serial cable, a USB cable, Bluetooth or Infrared. Like a GSM mobile phone, a GSM modem require a SIM card from a wireless carrier in order to operate. PC's use AT commands to control a GSM modem.

GSM sim 300 Modem can accept any GSM network operate any SIM card and act just like a mobile phone with its own unique phone number. Advantage of using this modem will be that you can use its RS232 port to communicate and develop embedded application. Applications like SMS Control, data transfer, remote control and logging can be develope easily. The modem can either be connecte to PC serial port directly or to any microcontroller. It can be use to send and receive SMS or make/receive voice call. It can also be used in GPRS mode to connect to the internet and do many application for data logging and control. In GPRS mode you can also connect to any remote FTP server and upload file for data logging. This GSM modem is a highly flexible plug and play quad band GSM modem for direct and easy integration to RS232 application. Support features like Voice, SMS, Data/Fax, GPRS and integrated TCP/IP stack.

3. Conclusion

The display board are one of the major communications medium for mass media. Local language can be add as a variation in this project. This can be achieved by using graphics and other decoding technique. Also we realize that this project save time and energy and hence environment. Cost of printing and photocopying is also reduce as information can be given to a large number of people from our fingertip. Thus we can conclude that this project is just a start and an idea to make use of GSM in communications to a next level.

4. FUTURE SCOPE:

Temperature display during periods where in no message buffer are empty is one such theoretical improvement that is well possible. Another very interesting and significant improvement would be to accommodate multiple receiver MODEM at different positions in the geographical area carrying duplicate SIM card. Multilingual display can another added variation in the project. We can able to store messages for long time by using memory card.

REFERENCES

[1] Pawan Kumar, Vikas Bhardwaj, Narayan Sing Rathor, Amit Mishra, GSM Based Electronic Notice Board:Wireless Communication. ISSN: 2231-2307, Volume-2, Issue-3, July 2012

[2] Prachee U. Ketkar, Kunal P. Tayade, Akash P. Kulkarni, Rajkishor M. Tugnayat: " GSM Mobile Phone Based LED Scrolling Messages Display System", International Journal of Scientific Engineering and Technology Volume 2 Issue 3; PP : 149-155