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Wireless Electronic Notice Board

Samidha Agrawal, Monika Prasad, Shantanu Chandankhede, S. Nihal Kashyap*

Department of Electronics and Communication Engineering, Shri Ramdeobaba College of Engineering and management, Nagpur, Maharashtra, India.

***Corresponding Author:** S. Nihal Kashyap, Department of Electronics and Communication Engineering, Shri Ramdeobaba College of Engineering and management, Nagpur, Maharashtra, India.*

ABSTRACT

The notice board in today's scenario is mostly paper based. In this project we have tried to come up with an advancement of a notice board where we can place some notice on the board whenever nessacary. This is done by using a mobile communication from the user's phone to the notice board. In order to make the notice board capable of receiving a mobile message we have used a GSM module with the display system which will act as the notice board.

Keywords: *GSM, Arduino uno, LCD display, message.*

INTRODUCTION

Nowadays a lot of environmental wastage is happening in order to notify someone be it at some public places or some important meetings. Electronic notice board is a common type of a device used for major notification purposes these days with advancements in the technology. The information is displayed in the LCD which will be the display system of the board. Message to be sent will be either already present in the memory unit of the LCD or sent by some other mobile to the GSM interfaced with the LCD. The mobile sending the message will need an authorization for the same sending of the message. The Atmel Microcontroller will be the sole Processing unit of the system which will be controlling the flow of messages or signals to or from the GSM and the LCD.

OBJECTIVES

- The main objective of our notice board will be that the user should be able to notify the person needed whenever necessary rather than displaying it with paper every time.
- Although the mobile communication has played its role in such cases our main objective is the replacement of the public notice boards (like the college notice boards) be replaced by this type of notice board system in order to save time and paper.
- To increase the efficiency of the message to be sent by reusability of the same notice board which will also handle the cost factor

LITERATURE SURVEY

- In Ref [1], this project presents a way to interface GSM module with microcontroller At89c51 without making use of computer to send AT commands to the module. Instead of using Hyper Terminal or any other PC interface, the controller itself sends a fixed AT command to the GSM/GPRS module.
- In Ref [2], Keyboard is used as the main Component and send the message to microcontroller via serial port to the particular Notice Board.
- In Ref [3], Visual Basic 6.0 software is used which contains GUI to handle the records of the authorized users and is linked to the database. GSM Modem then communicates via RS232 interface.
- In Ref [4], the GSM Modem can also be used in GPRS mode to connect to internet and do many applications for data login and control. It used in various software such as BaseCom AVR etc.

ABOUT THE PROJECT

The electronic notice board basically works on the basis of the GSM communication that is TDMA communication system. The basic principal is that

the GSM will receive the information from the authorized mobile user and display it on the LCD.

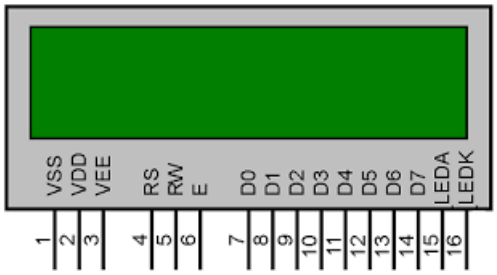
Global System For Mobile Communication

GSM basically is a system which uses TDMA technique for the purpose of communication. GSM services follow ISDN guidelines and basically provide telephonic services or data services. Data services include computer to computer communication and packet switching traffic. From the user's point of view one of the most significant feature of the GSM system is the Subscriber Identity Module commonly called as SIM. Every user has his or her own SIM number used for the identification purpose. The second remarkable feature of the GSM is the on air privacy of the communication which is provided by the system itself.

Every carrier or GSM equipment manufacturer must agree upon the Memorandum of Understanding (MoU) before developing the equipment or deploying a GSM based communication system. In this project the GSM module SIM900 is used. This module has an antenna attached to it and requires a 12V adapter to work. The SIM900 delivers GSM/GPRS 850/900/1800/1900MHz for voice, data, SMS and Fax in a small factor form with low power consumption. We are using a 2G SIM for the purpose of communication.

Liquid Crystal Display

In our project we are using basic LCD (2x16) display. The basic LCD requires 3 control lines as well as 4 or 8 I/O lines for the data bus. The user may select whether the LCD is to operate with a 4-bit data bus or an 8-bit data bus. If a 4-bit data bus is used the LCD will require a total of 7 data lines (3 control lines plus the 4 lines for the data bus). If an 8-bit data bus is used the LCD will require a total of 11 data lines (3 control lines plus the 8 lines for the data bus). The pin configuration of the LCD we are using is as shown.



Microcontroller and the development board

The microcontroller we are using here is ATMEGA328p. It has an 8kb of flash memory and a 32 kb of memory. It also has 1kb of EPROM and 2kb of SRAM manufactured by ATMEL. This microcontroller has 28 pins and 6 analog inputs, a 16MHZ quartz crystal with operating voltage of 5V. the basic motive behind using this microcontroller specifically is its low power consumption and advance architecture of RISC. We are using basically a development board for the purpose of uploading programs and interfacing the blocks with the controller in order to make it user friendly. The Development board used here is Arduino Uno board. The board has fourteen digital input output pins out of which 6 can be used for PWM outputs. It consists of 16 MHZ crystal, a USB interface, a Power interface as well for serving multiple purposes.

FUTURE SCOPE

- Robots can be controlled in a similar fashion by sending commands to the robots. This can be used for spy robots at distant locations, utilized by the military to monitor movement of the enemy troops.
- Currently farmers have to manually put on or off pumps, drippers etc. using electric switches.

Using the principle of AT commands we can put on or off these appliances remotely.

- 3.16x2 LCD display can be replaced by jumbo LCDs which can display more characters according to the need.

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