

A BASIC RESEARCH ON GSM BASED SECURED ADVERTISING SYSTEM

*N.S.MURTHI SARMA, N.S.N.LAKSHMIPATHI RAJU, T.V.JANARDHAN RAO, B.DEVI
VARA PRASAD, B.V.V. SATYANARAYANA, N.PHANI KUMAR*

**Department Of Electronics And Communication Engineering
Bonam Venkata Chalamayya Engineering College
Odalarevu, 533210, Andhara Pradesh, India**

ABSTRACT

The proposed basic research is on exploiting of LED display with the useful messages via sms to sim embedded in design circuitry is proposed. The keil software c programming is carried out for the support of the hardware. The proposed work has ample of application potency in public places that includes even colleges, hospitals etc. This hardware is secured in terms of security. This proposed unit is not just exploited by any intruder. Aware of message format and used sim number are prerequisites. Hence, it is difficult to tamper the display.

Key words: LED, sim, design circuitry, application potency.

1.Introduction

The aim of the task is to display the advertising on LED panel by using GSM technology .The purpose of this project is to display advertising on the LED panel by sending a simple message (SMS) to the GSM modem to a particular number from anywhere and display on the LED panel. In this project we are using GSM[2,3] modem for communication and LED panel for advertising. The GSM operates in the 900MHz and 1.8GHz bands GSM supports data transfer speeds of up to 9.6 kbps, allowing the transmission of basic data services such as SMS. The project constitutes a microcontroller, GSM modem & LED panel. The particular 3 person needs to send a SMS to the GSM modem. The GSM modem will be received by the SMS it will send the information to the microcontroller, the controller converts the received message and it will display message on the LED panel. By using this project we can send a SMS

from anywhere to the GSM modem and we can display the advertisement On the LED panel. The work finds its potency at applications such as modernization of railway station platforms, advertising flexes in the shopping malls, Remote operation of the display via messaging, Wireless scrolling message electronic display board, even at public places such as colleges, offices, hospitals etc. Also, this have an issue of signal coverage, because the work is based on GSM technology for that one require need a sim.

The hard ware of GSM based advertising system using LED panel constituted by Power supply, micro controller LPC 2148[1], real time clock in order to show the time and date , GSM Modem[4]. Also, this is supported by a kit along with SIM called sim300, key pad, buzzer used for indicating message is received. This task requires an operating voltage for ARM controller board is 12V. This is very basic issue solved by using LM 7805 a three terminal regulator. ARM controller is of 16-bit/32-bit ARM7TDMI-S microcontroller in a tiny LQFP64 package. Except the LED panels, the cost of the project is highly economical. Though Expensive, LED is for logner life time as low power consumption. This will become a good transferring tool of messages quickly and create awareness of any situation in the public.

Global system for mobile communication (GSM) is a globally accepted standard for digital cellular communication. GSM is the name of a standardization group established in 1982 to create a common European mobile telephone standard that would formulate specifications for a pan-European

mobile cellular radio system operating at 900 MHz. It is estimated that many countries outside of Europe will join the GSM partnership. The involvement of this in the present work is as follow.

A GSM modem can be either of the two types. Firstly an external modem device, such as the Wavecom FASTRACK Modem. Secondly this may be a PC Card installed in a notebook computer, such as the Nokia Card Phone. In this work external Modem is used. To insert or Remove the SIM Card, it is necessary to press the SIM holder ejector button with Sharp edged object like a pen or a needle. With this, the SIM holder comes out a little, then pulls it out and insert or remove the SIM Card. GSM Smart Modem is connected to the external antenna with cable end with SMA male. The Frequency of the antenna may be GSM 900/1800 MHz. The antenna may be (0 dBi, 3 dBi or short length L-type antenna) as per the field conditions and signal conditions.

A. Connecting GSM Modem to external device of the hard ware

RS232 can be used to connect to the external device through the D-SUB/ USB (for USB model only) device that is provided in the modem. The interfaces include The modem comprises several interfaces such as ,LED Function including operating Status, External antenna (via SMA), Serial and control link , Power Supply (Via 2 pin Phoenix [™] contact) and a SIM card holder .

The LED will indicate different status of the modem. If it is in off condition, indicates modem at switched off state. If it is ON, indicates Moddem is connecting to network. If It is flashing slowly, indicates modelm at idle model. If it is flashing radpidly, indicates mdl is in transmission communication (GSM Only). The protective measures are of four fold. Firstly, Modem should be free from extreme conditions such as High temperatures, direct sunlight, High Humidity, Rain, Chemicals, Water, Dust etc. Secondly, Drop, Shake or hit the Modem will make it malfunctioning. (Warranty may void). Care also essential that the Modem should not be used in extreme vibrating conditions besides Handling the Antenna and cable with care.

C Light Emitting Display

A LED display consists of two glass panels, with the liquid crystal material sand witched in between them. The inner surface of the glass plates are coated with transparent electrodes which define the character,

symbols or patterns to be displayed polymeric layers are present in between the electrodes and the liquid crystal, which makes the liquid crystal molecules to maintain a defined orientation angle[3].

The LCD can display a character successfully by two tasks. Firstly caring data in data register. Secondly checking Command in Command Register of LCD. The LCDs used exclusively in watches, calculators and measuring instruments are the simple seven-segment displays, having a limited amount of numeric data. The recent advances in technology have resulted in better legibility, more information displaying capability and a wider temperature range. These have resulted in the LCDs being extensively used in telecommunications and entertainment electronics.

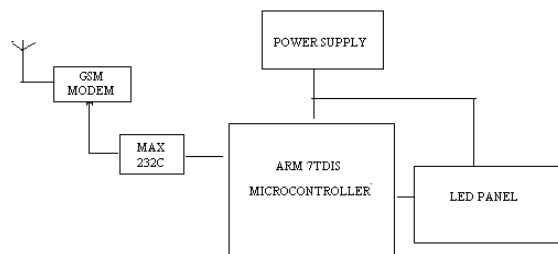


FIGURE 1. BLOCK DIAGRAM OF HARDWARE

In this proposed work, the LED is used to display the instantaneous information.[6-10] The information may be prompting or alerting or instructing the user. Though this is a display the significance and urgency of the message that must be reached to the viewers plays a key role.

D. GSM Based LED Display

For remote data entry, wireless controls to display any desired information, data, message, news flash, natural hazard warning etc. conveniently by SMS from a Mobile Phone, or a PC to any location throughout the whole World, wherever the GSM network is available. Displays controlled via GSM/CDMA Modems connected to computer at Control room. GSM/GPRS Based Display Wireless Communication includes features such as Dual Band Module (900/1800 MHz) GSM with Class 10 GPRS, Complaint With ETSI GSM Phase 2+ specification, Supports Text and PDU mode, GSM 07.05 and 07.07 AT Command, RS 232 Port Voltage Level: 5V , Input Voltag ranging from: 5 to 32 V DC (With Reverse connection protection) and Current of 5mA in Ideal mode and 150 mA in Communication mode.

E. Software used in this work

It is possible to create the source files in a text editor such as Notepad, run the Compiler on each C source file, specifying a list of controls, run the Assembler on each Assembler source file, specifying another list of controls, run either the Library Manager or Linker (again specifying a list of controls) and finally running the Object-HEX Converter to convert the Linker output file to an Intel Hex File. Once that has been completed the Hex File can be downloaded to the target hardware and debugged. The simulator/ debugger in KEIL, a software originated by software Engineering group of keil university, kiel of Germany[5], can perform a very detailed simulation of a micro controller along with external signals. It is possible to view the precise execution time of a single assembly instruction, or a single line of C code, all the way up to the entire application, simply by entering the crystal frequency. A window can be opened for each peripheral on the device, showing the state of the peripheral.



Figure2: Hard ware assembly unit containing GSM sim

2. Out Line Of Algorithm

a. Require fucniton void led_display_clear(unsigned char *t1);

b. Used the variables unsigned char b[110],i,panel_f,f2; unsigned char c[100],n,flag,f1;

unsigned char k,numr[15],loc;

c. PANEL ISR

d. GSM ISR

e. Main function is to display the information.

3. Results And Discussion

The results embedded in this research are evolved the hard ware developed by the research crew. Fig.2 shows after initializing the led panel and verifying the GSM module the system is ready to receive the SMS. The Figure.3 shows the status of the display after receiving the message from the system Figure1. This indicates several conventional components to realize the proposed task. The message is via an sms to the sim enclosed in Fig.2. The task carried out is co-ordinating the components for obtaining task through an algorithm. Though the proposed work seems to be simple and usable, : This hard ware assembly is not just used by any intruder. User should aware of message format and used sim number.

4. Conclusion

The proposed design in this paper has been successfully tested. Integrating features of all the hardware components used have developed it. Presence of every module has been reasoned out and placed carefully thus contributing to the best working of the unit. Secondly, using highly advanced IC's and with the help of growing technology the task has been successfully implemented. The proposed work has ample of application potency in public places that includes even colleges, hospitals etc. Except the LED panels, the cost of the project is highly economical. Though Expensive, LED is for logner life time as low power consumption. This will become a good transferring tool of messages quickly and create awareness of any situation in the public. Moreover, this hardware is secured in terms of security. Unless user is exposed, it is difficult to tamper the display.



Figure 3.Response of the LED Panel

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References

1. M. A. Mazidi, J. C. Mazidi, R. D. Mckinaly, *The 8051 Microcontroller and Embedded Systems*, Pearson Education, 2006

2. Lawrence Harte, Bruce Bramley, Mike Davis, "Introduction to GSM", Althos Publishing, 2nd ed, 2012.

3. Raj, S.V., "Implementation of pervasive computing based high-secure smart home system", *IEEE International Conference on Computational Intelligence & Computing Research (ICCIC)*, Page(s): 1 - 8

4. Mghawish, AAbdelQader, A.A. ; Al-Jezawi, M.A. ; AbuMahfouz, M. "Multi function control system using GSM modem based SM5100B Module", *International Conferece For Internet Technology*

And Secured Transactions, 2012 , Page(s): 515 – 518, 2012

5. Fittkau, F. ; Frey, S. ; Hasselbring, W., "CDOSim: Simulating cloud deployment options for software migration support", *IEEE 6th International Workshop on the Maintenance and Evolution of Service-Oriented and Cloud-Based Systems (MESOCA)*, P,37-46, 2012
Supporting Citations

6 <http://www.alldatasheet.com>

7 <http://www.mathworks.com>

8. <http://www.garmin.com/products/gps35>

9 <http://www.national.com/ds/LM/LM35.pdf>

10. http://www.nxp.com/documents/user_manual/UM139.pdf