

SMS Based Wireless Digital Notice Board

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Abstract:-- Notice board is primary thing in any institution or public utility places like bus stop, railway station or parks. At present when information has to be updated in notice board it has to be done manually. This project deals with advanced notice board. It presents an SMS based notice board incorporating the widely used GSM to facilitate communication of displaying message on notice board via user's mobile phone. Its operation is based on microcontroller ATmega328 programmed in c language. So in short GSM module which is located at digital notice board receives the messages from authorized users and displayed on notice board .Hence user or registered person can be able to send the message from any location.

Index Terms— proposed system, Block diagram, GSM technique

I. INTRODUCTION

In the last couple of decades, communication technology has developed by leaps and bounds. The use of “Embedded System in Communication” has given rise to many interesting applications. Everything around us is becoming smart such as smart phones, smart refrigerators, so why not smart notice boards. At present, when information has to be updated in a notice board, it has to be done manually. To change message on display, it needs to change microcontroller program code again. GSM – a digital mobile telephony system, which is globally accessed by more than 212 countries and territories. Global system for mobile communication is completely optimized for full duplex voice telephony. Initially developed for the replacement of first generation (1G) technology, now GSM is available with lots of salient features with the constant up gradation of third generation (3G) technology. By adding GSM wireless communication interface to this system, we can make.

Wireless digital notice board to overcome these limitations. So we have interfaced GSM Modem with microcontroller and implemented a SMS transmission and reception technique.

The message on display is easily changed by sending SMS to it. Wireless notice board is a means of wireless data transfer for quick display of messages in real time. GSM based display system can be used at other public places like schools, hospitals, railway stations, colleges, banks etc. This system is easy, robust, to use in normal life by anyone at maintenance. Main function of SMS based wireless digital notice board

- ◆ Sending message from any of the remote area to the distant located e-notice board using GSM mobile.
- ◆ For sending the text message from remote area we need to interface the mobile phone with GSM Modem

II. PROPOSED SYSTEM

In this proposed system the message send from authorized user to GSM module which is located on the notice board. This project deals with advanced notice board. Its operation is based on microcontroller ATmega328 programmed in assembly language. A GSM modem with a SIM card is interfaced to the Rx,Tx pins of the microcontroller with the help of AT commands. So this GSM module receives the message and displayed on notice board, at same time this message will be send different mobile number store in memory of microcontroller. When new message is arrived at notice board than the buzzer will beep. Max232 shift the level of signal which converts the signal between the microcontroller and GSM module. After the conversion of signal this message will be displayed on notice board.

A. Block Diagram of Proposed System

Block Diagram for SMS based wireless digital notice board is shown in fig1. Essential components for assembling GSM based applications including:

- i. GSM MODEM
- ii. Microcontroller (ATmega328)
- iii. Power Supply or Power Adapter
- iv. LCD
- v. RTC module
- vi. Buzzer Driver
- vii. Buzzer

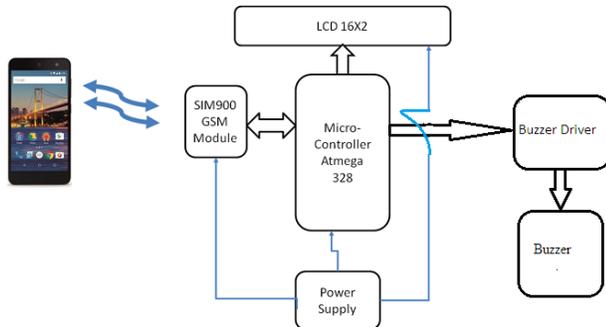


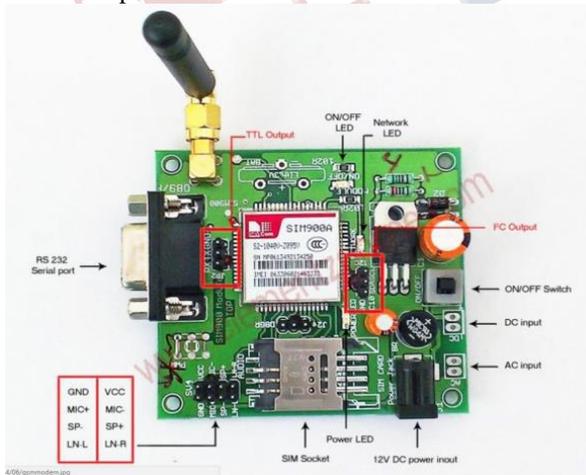
Fig 1. Block Diagram of proposed system

B. Block Diagram Description

i. GSM modem:

A GSM modem is a wireless modem that works with a GSM wireless network. A wireless modem behaves like a dial-up modem. The main difference between them is that a dial-up modem sends and receives data through a fixed telephone line while a wireless modem sends and receives data through radio waves. Like a GSM mobile phone, a GSM modem requires a SIM card from a wireless carrier in order to operate.

A GSM modem can be an external unit or a PCMCIA card (also called PC Card). An external GSM modem is connected to a PC through a serial cable, a USB cable, Bluetooth or Infrared. Like a GSM mobile phone, a GSM modem requires a SIM card from a wireless carrier in order to operate.



ii. Microcontroller:

Specially designed for performing single task, is a computer-on-a-chip usually comprises of I/O ports, RAM, ROM and also CPU. Due to simplicity in design and pocket friendly prices, microcontroller is widely adopted for various fields including automobiles, medical science, defence, domestic applications, industrial use, energy management and lots more domains. In addition to this, microcontrollers are commonly built using CMOS (Complementary-Metal Oxide Semiconductor) technology resulting optimum performance with the least consumption of power. Due to performing only single dedicated task, latency of the task is fast and more reliable.

iii. Power Supply/Power Adaptor:

Power supply is the source of electrical power. Normally we use +5V DC power for regular working of almost any electronic circuit. User can directly built +5V DC power supply using 4 diodes, filter capacitors and regulator IC - 7805 (Integrated Circuit) or can directly purchase a +5V DC power adaptor from the local market

iv. LCD:

Liquid crystal display is an electronic device for displaying text or characters. We are using 14 pins LCD and the description is as follows:

Pin 7 to Pin 14 – All 8 pins are responsible for the transfer of data.

Pin 4 – This is RS i.e. register select pin.

Pin 5 – This is R/W i.e. Read/Write pin.

Pin 6 – This is E i.e. Enable pin.

Pin 2 – This is VDD i.e. power supply pin.

Pin 1 – This is VSS i.e. ground pin.

Pin 3 – This is intensity control pin.

v. RTC module:

A real time clock is basically just like a watch - it runs on a battery and keeps time even when there is a power failure. Using an RTC, it is possible to keep track of long timelines, even if microcontroller is reprogrammed or disconnected from serial bus or a power plug. Most microcontrollers, including the Arduino, have a built-in time keeper called millis and there are also timers built into the chip that can keep track of longer time periods like minutes or days. Well, the biggest reason is that millis only keeps track of time since the

Arduino was last powered. That means that when the power is turned on, the millisecond timer is set back to 0. The clock/calendar provides seconds, minutes, hours, day, date, month, and year information. The end of the month date is automatically adjusted for months with fewer than 31 days, including corrections for leap year. The clock operates in either the 24-hour or 12-hour format with AM/PM indicator.



vi. Buzzer Driver :

Output signal from micro-controller Atmega328 is weak so we have to amplify that signal. Buzzer driver block i.e. amplifier block amplifies the signal for driving the Buzzer. For amplification Transistor BC 547 is used.

vii. Buzzer:

In this project we are using Buzzer as output device. When SMS is received then Buzzer turns ON for some time. Again when SMS is read then Buzzer Turns On for some time. Again when SMS is deleted then Buzzer turns on for some time.

III.CONCLUSION

The notice boards are one of the communication medium for mass media. By realizing this project we can save time, energy and hence environment. Hence this project report explains how we can develop GSM based digital notice board. This notice board can be used for displaying any urgent notice. The project is very cost efficient and marketable and components used are very simple and easily available in market. We believe that our project can become commercial and can be used in places such as colleges, banks, railway stations etc. Finally we conclude that this project being based on the widely used

GSM technology has further scope for future development and research and can be modified according to its application.

IV. FUTURE SCOPE

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

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