

GSM MODULE INTERFACING WITH 8051 FOR DISPLAY BOARD APPLICATION

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ABSTRACT

The Project deals with an innovating manner of intimating the message to the people using GSM Module Interfacing With 8051 For Display Board Application. This will help us in passing any message almost immediately without any delay just by sending a SMS which is better and more reliable than the old traditional way of the passing the message on display board. This proposed technology can be used in may public places, malls or big buildings to enhance the security system and also make awareness of the emergency situation and avoid many dangers. Using various AT commands is used to display the message onto the display board. GSM technology is used to control the display board and far conveying the information through a message sent from authenticated user.

I. INTRODUCTION

The importance of placing display board in institutions or organizations and public utility places like airports, bus station and railway stations to display and pass information can never be overemphasized.

The main aim of this project is to design a SMS driven automatic display board which can replace the currently used programmed electronic display and conventional display boards. The whole process can be described from the block diagram in figure . The GSM technology is used in this project. GSM stands for Global System for Mobile Communication. Due to this international roaming capability of GSM, we can send message to receive from any part of world. It has the system for SIM stands for Short Message Service. The display board which can replace the currently used conventional wooden boards in most universities .the display message from the user's mobile. When a user sends a message from his mobile phone, it is received by a SIM loaded GSM modem is interfaced to the control unit to receive messages from the user. The message received is send to the microcontroller that further displays it on board display unit interfaced to a microcontroller. the receiver receives the data coming from the transmitter

and the same data will be receiver end. The microcontroller sends this data to the display unit and thus the message given by the user at the transmitter end will be displayed.

This model is applicable in:

- Educational institutions and organizations
- Traffic management
- Public utility places like bus stations, railway stations, parks, airport etc.
- Advertisements

II. SYSTEM REQUIREMENT AND ARCHITECTURE

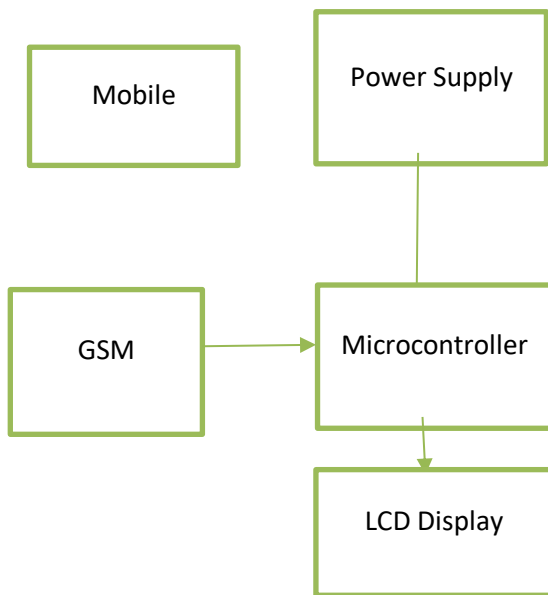


Fig (1.1)Block diagram of Gsm module interfacing with 8051 for display board application .

The block diagram of the display board using microcontroller and wireless module The GSM module used consists of a SIM card of same number. The message transmitted by any number to the number is received and saved in the memory of the SIM card. This module works with the AT commands. The RxD and TxD pins of this GSM module are connect to the TxD and RxD of the microcontroller respectively so that the information (here message) is transmitted. The message received by GSM is retrieved by the microcontroller by using suitable AT command. The message is transferred to display notice board when the is displaying 'WELCOME'.

The main components of this research work include:

- Microcontroller
- GSM modem
- Power supply
- LCD Display

1. Microcontroller

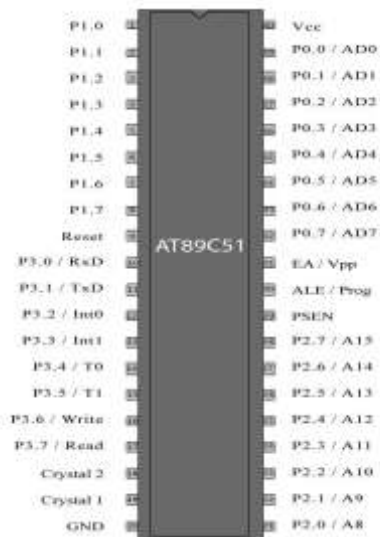


Fig (1.2) Microcontroller

A Microcontroller can be considered a self-contained system with a processor, memory and peripherals and can be used as an embedded system. The majority of Microcontrollers in use today are embedded in other machinery, such as automobiles, telephones, appliances, and peripherals for computer system.

Features of Microcontroller

- 1) The 89c51 is compatible with MCS 51 family.
- 2) It has 8bit data bus and 8bit (arithmetic logic unit).
- 3) It has 4k byte of on chip reprogrammable flash memory.
- 4) It supported three level program memory lock.
- 5) It has 16 bit of address bus and 64kb of RAM (random access memory) and ROM (read only memory).

2. GSM Modem



Fig(1.3) GSM Modem

GSM(Global System for Mobile Communications), together with the transmission of SMS (Short Message Service). It operates at either the 900 MHz or 1800 MHz frequency band. Since many GSM network operators have roaming agreement with foreign operators user can often continue to use their mobile phones when they travel to other countries Using this modem, you can make audio calls, SMS, read SMS; attend the incoming calls and internet through simple AT commands.

With the extended AT commands, one can do things like:

- 1) Reading, writing and deleting SMS messages
- 2) Monitoring the signal strength
- 3) Sending SMS messages
- 4) Monitoring the charging status and charge level of the battery
- 5) Reading, writing and searching phone book entries.

3. LCD Display



Fig (1.4)LCD Display

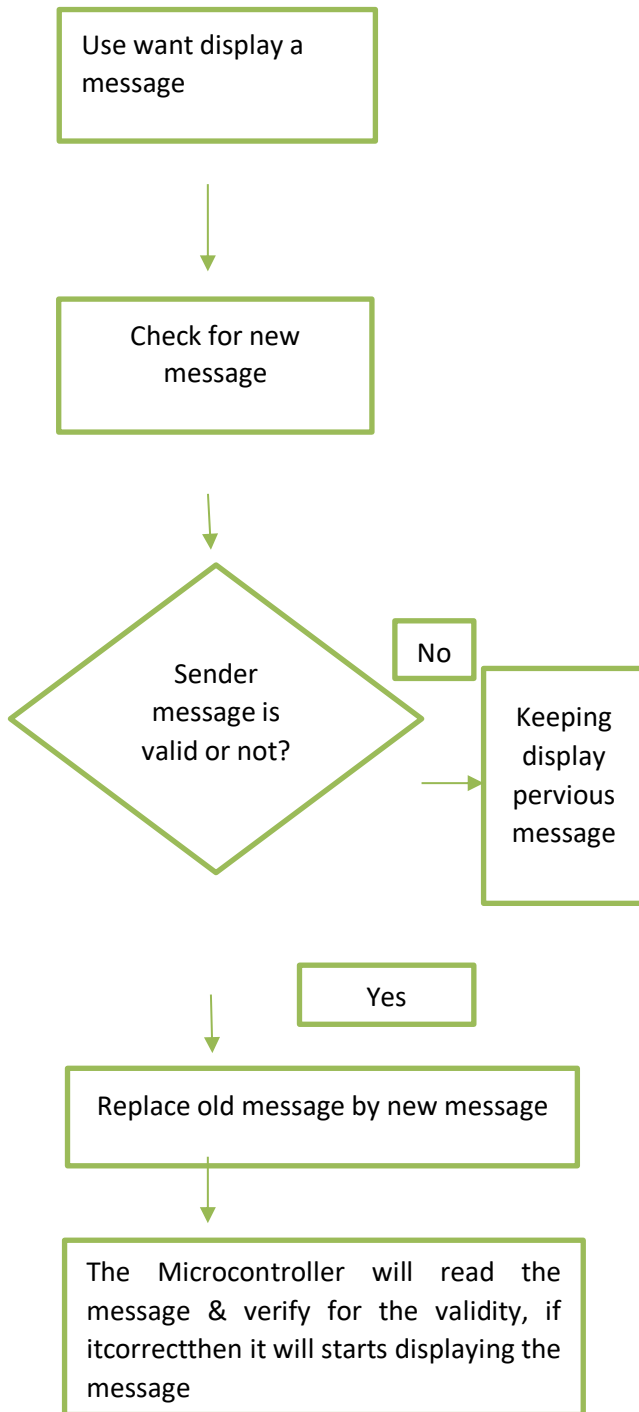
The power consumption is very much lower when comparing to the LED and LCD screen because it is working on the principle of blocking light better than dissipating. The definition of LCD is derived from the word "Liquid Crystal". Liquid crystals use backlight or reflectors to produce the images by not emitting the light directly. It is the grouping of two states of matter the solid and the liquid .The common devices like computer monitors, DVD, Laptops, digital watches are made up of LCD. In this proposed system the LCD has been used for displaying the validation message in the display board.

III. DESIGN ALGORITHM AND FLOWCHART ALGORITHM

The algorithm for the designed system is as follow:

- 1) Start: Use want display a message & check a new message.
- 2) Initialize the Microcontroller: In this step the Microcontroller gets initialized and waits for the notice
- 3) Send message through the mobilephone: This step includes the sending of message through any general mobile phone.
- 4) Wait for the message to be received: The modem of the circuit waits for the message to be arrived for displaying it.
- 5) Display the message on the LCD: after receiving the message proper code conversion, the message is displayed on both the LCD screen.
- 6) Wait for the new notice to be arrived: In this step the old notice is displayed on LCD and it waits for the new notice.
- 7) The microcontroller will read the message and verify for the validity, if it is correct then it is will start displaying the message

FLOWCHART



Fig(1.5) Flowchart

IV. PROTEUS DESIGN

The Kei land Proteus simulation result are as follows:

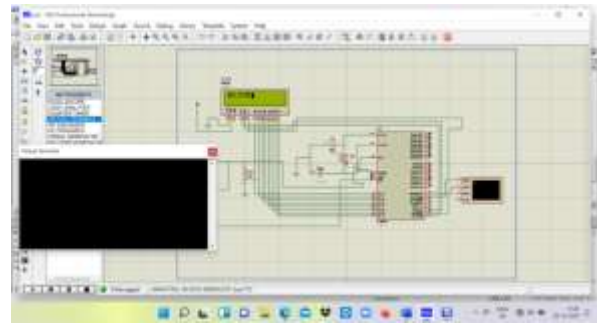


Fig (1.6) Proteus design

V. RESULT

The main concept of this project is to design a Display board using Microcontroller and wireless module. Various notices sent from the mobile phone. When a mobile user sends information from his mobile, it is received by a SIM slot, which is integrated into a GSM modem at the receiver end.



Fig (1.7) Hardware Design

VI. CONCLUSION

The display boards are one of the most important media for transferring information to the

maximum number of end users. With the advancement in technology the display board system are migrating from normal hand written display to digital display. Further to wireless display units. The concept of this system is to introduce a new technology for notice board display system, which displays the desired message of the user through an SMS in most populated or crowded places or remote places.

VII. REFERENCES

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